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Errata

Page 54, para 2:

"...that age can impact clinical outcome" *should be* "...that age can impact on clinical outcomes."

Page 118, para 2:

"medicaiiy" *should be* "medically"

Page 131, para 1:

"...in used in only...." *should be* "...in use in only...."

Formulating a philosophy of just care for the geriatric
population amid the opportunities of modern medicine

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ABSTRACT

In the setting of finite resources, a soaring elderly population, and an abundance of medical technologies, numerous strategies for health care allocation abound. A vast majority of these strategies deny health care to the elderly based solely on patient age as a treatment criterion. I have identified and analyzed a selection of allocation strategies in an effort to evaluate their performance in the context of equity. I have concluded that strategies that rely upon health-related variables to allocate treatment offer the greatest potential for equitable access to modern medicine. Because these variables are not arbitrary, they help to level the health care playing field. Focusing on the clinical examples of heart transplantation, mechanical assist therapy, and aortic valve replacement, I conclude that strategies that reflect upon each individual patient's capacity to benefit from treatment, and his or her personal preferences for treatment, embrace a path to equitable health care allocation. Conversely, strategies that rely upon non-health related variables to allocate therapy (e.g., age) foster competition between and amid generations and facilitate value judgements that confound equitable access to health care. Within today's construction of aging as a medical problem and the elderly as a burden, strategies such as the later will reinforce a negative perception of aging and the aged, and they will unjustly deny medicine's benefits to this vulnerable population. While I have not created a financial solution to the said dilemma, I have expanded upon the concept of capacity to benefit as an ethically appropriate approach to health care allocation.

DECLARATION

This dissertation contains no material that has been accepted for the award of any other degree or diploma in any university or other institution. To the best of my knowledge, this dissertation contains no material previously published or written by another person, except where due reference is made in the text of this dissertation.



Katrina A. Bramstedt

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This dissertation is dedicated to my mother, Yvonne Bramstedt, whose medical and financial struggles as an elderly patient were the inspiration for my project.

CHAPTER 1

INTRODUCTION

Some Definitions

As the title states, the goal of my research is the formulation of a philosophy of just care for the geriatric population amid the opportunities of modern medicine. By this I mean the determination of elements essential to a geriatric health care allocation scheme promoting equitable access to medical interventions that potentially offer patients health status improvement. I acknowledge that the term "geriatric" has numerous interpretations, yet, for clarity, I use this term merely to mean those aged 65 and older. I have reserved use of the terms "elderly", "aged", and "older" to describe those both geriatric and those approaching the geriatric age group. The specific target population of my research comprises those patients who are beneficiaries of the United States Medicare system.

When referring to "modern medicine", I intend this term to encompass general practice medicine as well as the subspecialty of geriatric cardiology. Modern medicine represents the entire scope of practice and includes diagnostic and treatment tools that are "high technology" owing to their design, manufacture or composition.

The Problem

The most common construction of "America's health care dilemma" is that of a vast, expensive array of medical technology up against limited financial

resources and a soaring geriatric population. America's current geriatric health care insurance program, Medicare, is unable to provide modern medicine to all those in need; thus, talk of program "reform" is frequent. Medicare reform, however, is a daunting task complicated by the fact that while new medical technologies emerge on almost a weekly basis, many argue that the elderly are already getting their "fair share" (Harris 1985) of health care and that defined rationing methods are in order. Pharmaceutical and medical device manufacturers vigorously market their products to the elderly via television, radio and print advertising, yet Medicare funding and the income of the elderly cannot keep pace to pay for many of them. The result is a widening gap between available technology and patient access. Some technologies such as organ transplantation involve both high cost and scarce supply, further complicating allocation decisions. In the face of the fact that rationing methods cannot increase the supply of scarce funding or scarce technology, my task has been to review current (and potential) allocation approaches for the effects on the population they are imposed upon, identifying those which promote equity and those which do not. Additionally, I have expanded on an existing health care allocation concept, namely, capacity to benefit (chapter 4).

While not everyone accepts the notion that financial resources are limited (Morris 2000), I am not in the position (by goal or qualification) to prove or disprove this. I have accepted the notion of limited financial resources as valid for the purposes of my discussion and argument based upon the fact that nearly 42 million

Americans lack health insurance not by choice, but because they cannot afford to buy it, or their employer does not provide it (Greenberg 1999). I have also accepted the assumption that the array of medical technology is rapidly growing, and that this technology is generally expensive. Accepting these points, the purpose of my research is not to propose a new health care insurance program; nor is it to define a minimum allotment of dollars or services that would provide "basic health care". My research looks to the core of various proposed health care allocation policies to identify the principles on which they are based and to uncover the values embedded within these principles. I have identified elements essential to any health care allocation scheme that offers itself as ethically appropriate and I present justification for denoting these elements as key.

Another premise of my research is that age is not necessarily a predictor of clinical outcome (Bowling 1999). Despite the slightly higher risks of perioperative mortality and morbidity in older people, if they are selected appropriately they are likely to gain substantial health benefits from cardiac intervention (Royal College of Physicians 1991; Gilbert, Orr and Banning 1999; Cheitlin 1996). Even with such evidence, the elderly are less likely to receive appropriate cardiac evaluations and interventions (life-saving or life-enhancing) (Bowling 1999). Accepting this, my focus is the conceptual and applied exploration of geriatric health care omissions; that is, health care that would be routinely provided to the non-elderly, but that is pondered for exclusion (or categorically excluded) when the patient is elderly. Because of the high prevalence of morbidity and mortality

due to heart disease (Hodgson and Cohen 1999), I have chosen to apply my arguments to the resource allocation decisions involved in three clinical therapies: heart transplantation, cardiac assist technology, and aortic valve replacement. The guidance I will present is intended for both clinical ethicists as well as health policy makers.

Four other premises are key to my arguments: 1) health care should be allocated to those with the capacity to benefit from it even if they cannot afford to pay for it; 2) the experiential knowledge of the medical team and a patient's preferences for treatment must be reflected upon in clinical decision-making; 3) health care allocation approaches that are based on non-health related variables such as age or social status are not amenable to clinical decision-making, rather they are a means of economic decision-making; and 4) a patient is more than his or her disease state and symptoms and clinical decision-making must be geared towards improving the patient's health status (the clinical, social, functional and psychological well-being of an individual).

Research Methodology

My research method consists primarily of literature review and reflection on the bedside experiences during my clinical ethics case consultations at the Veterans Administration Hospital in West Los Angeles, California. My discussion begins with an overview of the United States Medicare insurance program, the setting of the majority of geriatric health care allocation in the United States. This

discussion includes patient eligibility, fees, and benefits. In keeping with my cardiovascular focus, detailed information is provided with regard to Medicare expenditures for this medical specialty.

Having framed the setting for my research problem, I then proceed with a critique of six philosophical approaches to geriatric health care allocation ("current state of play"), noting their theoretical intent (as professed by their founders), as well as their potential or actual applied outcomes (chapter 3). It is likely that the elements of one or more of these six approaches could be used in attempts by the United States government to reform Medicare, thus exploring these approaches is essential. Following this discussion, I expand on the notion of capacity to benefit as an ethically appropriate health care allocation approach (chapter 4).

Beginning with chapter 5, I shift to discussion and argument regarding the impact of various constructions of aging and the aged on health care policy generation. The material is presented as a timeline tracing the changing status of spirituality and morality in the domain of medicine. The timeline shows how both spirituality and morality influence constructions of aging and geriatric health care allocation. Understanding the concept of aging as a disease treatable with the technologies of medicine is critical to gaining an understanding of today's health care setting, and for contemplating future health care allocation schemes in the context of the values of the elderly, limited financial resources, and emerging technologies.

Chapter 6 finds the health care allocation setting moving from America to six other industrialized countries: Australia, Canada, France, Germany, Japan, and the United Kingdom. I present health policy data showing how these nations have responded to the same dilemma faced by the United States; namely, a soaring geriatric population, limited financial resources, and a plethora of existing and forthcoming medical technologies. In addition to discussing the similarities and differences in domestic and international health policy, I identify the values that are prominent in each health care system and present arguments why such international policies would likely not be well-received by Americans.

In chapter 7, I apply a capacity to benefit approach to the allocation of three cardiac technologies: heart transplantation, mechanical assist therapy, and aortic valve replacement. Currently, all three interventions are subject to age-based allocation limits both domestically and internationally, even though empirical evidence proves age is not necessarily a predictor of clinical outcome with use of these therapies.

Lastly, I examine the concepts of technology stewardship and patient productivity as health care allocation tools, the former in relation to both high intensity therapy (use of many resources) and low intensity therapy for patients of all ages, and the latter in relation to social worth as a criterion for resource allocation. Again,

because Medicare is the primary health care program for America's elderly its structure is the appropriate starting point for these discussions.

CHAPTER 2

UNDERSTANDING MEDICARE

According to the United States Health Care Financing Administration, Medicare is America's largest health insurance program, covering approximately 39 million Americans¹. Beneficiaries are those aged 65 and over (approximately 34 million) and those who have permanent kidney failure, as well as those with other selected disabilities. Medicare has two parts: Hospital Insurance (Part A) and Medical Insurance (Part B). Medicare Part A provides coverage of inpatient hospital services, skilled nursing facilities, home health services and hospice care. Medicare Part B, an optional insurance plan, helps pay for the cost of physician services, outpatient hospital services, medical equipment and supplies, and other health services. In general, Medicare covers pharmaceuticals only when they are dispensed during inpatient hospital admissions. There is no pharmaceutical coverage amid outpatient care (except for hospice care), even if the medications are the same ones prescribed and used during inpatient care. Dental care and hearing aids are also not covered. Medicare does cover the costs of clinical trial participation, including hospital room and board, surgical procedures, and medical care that results from complications or side effects.

Established in 1965, Medicare is government-sponsored, supported in large part by payroll taxes on those employed. According to data provided by the United States Health Care Financing Administration Office of the Actuary for 2001 in

general, there is no monthly premium for Part A coverage, with all covered charges paid after a \$792² benefit period deductible (a subset of the total health care charges that must be paid by the patient)³. Those elderly who did not pay into the Social Security tax system as part of payroll deductions (those who never worked—a very small percentage of the elderly population) are still eligible for Medicare; however, they must pay a Part A monthly premium of \$300. For hospital admissions lasting beyond 60 days, patients are responsible for a daily co-payment charge of either \$198 (between days 61 and 90) or \$396 per day (days 91-150). Patients must pay all charges beyond 150 days. Medicare Part B coverage costs \$50 per month with a \$100 benefit period deductible for all enrollees. In general, patients pay a 20% co-payment for Part B services, excluding clinical laboratory services for which there is no co-payment. Payment for anything not covered by Medicare, such as routine annual physicals or screening tests for prostate cancer, is the responsibility of the patient, and there are no government restrictions on setting prices for these non-covered items and services (including pharmaceuticals).

According to 2000 eligibility requirements, those elderly who have less than \$4000 in assets (\$6000 for married couples) and a monthly income of less than \$1238 (\$1661 for married couples) are eligible for *Medicaid*. Medicaid is a joint Federal and State program that assists those with a low income and few assets.

¹ Medicare Enrollment Trends. Accessed 26 November 2001. Available from <http://www.hcfa.gov/stats/enrltmd.htm#t1>.

² All currency values are in United States dollars unless otherwise noted.

This program helps defray Medicare premiums, deductibles and co-payments. In some states, this cover includes providing outpatient prescription medication. According to *1998 United States Census Bureau Annual Demographic Survey* data⁴ there were approximately 17.8 million people aged 65 and older that met the individual income requirement to receive Medicaid insurance coverage. The *United States Health Care Financing Administration 2082 Report* cites that in 1998, 4.7 million elderly met both the income and asset requirements and enrolled in Medicaid. This left roughly 74% of low income elderly without financial assistance to cover their Medicare premiums, co-payments and deductible, as well as their outpatient prescriptions.

United States military veterans are eligible for hospital, medical and prescription pharmaceutical coverage through a separate government program, in addition to their Medicare benefits. According to the Department of Veterans Affairs, approximately four million elderly and non-elderly are enrolled in the Veterans Administration Healthcare Enrollment Program. This program is open to all military veterans regardless of their income or assets. Veterans are classified into "Priority Groups" according to whether or not their illness/injury is connected to their military service activities, and this classification determines their insurance benefits and costs.

³ Medicare Deductible, Coinsurance and Premium Amounts 2001. Accessed 26 November 2001. Available from <http://www.hcfa.gov/stats/mdedco01.htm>.

⁴ Table PINC-01. Accessed 26 November 2001. Available from http://ferret.bls.census.gov/macro/031999/perinc/new01_001.htm.

There are no upper end income or asset limits for Medicare eligibility, and no restrictions on obtaining medical care using personal funds or private insurance; however, when using private insurance, Medicare will normally be billed first and any remaining balance will be shared between the patient and insurance carrier according to a defined benefit plan. Some private insurance companies administer health care plans which offer Medicare's baseline benefits plus additional benefits (e.g., prescription pharmaceuticals, medical devices and surgical procedures not covered by Medicare) for additional charge. Medicare permits patients to be charged up to 15% more for their Medicare covered services when care is provided as part of certain types of these benefit bonus plans, yet Medicare covers only the scheduled rate for each specific item or service provided.

While participation in Medicare is voluntary for physicians, hospitals and patients, nearly all physicians and hospitals treat Medicare patients, rather than refuse the assured government reimbursement (even if it is lower than that which can be collected from the private insurance of younger patients). Those elderly who can afford to pay for their medical care owing to their own income or asset level are not required to use their personal funds for medical care and are eligible for all Medicare benefits. These patients retain the option of paying their medical expenses themselves and not billing Medicare for reimbursement; however, it is unclear how many elderly chose this path.

In spite of the growth in medical technology available to diagnose and treat medical problems, annual growth in Medicare spending remains low. According to the Health Care Financing Administration's *National Health Expenditures 1999* report, Medicare spending increased only 0.1% in 1998 and 1.0% in 1999. This report also indicates that Medicare spending represented 17.6% of every dollar spent on health care in 1999, falling from a peak of 19.3% of national health expenditures in 1996-1997. This disparity indicates that some new medical technologies are likely not reaching the elderly. 1999 Medicare expenditures for health care services and supplies (all beneficiaries) were approximately \$214 billion. Nearly \$8 billion of these expenditures were administrative costs⁵. The *1999 Medicare Provider Analysis and Review of Short-Stay Hospitals* indicates that the largest Medicare expenditures occurred as a result of pacemaker implantation or angioplasty with stent placement (dual category listing) and coronary artery bypass grafting surgery (Diagnosis Related Group 106, 107 and 109). Medicare covered charges for each of these two procedure groups were approximately \$7.8 billion. Another \$121.5 million was spent on heart transplantation. The most common discharge diagnosis for Medicare patients was heart failure (nearly 700,000 cases).

Medicare's low annual growth in spending is facilitated by its managed care structure. Similar to most private health care insurance plans, the Federal government manages care and limits spending by limiting the types of medical

⁵ Table 10: Expenditures for Health Services and Supplies Under Public Programs, by Type of Expenditure and Program: Calendar Year 1999. Accessed 26 November 2001. Available from

items and services provided under the program. The Federal government has the power to determine whether an item or service is "reasonable and necessary" by two methods. The first method uses a National Coverage Decision—a formulary list of covered, limited and excluded items and services. In the case of non-listed items and services, Medicare officials are allowed to make case-by-case decisions. Patients can challenge denied medical treatment decisions in Federal court⁶, though it is uncertain how successful patients are in winning these challenges.

Medicare's decision-making scheme is primarily categorical owing to its items and services formulary list, yet there is some room for negotiation on an individual basis via the legal route described above. In the next chapter, I elaborate the benefits and drawbacks of categorical and case-by-case decision-making by reflecting on six approaches to health care allocation currently being debated in the United States.

<http://www.hcfa.gov/stats/nhe-oact/tables/t10.htm>.

⁶ 45 United States Code of Federal Regulations 405, Subparts G and H.

CHAPTER 3

THE CURRENT "STATE OF PLAY"

As with most other controversial topics, everyone seems to have an opinion as to what would make a geriatric health care allocation program just or unjust; similarly, the definitions of just and unjust are many. Experts debating the issues come from a variety of fields including medicine, sociology, philosophy, law, economics, and religion. There are at least six approaches to geriatric health care allocation currently circulating among America's debating tables: 1) "natural life span"; 2) "fair innings"; 3) "prudent consent"; 4) "Prudential Life Span Account"; 5) "Why not?"; and 6) "capacity to benefit". While other approaches certainly exist, these six predominate most scholarly and mainstream forums. Medicare reform could be based on the elements of one or more of these frequently deliberated strategies, thus exploring them from both theoretical and applied perspectives to determine if they promote or prevent geriatric health care omissions is essential. The authors of these six approaches have all produced a large volume of publications relating to their theory, as well as health care allocation, in general; thus, for clarification, my analyses are not intended to be an all inclusive review of the philosophies of each author, but rather summary and argument of each specific approach in the context of geriatric health care rationing.

*Natural Life Span*⁷

Daniel Callahan, a philosopher at the Hastings Center in New York, began promoting his "natural life span" theory as a health care rationing tool with his 1987 publication, *Setting Limits: Medical Goals in an Aging Society*. According to Callahan, a natural life span is "a fresh vision of what it means to live a decently long and adequate life" (Callahan 1997, 308). He further states:

We should think of a natural life span as the achievement of a life that is sufficiently long to take advantage of those opportunities life typically offers and that we ordinarily regard as its prime benefits—loving and "living", raising a family, engaging in work that is satisfying, reading, thinking, cherishing our friends and families. People differ on what might be a full natural life span; my view is that it can be achieved by the late 70s or early 80s. (Callahan 1997, 309)

For Callahan, time beyond the human natural life span is a bonus—not time that others should have to pay for via extensive technology or curative medicine. As shown, while Callahan has been writing about his natural life span theory for fifteen years, he has not settled (yet) on an absolute numerical value for a human's life span. Nonetheless, the lack of an absolute (firm) age limit does not prevent his natural life span approach from discriminating against people on the basis of their chronological age value. Such discrimination is also called "ageism". In the setting of health care, such discrimination is known as "age-based health care allocation" or "age-based categorical treatment limits".

Acknowledging that it is an arbitrary method of deciding who gets certain therapies and who doesn't, Callahan implies that a natural life span approach to

⁷ From Katrina A. Bramstedt, "Age-based health care allocation as a wedge separating the person from the patient and commodifying medicine," *Reviews in Clinical Gerontology*

health care allocation has a protective effect on the community by limiting personal preferences for therapy in favor of the financial good of the community at large (Callahan 1990, 110). As Callahan states:

Patients have to be restricted in the kinds of choices they are given about their healthcare, physicians restricted in the diagnostic and therapeutic choices they are given about that providing care, and institutions restricted in the range of services they can provide and the ways in which they provide them. (Callahan 1990, 99)

Though not presenting any mathematical projections, he argues that minimizing the choices of patients and their doctors is an effective way of controlling spending. Yet lacking quantitative projections about cost savings, and failing to acknowledge the economic and non-economic costs of minimizing the doctor-patient relationship and sidestepping the experiential knowledge of the medical team, Callahan's economics may be only wishful thinking.

Within his natural life span theory, Callahan proposes a "care versus cure" philosophy as a way to ensure that no patient gets left out in his overall plan (Callahan 1990, 110). Specifically, he acknowledges the suffering of individuals, and in no way desires that it be ignored, yet his goal is comfort, rather than cure, when patients have aged beyond their natural life span. For Callahan, "curative" medicine is expensive medicine which involves costly research—money that would be better spent on controlling the suffering that exists. Quoting Callahan, "A society would, then, be well justified in the future to set an age limit on the public provision of expensive, life-extending, curative healthcare..." (Callahan 1990, 153). Complicating Callahan's theory is the fact that religious values and

personal and cultural preferences vary among people, and thus there is no uniform definition of comfort care. For some, comfort care can include costly technology such as mechanical feeding. Also problematic to Callahan's math is the fact that commonly accepted comfort measures such as the control of nausea and vomiting can be extremely expensive, yet provide much benefit.

Callahan's theory does not address the fact that some elderly may not want the forced choice of living with their symptoms when a cure is technologically achievable. From a medical standpoint, I would guess that few if any clinical directives would require comfort therapy instead of curative therapy (when both are available), unless the curative regimen would pose more health status harm as compared to the comfort regimen. Nonetheless, Callahan's policy would ignore a patient's preference for curative therapy in a setting of appropriate risks and benefits. Thus said, selectively assigning comfort therapy to older patients when cure is achievable is ethically problematic because it is age discrimination in a setting where age is not necessarily relevant to clinical outcome.

While not all forms of clinically indicated medicine are age-restricted in the scheme of aged-based health care allocation, it is clear that this scheme is arbitrary in the sense that it is not based on argument, reason or ethics. Patients may miss out on optimal therapy, presumably because it will be ranked as too expensive (Levinsky 1998) or too scarce (Ismail, Hakim, and Helderman 1994) to provide to older people. Arbitrarily chosen age limits or those chosen based

upon an estimation of humans' natural life span have the effects of minimizing the patient's clinical choices. This devalues the experiential skills and knowledge of the medical team, weakening the doctor-patient relationship, and turning medicine into an article of commerce produced for those who can afford to purchase it. Policies of this nature do not solve the current health care dilemma; rather they are an economic bandage over the still present (and unattended to) root cause. Callahan's theory seems to imply that around age 80 is the time to "bow out" gracefully. This thought that parallels that of former United States Senator Richard Lamm; namely, old people have a duty to die and get out of the way (Lamm 1993). Many octogenarians would argue that a forced choice of no more life to look forward to is unethical and unfair, with a conjoined message that youth disrespects and devalues them.

I propose that health care allocation age limits have the effect of slicing a patient into two halves—two halves that are full of meaning and ethical values. The "medical half" contains the diagnosis, prognosis, vital signs and other physiological matters. The "other half" contains contextual and personal matters such as treatment preferences, personal beliefs, religious and cultural beliefs, and social dynamics. "Ageism" as practiced by limiting health care based on a person's chronological age profoundly denies a health care role for these components in the "other half" because it renders their value zero when the specified age limit is reached. Like a locked door with a peephole, patients can see what is technologically possible, yet their chronological age value

automatically keeps these possibilities out of reach. Choices and opportunities are cut adrift as the wedge of ageism is hammered into place (on one's 65-year birthday, for example). It is as if the matrix of ethical principles that once ran through the "halves" like channels of valuable foundation and structure become crushed and severed as this wedge is inserted. It becomes difficult to treat the whole person owing to this impediment, and it disrupts valuable communication between the patient's two "halves".

Ageism is a wedge that interrupts the flow and discourse of ethical values during health care decision-making, causing patient preferences to be segregated and lacking influence on the patient's treatment plan. This wedge of ageism reduces older people to physiologic machines and reduces medicine to a commodity bought and sold, practiced in a mechanical format (Fried 1975), devoid of humanistic qualities. Potential clinical benefit cannot be realized because therapies can be placed on the excluded list for patients who don't make the age cut. Justice is constrained as its application is to only the age-correct class of patients. These effects weaken the doctor-patient relationship because clinicians end up doing less than their medical best, betraying the trust of their patients (Fried 1976).

Consider a 70-year old patient who presents to a cardiologist with a six-week history of angina and syncope. Evaluation reveals significant aortic valve calcification. While the surgical risk-benefit profile indicates aortic valve

replacement as the optimal therapy route, the doctor does not relay this information to the patient and instead offers the patient a medical regimen for symptom relief. The patient trusts the doctor (the "expert") and assumes this plan is the standard of care for this particular disease presentation, when, in fact, the doctor is ignoring a multitude of medical evidence that indicates aortic valve replacement would be more appropriate. By not discussing treatment options with the patient, the doctor is failing to learn the patient's values and preferences for treatment, and the medical consultation becomes merely the patient's receipt of unknowingly incomplete medical advice, intentionally delivered as such (incomplete) by a doctor following an ageist health care policy.

Ageism's act of slicing patients into their clinical and non-clinical halves is supported by an operating system based on an approach that views the elderly as one large homogenous pool of people, rather than individual people with distinct clinical and non-clinical characteristics. With this approach, all older people seemingly blend together and look more like case numbers and diagnosis codes rather than unique individuals. Their clinical symptoms blend together, their emotional characteristics blend together, their cultural and religious values blend together. This blending makes it difficult to promote the existence and significance of the personal and clinical variables that each elderly person has. This approach does not give place to even recognize one person from all the others (Harris 1987). As in any crowd setting, it is very difficult to see through the

group to the individual if his or her characteristics don't have enough significance to stand out.

Age-based health care allocation is like an opaque shield that makes those impeded by it [patients] look the same. While doing so it has a protective mechanism for those involved in policy making, for the opacity of the shield depersonalizes the allocation decisions because the elderly on the other side appear as an expressionless, emotionless, generic group. When dulled to a generic group, the clinical and non-clinical variables of each elderly person are undetectable and the practice of medicine changes to ignore these once pertinent factors. The result is the ignoring of patient preferences and a blurring of who the elderly are so that the policies don't have to deal with each patient on an individual basis. While the advancements of medical technology flourish, the elderly are viewed as a static group potentially held back from medicine's growing opportunities for both cure and care.

Ageism functions by devaluing the relevance of a patient's clinical indications, his or her personal treatment preferences, and the physician's experiential knowledge. Ageist health care policies highlight and emphasize a patient's chronological age as having supreme value in health care allocation, and simultaneously elevate the economics of a treatment plan to prominent heights, as opposed to its clinical benefits. When the economics of a treatment plan are reflected on with greater importance than the clinical benefits of the treatment

plan, medicine's values shift. Referring to figure 1, ageist policies use patient age as the fulcrum in the practice of medicine. In this fluid equation, the chosen age limit is arbitrary (and changeable) when it is not based on published scientific evidence, or a physician's experiential knowledge and skills in treating patients of various disease states evidencing various clinical and non-clinical variables.

Referring to figure 1, it takes more and more clinical benefit to justify health care allocation by way of policies that use patient age (the shifting fulcrum) and economics to guide the therapeutic approach.

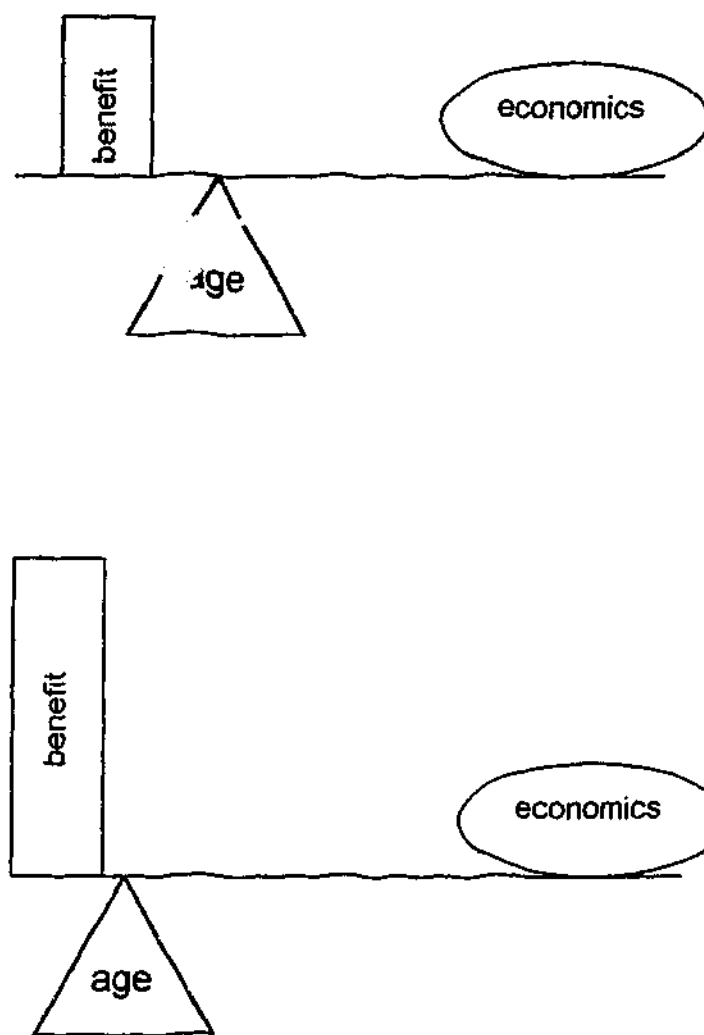


Figure 1. Age as the fulcrum in age-based health care.

Currently there is a severe lack of geriatric clinical trials. Ageist health care policies add to this dilemma by hindering the possibility of gaining empirical evidence that proves certain therapies would be beneficial for geriatric patients by preventing the collection of data about those who would be using the therapies. Such policies would also prevent the gain of empirical evidence that proves certain therapies would be unnecessary or ineffective for geriatric patients. Ageist policies would not limit the small pool of forthcoming data generated by those who can afford to pay for the technologies themselves, but is this an ethical arrangement?

Deriving experiential evidence from the use of medical technology only on wealthy people is a form of economic discrimination. It is unfair for therapies to be provided only to those geriatric patients who can pay for them outright because both the wealthy and non-wealthy can fall victim to illness and disease.

Allocating health care only to the wealthy would also create an unrepresentative data pool from which to examine clinical outcomes because wealthy patients are likely to have experienced the protective mechanisms of better diet and education than that of the poorer pool of patients who don't have access to the therapies (Kushi et al. 1988). Wealthy patients may also have less comorbidity or other characteristics that might make their outcome data not generalizable to the patient pool at large (Ogle et al. 2000). Additionally, basing use criteria on a patient's economic status further commodifies medicine because access is based on one's financial purchasing power. It is ethically troublesome to

envision health care, a service that supports the health and propagation of our species, heading toward the commodification evidenced by cars and household appliances because such commodification facilitates a one-dimensional view of patients as their disease. This and other negative consequences of commodification are discussed further in chapter 5.

While aged-based health care allocation may assist with "solving" the economic problems of health care decision-making it creates new ethical issues, and fails to address existing ones. Policies of this nature do nothing to foster equity in medical care, nor do they support the role of a patient's preference for treatment. By limiting health care allocation, such policies limit the clinical benefit potentially attainable by those in need. Such policies do nothing to dispel the belief that wealthy people are more valuable and worthy than those less fortunate because under such policies, wealth overrides allocation limits in that people who can afford health care can access all they need. While ageist policies may not be based on the premise that medical care should be provided to those who cannot afford it, or that a physician's experiential knowledge and the humanitarian components of science are essential to the professional and compassionate practice of medicine, the fact remains that such policies depersonalize patients and the medical profession by promoting medicine as a commodity rather than a service practiced by dedicated, caring professionals with a learned skill. Whether the age limit is arbitrarily chosen or is based on an estimation of humans' natural life span, the effects are the same.

Ageism disregards medical evidence that concludes that age is not necessarily a predictor of clinical outcome (Bowling 1999). Knowingly blocking patient access to beneficent therapy because the patient has reached his or her "natural life span" sends the message that the elderly need to step aside. Is this a humane practice of medicine? While there is an economic component to America's health care crisis, framing the dilemma itself as entirely economic and then applying an economic "solution" is problematic. Extracting economics from the network of other associated issues and then elevating it to the driving force of allocation decisions does not go undetected by the affected patients, or the community at large. Numerous variables of the dilemma remain unexplored—namely, our changing values toward the elderly, corporate pricing of medical therapies, and the matter of weighing a technology's risks and benefits in cases involving patients of *all* ages. These concepts lie both ignored and blurred by the opaque shield of aged-based health care allocation.

In summary, ageism is an ethically inappropriate method to allocate health care because it relies on a non-health related variable to ration care, subsequently fostering a devaluation of a discrete population by excluding them from medical therapy. Callahan's theory promotes inequitable treatment among patients with a potentially equal capacity to benefit from therapy. Using a non-clinical allocation criterion, inequity is realized in the denial of treatment for patients failing to satisfy the "natural life span" limit—a numerical value that is arbitrarily

chosen and has no empirical relationship to treatment outcome (Bowling 1999). As will be discussed in chapter 8, no other age group is selectively singled out for treatment exclusions in this manner, but rather the capacity to benefit from therapy, a health-related variable generally determines the treatment plans of the non-elderly. An ageist theory such as Callahan's would work best in situations where no therapeutic benefit were available to patients beyond a "certain age"; however, with the current palate of medical therapies, this scenario is infrequent as therapeutic benefit (comfort or cure) is attainable for many disease states.

Fair Innings

John Harris, Research Director of the Center for Social Ethics and Policy at the University of Manchester, introduced his "fair innings" argument in the mid-1980s and it is still hotly debated as a potential health care allocation tool. Quoting Harris:

The fair innings argument takes the view that there is some span of life years that we consider a reasonable life, a fair innings. Let's say that a fair share of life is the traditional three score and ten, seventy years. Anyone who does not reach 70 suffers, on this view, the injustice of being cut off in their prime. They have missed out on a reasonable share; they have been short-changed. Those, however, who do make 70 suffer no such injustice, they have not lost out but rather must consider any additional years a sort of bonus beyond that which could reasonably be hoped for. The fair innings argument requires that everyone be given an equal chance to have a fair innings...having reached it, they have received their entitlement. (Harris 1985, 91)

In describing his concept of fairness, Harris goes on to say, "...people who had achieved old age or who were closely approaching it would not have their lives

further prolonged when this could only be achieved at the cost of the lives of those who were not nearing old age" (Harris 1985, 93-94). The fair innings approach operates using age 70 as life's "old age" set point. Based upon Harris' statements above, to arrive at age 70 is to say that the finish line has been crossed and others, on their way to the finish line need their chance to get there (with the help of health care).

While I find numerous objections to using the fair innings model to allocate health care, it does have a likable feature: simplicity. As with Callahan's natural life span model, the fair innings model would be simple to implement because the age cut off, 70, is arbitrarily chosen, requiring no time or energy to empirically derive. But simplicity does not equate to justice, and it is in this arbitrariness that some of my objections to the fair innings model lie. Like Callahan, Harris has not made any empirical efforts to validate the selected age cut off. It is possible that in the face of an abundance of evidence that indicates that age is not necessarily a predictor of medical outcome (Bowling 1999), empirically deriving an age cut off for medical or surgical intervention may not be possible. Others might argue that if those under age 70 have no access restrictions and can theoretically receive all the health care they need up to age 70, this would be ethically appropriate because the elderly would likely be in a better state of health due to this unlimited access when younger.

I am troubled by Harris' announcement that life span prior to age 70 is "prime time" (Harris 1985, 91) and years beyond age 70 are merely a bonus that should not be facilitated at the expense of those under age 70. Further troubling is his argument that denying the bonus years is not a loss for these individuals or the community because loss is in fact not calculable (because life's "ledger" no longer allows health care transactions after age 70). Harris seems to be saying that one cannot subtract from what does not exist, but this is not what would happen if his philosophical model were applied to "real life" health care. People older than age 70 do exist and taking away their health care opportunities is a loss for them as individuals because this limits their mental and physical capacities. It is also a loss for the community around them, as social and intellectual interactions could also be potentially limited due to the inability to access clinically indicated health care. Harris' only foray into this territory is to comment that it is a "misfortune" to die when one wants to go on living. Quoting Harris, "...it is not a tragedy to die in old age; but it is on the other hand, both a tragedy and a misfortune to be cut off prematurely" (Harris 1985, 93). For Harris, injustice only occurs when those under age 70 are not given access to the health care that will take them to age 70.

According to *Merriam-Webster's Collegiate Dictionary*⁸ "misfortune" has multiple meanings: among these are, 1) an event or conjunction of events that causes an unfortunate or distressing result; 2) bad luck; and 3) an unhappy situation. True, being cut off from health care services can be unhappy and distressing, but in the

case of the fair innings model, it is certainly not the result of bad luck. Using the term misfortune here is both inaccurate and insensitive. Arbitrariness, not bad luck, doles out the health care restrictions of the fair innings model.

Another matter of concern is that Harris' construction of fairness is tied only to time. Concepts such as an older person's treatment preferences, quality of life or capacity to benefit have no place or value in his scheme of just health care allocation. For Harris, life beyond age 70 is "cancelled" (Harris 1985, 91) with no injustice. By definition, cancellation implies that some activity or event could continue on, yet it is actively terminated. Even if this activity is health care access, Harris does not view this as ethically problematic. Harris' philosophical model resets life's clock to run from birth to age 70, when its standard setting is from birth to death. He indicates he is concerned about cutting people off prematurely (those under age 70), but he fails to recognize that denying health care to those over age 70 can prematurely cut them off. While his model may protect those under age 70 from being robbed of health care opportunities it does so by robbing the elderly of theirs.

Just as the term "cancelled" assumes that continuation was a possibility, a "share" of something assumes that there is a finite total out of which the share is extracted. For Harris, the finite total is 70 years of life. Age 70 could be viewed as each individual's drop dead date, as under his plan, individuals cannot expect health care after that. It is cruel to allow those older than age 70 to abide with a

⁸ *Merriam-Webster's Collegiate Dictionary* (1999), s.v. "misfortune."

poor state of health when beneficent therapy is available, yet not allocated, owing to an arbitrary, non-health related variable such as age. This leaves a vulnerable population completely disregarded and potentially suffering. While Harris can justify this owing to life's ledger ending with the set point of 70, I cannot, especially when the average life span of those born and raised in the United States is nearly 77 years (National Council on Aging 2000b).

Further, how does one determine the fair share of a life span that cannot accurately be predicted as a result of the potential for things such as accidents, murder, suicide, genetics, environmental effects, and medical breakthroughs? In the context of medicine, if a child received a heart transplant at age 3 and then was fatally struck by a car at age 6, did the child get more than a "fair share" of medical care? Are 80 year-old people wanting more than their fair share if, while relatively healthy all their life, they now require an aortic valve replacement due to a calcified bicuspid valve causing angina and syncope?

This again brings up the exclusion of quality of life as a treatment variable for those over age 70. Harris' model looks only to the number of life years attained, not the quality of life in those years. It is difficult to argue that a 70 year-old has had a fair share of life if the majority of it was experienced in a state of poor health. Harris' fair innings model would not give these individuals an extension to receive health care beyond age 70; thus, these individuals would never have a chance at a decent "share" of quality life. Is this just their bad luck? What if an

individual had experienced poor health up until age 65, and then now, between age 65 and 70, improved health is evident and the individual is finally enjoying life? Is it ethically appropriate to abruptly cut the person off from future health care? Harris would argue that such an action would be ethically appropriate if the additional health care beyond age 70 were to occur at the expense of those younger than age 70. Was five years of a good quality of life a fair innings? It is unclear how Harris would answer this question as his philosophy does not address quality as a component of years lived, only the number of years lived. Is it appropriate to consider life beyond age 70 as a bonus when an individual has had only five "good" years to begin with? It appears that Harris would say "time's up" in all examples generated as I find no exclusions or exceptions within his philosophical model. Although these are extreme examples, they highlight the potential adverse consequences of Harris' theory.

The act of setting the age 70 limit would not only create a competition for health care, but the winners (those under age 70) and losers (those over age 70) of the game would be pre-set. No amount of physician skill or medical breakthroughs would benefit the losing team unless they were a wealthy team. There is nothing in Harris' model that bars those over age 70 from paying for their health care themselves. Considering that the average income of an elderly person is approximately \$14,000 (National Council on Aging 2000b) this is not likely to occur. Further, elderly women are even more disadvantaged by Harris' plan as

they have the longest life expectancy (79.4 years) and lowest incomes (\$10,054) compared to elderly men (National Council on Aging 2000b).

The act of setting the age 70 limit also sends a message that those beyond age 70 are "old". It reiterates Harris' statement that time prior to age 70 is "prime", implying that time beyond age 70 is less than prime, or devalued. Both concepts are at odds with how many older persons feel about aging. For example, the National Council on Aging "Myths and Realities 2000" project found that 44% of those surveyed aged 70-79 feel that these years "are the best years of (their lives)". Of those aged 80-89, 33% responded in the same manner. Only 14% of those surveyed indicated that a specific age is an important indicator of old age. One-third of those in their seventies considered themselves as "middle-aged". If these preferences are true on an even larger scale, Harris' fair inning model is out of step with the values of America's elderly.

The fair innings approach is a form of economic decision-making even though it does not explicitly quantify dollars spent, saved or transferred. Though he does not present any economic data, Harris seems to be saying that taking health care from the elderly will offset a no limit allocation policy for those under age 70. Doing so, the fair innings model makes the assumption that there is reduced personal value to life in the geriatric years (justifying less health care) when this, in fact, is not consistent with the views of the elderly themselves (Freund and Smith 1999; National Council on Aging 2000a). A message of reduced value of

life can also imply that life roles are of reduced worth beyond age 70. As currently designed, Harris' model presents too many problematic acts and consequences to be justly used as a health care allocation tool. Potentially unlimited health care access for those under age 70 might serve to add health to their initial years beyond age 70; however, after age 70, these individuals will be lost sooner to their children, grandchildren, and friends owing to the lack of continuing health care services. This disenfranchises the elderly and those around them.

Prudent Consent

Paul Menzel, philosophy professor and Provost of Pacific Lutheran University has put forth the concept of Prudent Consent as a health care allocation tool. Prudent Consent, he explains, consists of individuals examining the multiple needs and goals of their lives and making rational, self-interested choices about how to allocate health care. According to Menzel, Prudent Consent claims "some rationing out of possibly beneficial care is what people do want; if they consider their own realities of cost and scarcity, they will not endorse policies, public or private, that provide everything in their own future case" (Menzel 1996, 5).

The philosophical model of Prudent Consent operates with the assumption that each person can and will balance his or her personal needs (and it would seem, those of their relatives who lack decision-making capacity) against the needs of

the community at large. The model also requires that individuals consider the costs of health care and the "reality" of finite financial resources as they balance their personal needs against the needs of others as a collective. For example, a person contemplating whether or not to be placed on a heart transplant waiting list would first reflect upon the cost of the procedure and its related maintenance costs (e.g., immunosuppression), in light of these same health care dollars being potentially used for others with health care needs (e.g., immunizations for hundreds of infants born to poor families). Shifting from the philosophical model to "real life" health care allocation by way of the above example leads me to conclude that Prudent Consent as a rationing tool is fatally flawed.

I do agree with Menzel that for any health care rationing model to be accepted in the United States it must be based on principles and values already held by Americans at large (Menzel 1996, 11). The Prudent Consent model satisfies this requirement because it allows individuals to make their own allocation choices. Further, owing to this arrangement, voices from the outside that might suggest age-based treatment limits or treatment that is care-oriented rather than cure-oriented can be tuned out by self-interested choice. The Prudent Consent model respects an individual's treatment preferences, but it assumes that these treatment preferences have been reflected upon under the above stipulations. Menzel's model provides no evidence to support the expectation these stipulations would be met, or have, in fact, been met. Use of this model would certainly facilitate a patient's free choice, but lacking a verification mechanism,

decision-making that is completely based on self-interest would go undetected. While some patients may elect to die, others may elect continued treatment. For some, rationing might in reality be unlimited health care access thus the lack of a mechanism to prevent or capture purely self-interested judgements is a critical weakness of the Prudent Consent model as Menzel presents it.

As explained earlier, I do not support the forced choices of age-based health care allocation, or having to accept care-oriented therapy when a cure is in reach. Nonetheless, it is unclear that Menzel's self-policed Prudent Consent model could ration health care at all. Because it is self-policed, there is nothing to stop it from being an "anything goes" allocation tool, because it is not tied to a patient's capacity to benefit from the proposed therapy. If, on the other hand, the model was not self-policed and the decisions were required to conform to the requirements of capacity to benefit and futility (standardized definitions would be required), it is foreseeable that individuals could purchase health care insurance according to their stated treatment preferences, including treatment for their older years. This would raise new issues such as individuals changing their minds as their situations change, but it is likely that insurance providers could offer policy upgrade/downgrade provisions.

In summary, Prudent Consent is intended to be a model that considers the needs of individuals in balance with the needs of the community, thus attempting to level the health care access playing field. Application of the philosophical model

of Prudent Consent to "real life" health care allocation is problematic; namely, because it operates on the "honor system" for decision-making, potentially allowing each individual to bypass the communal playing field to optimize his or her own. This creates the potential for increased and wasteful spending. Balancing a patient's therapeutic preferences with his or her capacity to benefit from the proposed therapy should be requisite to any health care allocation scheme because lacking this balance, purely self-interested choice can potentially flourish, further increasing the competition for scarce resources, and increasing the potential for technologies to be wasted when allocated to patients who cannot benefit from them. This defeats Prudent Consent's goal of leveling the health care access playing field.

Menzel's Prudent Consent model appears to be a spin-off from his earlier "Willingness-to-Pay model" (Menzel 1983). According to the Willingness-to-Pay model, life has a morally relevant monetary value that varies according to the income or resources at a person's disposal. The poor, for example, have many competing non-health needs (e.g., shelter, and food) that may, on occasion, push health care to a lower priority level. The Willingness-to-Pay model allows individuals to pay as much as they think the added life (or increased quality of life) to them is worth, and the resulting treatment preferences are balanced by their ability to pay for them. As with the Prudent Consent model, the Willingness-to-Pay model does not require the clinical determination of a capacity to benefit from therapy, thus this model would permit inappropriate treatment to be

allocated as long as patients were willing to pay for it. The fear of dying could cause some patients to be more concerned with attempting to stall death than with trying to improve the quality of their life. Because the "worth calculations" are subjective, this could allow some patients to intentionally underestimate the dollar value of the proposed therapy's worth in an attempt to get a bargain price for their desired item or service. Both the Willingness-to-Pay model, and its spin-off, Prudent Consent, have no mechanism to prevent inappropriate health care allocation in scenarios of this nature.

Prudential Life Span Account

Norman Daniels, professor of medical ethics at Tufts University School of Medicine proclaims his Prudential Life Span Account as an ethically appropriate health care allocation tool. In this model, "prudent" allocation among life's stages is the guide to what is just between the young and the old (Daniels 1996). He argues that if allocation is just in each life stage (e.g., neonate, child, adult, and elderly adult), then there is no necessity to weigh the allocations between groups, visualizing them in a competing manner. Daniels maintains that the Prudential Life Span Account model arises out of the fact that there is no moral consensus about health care as a social good, and neither is there consensus about what constitutes equitable access between individuals. Quoting Daniels:

We must see that each group represents a stage of our lives. We must view prudent allocation of resources through the stages of life as our guide to justice between groups...it is rational and prudent that persons take from one stage of their life to give to another in order to make life as a whole better. (Daniels 1996, 30)

It is only prudent to treat ourselves differently at different stages of our life, as our needs change....Prudence here guides justice....Establishing such policies would mean doing justice to the old and the young. (Daniels 1996, 44)

Philosophically, this model requires that individuals view the whole of their life as distinct stages and agree to take from one stage to give to another. As an example, if a person pursues cardiopulmonary bypass at age 50, this person must borrow against a possible aortic valve replacement at age 70 (thus not gaining the aortic valve replacement). Additionally, Daniels accepts that certain stages of life will likely entail certain clinical needs that are entitled to health care and that these entitlements (health care services not health care dollars) are not subject to being taken away (Daniels 1996, 32). While he does not specifically define these entitlements, one could assume he is referring to services such as pre-natal care and maternity care, as these foster a healthy promotion of our species, a goal of health care allocation promoted in his book, *Just Health Care* (Daniels 1985).

Daniels' model requires that the allocation for life's stages occurs by way of planning that is not visible to one's age (Daniels 1996, 31). Said another way, Daniels' plan requires individuals to disregard their current age and specific life goals and think in general terms about how they would like their health care allocated across their life stages. Individuals have the ability to enhance one stage at the expense of another in an attempt to plan a standard of living that remains "roughly equal" over time. While health care choices would not be under

the influence of chronological age as a categorical health care limit, life stages do reflect both age and potential disease states because it is an inescapable fact that some diseases generally appear in the later years of life (e.g., dilated cardiomyopathy). Such a fact renders Daniels' age blinding requirement difficult to accomplish in an applied setting.

It is foreseeable that the Prudential Life Span Account model could allow individuals to make their own health care choices based upon their personal values, instead of having undesired allocation limits forced upon them. In the United States, any allocation model that does not foster choice (in some format or another) is likely to be resisted. Because Daniels' plan appears to provide a minimum palate of entitlements that cannot be taken away or borrowed against, this could ensure a minimum level of health care during each life stage. While permitting the inequalities that result due to the different choices made by individuals, no one is cut off during any life stage, as this is precluded by the goal of an equal standard of living over the course of one's life span. According to Daniels this equal standard of living is set amid the "normal opportunity range for one's society" given a person's talents, skills and life plan (Daniels 1996, 35).

Beyond these positive aspects of the Prudential Life Span Account model, however, lie several problematic issues. As with Menzel's Prudent Consent model, the application of Daniels' philosophical model to "real life" health care allocation is fatally flawed. Specifically, with regards to Daniels' standard of living

concept and his allocation of entitlements rather than dollars, how this plays out when the entitlements required to maintain the standard of living are expensive is unclear. For example, if a patient undergoes a heart transplant at age two, a re-transplant at age twelve, and yet requires additional life-saving therapy in adulthood, it is not clear that the patient really borrowed against his or her other life stages, or if the patient borrowed against the life stages of other people (to cover the cost of repeated use of expensive technology). Also, if the interventions are life saving (e.g., organ transplant) versus maintenance therapy (e.g., hip replacement) should an individual have to borrow against other (or another's) entitlements in order to save his or her life? How would intensive borrowing in one's pediatric years affect one's access to health care in the adult years? Or, might there be greater borrowing privileges automatically in the pediatric stage? Should life saving interventions automatically be included in everyone's Account? These are important concepts to consider as these situations are potentially very real, not theoretical, yet Daniels' model fails to address any of them. Maybe he views such scenarios as no different than mortgaging against 100% (or 100+%) of the equity in one's home to pay for an organ transplant; nonetheless, it appears that Daniels' model, by stipulating a standard of living requirement is also stipulating the allocation of life-saving interventions (whether Daniels intended this or not).

Daniels gives no overt indication that his philosophical model is designed to allow patients to borrow from each other's life stages in order to access expensive

therapy. Yet, if one accepts that financial resources are limited such borrowing would occur eventually, effectively limiting the health care provided to future patients. This is similar to what occurs in today's private health insurance market where the costs of high intensity users and low intensity users are shared amid the overall premium payments. The high intensity users (whose premiums consistently fall short of their health care costs) tap into the unused and accrued premiums of the low intensity users. In the applied setting, amid finite health care dollars, it does not appear that Daniels' model is financially sound or that it can accomplish its allocation goals because it appears to rely on mortgaging against equity which does not exist (as described above).

There is another downside to conceptualizing the allocation of identified health care entitlements (items, services) versus health care dollars. Dollars themselves carry little emotional weight when compared to the emotion stirred when contemplating actual medical procedures such as transplantation or coronary artery bypass surgery. The lack of \$60,000 in one's pocket versus the thought of not being able to have bypass surgery can cause very different emotional responses even though the two concepts are related to each other. It is difficult to imagine individuals (age-blinded or not) being able to back away from health care when it is thought of in terms of the actual services provided. As another example, consider being told that you are limited to a health care budget of \$2000, versus being given a list of \$200,000 worth of health care services and being told to select from this list services that do not exceed \$2000

in total. Immediately you are confronted with a list of services that you will not be getting due to the process of elimination. Individuals might recognize their mortality in this process and hence resist the exclusion of any therapies (therefore resisting the Prudential Life Span Account model).

The Prudential Life Span Account's philosophy fosters each individual's treatment preferences, yet this model is unable to equally serve all individuals in an applied setting. Daniels' philosophical model requires each individual to view his or her entire life span as a series of distinct stages and requires each to plan accordingly; however, this assumes that every adult with decision-making capacity can, in fact, think of life in this manner. In the setting of "real life" some people can barely plan out a week of their life, never mind an entire life stage. Additionally, the philosophical model appears to assume that all individuals have a level of educational sophistication to understand the plethora of medical technology currently available and their personal probability of having need of it. In the applied setting, genetic and environmental factors, as well as, unavoidable accidents can affect this probability. These three variables, operating separately or together, could result in turning one's Account upside down by breaking the synergy of prior account transactions. Also present is the assumption that these individuals will fully grasp (prospectively) the consequences of opting out of various technologies.

It is unlikely that the needed maturity level for prudent and prospective decision-making is present in all individuals. There is also the very distinct possibility that one's life goals may change as the result of a change in marital status, child bearing, or of attaining advanced education. Additionally, one's treatment preferences might change as the result of new developments in medical technology that were not contemplated at the time one's Account was planned. Even if the Prudential Life Span Account model allows for individuals to change their mind, what are patients to do if they have already borrowed against their life stages based upon their prior bank of knowledge? If they cannot borrow against their minimum entitlements, then the question returns to borrowing against the life stages of other individuals, which, as discussed above, will eventually shortchange future patients in a setting of finite resources.

Another concern about Daniels' philosophical model is that it has no provision for the maintenance of each Account. In theory, transactions could be self-policed but this seems unwise for the same reasons expressed for the Prudent Consent model. Because Daniels' model involves borrowing from oneself (and potentially others) it would be appropriate to have a third party maintain the account ledger so that the integrity of the ledger can be protected. This brings up the role of enforcing the choices made, and the fact that these choices need to be in a setting where patients are given all the information that is needed to make a decision (e.g., information about the proposed medical intervention, its risks and benefits, etc.) Further, this information must be comprehensible by the patients,

considering their level of educational sophistication. Even if the necessary information is provided, and comprehension is attained, requiring decisions to be made by way of prospective thinking and planning for an entire life span seems insurmountably complex. In summary, the Prudential Life Span Account model cannot function as Daniels philosophically intends because the model relies on numerous assumptions that are difficult to accept, and there are no protective mechanisms for individuals for whom prospective planning is a compromised task.

Why Not?

For Charles Morris, former Secretary of Health and Human Services for the state of Washington, reducing wasteful spending and inappropriate end-of-life care are worthy goals, but they are measures that will not greatly impact overall health care spending. In fact, Morris takes the unusual position of extolling health care spending as a boon for the United States economy and employment (Morris 2000). While his goal does not entail issues of patient access (e.g., who is being denied health care, why health care is being denied), he does acknowledge there are inequities in access. Morris' approach to the current health care dilemma is to keep the medical technology pipeline full and running as this promotes a healthy economy. Quoting from his publication, *The Health-Care Economy is Nothing to Fear*.

In reality health care, or a very large sector of it, is a high-productivity, high-technology industry that is a good employer and pays above-average wages....It is true that health care will consume a quarter

or even more, of national resources within a generation or so, but we can well afford that—and without giving up anything else. (Morris 1999, 87)

Acknowledging that health care spending is increasing year after year, he counters with the fact that the price of technologies falls over time. Before bashing health care as a costly, over-accessed sector, Morris asks that philosophers, economists and policy advisors reflect on the domestic jobs that technology creates. His position does spawn reflection on how many products besides health care technology bear a "Made in USA" label. Halting technology endeavors, as suggested by Callahan, is unsound advice according to Morris.

Morris refuses to accept the argument that lack of resources is fundamental to the current health care dilemma. For Morris, the real problem is the lack of an effective financing mechanism. Quoting Morris, "There are plenty of poor people in America, but that is mostly a problem of distribution, not of resources. A scandalously high number of Americans are without health insurance because of a lack of political will, not of economic capacity" (Morris 1999, 92). He maintains that unrestricted growth in health care offerings is inevitable, requiring more personal, public and government subsidies to facilitate access. He sees these increased subsidies as the only answer owing to America's refusal to accept the inevitabilities of aging and disease, and its refusal to accept the limits and regimentation of the health care systems offered in countries such as Canada and the United Kingdom.

Not seeking to justify health care as "special" or an entitlement, Morris instead analyzes health care as not dissimilar to any other market sector. He argues that if America is willing to spend billions on recreation, leisure and entertainment, then why is it "wrong" to spend the same amount or more on health care. "What do they want us to spend it [money] on?" he asks (Morris 1999, 92). Even with this open checkbook mentality, I do not view Morris as desiring to inflict a technological flogging on all patients regardless of their capacity to benefit or their desire for medical intervention. Instead, Morris considers procedures such as hip, valve and organ replacement not as a drain on the community but rather measures that can return patients to a more functional state (Morris 1999). He asks that medical spending be reconsidered as wasted money when it keeps individuals employed (both patient and provider). In fact, as health care spending increases, he argues that spending in other sectors increases as well, owing to individuals improving their activity level by way of improved mobility and performance. It is agreed that in any other sector, increased sales, domestic name brands, a growing knowledge base and an expanding labor force would be things strived for and praised, yet none of these characteristics are salvation for the health care sector.

The concepts presented by Morris offer a look at health care allocation from a different angle. Instead of limits, Morris argues that continued spending (unlimited allocation) is good for patients and the domestic economy. While he makes the assumption that more taxation and subsidies will ensure access and

technological growth, he does not endeavor to pursue the issues that coexist with creating this funding strategy. Specifically, increasing taxation is not an automatic reality because it requires legislation and thus, in America, the input and approval of the people. It is foolhardy to assume that voting Americans as a collective would approve tax increases for this endeavor when there are those who will argue that the poor are already not paying their fair share for health care, and further taxation of the middle and upper class is unjust. Some would argue that charitable organizations need to step in and be responsible for the health care expenses of the un-insured and under-insured, instead of further wealth transfers from the rich to the poor (Epstein 1997). If this taxation is in the form of payroll/income taxes, Morris' plan fails to recognize the intergenerational issues that can arise, namely, the level of willingness of the youth and middle aged (employed) to make wealth transfers to the old (unemployed, copious health care consumers).

While possibly a theoretical answer, more taxation is likely to be resisted by voters, rendering Morris' plan "easier said than done". Because he defines the dilemma in a purely economic framework, his solution, increased taxation and subsidies, is purely economic. While he acknowledges that many view aging as a pathology requiring medical relief, Morris fails to analyze this concept further, and thus fails to appreciate that elements of this concept are tied to social values. Additionally, these social values can potentially impact the desirability of wealth transfers from young to old and rich to poor. The fact that Morris' plan does not

involve rationing care on the basis of a patient's age or type of therapy (care versus cure) makes his approach palatable from an ethics standpoint; however, it is unclear that his financial answer would be accepted in the United States. While his plan is strongly supportive of a level playing field for access to treatments patients desire (and have to the capacity to benefit from), his plan fails to consider the social values that interplay with a financial proposal of this nature. In fact, Morris calls upon no philosophical concepts (e.g., justice and equity) to substantiate his plan, rather he offers unlimited health care services and unlimited access to them as an economic solution to what he terms an economic problem.

Capacity to Benefit

Nancy Jecker, professor of medical ethics at the University of Washington School of Medicine has pioneered health care allocation according to the "capacity to benefit" approach (Jecker and Pearlman 1992). In her scheme, Jecker argues that health care is allocated in an ethically appropriate manner when decisions are made by reflecting on the potential for success in achieving the goals of medicine. She and others understand these goals to include cure of disease, prevention of an untimely death, improvement of functional status, and relief of symptoms, pain and suffering (Jonsen, Siegler, and Winslade 1992).

By definition, Jecker's scheme would allocate health care according to each patient's capacity to benefit from a proposed therapy. Quoting Jecker:

Under this heading fall rationing policies that seek to provide scarce services to individuals likely to receive the greatest medical benefit while denying them to patients likely to gain the least...under a true medical benefit standard it will be medical benefit, not disease category, that is the basis for generalizing....A medical benefit approach is patient-centered, and asks which use of resources produces the greatest benefit to particular patients or patient groups. (Jecker and Pearlman 1992, 87-88)

Unlike tables of therapies which list treatment eligibility according to a person's age, treatment eligibility according to the capacity to benefit model requires that patients be individually assessed as to this capacity, and as to their personal treatment preferences. By requiring this two pronged assessment, each patient emerges from the group of patients that may have similar clinical conditions because his or her unique variables and preferences are prominent—as opposed to being diluted or ignored by a categorical limit or the fair innings approach. Also, requiring such an assessment nullifies any prejudgment that an individual or group may not want therapy (owing to their age, for example).

The goal of Jecker's model is to match the greatest possible benefit with each patient's capacity to benefit, yet this can be a difficult and subjective process. As an example, angioplasty would not be an appropriate match for a patient for whom the standard of care would be cardiopulmonary bypass, in light of the patient's preference for bypass, an acceptable risk-benefit ratio, and the potential for bypass to improve the patient's health status. As Jecker admits, there are no validated measurement tools currently available to quantify a patient's capacity to benefit from a proposed therapy (Jecker 1992). While clinical need may be assessed using lab tests and questionnaires, this may not directly correlate with

how each patient will respond to a particular therapy. Actual benefit attained once therapy has been initiated can be assessed through lab tests (e.g., bacterial/viral load reductions) and patient interviews, for example. The assessment difficulties of the capacity to benefit approach should not render it unethical. Upon review of the advantages of the capacity to benefit model, there is ample reason to pursue the development of valid assessment tools, especially when considering expensive or rare technologies.

There are several positive aspects of the capacity to benefit approach. In an effort to level the health care playing field, the capacity to benefit model fosters equity in the eligibility to receive care because allocation decisions are made on an individual basis without regard to how each allocation transaction may compete with those of other individual patients or groups of patients. Quoting Jecker and Pearlman:

Our proposal is sensitive to differences between patients at each stage of life. For example, *within* age groups patients may have widely different life prospects and health status. And *between* age groups, healthier older persons may stand to gain much more than younger, sicker patients. (Jecker and Pearlman 1992, 93)

Because it does not consider the allocations given to others, the capacity to benefit approach does not foster competition between generations that may be seen to use more health care than others (e.g., older versus younger persons). Similarly, competition within generations is not fostered because the allocations toward individual patients are not weighted against those given to other individuals. Because it considers the unique clinical variables and preferences of

each patient, the capacity to benefit approach does not generalize a patient according to age or disease group. Unlike the Prudential Life Span Account, each person's health account ("ledger") is not a record of withdrawals (allocations), but rather a record of credits (benefits gained), with the patient and physician jointly managing the account transactions.

Having health care allocation decisions occur within the doctor-patient relationship is advantageous for several reasons. With such decisions residing here, trust between the two parties can be fostered because the physician team can be more clearly seen as advocating the patient's best interests and guarding against the patient's vulnerabilities. While there is always the potential for conflict of interest (especially if physicians are health care industry stockholders), the fact that decisions are benefit based and not cost based can help alleviate this concern. In this setting where patient benefit is elevated as the primary goal, the experiential knowledge of the medical team can be seen as highly valued (instead of disregarded as it is in the setting of categorical limits or the fair innings approach). As this set of experiential knowledge grows and physicians learn what works, what doesn't work, and why, the tools of both medicine and capacity to benefit assessment will improve, and more patients are more likely to get their best potential benefit-treatment match. Additionally, the elimination of third party decision-makers (administrators) could speed up the health care allocation process by reducing logistical constraints, helping to reduce patient suffering by getting therapy to patients faster.

Similar to the concept of not fostering competition amid or between generations, the capacity to benefit approach does not make value judgements as to the social worth of generations or individuals. Because decision-making occurs by reflections in a clinical context, non-clinical matters do not wield the weight they would in settings of age-based treatment limits, for example. Lack of employment or one's place in the social strata do not register in the equation of capacity to benefit, unless these matters affect the ability to attain or sustain the intended benefits of treatment (or the treatment itself). By dealing with patients as individuals and considering their treatment preferences this can have the effect of humanizing them as they transform from case numbers and diagnosis codes to persons in need. The action of assessing a patient's capacity to benefit simultaneously discovers each patient's need and level of suffering. Other approaches such as categorical treatment limits or the fair innings scheme do not entertain these concepts because their rationing act occurs without the requirement to reflect on them.

Another positive feature of the capacity to benefit approach is that its actions directly identify and disqualify therapies that likely won't benefit patients. By attempting to match potential benefit with a patient's capacity to benefit, therapies that will not satisfy the goals of medicine will not be allocated. Not only is this a potential cost savings, it leaves physical resources (e.g., equipment) available to patients who do have the capacity to benefit from them. While some

may argue that this cost savings is not significant compared to the resources that would be spared if categorical treatment limits were imposed, by themselves, these limits do nothing to prevent inappropriate treatment from being provided to patients in the categorically acceptable treatment class.

Assessing a patient's capacity to benefit should include both a physical and cognitive aspect. According to Jecker, a patient's capacity to benefit should consider the patient's ability to cognitively appreciate benefits that may be physically readily apparent (especially in the case of expensive or rare technologies). According to Jecker, if a patient's neurological compromise is assessed to be severe and irreversible such that the patient will never cognitively recognize therapeutic benefit, it is ethically appropriate to not offer medical therapy (or withdraw it) (Schneiderman, Jecker, and Jonsen 1990). An example of this is patients quantitatively determined to be in a permanent vegetative state. Not everyone agrees with Jecker's position because, for example, patients who can cognitively experience benefit but cannot express this outwardly would be denied medical intervention (e.g., patients with "locked-in syndrome").

The goals of medicine do not include immortality by way of artificial life support. By having an innate mechanism to prevent the allocation of inappropriate therapy, the capacity to benefit approach exists within a balance of therapy allocation, therapy withdrawal, and therapy withholding—with such decisions based on variables that genuinely impact a patient's health status, as opposed to

arbitrary, non-health related variables. As Jecker indicates, "A medical benefit standard takes into account the values and goals a patient holds, as well as the physiological effects treatment will have for a particular patient" (Jecker and Pearlman 1992, 89). As such, medical benefit is not the same as medical effect. Medical effect equates to both the positive and negative results of an intervention, whereas medical benefit equates to the improvement in a patient's overall health status and well-being.

Already discussed as a downside of the capacity to benefit approach, the lack of validated assessment tools has yet to be resolved. Additionally, a critical matter needing attention is the concept of time in the scheme of a patient's benefit from therapy. If it can be determined how long a particular therapy can provide benefit (in general terms), it must be ascertained how long that benefit could be potentially realized in each specific patient, and if that time frame would be considered "worth it" in allocation decisions involving scarce or expensive resources. As will be discussed in chapter 4, the weight assigned to the time variable could set up age competition among patients. Age should only be a treatment criterion if there is empirical evidence validating that age can impact clinical outcome.

Taking these positive and negative into account, capacity to benefit is the only allocation scheme (of those presented) that relies on genuine health-related variables to allocate health care services. Using arbitrary variables that are non-

health related (e.g., age) immediately ushers in the quandary of which variables to pick and who picks them. Consequences are distrust of the medical team and the medical profession, competition among patients and generations, a disregard for a patient's treatment preferences and the medical team's experiential knowledge, and the potential for patients to be excluded from beneficial therapy ("geriatric health care omissions").

In summary, while the capacity to benefit approach does not innately carry an economic answer to the problem of finite dollars, it does highlight the elements of ethically sound health care allocation. Rather than creating an economic answer that lacks ethical reflection, building upon Jecker's capacity to benefit approach will allow for economic variables to have their place (upon a foundation of equity). The next chapter picks up where Jecker left off and formally defines an approach to capacity to benefit as a health care allocation tool.

CHAPTER 4

FORMULATING A CAPACITY TO BENEFIT APPROACH TO HEALTH CARE ALLOCATION

As discussed in the previous chapter, Jecker's notion of capacity to benefit in the context of health care allocation has merit for several reasons including the fact that the elderly are not categorically excluded from medical intervention; however, her approach is incomplete in that it lacks formulation of the process by which to determine a patient's capacity to benefit from a proposed intervention. Presented here is further exploration of the concept of capacity to benefit and arguments supporting a set of variables essential to acquiring a formal understanding of a patient's capacity to benefit from a proposed therapy. Additionally, while Jecker has researched capacity to benefit in the narrow context of futility (Jecker and Pearlman 1992), I have explored capacity to benefit in the context of non-futile situations, and where improvement in a patient's health status (the clinical, social, functional and psychological well-being of an individual) is potentially achievable and health care resources may be scarce.

There are many approaches to analyzing concepts, yet as John Wilson⁹ argues, such analyses are not to determine the meaning or definition of words. As Wilson points out, the actual and possible uses of words are what are critical to conceptual analysis, as the various uses of a word contribute to a user's understanding of the word. Noting this, accepted meanings or definitions of

⁹ In his book *Thinking with Concepts* (New York: Cambridge University Press, 1963) John Wilson presents several tools useful in the process of conceptual analysis.

words as found in a dictionary, for example, are appropriate as a starting point in the process of conceptual analysis. Though not searching for *the* meaning of "capacity to benefit", exploring a dictionary definition of the elements of the phrase ("capacity" and "benefit") can be an appropriate reference point when exploring "capacity to benefit" as a concept (acknowledging that definitions and usage examples may vary among dictionaries).

What seem like simple, clear-cut concepts, capacity and benefit can be investigated to discover the use and meaning of these terms in the context of both health care and non-health care settings. Capacity is derived from the French word *capacité* and via the Latin word *capabilis* (both derived from *capere*) meaning ability to hold or receive¹⁰. *Merriam-Webster's Collegiate Dictionary*¹¹ lists several definitions of "capacity" including, 1) the maximum amount or number that can be contained or accommodated; and 2) potential or suitability for holding. These definitions imply that capacity is inherently related to quantity because that which is contained or accommodated is a function of its quantity. Similarly, while the potential or suitability for holding is dependent on a container's structural integrity, such is also dependent upon the quantity of the item being contained. In the context of medicine, capacity's inherent notion of quantity is clearly evident. Vital capacity is the greatest volume of air that can be exhaled from the lungs after maximum inspiration. Functional residual capacity is the volume of gas remaining in the lungs at the end of a normal expiration.

¹⁰ Linguistic history researched using Phurba's Etymological Glossary. Accessed 22 February 2002. Available from <http://www.panikon.com/phurba/alteng/c.html>.

Oxygen capacity is the maximum quantity of oxygen that can combine with hemoglobin in a unit volume of blood. All these examples of capacity in the context of medicine denote a measurable or calculable quantity.

Returning to the concept of capacity in a general sense, capacity refers to how much something can hold. "How much" renders the item contained as quantifiable. In the case of objects such as flasks and petrol tanks, it is easy to visualize both being filled to their capacity. The capacity of a flask and tank depends on both their size and their functional design. For example, consider a 10-litre petrol tank. The tank will hold 10 litres of petrol as long as it is not compromised by a crack. Once cracked, the tank cannot hold 10 litres of petrol. Although cracked, this tank will, however, likely hold 10 litres of very viscous fluid (not petrol). Does this mean the tank is no longer a 10-litre petrol tank? Does the tank still have a 10-litre capacity? In this example, the capacity of the tank depends on what type of fluid is inside the tank. Even with the very viscous liquid, the tank can only hold 10 litres of it for a limited time before leakage occurs. Thus, the capacity of the tank also depends on its contents and time. In a general sense, capacity is both a property [ability] and a quantity. Further, the notion of time is bound to capacity as shown by the petrol tank example. The tank is expected to hold 10 litres forever or until the tank's structural integrity is compromised by wear, damage or deterioration.

¹¹ Merriam-Webster's Collegiate Dictionary (1999), s.v. "capacity."

Having argued that ability, quantity and time are intrinsic to the concept of capacity in a general sense, it is appropriate to return to exploring the concept of capacity in a medical context. Just as inanimate containers such as tanks and flasks can wear out or become damaged, the human body (a container of cells, tissues, organs and organ systems) can also deteriorate and become damaged. Just as a petrol tank's capacity will fluctuate between periods of structural compromise and repair, so will the human body. As examples, some days I have the capacity to run two miles, other days, when I am not feeling well, I cannot run two blocks. Some days I can carry 30 pounds for three minutes, other days, when I am less strong, I can only carry 30 pounds for three seconds. Comparing different points in time, does a difference in health status affect a person's capacity to do things? Can a change in health status affect a person's ability to make decisions, feel pain, or deal with emotional stress? Can a negative change in health status affect a person's ability to recover from illness?

These questions force a return to the examination of the meaning of "capacity". *Merriam-Webster's Collegiate Dictionary*¹² includes two additional definitions of "capacity": 1) the faculty or potential for treating, experiencing or appreciating; and 2) the facility or power to perform, produce or deploy. Using these definitions in the context of health care, a negative change in health status can reduce a person's capacity to comprehend information, make decisions and perform tasks. Conversely, a positive change in health status can improve a person's capacity to comprehend information, make decisions and perform tasks.

An example of positive and negative changes in health status is the numerical change in a patient's Glasgow Coma Scale score. Further, if an individual's health status is very poor, the capacity to improve physically or emotionally may be beyond possibility, no matter what technological methods are employed. Said another way, an individual's ability to benefit from medical technology may be affected by the level of deterioration of the person's container [body] and its contents [cells, tissues, organs, organ systems].

Shifting to the concept of "benefit", *Merriam Webster's Collegiate Dictionary*¹³ provides several definitions of the term: 1) something that promotes well-being; 2) useful aid; 3) to be useful or profitable to. Within all of these definitions is the notion that benefit is something good or positive. There is no indication, however, that the good/positive will or must last forever or that the good/positive will or must last a minimum length of time. The only definition that contains a reference to time is that of number one, if, "well-being" is assumed to be the state of being happy, healthy or prosperous. A state can be understood to be an isolated point in time. Multiple points in time, sequentially one after the other, can be analyzed for trends (e.g., a patient getting healthier, a patient getting sicker). Whether considering benefit in the context of one isolated point in time or multiple points in time, benefit as defined above requires no permanence in its effect, nor does it require a minimum length of effect in order for the effect to be termed a benefit.

¹² *Merriam-Webster's Collegiate Dictionary* (1999), s.v. "capacity."

¹³ *Merriam-Webster's Collegiate Dictionary* (1999), s.v. "benefit."

Integrating the concepts of capacity and benefit in the context of health care, I term capacity to benefit to be a patient's ability to experience health status improvement. "Experience" will be discussed in detail, but first, this notion of capacity to benefit does not prescribe that the improvement must last forever or for a minimum length of time; rather, the notion of time is that of snapshots in time which can be analyzed for trends. The trending of capacity to benefit snapshots can help the doctor-patient team in their decisions to initiate, withdraw or change the patient's treatment plan because of the capability to view the patient's ability to potentially improve with the proposed intervention.

Concurring with Jecker's view, in situations where health status improvement by way of a proposed intervention is not anticipated, the proposed therapy should not be initiated (Schneiderman, Jecker, and Jonsen 1990). In situations where health status improvement by way of a proposed intervention is anticipated and the intervention is desired by the patient, implementation of the proposed therapy should be considered. This latter situation is very complex in that the risks and benefits of the proposed intervention must be explored. Additionally, in the setting of the United States some interventions may be financially unaffordable for those who lack health insurance or whose insurance omits certain therapeutic interventions from policy coverage. Another complexity is that some technologies are not mass-produced and readily obtainable, thus their availability to patients with capacity to benefit is very limited (e.g., allograft transplantation).

Further, it is amid these situations of anticipated benefit where the notions of quantity of benefit and length of benefit come into play.

In this conceptual format, capacity to benefit is philosophically interesting, but difficult to employ in the setting of health care allocation. As discussed in chapter 3, Jecker and others who propose a capacity to benefit approach to health care allocation have not formulated the process by which to determine a patient's capacity to benefit from a proposed intervention. As argued in chapter 3, the lack of such a formulation, however, does not detract from the appropriateness of capacity to benefit in the context of health care allocation; rather, it renders the notion of capacity to benefit incomplete. While numerous algorithms exist for the quantification of a patient's level of consciousness and other clinical matters, and such quantified elements facilitate defining a patient's clinical status, from the standpoint of assessing a patient's capacity to benefit from a proposed health care intervention, philosopher Jeremy Bentham's "hedonistic calculus" is a helpful guide.

In the 1948 Hafner Publishing edition of Bentham's, *An Introduction to the Principles of Morals and Legislation*, he describes a hedonistic calculus for mathematically calculating pleasure. While his approach is an attempt to quantify "pleasure" in a general sense, not in the applied sense of health care, Bentham considers both health [page 34] and the relief of pain [page 37] as forms of pleasure. Although this calculus lacks units (such as grams per litre or

kilowatt), Bentham argues that his formula is nonetheless a valid quantification tool. For Bentham, the fact that a person has a preference for one color over that of another is an example of pleasure quantification, even though the actual amount of pleasure cannot be empirically determined. Similarly, to enjoy Wagner a lot and Chopin somewhat is another form of pleasure quantification for Bentham. In *An Introduction to the Principles of Morals and Legislation*, Bentham takes steps to quantify pleasure by arguing that the value of a pleasure will vary according to its intensity, duration, certainty or uncertainty, and its propinquity or remoteness [pages 29-30]. Also to consider is the tendency of the act that produces pleasure to be followed by further sensations of pleasure, and the tendency of the act to not product pain after it produces pleasure. For Bentham, each person measures these variables himself/herself as opposed to someone else. If the interest of others will be affected in addition to the individual in question, Bentham requires that the individual take into account the additional people whose interest appears to be concerned and quantify the variable measurements for each additional person. In the context of health care, an example of a setting in which actions that may affect others in addition to the patient is that of allograft transplantation. This is because an organ given to one person on the waiting list excludes anyone else on the waiting list from getting that particular organ, forcing these other patients to wait longer for an organ to become available to them.

Returning to the notion of capacity to benefit as a patient's ability to "experience" improvement in health status, Bentham considers both pleasures and pains to be perceptions. As such, pleasure and pain require the ability to experience and feel. Some pleasures require contemplation, such as those derived from the consciousness of possessing certain mementos, the pleasure of believing you are in good favor with someone, and the pleasure of recalling positive events. This experiential requirement coincides with Jecker's notion that a capacity to benefit approach to health care allocation should consider the patient's ability to cognitively appreciate benefits that may be physically readily apparent (especially in the case of expensive or rare technologies).

Patients assessed to have severe and irreversible cognitive impairment that renders them unable to appreciate therapeutic benefit should not be offered medical therapy, and that which has been initiated should be withdrawn (Schneiderman, Jecker, and Jonsen 1990). Because Bentham's hedonistic calculus requires individuals to measure pleasure's variables themselves, and pleasures (and pains) are perceptions, irreversible cognitive impairment prevents an individual from measuring these variables and also from experiencing pleasures and pains themselves. In the context of health care, there are two assumptions in Bentham's calculus: 1) pleasure and pain are experiential; and 2) the act of measuring the variables of pleasure (and pain) must be performed by the individual himself/herself, automatically exclude those unable to recognize therapeutic benefit from the process of calculating capacity to benefit. Thus, in

this group of patients, health care intervention is not ethically appropriate.

Situations in which medical intervention would contribute to the welfare of others (e.g., caregivers, relatives), yet not be appreciated by those with severe and irreversible cognitive impairment, should be evaluated on a case by case basis, especially when such interventions are in scarce supply, are expensive, and maintain the patient in his or state of impairment. Medical interventions may also be appropriate in situations where no benefit would be realized by the patient but safety may be imparted to others.

While Bentham's calculus was not created as a health care allocation tool, Bentham did view both health and relief of pain as pleasures. Additionally, he declared that his calculus applied to pleasures "in whatever shape they appear: and by whatever denomination they are distinguished: to pleasure, whether it be called good...or profit...or benefit [page 31]." Acknowledging Bentham's multiple conceptions of pleasure, it is feasible to consider his hedonistic calculus in terms of benefit, rather than pleasure, facilitating the discussion of capacity to benefit.

From the hedonistic calculus to capacity to benefit in the context of health care

As discussed in chapter 3, health care allocation schemes that deny a role for the unique clinical and contextual features of each patient's presentation are profoundly deficient; however, Bentham's variables are valuable for creating an allocation approach that allows a role for such features (see table 1). Bentham's

seven variables can be extracted from his calculus approach and used to create a capacity to benefit-based approach. According to this approach, the tendency of any medical intervention to be of benefit to someone will depend on the intensity of the benefit, the duration of the benefit, the likelihood that the benefit will, in fact, occur, the amount of elapsed time until the benefit occurs, the likelihood of further benefit following the initial benefit, and the likelihood of a detrimental effect following the benefit. Detrimental effects include physical side effects (e.g., pain) and non-physical side effects (e.g., inability to return to work). As discussed earlier, it is also appropriate to consider the effects of health care allocation on parties other than the patient to which the intervention is allocated because the suffering of others may increase as the result of an intervention being allocated to another. Also, knowledge of this added suffering to others could adversely affect the patient receiving the intervention. While this approach reflects upon the impact of those not receiving interventions, all clinical and contextual features of each patient are still considered critical to decisions to allocate a particular intervention.

Table 1. Bentham's seven variables in the context of health care

The tendency of any medical intervention to be of benefit to a patient will depend on:
1. The intensity of the benefit
2. The duration of the benefit
3. The likelihood that the benefit will occur
4. The amount of elapsed time until the benefit occurs
5. The likelihood of further benefit following the initial benefit
6. The likelihood of a detrimental effect following the benefit
7. The effect of the patient's benefit on others

The recognition of the relevance of the seven variables to formulating a capacity to benefit approach to health care allocation does not mean that other relevant variables do not exist. Indeed, it is possible that additional variables would help to more completely formulate the capacity to benefit approach. For example, the level of a patient's motivation to get well (the "will to get better") is potentially relevant to the patient's ability to heal, as well as speed of the healing process. Further, it is acknowledged that "benefit" is a very complex and multidimensional concept that includes relief of pain, saving money, and spending more time with friends and family. As will be presented, such complexity makes it difficult to quantify "benefit" as a single numerical value. The extraction of Bentham's seven variables is presented as a first step in formally assessing capacity to benefit.

Conceptually, Bentham's seven variables are appropriate items to consider when contemplating the potential impact of a proposed therapy on a patient's health status. As will be discussed further in the next section, Bentham's seven variables are difficult to quantify in the clinical setting; nonetheless, this does not erase their value in a qualitative approach to capacity to benefit assessment. With regard to intensity of benefit as a capacity to benefit variable, the greater the intensity of the benefit, the greater the value of the benefit. As an example, "moderate" pain relief is more valuable (desirable by patients) than "slight" pain relief, acknowledging that some patients may never experience high levels of pain relief and would thus value any lower level of pain relief. Even though

intensity of benefit is difficult to quantify, many patients likely have a sense of what "amount" or type of improvement they consider "benefit" in light of their health status and the advantages and disadvantages of the proposed intervention.

With regard to duration of benefit, it is likely that most people would agree it is more appropriate to give a heart transplant to someone who could gain 5 years benefit from it, as opposed to 5 days benefit, even though it is impossible to predict the duration of benefit for any therapy in any patient due to imprecise projection techniques, the possibility of accidents and sudden death, for example. One-time allocations of therapy with long-term results may also be more cost effective than multiple allocations of therapy with short-term results. "Long-term" and "short-term" are potential ways in which to semi-quantitatively describe durations of benefit, acknowledging that there is no universally accepted definition or understanding of either expression.

Even in the absence of the ability to accurately predict the likelihood that benefit will occur, the variable is still relevant to the capacity to benefit approach. In a qualitative manner, allocating resources to clinical situations most likely to realize health status improvement facilitates less chance of resource waste. Also, allocating therapies to those with the best chance of benefiting from them represents diligent efforts to relieve patient suffering. Similarly, the amount of elapsed time until the benefit occurs is relevant to capacity to benefit

assessments because patients anticipated to realize benefit quicker would unnecessarily have their suffering prolonged if delays in allocation were to occur. Also, delaying therapeutic intervention for these ready-to-benefit patients potentially allows them to become sicker, potentially reducing their capacity to benefit as a result of greater physical deterioration. Sicker patients may also use more resources in their attempts to regain health.

It is also impossible to accurately predict the likelihood of further benefit following initial benefit; nonetheless, use of the variable is relevant to the capacity to benefit approach because the sum total of benefits is increased in cases where future benefit follows initial benefit. In a qualitative sense, "the sum of total benefits" is not a mathematical number but the general aggregate of benefits. An example of such a situation would be hip replacement surgery providing the initial benefit of pain relief, followed by a future, long-term benefit of being able to resume one's sports, hobbies or employment. Similarly, if the potential for detrimental effects was high the proposed intervention might not be implemented. Such discussions often use surgical morbidity and mortality statistics, for example.

Previously mentioned was the effect of the patient's benefit on others as a variable in the capacity to benefit approach. As an example, when one patient receives a donor heart, this excludes anyone else on the heart transplant waiting list from getting that organ. The knowledge of this negative effect on others can

potentially negatively impact the recipient patient in the form of psychological stress, for example. Minimizing patient harm is generally accepted as a principle of medical ethics (Jonsen, Siegler, and Winslade 1992), thus if it is known that some patients will be harmed by their inability to receive therapeutic intervention that is allocated to someone else, an ethically appropriate allocation approach must reflect on this fact. In the case of cardiac technology (as will be discussed in chapter 7), while allografts may not be immediately available to all patients with the capacity to benefit, there may be other options such as bridging devices that can intervene to prevent further deterioration (harm).

As discussed earlier, because benefit conceptually consists of snapshots in time, a patient's capacity to benefit will vary over time. A patient's capacity to benefit should be routinely reassessed, as well as each time the clinical course changes for better or worse. Having said this, one notes that the immediacy of a patient's need for a specific medical intervention is not a variable to capacity to benefit assessment. The objection to immediacy as a variable is two-fold: 1) immediacy of need is subjective and is poised for bias such that a patient's capacity to benefit could be skewed; and 2) there is not necessarily a correlation between capacity to benefit and immediacy of need. In fact, patients with more imminent need could have a reduced capacity to benefit due to a high level of physical deterioration. In the capacity to benefit approach, patients needing immediate medical intervention are still required to show capacity to benefit from the proposed intervention. As I have witnessed, physicians can manipulate the

immediacy of need ranking of their transplant waiting list patients in an attempt to elevate their patients' wait list position. Using a capacity to benefit approach, patients hold their place in line unless their capacity to benefit from the proposed intervention increases or decreases. While some waiting lists span months or even years, the capacity to benefit approach facilitates fairness in allocation because wait time is not a competitive notion, and issues such as *but I have been waiting longer than that patient* or *but that patient was just placed on the waiting list* are not relevant to allocation decisions. If capacity to benefit was assessed to be "equal" among two or more patients, then elapsed waiting time could be used as a "tie-breaker" in decisions to allocate limited resources (with the patient with the longest waiting time being allotted the proposed intervention). While lengthy waiting times are frustrating for patients, the use of waiting time as a sole criterion for health care allocation is inappropriate for reasons to be discussed.

Another variable that is not a component of the capacity to benefit approach is length of benefit in terms of years of life gained. One reason for excluding this variable is that the number of life years gained for a patient does not necessarily correlate to an improved quality of life in these additional years. No medical intervention should be seen as facilitating immortality, but rather facilitating an improved quality of life (e.g., less pain, less suffering, improved physical functioning). Also, if a health care allocation scheme used years of life gained as an allocation criterion, the elderly would be at a disadvantage. First, because

they are older, the elderly have fewer life years ahead of them (based on human life expectancy estimations). Second, the elderly generally have more comorbidity than the young and middle-aged, and it may not be possible to lengthen their life, only improve its quality. Another reason for excluding added life years from the capacity to benefit approach is that use of this variable implies that life years (as a number) are more valuable than the quality of life during these years. Also, some therapies may shorten a person's life, yet facilitate a better quality of life in one's remaining years.

This is not to say that length of health status benefit is not important. Length of benefit is a component of length of life years added, because to simply add 'x' amount of life years to a person does not mean that the health status benefit will last the entire span of these added years. It is more appropriate to consider the length of benefit (as is done when matching donor organs with recipient patients), even though length of benefit still has the potential to put older patients at a disadvantage because of fewer life years ahead of them compared to those younger. Admittedly, even when using registry data as a guide, length of benefit is difficult to predict. Not all patients react the same way to the same medical intervention, and there is nothing to prevent accidents or violence from terminating a patient's health status benefit at any point in time.

Quantifying capacity to benefit is problematic

The impossibility of providing validated tools for estimating and ranking each benefit variable presents problems for anyone attempting to use the scale for the purpose of health care allocation decision-making. As this section explores, problems arise out of the impossibility of predicting and measuring benefit. Also, one is faced with defining a scale to quantify each variable in the same format, even when some variables are probabilities (e.g., 30% chance of benefit occurring) and others are quantified in terms of time (e.g., five year duration of benefit). In his hedonistic calculus, Bentham seemed to imply that ranking is the method to accomplish this task, requiring a summing up of the numerical assignments made for each variable; however, he provided no scale range for any of the variables. For Bentham, the higher the final "score", the higher the level of benefit. Reflecting on the fact that it is possible for acts to benefit individuals but adversely affect other parties, the overall ethical permissibility of the act is based upon the net score of the two parties (self and others). The balance sheet of benefit (pleasure) and detriment (pain) will term the act of benefit for the individual and his community if the benefit sum mathematically exceeds the detriment sum. The act is not of overall benefit if the detriment sum exceeds the benefit sum.

The conceptualization of the seven variables in a quantitative format is also complicated by the deceptive simplicity of an arithmetic ranking scale. As mentioned, even if all variables were ranked using a 1-10 scale, the impossibility

of adding variables with different units (e.g., percent and years) presents itself. In addition, the variables themselves are no more than projections that are subjectively measured. There are no validated measurement tools available to quantify the seven variables. Even if every individual were to assign variable scores without bias as to how each score would affect the overall outcome, and if all individuals followed the same rules of ranking (whatever the rules might be), the calculus procedure (as a whole) would still be a subjective process with no 'real' "measurement" actually occurring.

Beginning with the first variable, "intensity", there are many gradations of intensity. While the endpoints of the range might be 'none' and 'a lot', the middle range is more difficult to delineate. Even with a 0-10 ranking scale whereby '0' represents 'none' and '10' represents 'a lot', defining the 1-9 rankings is challenging. The same issue arises when considering the second variable, duration. While it is easy to assign a zero ranking to a duration lasting only seconds, would a rank of '10' apply to a duration lasting month or years? If years, how many years would rank as a '10'? With regards to the certainty of the benefit occurring, this could be ranked on a 0-10 scale by equating the percent certainty to a numerical score (e.g., no certainty = '0'; 50% certainty = '5'; 100% certainty = '10'), but the problem of the inability to accurately predict certainty of benefit still remains. Predictions of certainty, the time it will take before the benefit occurs, and the chance that the benefit will be followed by more benefit or

by a detrimental effect are all subjective projections without any guarantee of accuracy.

If a quantitative determination of a patient's capacity to benefit from a proposed therapy could be designed and validated, it could be used in two ways. A minimum value could be set such that only those patients with a capacity to benefit score greater than or equal to the minimum required value would be allotted the proposed therapy ['minimum value model']. There would be no guarantee or warrantee that the projected benefit would be attained, and those possessing a capacity to benefit, although lower on the score chart, would be denied an opportunity at benefit. The other way in which a quantitative determination of a patient's capacity to benefit from a proposed therapy could be used is in deciding which patients, among those competing for the same scarce technology, should be allotted the technology ['competitive score model']. In this model, patients with higher capacity to benefit scores would be given priority over that of patients with lower capacity to benefit scores. In this model as in the minimum value model, patients who quantitatively have capacity to benefit from a proposed therapy will not be allotted therapy due to a low value score. The argument can be made that quantitative approaches such as these oversimplify and depersonalize medicine, reducing patients to their score value—a value subject to arbitrary cutoffs no different than using age as a health care criterion. In reply, the variables that contribute to the capacity to benefit score are not

arbitrary, thus there may be an ethically appropriate role for such quantitative scoring schemes, if they were able to be empirically validated.

Because patients in both models are being excluded from therapy from which they have a capacity to benefit, does this render the capacity to benefit approach to health care allocation ethically inappropriate? In the setting of limited health care resources, it is impossible to allocate medical interventions to all those who could benefit from them because there is not enough of the interventions available or enough personnel or other allied resources available to implement them. Because this deficit is unavoidable for certain types of therapies (e.g., allograft transplantation), the shortfall must be dispersed in an ethically appropriate manner, just as the dispersing of available technology must be in an ethically appropriate manner. As argued, a capacity to benefit approach incorporating the seven variables from table 1 is an ethically appropriate method for dispersing limited medical resources. Even in the setting of devices that may be readily available, logistical factors may result in limited resources in conjunction with an unlimited technology. For example, while the future holds a likely unlimited supply of artificial hearts in various sizes, there will be a limited number of cardiothoracic teams and intensive care unit beds to handle all those with the capacity to benefit from artificial heart technology. These logistical constraints will force a queue, and the queue could be a listing of patients ranked according to their capacity to benefit.

A discussion of quantification would not be complete without an analysis of the QALY (quality adjusted life year) approach to health care allocation. Developed by philosopher Alan Williams, the QALY approach assigns numerical values as follows: being dead is worth "zero", a year of healthy life is worth "one", and a year of unhealthy life is worth "less than one" (Williams 1985). According to Williams, beneficial health care is that which generates numerically positive scores. The QALY approach calculates life-years gained for a particular patient as a result of a particular intervention and thus will favor allocating interventions to younger patients as they have the potential to gain more life years than older patients (based upon life expectancy estimates). This is in contrast to the capacity to benefit approach which does not use life-years gained, but duration of benefit gained.

Williams' approach does not acknowledge that some treatments may not extend life at all, but yet relieve symptoms. It is impossible to deny that health benefit may be realized by relief of suffering even if life years are not gained, yet the QALY approach does not take this fact into consideration, and thus does not value relief of suffering as much as life years gained. Because the QALY approach highly values life years gained (compared to relief of symptoms), the approach could potentially allocate care to population groups or disease groups anticipated to realize gains in life years, rather than patients (as individuals with unique clinical and contextual features) who could experience relief of suffering, though possibly not cure and additional life years. Such an approach to health

care allocation is unjust to the elderly (as they have fewer life years ahead of them than those younger), and hinders the medical goal of relief of suffering by not intervening unless life years are expected to be gained.

More issues to consider...

In the setting of scarce resources, the root cause of the existence of patients who will not receive a particular therapy even in the presence of the capacity to benefit is not their level of capacity to benefit, but rather the numerical shortfall in resources (e.g., personnel, devices, donor organs, hospital beds). A capacity to benefit approach disperses the available resources and the shortfall of resources in an ethically appropriate manner. Unfortunately, no allocation tool can create more resources, it can only disperse the resources it has to work with.

Will the denied patients be a uniform, vulnerable group such as the elderly, children, or minorities, for example? Will these groups consistently be denied interventions whether or not they are competing on a maximum score model or the competitive score model? The capacity to benefit approach does not reflect upon age, gender or ethnic background, but instead focuses on health status, co-morbidities and other health-related factors. It is acknowledged that some diseases are predominant in certain populations (e.g., sickle-cell anemia/blacks; breast cancer/women) and more co-morbidity is likely to exist in older versus younger patients. Further, low socioeconomic status can be correlated to lower

health status in many patients. Nonetheless, unlike age-based health care allocation, there is nothing explicit in the capacity to benefit approach that segregates these or other groups from health care allocation. If high-volume use of the capacity to benefit approach finds that vulnerable groups are being denied treatment, revisions would be warranted in an attempt to better level the health care allocation playing field.

In support of a qualitative approach to capacity to benefit

As argued in chapter 3, for any allocation philosophy to be considered ethically appropriate, the allocation criteria must be based on elements that are empirically proven to affect a patient's clinical outcome. Age is not an appropriate health care allocation criterion because age has been empirically shown to not necessarily be a predictor of clinical outcome. Health-related variables such as co-existing morbidity and the history of prior surgical interventions, for example, can affect a patient's capacity to benefit from a proposed intervention; thus, it is these variables, along with the patient's preference for treatment and the physician's experiential knowledge that should be reflected upon in decision-making. The capacity to benefit approach to health care allocation assesses the oughtness of allocating a proposed intervention to a particular patient by exploring the patient's ability to experience health status improvement as a direct result of the intervention. The approach assumes the patient wants the proposed intervention and that the patient's doctor has the

ability to effect the intervention (e.g., perform the surgical procedure) under standard conditions (appropriate knowledge, skills, and tools). Tables 2 and 3 present a summary of the advantages and disadvantages of the capacity to benefit approach to health care allocation.

Table 2. Advantages of the capacity to benefit approach

1. Does not force medical intervention on patients who do not want it.
2. The treatment preferences within a patient's Advance Directive are respected.
3. Supports the concept that medical technology should not be initiated in futile situations, and should be withdrawn in situations that become futile.
4. Decision-making occurs within the doctor-patient relationship, promoting the concept that the doctor is working for the patient, and fostering trust.
5. The decision-making process is faster due to the omission of third parties (e.g., insurance clerks) who are unfamiliar with the patient, the patient's preferences for care, and the patient's clinical presentation. A faster decision-making process can possibly lead to getting the intervention to the patient sooner, potentially reducing disease progression and patient suffering.
6. Respects the experiential knowledge that a physician may have about matching a particular intervention with a particular set of clinical variables.
7. By denying age as a variable to the scheme, the scheme respects the fact that age is not necessarily a predictor of clinical outcome.
8. Acknowledges that some interventions may benefit the patient while negatively impacting other people. Patients selected for intervention would be those for whom the benefit they experience will least negatively impact others.
9. Acknowledges that some interventions may benefit the patient yet also impart negative side effects to the patient. Patients selected for intervention would be those who will experience the fewest negative side effects.
10. Patients selected for intervention would be those with the greatest certainty of experiencing improvement in their health status.
11. Patients selected for intervention would be those for whom the benefit will last the longest.
12. Patients selected for intervention would be those who will experience the greatest improvement in their health status.

Table 3. Disadvantages of the capacity to benefit approach

1. Some of the variables are subject to bias because they cannot be objectively measured.
2. Patients who have the capacity to benefit from a proposed intervention might not be allocated the intervention if other patients are also competing for the same scarce intervention.
3. The approach does not consider the fact that some of the "others" negatively affected might find these effects acceptable (especially if they are minor and temporary) in light of the fact that the patient is experiencing benefit.
4. If the proposed intervention's negative effect on others is not weighted for its affect on the patient's spouse, family, employer, friends, fellow patients and fellow countrymen, then the approach could be undervaluing the impact of these negative effects.
5. The price/cost of the proposed intervention (and the patient's ability to pay) are not reflected upon, thus there is nothing to prevent the allocation of all interventions to patients who cannot pay for them.
6. Duration of benefit might be lower for older patients because they have potentially fewer life years ahead of them, compared to those younger.
7. Older patients likely have more co-morbidities than younger patients. This could favor health care allocation to younger patients.
8. Patients with low socioeconomic status could be disfavored in health care allocation as they may initially present to the health care provider with greater severity of illness and possibly behavioral issues such as drug/alcohol dependency, and a less favorable capacity to benefit.
9. Some patients may not be concerned that the onset of their health status improvement may take months as opposed to days, as long as improvement occurs. The approach puts patients with delayed health status improvement at a disadvantage because it favors allocating interventions to those who will manifest improvement sooner.
10. The side effects experienced by the patient may be temporary and minor, but the approach does not overtly differentiate between these and side effects that may be permanent and disabling. Patients may accept some side effects as a tradeoff in the improvement in other areas of their well-being.
11. Favoring those with the highest certainty of attaining health status improvement, the approach will fail to allocate scarce interventions to those with less certainty of capacity to benefit.
12. Favoring those who will experience the greatest amount of health status improvement, some of those who would receive less improvement will fail to be allocated a scarce intervention.

The present formulation of the capacity to benefit approach uses the seven variables derived from Bentham's hedonistic calculus, yet it presents itself as a separate, unique, and ethically appropriate approach to health care allocation. As discussed, the positive aspects of the approach are significant and many (table 2), yet as with any allocation approach, there are also negative aspects (table 3). Opinions will vary among philosophers, economists, and health policy advisors; however, it is likely that three prominent concerns of the capacity to benefit approach will be: 1) the capacity to benefit approach is subject to bias because most of the variables cannot be objectively measured; 2) the capacity to benefit approach does not include a mechanism to address the economic issues of the high cost of health care and the large number of non-insured and under-insured persons; and 3) the capacity to benefit approach will allow those with certain, yet "less" capacity to benefit (than that of others) to be denied some forms of health care.

In response to these concerns, while the variables of the capacity to benefit approach may never be "measured" with 100% accuracy, with further research, steps toward such a goal could possibly be attained, potentially reducing bias in decision-making. As stated earlier, the capacity to benefit approach is not presented as a solution to the economic problems of health care allocation; rather, the approach presents variables that are argued to be relevant to ethical health care allocation. Lastly, no allocation approach can create more resources, it can only disburse what it has to work with. The unfortunate result is that there

will always be patients who are denied health care that is in limited supply. The capacity to benefit approach facilitates disbursement of the available resources in a manner that uses health-related variables as decision-making determinants. As discussed, such an approach is much less arbitrary than using patient age or ability to pay as allocation variables because neither are necessarily predictors of clinical outcome.

The ethical appropriateness of the capacity to benefit approach is based upon the following: 1) the approach makes no distinction among therapies that provide symptom relief versus curative relief; 2) the approach does not foster competition between generations that may be viewed to use more health care than others (older versus younger persons); 3) the approach does not foster competition amid generations because allocations to individual patients are not tallied and weighted against those given to other patients; 4) patients are not generalized according to their age or disease state, but rather the approach reflects upon each patient's unique clinical and contextual variables; 5) health care allocation is not viewed as a ledger of resource withdrawals, but rather benefits gained from resource distribution; 6) the experiential knowledge of the medical team is valued in the allocation process as this knowledge can be useful in capacity to benefit determinations; 7) the approach does not make value judgements as to the social worth of individuals or generations; 8) as discussed in chapter 3, the act of assessing a patient's capacity to benefit simultaneously discovers each patient's

need and level of suffering; and 9) the approach directly identifies and disqualifies therapies that likely won't benefit patients.

Further modification of the capacity to benefit approach could include the addition of new variables or deletion of current ones, in an effort to minimize the negative effects that inevitably occur in settings of resource shortfall. In a general sense, capacity to benefit determinations are not new to health care decision-making. Few doctors would prescribe a medical intervention without first reflecting on if the intervention would improve the patient's health status. The capacity to benefit approach presented is a novel formulation for the assessment of a patient's ability to realize health benefit from a proposed intervention.

Health care allocation schemes, irrespective of their design, operate in a setting of inevitably aging people; thus, constructions of aging and the aged are integral to how these allocation schemes function. The next chapter focuses on these constructions and how they have been influenced by religion and technology. In particular, the concept of spirituality will be introduced. The current de-emphasis of spirituality in the aging process is paralleled by an increasing emphasis on technology. Together, spirituality and technology frame the setting in which patients, providers, and third party payers co-exist in the process of health care decision-making, here again bringing together values and economics as parts of health care allocation.

CHAPTER 5

CONSTRUCTIONS OF AGING

Just as houses are crafted in various styles and configurations, so too aging has various constructions. Viewed purely from a mathematical standpoint, aging is the process of adding years to one's life. By itself this construction is simple and unemotional, yet in the applied sense, aging occurs in settings with ever-present social, clinical and financial variables. These variables can express themselves in various forms, and as will be argued below, they can hold different weights in the overall construction of aging that arises. This chapter is divided into three sections, each exploring how these variables interact in various constructions of aging in an effort to demonstrate that aging is not a static, one dimensional concept. Further, because aging is multidimensional, the product of aging is not merely the aged, but various complex constructions of what it means to be elderly. In elucidating these constructions of aging, the additional role of this chapter is as a timeline that traces the interplay between spirituality, aging and technology in the domain of medicine. The outcome is a picture of the setting in which geriatric health care decision-making occurs today.

Spirituality and Aging

While the modern view of aging generally assumes a framework of medicine and economics, this has not always been the case. In premodern times aging was valued because of its spiritual significance (Cole 1983; Cole 1984; Stahmer

1978). This section explores the evolution of the spiritual and moral management of old age. In the context of health care and aging, I analyze the spiritual and moral themes to identify the core values present and relate these values to those of present day America.

H.M. Stahmer has studied the cultures of the ancient Greeks and Hebrews with respect to aging and the elderly. In his book *Aging and the Elderly: Humanistic Perspectives in Gerontology* (Stahmer 1978) he comments that early Hebrew culture revered youth and old age for different reasons. In the case of youth, vitality and a fit body were valued. In the case of old age, religious exhortation prescribed that the elderly be respected, but also, older people were respected for their political power, authority and wealth. Longevity was regarded as a reward from God owing to a righteous life, and this earned the elderly respect.

Stahmer also explains how the ancient Greeks regarded the gods as exempt from old age and death, and how the gods could bestow these exemptions to humans as gifts. Similar to ancient Hebrew tradition, old age was reflected on positively because of the way in which old people embodied wisdom, experience and achievement. In both Greek and Hebrew culture veneration of the old was not based upon chronological age, but involved respect for an individual's past. Stahmer comments that the past was respected because it was believed to shape the future. Because today's future is filled with an anticipated plethora of technological offerings, it can be more enticing to direct attention toward the

future than the past. This creates the potential to bypass the experience and wisdom of the elderly for possible high-tech answers. Philosopher Harry Moody concurs, arguing, "the wisdom of age is a relic of the premodern world" (Moody 1991). Geriatrician-philosopher Laura Hirshbein also concurs, arguing that today, looking forward is the generally preferred approach to thinking as opposed to that of looking back (Hirshbein 2001). According to her, "change in the tempo of society and increasing technical innovation" makes retrospection "irrelevant" (Hirshbein 2001).

In this ancient setting of respect for the elderly, aging was not seen as something that occurred at the expense of the young. The young and old had their roles and responsibilities, and this did not put the life stages in competition with each other. As such, a "fair innings" or "natural life span" are not congruent with ancient philosophies of aging because the ancients did not seek to limit life. Aging was regarded as a "natural" process, not a pathological or abnormal one. The age limits within today's philosophical models such as "natural life span", "fair innings", and "Prudential Life Span Account" cut away the value that the ancient view of the aging process held.

Thomas Cole has extensively studied the meaning of aging in Protestant America. Focusing on the 1800s and early 1900s, Cole identified a trend that began with aging having spiritual significance, then shifting to aging having moral significance (Cole 1983; Cole 1984). According to Cole, life in the early 1800s

was viewed as a spiritual journey and frailty and deterioration in the elder years were regarded as normal. A "good old age", one free from disability, was viewed as a bonus from God, not a goal to aim for. Lacking this bonus, the physical signs of aging would be present, but God was still available as a source of strength to enable one to endure. The prevailing attitude among Protestants during this time was that the timing of death is decided by God, and individuals should use their time on earth to get themselves ready to meet their Maker. It was important that each individual's life reflect what he or she had done for God and what God had done for each individual as this is what others would learn from. Their sense of the value of life was linked to following God's plan for their life and not trying to alter it by stalling death or praying for miracles. To this end, illness and disability were regarded as lessons to learn from in preparation for their judgement day with God (Cole 1983, Cole 1984, Barnes 1859, Barnes 1869). As Cole indicates, "...ministers and writers often counseled people to accept inevitable decline and stressed the higher values of spiritual life, communion with God, and preparation for death" (Cole 1984, 332).

According to Cole, aging was tied not to the domain of medicine but instead to the domain of religion and spirituality. Afflictions on earth were surely burdensome, but interfering with God's will was not part of the Protestant plan (Cole 1983; Cole 1984). In general, Protestants regarded their future life in heaven as a healthy eternity whose arrival date was preset by God. All life on earth was preparation for death. In this context a "natural life span" was the

reality of one's life span, not a specific age limit to aim for. A "fair innings" was not the length of one's life compared to another's, because God's life plan for each individual is not at the expense of another individual. For this community, God's master plan for each person's life was considered fair because it was designed by God, and because each plan was independent of the life plans of others. Further, life was seen as a continuous journey, not broken into specific life stages. The whole journey was valuable as opposed to different segments (e.g., child, adolescent) having more weight than others, eliminating the potential for competition between generations.

In this Protestant model, God was seen to allocate life and death under His direction, not the direction of third parties (e.g., physicians). Allocations made by God were viewed as being independent of what was happening to others or what God was doing for others, and good health was believed to come directly from God, not from health care practitioners. Having good health and longevity were direct blessings from God and were not actively pursued through heroic medical attempts as compared to today's strive for better health through medical technology (this is discussed in detail in the next section, "The Biomedicalization of Aging").

Between the mid-1800s and the early 1900s aging in Protestant America acquired specific moral significance (Cole 1983; Cole 1984). The frailty and decay of aging were regarded as an individual's responsibility to control and this

control could be obtained by having "good" morals. The general belief was that a lifestyle of laziness and promiscuity would deliver one either an early death or an unpleasant death in old age. God was not viewed as the deliverer of good health, but rather health could be gained through virtuous character such as sobriety, thrift, honesty and industriousness. In this construction of aging and health, each individual had the power to control the quality of his or her aging process. People were in control, not God. Illness was not something to learn from but something one should avoid by living a "clean" life. A long life span via "good" living was in each person's own control and they needed not wait for God to take them to a better life in heaven.

In this setting, individuals were viewed as having the power to age without mental or physical withering. It was believed that the length of one's life was dictated by moral choices and that a "fair innings" would result from correct character and behavioral choices. Their "natural life span" would have been according to these same constraints. Because a long, healthy life was valued, there was no place for age limits to define when an older person was ready to be set aside in favor of those younger. A long, healthy life was not seen as something gained at the expense of others but something that reflected a person's choices, irrespective of the choices of others.

Taking responsibility for one's own healthy aging was further emphasized in America's health reform movements of the late 1800s and early 1900s (Cole

1983). Life was regarded as property that required diligent upkeep in order to gain longevity, and as such, life and death were under the control not of God, but of humans. With the conceptual shift from the body as God's property to the body as human's property (and God as human's resident guest), humans assumed responsibility for maintaining the body in a healthy manner by virtuous living and adherence to laws of diet, exercise and hygiene. The body shifted from having spiritual significance to material significance. Preaching the body as a temple of God, individuals were advised to ensure their temple was clean and suitable for God's habitation. Sin was regarded as the root cause of pain and illness, and both sin and a decrepit body were thought to dishonor God (Cole 1983).

A long life with good health and ending with a comfortable death were seen to be achievable by obeying God's laws of health and hygiene. Ellen G. White (founder of the Seventh-Day Adventist church) and Dr. John Harvey Kellogg (of Kellogg's Corn Flakes acclaim) managed the Health Reform Institute in Battle Creek, Michigan where various therapies such as enemas, hydrotherapy ("the water cure"), and aerobic exercise with music were practiced. Here, the term "sanitarium" was coined. The Institute, now functioning as The Battle Creek Sanitarium, was Kellogg's laboratory for developing and promulgating his "Battle Creek Idea" - that good health and fitness were the result of a good diet, exercise, correct posture, fresh air and proper rest. As discussed in the next section, "The Biomedicalization of Aging", today's sanitariums for healthy aging

are known as life-extension clinics and the technologies generally focus on hormone supplementation.

At the time of the strongest bond between aging and spirituality, medicine's products and services were not as vast as those currently available. With few opportunities for a medical cure, individuals either endured their affliction or prayed for a miracle. Strength was found in God as medicine was not the powerhouse it is today. Now, any spiritual significance of illness (or aging) is up against the power of medicine's technological offerings. According to psychologist David Gutmann, the weakening of the bond between spirituality and aging has led to the weakening of any special reverence for the aged because the impact of a connection to God and His power and wisdom is reduced today (Gutmann 1981). In the past, the elderly's communion with God was seen to impart them a special, revered place in the community. This communion was believed to impart stamina for life's journey, including stamina to endure physical afflictions. Those observing the elderly's communion with God witnessed the blessings bestowed on the elderly, which in turn, was a blessing for the observers as this gave them a sense of hope for enduring the trials of their own life journey (Whitehead 1978).

Spirituality is no longer the primary domain of aging in the twenty-first century due to medicine's offerings for both curative and symptomatic relief. Even in the face of disease that is linked to negative behavior (e.g., lung cancer and

smoking), medical tools to repair the damage abound. Behavior modification such as smoking cessation becomes unnecessary when lung transplants (real or artificial) are potentially an option. High fat meals do not need to be avoided if a fat elimination pill is just a swallow away. If medicine can repair the damage of aging without the attached strings of religion, then medicine can be regarded as a new domain to which to link aging, setting the stage for a new construction of aging. Today's medical tools have the ability to intercept many disease processes, potentially interrupting any spiritual significance the act of living with such disease might have (Cole 1984). Nonetheless, this does not preclude spirituality from having an influence on one's life, rather its influence has been displaced from the aging process. Compared to earlier times, today's presence of a medical specialty devoted to aging allows individuals to "cast their cares"¹⁴ onto the geriatrician instead of the Great Physician¹⁵.

The Biomedicalization of Aging

The "biomedicalization of aging" refers to a social construction of old age in which there is physical decline and in which aging is under the domain and control of biomedicine (Estes and Binney 1989). Included in this construction is an understanding of aging as a medical problem, as well as the behaviors and policies that emerge with this framework. In this section I present an inquiry into the acts and consequences of the biomedicalization of aging. These acts and

¹⁴ 1 Pet. 5:7 KJV (King James Version).

¹⁵ Luke 4:23 KJV and Luke 5:31-32 KJV.

consequences help frame today's setting of geriatric health care decision-making.

As discussed in the previous section, aging set apart from its former spiritual component resulted in a weakening of its value as a life stage. In general, the elderly life stage is no longer viewed as a source of strength to tap into. The physical accompaniments of aging such as fragile bones and sore joints further add to the conceptualization of aging and the aged as the embodiment of weakness. The reasons why aging has become biomedicalized are complex. Some of these reasons fall into three headings: power, burden, and symptoms.

It is not unusual for weakness (of any sort) to be met with aid or rescue. A structure whose walls are sagging is customarily attended to with reinforcements or wall replacement. An engine with low power is fed additional octane or given a tune up. In the same manner, human aging is generally seen as weakness needing aid, in which the domain of medicine is best suited to come to the rescue. Indeed, medicine is a source of strength for many reasons. The practitioners of medicine are highly educated, highly trained individuals. Few fields other than medicine require as much education, training and licensure, adding more power and integrity to the profession. Power can also be conveyed through the size and complexity of many of the tools and equipment of medicine. Many individuals see medicine as holding the power to cure disease and relieve suffering. A multibillion dollar industry, medicine rigorously and directly solicits

customers to use the expensive tools it has to offer. Further, these offerings are presented as a means to improved quality of life and productivity, desires that many people have.

Bringing together something weak (aging) and something powerful (medicine) gives control to the powerful. The weak situation is no longer seen as helpless and doomed, but is instead positioned to be aided by its partner. A sense of relief can be found (or at least searched for) in the powers of medicine's drugs, devices and therapeutic procedures. By labeling aging as a medical matter, a palette of technologies is on call for assistance. That which is not readily on call can be developed through the research process, as the technological achievements of the past and present inspire hope for new therapies. With medicine being the controlling domain, its power can shape both the definition of healthy aging and the treatment approaches to unhealthy aging.

As I will discuss in a subsequent chapter, health status is a personal value, as well as a value to families, employers, insurance companies, and others. A poor health status can be burdensome physically, emotionally and financially. When aging is defined within this framework of burdens it facilitates its linking to disease and illness. Relief of disease or illness can be sought through various medical channels such as medication or surgery. Medicine thus provides a tangible aid or rescue. Boasting 10,000 members, the American Academy of

Anti-Aging Medicine¹⁶ proclaims "anti-aging medicine arrives as the new health care paradigm, offering a solution to alleviate some of the burden of this burgeoning older population". In their December 2000 *Market Monitor* report, the American Society of Anti-Aging Medicine estimates that worldwide physician and health practitioner administered anti-aging medical therapeutics (office consultations, laboratory testing, vitamins, fitness equipment purchases, and cosmetics purchases) in 2001 will be \$973 million. In fact, dozens of anti-aging clinics such as Cenegenics (Las Vegas, NV) are functioning worldwide.

In looking for a rescuer, medicine also seems appropriate for another reason. Some of the symptoms acutely present during other life stages and treated by the domain of medicine can be chronically present in the elderly stage. For example, stiff, sore joints resulting from over exertion by a young person is acute and treatable with anti-inflammatory agents; however, stiff and sore joints can be chronic in the case of geriatric arthritis. By extrapolation, one could compartmentalize the entire elderly life stage into something that is theoretically treatable. By association, the symptoms of aging can label aging, and the elderly life stage as medical problems.

A significant factor in the biomedicalization of aging is the biomedical conception of the body. The seventeenth century saw the advent of mind-body dualism. As argued by René Descartes, the mind and body are separate and distinct entities that exist in parallel (not connected) (Descartes 1641). According to Descartes,

¹⁶ <http://www.worldhealth.net>

the mind does the thinking and the body is a machine that can be understood in terms of the arrangement and functioning of its parts (Kriel 1989a). Medicine helps us understand this arrangement and functioning by way of physical probing during exams, and by way of visual techniques such as magnetic resonance imaging and electron microscopy. Prior to mind-body dualism some considered the body uninvestigatable because of its "holy" status as the residence of the Holy Spirit (Kriel 1989b). But, in its new conceptualization as a mechanical object, the body is available for research, and scientists and physicians are best suited for body research and repair. As a mechanized object, the body is prone for breakdown (e.g., worn and broken "parts") and the role of physicians is to monitor and treat ("repair") such failures.

Having explored some of the reasons for the biomedicalization of aging it is appropriate now to explore some of its consequences. Biomedicalization is not a benign process. Because it operates in a social, financial and clinical nexus, there are social, financial and clinical implications. For example, even though not all elderly persons are ill or disabled, the act of equating old age with illness feeds the concept that aging itself is a pathology. And because illness is undesirable, aging and the aged are potentially viewed as undesirable.

Understood as a pathology, aging is not seen as a normal part of life, but rather an abnormality; the aged are rendered abnormal and the afflicted. These labels foster further labeling of the elderly according to their symptomology such that they are no longer persons but "the demented in ward 5" or "the incontinent in

bed 6", for example. With the use of such labels biomedicalization can facilitate a negative view of aging and the elderly. Additionally, medical industry can use these negative images to pitch their products because the images are emotionally loaded. This can create "medical need" in a setting of normal aging, potentially wasting resources.

Biomedicalization's potential for resource waste can also be found in the setting of fighting a patient's inevitable death, when allowing the patient's disease to take its natural course would be ethically appropriate considering the patient's level of suffering and their care preferences. Working as a clinical ethicist I have had several such encounters whereby, in the face of extreme patient suffering, physicians refused to back down and continued a patient's life support intervention when cessation of intervention would have ceased patient suffering. There are also the occasions in which patients (and/or their family members) demand medical services that are not clinically indicated based upon the patient's diagnosis and the state of disease progression. Treating "at all costs" without objectively weighing the harms and benefits can be burdensome for the patient, the family, the medical team, and the community at large. The financial resources of the patient and family can be drained. The patient can experience lengthy periods of suffering due to continued interventions and their negative side effects. The medical staff, patient and family can experience an emotional drain as benefits are outnumbered by drawbacks. Medicine's goal should not be to eliminate death, but to promote healthy aging.

Another impact of the biomedicalization of aging is that it leads to a homogenization of the aging process in which aging becomes a rigidly defined set of signs and symptoms that have a uniform clinical meaning. There may be room for subclassifications of symptomatic and asymptomatic, and it is likely that these would be defined by aging's burden level. A consequence of this process of homogenization is that the elderly themselves are homogenized into a group. They are no longer seen as individuals and their personal preferences, values and unique clinical variables become blurred. Once indistinguishable, they lose their relevance in the finished product (the "whole person"). A homogenized elderly runs contrary to empirical evidence that indicates the elderly are not a uniform group with an identical set of signs and symptoms. For example, not all 75 year olds who have had angioplasty will continue to suffer angina and require a future cardiopulmonary bypass, but some will. Further, as mentioned previously, age alone is not necessarily a predictor of clinical outcome (Bowling 1999). Homogenization then can result in inappropriate treatment strategies for some elderly because of the failure to consider the unique clinical and non-clinical characteristics of each patient.

The biomedicalization of aging opens the door for the power of the medical domain to dominate other issues integral to aging. In this domain, solutions to the problems of aging are medically focused and may ignore social issues such as housing, marital, and financial status. Under such circumstances, the

symptoms of aging may be treated, but the person who is the patient is left untreated because their non-clinical issues go unaddressed. By regarding aging a disease, biomedicalization opens the door to research and treatment funding which can indeed at times help facilitate healthy aging. However, throwing money at any disease does not necessarily mean that the "whole person" is actually helped because patients are seen one-dimensionally as their disease. Addressing aging, hospitals could consider a service mix of both health and social services. Using chaplains, psychologists and social workers, these services could include housing assistance for the homeless elderly, long-term care planning, family counseling, and guidance in work, leisure and education activities (Aldridge 1986).

Technology provides power to modify the environment, changing our needs and practices, including the practice of medicine. Specifically, Baigrie and Kazan have explored the biomedicalization of aging by way of contrasting two health theories: "fatalism" and "enablism" (Baigrie and Kazan 1997). The fatalist view of health is a linear conception of life moving inevitably from a state of health to degeneration. The enablist view of health rejects this conception and views health and well-being in terms of adaptability to circumstances and conditions. They argue that this adaptability fosters new conclusions about what one's state of health and well-being should be because technology presents a range of items and services to improve health and lengthen life. In particular, the biomedicalization of aging creates new concepts of medical need as the list of

technological offerings grows. We have come to know that some technology can improve health; thus, we expect technology to improve how we are faring in life, regardless of our current disease state and symptoms. Because technology offers tools such as cosmetic surgery, organ replacement, and hearing aids, for example, technology raises the bar of clinical expectations higher and higher, and personal health assessments are continually revised. The gap between one's current health status and the condition one could be in is visualized as being filled by technology's current and potential offerings (the enablist conception).

Medicine can be a tool of well-being; however, as Ivan Illich showed, medicine can exercise such power that it acquires the ability to control an entire population by actually defining it. According to Illich, medicine can transform people into patients solely due to their "age of risk", with each age cohort assigned a level of health appropriate to their age (Illich 1976, 78). Illich maintains that medicine manages an individual's entire life from birth on through the physical and mental breakdowns of the aging process. Further, he argues that the power of medicine intervenes during each breakdown in an effort to postpone inevitable death (Illich 1995). As a consequence of medicine being the answer to aging as a disease, individuals will likely seek access to the technologies that can arrest the disease process (or at least soften its blows). Due to limited financial resources, access issues emerge and aging remains a problem for those encountering treatment restrictions. The next section specifically takes up this issue.

Aging as a 'Problem'¹⁷

The vast number of elderly people on the planet is enough for some to term aging a "problem". Intricately bound to this statistical fact, is the reality of a marketplace which puts forth many products and technologies aimed at improving health and quality of life. Individuals of all ages are daily presented with inviting opportunities of beauty, vigor, better health and longevity; thus, there should be no surprise that some elderly would want to partake. Generally informed that they are frail and unproductive (Chater 1998), and with technologies such as prosthetics, gene therapy and artificial replacement organs (Honda et al. 1999) waved under their nose, it should be no surprise that some elderly may desire to halt or delay the aging process.

As discussed earlier, instead of regarding old people as the natural result of the aging process, some regard aging itself as a disease, and the elderly as the afflicted [diseased] due to that process. Considered as a disease, aging becomes something to be cured or fought, not something that must be tolerated without medical intervention. Scientific industry has recognized this medical opportunity, creating a myriad of "treatment" possibilities ranging from the inexpensive (vitamins) to the very expensive (gene therapy). Seeking a wealth of sales, marketing professionals generally send a message that youthfulness is exciting and old age is a period of weakness and lack of vivacity. Magazine and

journal advertising frequently shows images of pills and other medical products side-by-side with images of smiling, dancing elderly people. Their skin appears supple; couples are holding hands. The representation is clearly one of a quality of life that many elderly would want to have. If this buffet of scientific breakthroughs set before them potentially offers a healthier life and longevity, it is difficult to expect the elderly not to want to indulge.

It appears that a technological bounty has been created, yet the hands of the elderly are sometimes slapped when they ask for or indeed grasp it. They are theoretically offered beneficent products and services, yet scorned as a problem population when attempting to gain access to them. As examples, owing to their large health care costs, the elderly have been accused of financially robbing their children and grandchildren, as well as the community pool of educational and defense funds (Lamm 1993). This forces the question: who is creating the aging "problem"? Are we, with our "healthful" technologies, increasing life span and driving up the number of potentially eligible health care participants?

Considering corporate marketing and pricing strategies as distinctly separate issues, is the mere development and production of these technologies ethically wrong? The rule of double effect would say no.

The rule of double effect, popular in the realm of clinical ethics decision-making, relates to actions that produce an intended beneficial outcome, while, in parallel,

¹⁷ From Katrina A. Bramstedt, "Scientific breakthroughs: cause or cure of the aging 'problem'," *Gerontology* 2001;47:52-54. Copyright © 2001 by Karger, Basel. Used with permission.

also producing an unavoidable undesired outcome. While the undesired outcome may be foreseen, it is the beneficent effect which motivates the initial action and renders the action ethically permissible (Beauchamp and Childress 1989). Within this discourse, the many wares of medicine and scientific technology have the goal of improving the quality of –and often extending– patients' lives; however, at the same time this facilitates the "problem" of increasing the geriatric population and their perceived drain on the community (Preston 1984). Accepting the rule of double effect and applying it to the concept under discussion, technological developments feed the population increase, yet the development of these technologies (in general) is ethically appropriate. Moreover, it would seem ethically problematic to have the tools of medical beneficence but not be allowed to use them. Of course this analysis does nothing to solve the economic problems that coexist with the availability of these technologies, but it does call into question the branding of aging as a "problem"; namely, the simultaneous devaluation of the elderly and the encouragement of the biomedicalization of aging (Estes and Binney 1989).

Daniel Callahan has argued that science should not be going down the research path in the first place (Callahan 1990). He contends that conducting research that results in expensive technologies is inappropriate and instead the focus should be on comforting elderly patients, not curing them. This argument fails on several counts for even comfort care technologies (e.g., antiemetics and painkillers) require research to develop and optimize them, and it is these

research expenses that contribute heavily to the final cost of the technology. Also, in the course of developing comfort care technologies knowledge gained often has tangential relationships to curative therapy and it seems ethically problematic simply to shut down these potentially beneficent avenues. Even if medical technologies are costly at the outset, their price tag generally declines over time as research and development expenses are recouped (Morris 2000). Taking Callahan's approach, the elderly are 'worth' only comfort-oriented technologies, even if the benefit-harm ratio of curative technologies is favorable. An approach of this nature could be seen as allowing economics to be a treatment variable when the patient is old, but not when the patient is young.

An unfolding of Callahan's approach reveals that the research process has limits placed on it which are purported to limit the research itself, when actually what is limited is the elderly's access to the products of this research. Clearly, derailing research all together limits not only potential health care products; it also prevents access by all needy age populations. In a sense, the unfairness is evenly distributed to all patient groups and all patients as individuals as there are simply no products to provide anyone. If one attempts to modify this blanket approach by allowing the research and development of curative products, then, as previously discussed, according to Callahan, one must limit the access to these products according to patient age—an arbitrary limit. If one modifies the blanket approach by allowing research and development of only comfort care

technologies, then the research process itself must be clearly and definitively constructed so that it stays within the boundaries of comfort care.

Callahan's philosophy in fact takes this comfort care-oriented path which uses the variables of cost and patient age to limit or shut down research (and its tangential applications), even when potentially curative technology is seen to emerge from basic science investigations. Overall, this approach is ethically problematic because it allows ethics to be subservient to a patient's age, rather than applying ethics squarely against the patient's clinical indications and personal preferences for treatment. The latter approach would disallow age as a criterion in clinical decision-making in situations where patient age is known to be irrelevant to a particular therapeutic approach. Callahan's approach also ranks economics with a higher priority than relief of a patient's suffering by limiting the elderly's therapeutic options and forcing them to accept attempts at symptom control when cure is achievable.

While the analytical approach of the rule of double effect may render the availability and use of comfort and curative medical technologies in the marketplace morally permissible, there still exists the matter of the persecution often inflicted on the elderly when they use these technologies or when they express a desire to use them (Lamm 1993). Simultaneously praising scientific achievements and condemning the elderly is ethically troublesome for it sends the message that the principles of ethics apply for some (younger populations)

but not for all. When ethical principles are allowed to assume new constructions based upon arbitrary variables such as cost and patient age, this can disintegrate the moral fiber of the principles themselves because the constructions are shaped from a foundation that is focused on economics rather than the goals of medicine.

Such constructions can allow a patient's need for relief of suffering to be downgraded as a priority in favor of cost containment by way of grouping their health status into generic clinical sets, and by disrespecting their specific clinical variables, as well as the physician's experiential knowledge and the contextual factors that may be relevant to the case. Further, the treatment preferences of the patient can also realize a priority downgrade. Rather than singling out the elderly as a "problem population", a more appropriate approach is to search for economically feasible ways of making these technologies available to all patient populations, such as optimizing manufacturing efficiency, reducing corporate industry and third party payer greed (a recognizably difficult pill to swallow), improving patient selection, and overall better stewardship of the technologies.

It surely seems that our construction of what it means to be elderly has created and now fuels the current "immortality revolution". Generally, this modern construction of aging requires technological breakthroughs in order to fight the aging "problem". The products and technologies of this fight may indeed improve quality of life and increase longevity, but while doing so, this strategy will result in

an ever increasing geriatric population, a population that cannot be expected to let beneficent medical technology (comfort or cure-oriented) pass them by. We ourselves are creating the soaring geriatric population, making it ethically problematic to turn our backs on them. While supportive of unlimited health care spending on any population, blanket health care access restrictions for the elderly are inappropriate, and in fact, further contribute to a shrinking back from the responsibilities owed to the population created by our technological advances. The scientific community and those who fund such technological research (e.g., public taxation, private donations) must not fail to see the role they play in the overall geriatric health care equation.

In summary, physicians can likely provide better care to their elderly patients when they understand some of the past and present constructions of aging. By being aware of such constructions, the physician can better understand the persons who are the aged, and the setting in which they exist—one that exposes them to images of aging as a disease, treatable by medicine's weapons (drugs and devices) through medicine's expert, the geriatrician.

It would be a mistake to think that only America faces the situation of limited finances, an abundance of medical technology, and a growing geriatric population. The next chapter explores how other industrialized countries are dealing with these issues, specifically identifying the role of the government in creating policies that promote equal eligibility in health care access. While the

majority of these policies are at the expense of limiting patients' choices of items, services, and providers, the approach taken by these countries arises from a foundation which holds that a patient's age, financial, and social status are not health care allocation criteria.

CHAPTER 6

THE RESPONSE OF OTHER INDUSTRIALIZED NATIONS

While my project is focused on geriatric health care allocation in the setting of the United States, soaring populations of elderly people, a plethora of beneficent medical technology and limited financial resources coexist in many other countries. Because these same issues exist, yet the resolutions offered by other governments are very different from those of the United States, the nature of these resolutions and their relationship to community values are of interest. Benchmarking against the successes and failures of others to learn what has been tried, what works, what doesn't work, and why is critical to learning what might work (and what might not work) in the United States.

There are many ways to approach a multinational analysis of health care allocation. These include review of published analyses and official data, as well as direct communication with international social services agencies. The identification of community values is a complex task, and no clear consensus exists as to the optimal methodology (Ubel 1999). Within any society there are multiple communities with various values; thus, any generalization of societal values will obviously fail to include some values that are important to some communities. I have attempted to identify the societal values embedded within each country's accepted standard for health policy. The health and welfare agencies of the countries explored were also able to provide their community value statements by way of their health care policy mission statements.

Just as the *United States Constitution* generally expresses the values of Americans, I looked to the health care laws, charters, and policies of foreign governments to ascertain the values of their peoples. Turning to these documents, I sought to identify the predominant values each government used to justify its health care benefit scheme. In general, these documents are readily accessible through the Ministry of Health (or equivalent) in each country, and the Ministry uses these documents to guide health care policy development with regard to items and services covered, patient eligibility criteria, and patient costs. Some documents are direct government proclamations. This approach provides a valid view of all countries examined, because all countries in this review subscribe to a democratic ideology that would permit revision or elimination of policies that were strongly counter to the values large sections of the communities.

The health care policies of Australia, Canada, United Kingdom, Germany, France and Japan were chosen for analysis. These countries were selected because their levels of economic and technological development are similar to that of the United States. Additionally, these countries have distinct cultures so as to envision a bigger picture of international health care.

Table 4 presents a set of demographic and economic statistics for each of the seven countries studied. The data indicate that there is no obvious relationship

between life expectancy at birth (LE), per capita health care spending on the elderly (HCEPC), and total health care spending as a percentage of the gross domestic product (%GDP) for these seven countries. Although a higher LE is correlated with lower HCEPC and lower %GDP in both Australia and Japan, the opposite is true in the United States and Germany. In these latter two countries where HCEPC (United States) and %GDP (United States and Germany) are higher, life expectancy is at the bottom of this seven country ranking.

Table 4. Demographic and Economic Statistics

Country	LE (years)*	HCEPC (\$US)†	%GDP‡
Japan	74.5	\$ 5,258	7.2
Australia	73.2	\$ 5,348	8.4
France	73.1	\$ 4,717	9.6
Canada	72.0	\$ 6,764	9.2
United Kingdom	71.5	\$ 3,612	6.8
Germany	70.4	\$ 4,993	10.7
United States	70.0	\$12,090	13.9

*1999 World Health Report

†Anderson GF, Hussey PS. *Health Affairs* 2000;19:191-203

‡Organization for Economic Cooperation & Development Health 99 Report

LE, life expectancy

HCEPC, per capita health care spending on the elderly

GDP, gross domestic product

Life expectancy is affected by more than health care spending (e.g., diet, exercise, and environment) and more health care spending does not necessarily equate to a longer life span. So far, immortality is unattainable, and depending on the medical technology available in each country the leveling off point for life expectancy will vary. Referring to Table 4, an interesting trend is noted for France. Here, a higher life expectancy is associated with high %GDP but low HCEPC. It is possible that the French are living longer due to earlier health care intervention or other non-medical factors noted above. With regards to the United Kingdom, it is at or near the bottom with respect to all three parameters. Further exploration of the French and United Kingdom data is warranted as it could have implications affecting health care policy design; however, this is outside of the scope of my research project.

The above statistics are provocative, prompting the introduction of geriatric population projections into the analysis. The *1999 World Health Report* indicates that 16.5% of Japan's population was aged 65 and older. According to the United States Census Bureau International Data Base (IBD) this rate is projected to soar to 27.6% in 2025. This same database projects the life expectancy of the Japanese to reach 82.9 years of age. Germany is expected to experience similar transitions, with those aged 65 and older representing 23.1% of the population, and having a life expectancy of 81 years in 2025. Considering that the HCEPC of the United States is more than double that of Japan and Germany, and that

18.5% of the United States population is expected to be aged 65 or older by 2025 (representing approximately 74.7 million people), it is critical to contemplate how health care schemes might function in the near future. Examination of current values and equity formulations can shed light on these possible future schemes.

As discussed earlier, while there are various constructions of equity, there is no consensus as to which one is best in the design of health care allocation policies. Attempting to identify both the construction of equity and its success or failure in facilitating just health care, I have looked to the nature of equity amid the acts and consequences of the allocation policies of other nations.

Australia

According to the Commonwealth of Australia Department of Health and Aged Care, health care services are provided for all citizens in public facilities at low or no cost. This system, known as Medicare, is supported by taxes, levies and co-payments. Those under age 65 pay up to 15% of the scheduled fee for services, whereas those aged 65 and older (and many others) pay no fee. These elderly also pay a \$2 co-payment for each prescription medication, up to a maximum yearly expense of \$101. Medicare cost control methods include limiting the number of enrolled medical students, fee schedules for services and procedures, and state controlled hospital budgets, capital expenditures and pharmaceutical prices. Some of these cost controls have resulted in waiting lists for certain

procedures (Rollins 2000) and rigorous regulatory processes with regard to drug formulary approvals (Witcher 2000).

Equity is the underlying operating value of Australia's Medicare system. By design, this system facilitates access without regard to age, income, employment or social status (Gleeson 1998). Unlike the United State's health care system, the elderly are not segregated out as a separate group, but individuals of all ages participate in the nation's health care plan. While the choice of doctor or hospital may be limited, this limit applies to all patients seeking public care. The limits within Australia's Medicare system are indeed designed to control costs, but they are without effect on who can access care. In this way, the health care access playing field is leveled for all patients based upon a variable they control (their citizenship status), as opposed to a variable not in their control such as their age, health, or wealth status.

Canada

Under the *Canada Health Act* and the *Canadian Charter of Rights and Freedoms*, health care is provided to all citizens. The Canadian health care plan, also called Medicare, is 75% funded by taxation. Unlike the United States' health care system, the elderly are not segregated out as a separate group, but individuals of all ages participate in the nation's health care plan. Each province separately administers and maintains the Medicare plan. Except in British Columbia, there are no premiums, co-payments or deductibles for health care

services for those aged 65 and older. Prescription medication coverage is included, and there are small co-payments or deductibles, varying from province to province. Patients are allowed to choose any physician they wish; however, access to some procedures is impeded because of limited capital equipment such as MRI scanners. Medicare costs are further controlled by limiting the number of practicing physicians, provincial control of pharmaceutical prices, and low health plan administration costs (Barer et al. 1992).

As with the Australian Medicare program, the operating principle of Canada's Medicare program is equity. Access to health care services is seen as the government's responsibility in which an individual's financial status and age are not permitted to ration treatment. This principle is in fact written into Canada's constitutional documents, and the citizens generally support their collective tax dollars being used to fund a program that can generally benefit all without regard to their income level (Martin 1993). Canada recognizes a communal obligation in attaining a healthy population (Iglehart 2000). While choice is maintained with regards to physician selection, there are limits to the technologies available, as well as waiting lists for common procedures (Shortt 1993).

United Kingdom

In the United Kingdom, health care is provided through the National Health Service (NHS) for persons of all ages. Eighty-three percent of costs are covered via taxation. Unlike the United States' health care system, the elderly are not

segregated out as a separate group, but individuals of all ages participate in the nation's health care plan. Through the NHS, each person is assigned a general practitioner who coordinates all medical care and referrals. Those aged 65 and older receive their prescription medication at no cost, provided that the drug is on the government's approved formulary list. Other cost control methods of the NHS include defined practice guidelines, limits on the profit made by pharmaceutical manufacturers, automatic Do-Not-Resuscitate Orders for some patients, strict criteria for referral to specialists, and age-restrictions on certain procedures (Gilchrist 1999).

In a general sense, equity is the operating principle for the NHS (Davies and Marshall 2000); however, this is somewhat clouded by the fact that age-based treatment restrictions function even in the presence of a patient's capacity to benefit. While the *NHS Patient's Charter* indicates that health care is an entitlement based upon clinical need, not lifestyle, financial status, "or any other factor", and *Good Medical Practice* (a code of ethics) directs physicians to not allow a patient's perceived economic worth to prejudice clinically needed treatment, a 1999 study conducted by AgeConcern England found that 1 in 20 elderly had been refused treatment by the NHS (Gilchrist 1999). In this same study, 8% of physicians surveyed indicated that they would decline treatments or services to older patients because they already had their "fair innings". Thirty-three percent of physicians surveyed responded that older patients do not get the same quality of care as younger patients, and they sometimes have to wait

longer to gain access to care. AgeConcern England found that there were a variety of reasons for this discrimination, but most prominently, general practitioners reported that limited financial resources result in channeling treatment away from the old to the young because treating the young is seen as a better value for money spent.

Germany

As with Australia, Canada, and the United Kingdom, Germany has a health insurance plan that covers all citizens. Unlike the United States' health care system, the elderly are not segregated out as a separate group, but individuals of all ages participate in the nation's health care plan. Under this Statutory Health Insurance scheme, no co-payment is required for services that are listed on the *Unified Value Scale*. This is a list of procedures that have been approved by the government as being medically necessary and effective. Those aged 65 and over pay a small co-payment (approximately \$5) for each prescription medication, unless they are on welfare, in which case there is no charge. In addition to the *Unified Value Scale*, health care costs are controlled by prescription drug prescribing limits for physicians.

According to a study by the European Observatory on Health Care Systems, the German health care system values access more than cost-containment (Busse 1999). In another values-oriented study, Eurobarometer, 96% of German physicians indicated that income, age, or social status should not determine a

person's therapeutic worthiness (Beske, Hallauer, and Kern 1997). As with the previous health care systems discussed, it appears that equity is the operating principle for Germany as well.

France

Couverture Maladie Universelle (CMU) is a national health insurance plan providing free medical care to citizens with monthly incomes less than approximately \$475. Other governmental insurance plans are available to those who are employed with incomes exceeding the CMU limit. Patients are able to choose any physician they wish, but unless they are registered with a gatekeeper physician, they must pay their health care fees at the time of service and then later receive a government reimbursement of approximately 74%. Those who go directly to their gatekeeper physician for care are required to only pay their co-payment (approximately 26%) at the time of service. Prescription medications must be paid for at the time of receipt, but patient reimbursement is provided according to a rate schedule that is based upon the type of disease being treated. For medications that are considered expensive and unique for a particular disease (e.g., protease inhibitors), the reimbursement rate is 100%. For drugs that treat less serious illnesses, the reimbursement rate is 35%.

In addition to gatekeeper registration, the French system attempts to control costs by requiring patients to maintain a health care booklet (le carnet de santé) which tracks their health care services and medications in order to prevent

duplication of services by multiple doctors. Drug prices are controlled by government contracts with the pharmaceutical industry, and physician fees are controlled by the government and unions. As with Australia, France also controls the number of enrolled medical students.

When the values-oriented survey, Eurobarometer, was given to a sampling of the population in France, the majority responded that health coverage is a priority for them and that before cutting back on health care benefits, the government should consider reducing the funding of other sectors (Mossialos and King 1999).

Based upon this, and the current structure of the French health care system, equity is its operating principle.

Japan

According to Japan's Ministry of Health and Welfare all citizens are covered by some form of health insurance (either through the government or through their employer). Under the rules of the *Health Service Law for the Aged* there is no charge for prescription medication for those aged 70 and older, or for those between ages 65 and 69 who are disabled. Individuals are free to choose any physician and there are no gatekeepers. The monthly premium for these benefits is approximately \$29. Medical services require a 10% co-payment with a maximum monthly limit (Watts 2000).

Cost control is aided by the fact that 60% of the elderly in Japan live with their families (as opposed to nursing homes). This is partially due to the strong bonds between family members, as well as the fact that there are numerous governmental roadblocks to gaining nursing home care. Additional cost control is obtained through government regulated pricing of pharmaceuticals and medical devices. For example, Japan benchmarks against the pharmaceutical prices in other countries to set its selling price.

Japanese health care functions with equity as its operating principle by way of the fact that everyone, employed or not, has health care coverage. Choice is somewhat limited owing to the small pharmaceutical formulary (compared to the other nations studied); however, there are no limits on the access to products and services that are licensed in Japan. In fact, this liberal access policy has been blamed for increasing health care spending as more and more technologies are approved for use. According to a recent study (Nakata, Goto, and Morita 1998), all available technologies are actively sought by families for use on their elderly relatives out of respect for them, even if the technology is clinically determined to be inappropriate for the patient's disease state. Similarly, any sort of age-based rationing scheme would be seen as disrespectful to older persons because it would result in treatment limits for the elderly.

From the data presented it is evident that different values dominate United States and foreign health care plans. For example, only in the United States are there

no price controls or co-payment schemes for the elderly to aid their access to prescription pharmaceuticals. Under United States Medicare, only when an elderly person's clinical condition deteriorates to the point that hospitalization occurs will prescription benefits be available. Then, upon discharge from the hospital, the prescription benefit will cease, even if the patient still clinically requires the same medication that was used in the hospital setting. Many elderly skip doses or fail to fill their outpatient prescriptions at all (Wenger, Scheidt, and Weber 1999). The costs of such a fragmented approach to health care can be staggering for society when more than 19 million elderly have to rely on it because they cannot afford to buy private pharmaceutical insurance (Kuttner 1999).

In the United States, the ability to choose one's doctor and hospital is valued, yet this is not without satisfying the requirement of having the cash or employment provided health insurance to pay for such choices. Faced with a soaring population and limited resources, choice may soon have to be weighed against access as managed care gains more and more ground in the doctor-patient relationship. So far, choice is winning the race (Davies and Marshall 2000) and access is something "other people" (those without health insurance and those with restrictive managed care insurance) have to worry about. These other people are often the most vulnerable—the old, the poor, and the unemployed. Lacking the protective effects of income and education (Kushi et al. 1988), the freedom to choose one's health care provider is of no benefit to individuals who

cannot access health care at all. For those with the choice restrictions of managed care, they can be forced to endure problems associated with a lack of continuity of care as their assigned primary care physician changes their health plan affiliations, and treatment by specialists becomes increasingly difficult to attain and sustain. Nonetheless, these managed care restrictions are generally preferable to the waiting lists endured by many patients in other countries (Iglehart 2000; Gilchrist 1999).

Review of the principles that undergird the health care policies of the majority of the foreign countries presented shows that they generally operate by way of a societal value which holds that health care is not a reward for employment, social worth or personal productivity, but rather an entitlement facilitated by the government. The result is government sponsored universal health insurance or automatic insurance coverage for those without employment/private insurance. To separate pharmaceutical benefits from other covered medical services would disrespect the value system of these societies, and their elderly would be shortchanged because pharmaceuticals are accepted as integral (not optional) to the practice of medicine.

Because the United States Medicare program fails to include an outpatient prescription drug benefit and relies on the economic grounding argument of high drug costs (Families USA 1999), economics is a justifying value for United States health care policy, in stark contrast to all other countries studied. Though the

elderly do speak their voice that drug benefits are needed, it will take the voice and values of voters at large, not just the elderly subpopulation, to instigate changes to Medicare (Hadorn 1991), and even these large scale attempts may not be successful (e.g., President Clinton's Health Security Bill of 1993).

Corporate values of profit and power will need to be tempered against resulting high prices that limit access to beneficent products. Corporate values that speak of an American duty to pay high prices (Taurel 2000) must be reconsidered when they force needy elderly to choose between food and health care. If health care (including medication) is valued as a reward for employment (one's "benefit package"), social worth or personal productivity, this sets an ethically inappropriate requirement for sick elderly to find paid employment. Nowhere amid these values is the expression of health care as an entitlement. Nowhere, that is, in the United States Medicare system.

For most of the countries evaluated, equity in the form of equal access to therapy based upon a clinical capacity to benefit, is the operational principle of the governmental health care scheme. A similar form of equity does operate in the United Kingdom; however, there are the additional widespread occurrences of a individual's age categorically limiting health care access (King's Fund 2000). The problematic nature of such ageist practices has been discussed earlier. In general, the United States takes the position that health care is a reward for employment. The elderly are rewarded with Medicare only as a result of their past employment. The non-elderly gain health insurance as the result of current

full time employment (30 hours per week or more). Further, it is seen as ethically appropriate for individuals to buy more or better health care services as their financial status allows. Equity in this sense is based on the personal freedom to choose (rather than government insertion), and personal responsibility is seen as weakened if people are given unearned rewards. Unearned rewards are also regarded as weakening to the forces that ensure economic well-being (Williams 1993). This said, it is difficult to imagine economic well-being in any community if its citizens are not healthy.

Having concluded that social values contribute to the limits (or non-existence) of health care policies, I do not imply that economic arguments are invalid. There may in fact be many valid economic reasons that explain why some countries offer prescription drug insurance and health care services to its citizens regardless of their age. Societies which value health care as an entitlement, unwavering with respect to diagnosis, age, social or financial status, will use this value as foundational to the health care schemes they devise. As shown, societies that don't, won't. Societies that value health care as an entitlement go to great lengths to maintain equity of therapeutic access, even if it means high taxes and reduced spending in other areas.

Having explored the theoretical underpinnings of various general health care allocation schemes here and abroad, the next chapter explores allocation issues specific to three medical technologies: heart transplantation, mechanical cardiac

assist, and aortic valve replacement. I have focused this applied discourse on cardiac medicine because heart disease is the number one cause of morbidity and mortality in the United States. Additionally, cardiac medicine represents the largest segment of Medicare spending (compared to other medical specialties). Also, this sector of the medical manufacturing industry is experiencing the largest growth in marketed devices and therapeutics (Sykes 1999). The guidance offered is intended for all members of the medical team (including clinical ethicists) as well as health policy makers. While some of the guidance is specific to these technologies, it is hoped that the discussion contained herein will stimulate further discourse, both theoretical and applied.

CHAPTER 7

ALLOCATION ISSUES IN GERIATRIC CARDIOLOGY

It is not simply that there are more elderly individuals on the planet than ever before, but, owing to improved diagnostic techniques, more elderly individuals can be identified for medical therapy. New techniques in diagnosis can also facilitate treatment technologies as diagnosis occurs earlier in the disease process. As surgical techniques and equipment improve, surgeons are able to undertake new and more complicated procedures. Even with the identification of risk factors (e.g., smoking, high cholesterol diet, and a sedentary lifestyle) and a vast array of medical and surgical offerings, according to the American Heart Association, cardiovascular disease kills more people than any other disease. Further, the health and financial burdens of cardiovascular disease exceed those of any other malady. Knowing this, and the fact that current cardiac technology can improve quality of life, it is pertinent to explore some of the cardiac health care allocation issues potentially faced by today's older patients.

The practice of cardiac medicine has changed significantly over the past 200 years. The stethoscope evolved from a tube of rolled paper, to a wooden cylinder, to today's state-of-the-art models. This innovation, as well as the sphygmomanometer, were the initial tools that revolutionized the diagnosis of heart disease in the 1800s. The mid 1900s witnessed the first coronary artery bypass surgery using a heart-lung bypass machine (1953), the first cardiac intensive care unit (Bethany Medical Center, Kansas City, Kansas), and the first

heart transplant (1967). New drugs and devices involving such strategies as lipid reduction, vessel patency, and electrical synchronization continue to follow these achievements.

The future of cardiac medicine is full of new diagnostic and therapeutic tools (Flower et al. 2000). Technologies under development and testing include angiogenesis drugs, vaccinations to raise high-density lipoprotein (HDL) levels, minimally invasive cardiac surgery, manufactured replacement organs and tissues, nanomachines that unclog stenosed arteries, and nanosensors that travel the circulatory system conducting assays and transmitting the data to one's physician. Beyond the excitement levels of these projects is the potential for these technologies to improve patient quality of life. Lacking this motivation, new technologies as well as modifications to existing ones are merely profit driven projects and ethically suspect owing to their potential to waste resources.

In the next sections I present a discussion of the use of heart transplantation, mechanical assist technology, and aortic valve replacement in the elderly from both clinical and philosophical standpoints. Again, I have chosen these three technologies due to their propensity to be geriatric health care omissions. Because I am not a physician I have relied upon the wisdom of and data from physicians who have studied (often pioneered) the feasibility of these technologies in elderly patients. I discuss these technologies in terms of a beneficence-access relationship, specifically focusing on the troublesome

situation of denied therapeutic access in the presence of both the capacity to benefit and a patient's request for treatment. Discussing this situation in the context of current therapeutic opportunities facilitates prospective thinking about the future of cardiac care for the elderly.

Knowing the leaps and bounds that have been made in cardiology over the past two centuries, and the nature of technologies that are currently in the research and development pipeline, it is easy to conclude that significant beneficent offerings lie in medicine's future. By itself this fact presents no dilemma; however, in the presence of limited financial resources and categorical treatment limits that are not based on health-related variables, equity of access issues proliferate. Focusing on these three technologies one gains insight into the dilemmas faced by today's older cardiac patient. From these three technologies, one may also be able to generalize to other forms of cardiac care, both present and future.

*Cardiac Transplantation*¹⁸

The thirty-year history of heart transplantation has seen the emergence of new technologies and improved clinical outcomes. At the same time, the United Network for Organ Sharing (UNOS) heart transplantation waiting list continues to grow and the supply of donor hearts is in constant shortfall. With approximately

¹⁸ From Katrina A. Bramstedt, "Why an alternate recipient list for heart transplantation is not a form of ageism," *New Zealand Bioethics Journal* 2001;27-32. Copyright © 2001 by University of Otago. Used with permission.

4,100 patients on the United States waiting list and a yearly supply of 2,200 donor hearts, approximately 25% of waiting patients die (United Network for Organ Sharing 2000). Efforts to expand the donor heart pool have largely consisted of educating the public about the needs and benefits of organ donation, and educating hospitals about the function and utility of organ procurement organizations. Other efforts to assist waiting patients have included clinical trials of total artificial replacement organs (Joyce et al. 1983) and xenografts (Bailey et al. 1985) as either bridging or destination therapies. To date, these technologies have not been proven safe and effective, thus they cannot be employed as solutions to the dilemma and they have an uncertain future. In the United States, ventricular assist devices are frequently used as bridging technology prior to heart transplantation; however, these devices are not approved by the Food and Drug Administration for permanent implantation. Some hospitals have engaged another strategy, namely, an "alternate recipient list" (ARL) for heart transplantation, yet examination of their outcome data alone is not enough to justify its use as an ethical practice. Specifically, issues regarding using age as a transplant eligibility criterion must be explored.

An ARL for heart transplantation functions by attempting to match donor organs for which the long term outcome is unknown with recipients who are elderly. Generally, these patients are over age 60; however, age criteria vary among transplant centers. The use of the term "alternate" can carry with it emotionally charged visions of organs that are defective or recipients who are "second class".

These perceptions are both unfortunate and inaccurate. Organs allocated through an alternate list program are those for which the long-term clinical outcome is uncertain owing to variables such as increased donor age, the presence of coronary artery disease, prolonged ischemic time, elevated central venous pressure, elevated dopamine exposure and reduced ejection fraction (Laks and Marelli 1999). Data (Laks et al. 1997; Livi et al. 1996) have shown that these variables do not necessarily impart statistically significant negative impact on the short or medium-term outcomes of recipients, nor do they significantly affect ejection fraction, the number of rejection episodes, or the length of post-transplant hospitalization when compared to "standard " donor heart transplantation. However, because ARLs have been in used in only a few transplant centers for approximately five years (single center data vary widely), the long-term outcome of these transplants is not known.

There have been reports of older donor hearts transmitting coronary artery disease (Livi and Caforio 2000) and prostate cancer (Loh et al. 1997). Not all centers evidence similar atherosclerosis results, and it may be that this is related to variables such as organ screening, donor/recipient risk screening, donor/recipient viral screening, and immunosuppressive regimen. Some older hearts also evidence chronotropic incompetence after implantation and require placement of a pacemaker for treatment of the conduction abnormality (Chau et al. 1995). The combination of positive and negative clinical findings (some treatable or screenable), as well as an unclear long-term outcome, creates a

unique dilemma in determining the criteria for recipient selection. Some have suggested donor testing, balancing the resulting risk with the risk of dying without a heart transplant (Detry et al. 2000).

The University of California, Los Angeles is one of the largest volume users of marginal hearts in older recipients, reporting a four year survival of 78%. They report no significant difference in early mortality or actuarial survival between patients on the ARL and patients on the standard waiting list (Laks et al. 1997).

The University of Padova, Italy reports a four year survival of 81% for older patients receiving a marginal heart and 80% for older patients receiving non-marginal hearts (Luciani et al. 1992). International transplantation registry data (1991-1997) indicate a four year survival rate of 68% for patients receiving a marginal heart (Hosenpud et al. 1997). Several centers report that the use of standard hearts and marginal hearts has not shown significant difference with regards to the incidence of post-transplant acute rejection or infection; however, older recipients are more likely to die of infection or malignant disease. Many older patients receiving a marginal heart have shown significant reduction in their New York Heart Association (NYHA) score which can be correlated to an improved quality of life owing to less pain and fatigue, and more mobility which can facilitate independence (Laks et al. 1997; Luciani et al. 1992).

Regarding marginal hearts, it is likely that single center survival data are more favorable than registry data as single centers with a distinct ARL protocol will

have adopted logistical and surgical expertise as compared to the pooled registry data that include non-ARL protocol facilities. Poor outcomes can be affected by organ-recipient size matching issues, as well as the quality of the heart; namely, a history of donor substance abuse, myocardial contusion due to chest trauma, hepatitis B, and low left ventricular function. In the absence of problems related to the donor heart, and in the presence of immunosuppression, the six year survival for a 61-year old transplant recipient free from other co-morbidity has been reported to be 54% (Bull et al. 1996). For all US heart transplants (regular and marginal), UNOS reports a five year survival rate of 66% (Keck et al. 1998).

Accepting that these "marginal" hearts are indeed clinically effective (with or without pre-implantation revascularization) it could be problematic not to use them owing to the fact that their potential benefit (though possibly time-limited) will be discarded along with the organ. Probing further, it could also be problematic to give a marginal heart to a patient who would benefit more from a long-term implant in view of his or her greater anticipated life expectancy. While each patient's life span is unknown, it is nonetheless easy to accept that the potential quantity of years remaining for a young person is greater than that remaining for an elderly person. If there is reason to believe that long-term transplant outcomes might be reduced with marginal hearts, these organs should be offered to a patient pool that includes those of advanced age as these patients have a shorter span of life ahead of them as part of their baseline presentation. Patients who are likely candidates for a long-term result, should be

in line for a long-term organ, and transplant centers may have to adjust their ARL entry criteria as further morbidity and survival data are gained while using these protocols. These attempts at matching donor organs with recipients are known as "life span matching".

The fact that ARLs are predominantly comprised of elderly patients does not make their use an ageist practice (that is, treatment discrimination based solely on a patient's age). It would seem that as long as these marginal hearts are offered to the most critical patients first (UNOS Status I) with complete disclosure as to the heart's marginal classification and the risks and uncertainties associated with it, there is no discrimination against those on the standard waiting list (e.g., the non-elderly). Additionally, there is no discrimination against the potential elderly recipients as they are offered organs that have the potential for the most practical life span match. An ARL allocation strategy respects a patient's capacity to benefit from transplantation regardless of age, prevents the discard of usable organs, respects the urgency of the Status I category, and overall, represents transplant medicine's strive towards ethical technology stewardship. Restated, alternate recipients make use of hearts that will go to waste if not used by those on the standard list. It gives them a chance they would otherwise not have because their age automatically sets them aside from the UNOS Status I list. Those placed on the ARL accept the fact that younger, urgent patients (UNOS Status I) will be offered the marginal heart first because

owing to their younger age, they would receive more benefit if in fact the marginal heart did hold out to have long-term success.

Understanding technology stewardship as prudent exercises of evaluation and application of technology, the practice of using an ARL for heart transplantation seeks to eliminate age as a categorical treatment variable and helps to level the playing field so that there is equal eligibility for allografts in relation to the capacity for the patient to benefit from them. Several studies (Livi et al. 1994; Luciani et al. 1992) provide evidence of clinical support for patients in their sixties and seventies to receive hearts from elderly donors, even donors in their sixties (Chau et al. 1995; Potapov et al. 1999). In view of this evidence, formal rules that completely exclude patients from receiving a heart transplant on the basis of age alone (categorical age limits) could result in wastage of organs rejected by other potential recipients. In fact, excluding older patients from receiving a transplant on the basis of their age alone could result in multiple implants of marginal hearts in single patients on the standard waiting list while elderly patients are banned from the opportunity for even their first transplant. Additionally, multiple implants of marginal hearts in younger patients significantly increases surgical and medical costs due to poor life span matching because more hearts (more operations, more risk) are used for less time in single patients.

If we allow the donation of hearts from older donors, yet decline their implant into older patients, we are using these older donors as a means to an end (e.g., donor organ warehouse). In such cases, the medical profession would be selectively accepting portions of medical evidence (e.g., the clinical benefits of marginal hearts in "young" recipients), and ignoring others (e.g., the clinical benefits of marginal hearts in older recipients). If the capacity to benefit from transplantation is evident in these older patients, then it is ethically problematic to exclude them from the technology while at the same time accepting their donated organs for use in younger patients, or allowing their donated organs to go unused if a younger recipient is not found. In the face of the scientific merits of an ARL, accepting the elderly as organ donors and rejecting them as potential organ recipients finds advanced donor age serving to benefit younger heart failure patients because the pool of available organs is increased. Simultaneously, older patients are disserved because they are rendered ineligible to access the same technology they are contributing too.

In light of technology stewardship, and the structure and function of an ARL, it appears that an age-based exclusion to transplantation is unnecessary. The same reasons which make such an exclusion unnecessary are the same reasons which render aged-based categorical limits unethical. These reasons include the inability to determine each potential recipient's life span, the potential diminution of capacity to benefit towards the end of an elderly patient's life when they have clinical exclusion factors or elevated surgical risks, and the availability of

marginal organs that will go unused or be placed in patients who are unsuitably matched for potential long term outcomes.

Instead of making transplantation age-based, use of the capacity to benefit approach described in chapter 4 (in conjunction with the life span matching concept espoused by an ARL) is more just because it defines eligibility at a non-arbitrary level. In the case of transplant medicine, capacity to benefit is a non-arbitrary approach because it reflects upon clinical variables known to be relevant to the success of the transplant procedure. Selecting and using a maximum age value for transplant eligibility is arbitrary whether the value is picked at random, or if it is chosen based upon review of transplant registry outcomes (because age is not necessarily a predictor of transplant outcome).

Certainly there will be those who will argue that ARL programs are ethically troublesome because while potentially allowing transplant eligibility for the elderly and reducing organ wastage, there is no economic mechanism to increase the financial resources to pay for these additional surgical procedures (and their related medical expenses). An argument could be made that short- and medium-term outcomes are economically burdensome from the standpoint of dollars spent and years of life gained post-transplant, and that only those patients with the potential for long-term outcomes should be considered. However, even non-marginal hearts can evidence short- or medium-term clinical outcomes due to a variety of potential transplant complications such as rejection and infection.

There is no accurate way of predicting how long a donor heart will optimally function or how long an organ recipient will live. Generalizations can be made using transplant registry data; however, each patient is as unique as the donor organ they receive and clinical variables can vary (e.g., patient/organ cytomegalovirus status, organ transport time, organ quality). If one argues that only long-term outcomes are ethically appropriate, then those who would benefit from an improved quality of life, even if only short- or medium-term, would be automatically excluded from transplant eligibility (and these would most likely be older persons). Also, the definition of short-, medium-, and long-term outcome will likely change over time as medical and surgical techniques improve, and as donor-recipient matching strategies are improved. Policies that exclude heart transplantation for the elderly will not address these matters, but rather they will complicate them owing to the limitation of data and experience that could be potentially gained. Economic issues should not bring transplant medicine to a standstill for any patient population, but rather they should be recognized as unsolved problems that are reflected upon in conjunction with the clinical beneficence that an ARL program can provide.

It is acknowledged that use of an ARL will not resolve the significant shortfall of donor organs experienced by transplant centers each year; however, it is possible that the ethical acceptance of ARLs could cause an increase in organ donation by the elderly community and an increasing availability of heart transplant technology to older patients. As of November 30, 2000 there were

484 geriatric patients (age 65 and older) on the UNOS heart transplant waiting list¹⁹. It is unknown how many clinically eligible patients are not placed on this waiting list owing to hospitals deterring patients from transplantation based on age alone. The number of geriatric patients receiving a heart transplant is growing each year with 208 recipients in 1999, up from 104 recipients in 1993. It is hoped that this trend will continue as a result of more transplant centers adopting the ARL philosophy as clinically and ethically permissible.

I interpret justice in terms of treating equals as equals via the concept of life-span matching. The good that can potentially be realized from allowing clinically appropriate elderly to be eligible to receive an organ that would otherwise go to waste helps justify the concept of an ARL. Even if ARLs do not simultaneously possess the solution to the economic problem of "more transplant operations", the transplantation playing field becomes more level in the face of an ARL because age as an arbitrary exclusion criteria is no longer allowed. Also reflected upon is the potential for life extension and an improved quality of life that marginal hearts have been empirically shown to provide. Additionally, empirical evidence shifts the elderly from being only donor-capable (a means to transplantation) to both donor- and recipient-capable (an end of transplantation). Lastly, ARLs are not an injustice to those currently waiting for a heart on the "standard" list because all donor hearts (marginal and standard) are offered to these patients first, and only those declined by these patients and thus destined

¹⁹ UNOS National Patient Waiting List for Organ Transplant. Accessed 30 November 2000. Available from http://www.unos.org/Frame_default.asp?Category=Newsdata.

for the waste bin are then re-routed to the ARL. Justice is dealt to those waiting on the standard list by way of the fact that they do not lose their chance at any organ. Justice is dealt to the elderly by way of the fact that they have a chance at a life span-matched organ that they would previously not be considered for (owing to an age-based exclusion).

In the face of an ever present allograft shortfall for the entire pool of clinically indicated patients, alongside the fact that there will likely forever be an uneven distribution of organ sizes and other characteristics, this results in an even spread of injustice due to the general nature of competing for an organ. In spite of this "evenly spread" injustice, there is still the eligibility imbalance within the current system that is the result of disregarding the empirical evidence that some elderly can potentially benefit from an allograft. Knowing the scarcity of allografts, and the prolific measures taken to increase organ donation, it is ironic to think that any rate of organ discard would be acceptable when, in fact, these organs are clinically suitable for implantation, yet unimplanted owing to an arbitrary age-based cut-off. By not discarding organs that are suitable for transplant, the potential for clinical benefit remains. Organ discard that does occur is justified when such organs cannot be used because of clinically relevant reasons such as prolonged ischemic time, as opposed to non-clinically relevant reasons such as recipient age.

Some might claim that these arguments look only to the outcome of ARL transplantation, not to the act of providing transplant waiting list slots for elderly patients, or the foundation out of which the act arises. The nature of the act, providing a transplantation eligibility slot, does swell the size of the waiting list pool, but the current pool size already exceeds the number of allografts that become available. Yet the use of ARLs might actually result in an increase in organ donation from the elderly, as previously described. Also, the foundation out of which the act arises is that of attempting to level the playing field for all those for whom a transplant is indicated but who might otherwise be excluded owing to a variable (age value) that is not empirically substantiated. For this reason, use of an ARL is ethically justified.

Certainly, comorbidity reduces the number of geriatric organs suitable for transplant, but a significant step to increasing geriatric organ donation and transplantation might be a heightened awareness of the ethical appropriateness and potential benefits of an ARL. Adopting an ARL policy will increase the heart transplant waiting pool and should require an obligation to expand the allograft donor pool (or allow for access to mechanical technology). The United States Bureau of the Census estimates life expectancy in the US in 2025 at nearly 81 years of age²⁰. Accordingly, the definitions of elderly and geriatric may in time need revision. Based upon UNOS trends, older people will likely comprise a larger percentage of those on the heart transplant waiting list. Ethical

²⁰ United States Bureau of the Census International Data Base Table 10. Accessed 26 November 2001. Available from <http://www.census.gov/cgi-bin/ipc/idbsprd>.

stewardship of transplantation technology is fostered when surgeons consider each patient's unique capacity to benefit, rather than age value alone.

In conclusion, in a society where \$52 billion is spent annually on cut flowers and candy²¹, the cost of additional geriatric heart transplants each year doesn't seem so significant considering the quality of life benefit that could be achieved. To know the price tag of a particular medical technology is one thing; to witness or experience the value of it is another. If patient age is not necessarily a predictor of transplant outcome then age should not inhibit a patient's eligibility for transplant medicine. ARLs could cause an increase in organ donation by the elderly community and an increasing availability of heart transplant technology to older patients. Transplantation ARLs are not a form of ageism but rather a method of technology stewardship that operates by way of facilitating transplant eligibility to those with the capacity to benefit.

Cardiac Mechanical Assist Technology²²

A review of the latest United Network for Organ Sharing Annual Report (United Network for Organ Sharing 2000) indicates a rising trend in the number of elderly patients (age 65 and older) on the heart transplant waiting list. Although the size of this waiting pool is small (485 as of September 30, 2000) compared to other age strata pools, the geriatric waiting pool is growing each year. In the face of

²¹ Sector research performed on-line 11 September 2000 at <http://www.corporateinformation.com>.

²² From Katrina A. Bramstedt, "Left ventricular assist devices and the slippery slope of ageism," *International Journal of Cardiology* 2001;81:201-203. Copyright © 2001 by Elsevier. Used with permission.

soaring projections for both the elderly population and the incidence of heart disease (Foot et al. 2000) it is likely that this waiting pool will expand significantly. In light of the fact that left ventricular assist devices are readily available for use and the yearly pool of donor hearts remains relatively constant, there will likely be increased competition for allografts by the elderly. As I will discuss, it is also foreseeable that organ allocation policies that are age-based could further complicate an older person's cardiac dilemma.

Previous analyses of left ventricular assist technology explored some of the ethically problematic features of these clinically beneficent bridge to transplant devices (Bramstedt 1999; Hill and Ley 1995). These prior reviews were conducted at a time when this technology was generally in use by the non-elderly and concluded that while some patients may successfully wean from their implant and not require subsequent transplantation, the vast majority of patients are not weanable, and they swell the UNOS Status I waiting pool. As demographic and usage patterns change for this technology there is the need to reflect on new and potential ethical issues.

While studies have shown that age is not necessarily a predictor of the clinical outcome of left ventricular assist device therapy (Bank et al. 2000; McCarthy et al. 1997) or heart transplantation (Laks et al. 1997; Luciani et al. 1992) some transplant centers continue to use recipient age as a transplant eligibility criterion. While such organ allocation policies are more common outside the

United States, as discussed earlier, some United States transplant centers do take this approach in an effort to cap the pool of patients considered for a scarce human donor heart. By their nature, these policies create the obligation to identify cardiac therapies that have an intrinsic relationship to transplantation, as well as the obligation to determine if the patients who use these therapies could be impacted by heart transplantation age restrictions. Left ventricular assist device therapy falls into this category because in many countries, these devices are indicated only as a bridge to transplant, not as destination therapy (instead of a transplant).

Not all elderly patients on the allograft waiting list have the need for a left ventricular assist device; nonetheless, the ethical issues that may be faced by elderly patients who are device candidates should not be ignored. Specifically, it is theoretically possible that elderly patients might satisfy the transplantation age criterion and be offered left ventricular assist device therapy while waiting for a donor organ, yet, if they fail to obtain a donor organ "in time" (such that they still satisfy the transplant recipient age criterion) they could find themselves in "device limbo"—permanently attached to the device owing to their categorical exclusion from allograft transplantation. While there are no published reports of this dilemma, it is certainly theoretically possible given the continued scarcity of allografts, the existence of age-based organ allocation policies, the soaring geriatric population, and the continuing preponderance of heart disease.

Accepting these facts, it is appropriate to explore the ethical ramifications of this potential clinical scenario.

Knowing that left ventricular assist devices do not restore left ventricular function optimally in all patients and that median transplantation waiting times are lengthiest for older patients (Harper and Baker 1995), it would seem that age-based heart transplantation policies further complicate an elderly patient's dilemma by time limiting their therapeutic options. It is as if once placed on the transplant waiting list, the elderly are also given a countdown timer that is pre-set to delete any transplantation opportunity after they reach a certain age, say 65. What is left to happen to older patients who have left ventricular assist implants, yet are "age-unsuited" for donor hearts due to a lengthy time on the allograft waiting list? Are they in "device limbo" and bridged to nowhere? There are several ways to address this dilemma from a clinical standpoint; however, the ethical appropriateness of these strategies requires exploration.

The purpose of this discussion is to analyze the impact of patient age as a treatment criterion on older patients who require left ventricular assist device support while waiting for a transplant. Patients should not assume that they will receive a donor heart due to the fact they are receiving bridging therapy, but to apply this as rationale to justify dropping patients off a transplant waiting list once they reach a certain age is ethically problematic. While left ventricular assist

device limbo is inevitable for some patients, such situations should not be generated as a planned event.

Until age-based transplant policies are eliminated, it would seem that two other options remain: 1) incorporation of waiting list extensions to encompass those patients receiving left ventricular assist device therapy, and 2) pairing of age-based transplantation policies with age-based left ventricular assist device implantation policies. An extension plan for device recipients would allow them to remain on the heart transplantation waiting list. Not only would this likely foster a patient's sense of hope, it would give them a chance at a heart that might otherwise go to waste. With the clinical knowledge that age is not necessarily a predictor of clinical outcome, and the fact that organs turned down by patients (yet usable) are discarded each year, this model of health care policy is preferable to that of the second option.

In option 2, buttressing one age-based allocation policy with another appears to be a logical way of preventing potentially clinically conjoined therapies from becoming at odds with each other. In the case of left ventricular assist devices and heart transplants, if transplant centers decide to rigidly enforce an age criterion for transplantation, one might argue that they should also initiate and enforce an age criterion for implantation of left ventricular devices as a bridge to transplant—at least until left ventricular assist device therapy becomes approved as destination therapy. How would the device allocation age criterion be

chosen? Generally, health care allocation age limits are arbitrarily chosen. Even if device registry data were analyzed in conjunction with median transplantation waiting list times to empirically determine an age-based cut off point, age-based policies by their nature will always be ethically troublesome because they slice away a segment of the population that could potentially realize therapeutic benefit. By not considering each patient's clinical indications and their capacity to benefit (as discussed in chapter 4), age-based health care allocation potentially limits the clinical beneficence of both scarce resources (allografts) and plentiful resources (left ventricular assist devices). Option 2 is also problematic because the possibility still remains for patients to be "age-acceptable" for a left-ventricular assist device and yet "age-unacceptable" for an allograft due to a lengthy period on the transplant waiting list. Only option 1 would give these patients an extension to facilitate transplantation (as long as the capacity to benefit was still present).

If it is accepted that age-based health care allocation policies are inappropriate, it would seem that "option 2" is an example of "two wrongs trying to make a right". Option 2 is also worrisome because as it appears that one age-based policy (transplantation) is triggering another age-based policy (cardiac mechanical assist therapy). I term this to be "the slippery slope of ageism (age-based discrimination) in action". If left ventricular assist device therapy is envisioned as clinically linked to heart transplantation, and the age-based transactions within them are deemed ethically appropriate, this increases the potential for other

technologies downstream to also be allocated in an age-based fashion (e.g., cardiac prescription medication). It may become easier to "approve" of age-based therapy allocation because of the domino effect of linkage. While clinical links may be clear and logical, they should not occur so quickly and firmly that ethical reflection is bypassed or ignored.

In summary, clinical indications, patient preferences and patients' capacity to benefit should guide for allocation of technology. In a time when "younger" patients receive two or even three heart transplants, and yet declined organs are discarded, elderly of a "certain age" are left to watch the opportunities of beneficent technology pass them by. This is the slippery slope of ageism in action. With the number of donor organs remaining fairly constant, and artificial replacement hearts not yet clinical reality, it is imperative that left ventricular device policies are coordinated with transplant policies. Until clinically proven and licensed as destination therapy, all those with a left ventricular device implant should be considered for allograft transplantation as long as the capacity to benefit is present. These patients should not be arbitrarily dropped off the transplant waiting list based upon their chronological age value alone.

*Aortic Valve Replacement*²³

I don't think age has got much to do with anything.
I mean, why should you treat anyone differently because
they're old? They're not a different person, and they
probably don't feel old. A lot of people think, 'oh, you're
old and silly'.

Mrs. Lock (*Ageing and Society* 2000;20:258)

Aortic stenosis is the most common valvular lesion in the elderly with the most frequent cause being calcification of a normal aortic valve. Among octogenarians the overall prevalence is about 20% (Aronow and Kronzon 1991). While patients may be asymptomatic for several years, when symptoms do appear (angina, syncope, heart failure), quality of life can significantly decline and untreated the remaining life span is usually less than three years (Bonow et al. 1998). Medical consensus is that once symptomatic, aortic valve replacement (AVR) is the optimal therapeutic choice for both improving quality of life and life extension (Olsson et al. 1992; Saric and Kronzon 2000; Zaidi et al. 1999). However, many elderly are denied this potentially beneficent procedure (Abdul-Hamid and Mulley 1999; Bouma et al. 1999; Lindroos et al. 1993; Sprigings 1999). As the world's geriatric population soars clinicians will inevitably encounter more and more cases of aortic stenosis. This necessitates exploration of the reasons underlying the under-utilization of AVR in geriatric patients.

²³ From Katrina A. Bramstedt, "Aortic valve replacement in the elderly: frequently indicated yet frequently denied," *Gerontology* 2002;48:in press. Copyright © 2002 by Karger, Basel. Used with permission.

Though sudden death is rare in asymptomatic patients, this is not the case for untreated symptomatic patients. Aortic stenosis contributes to left ventricular hypertrophy and dysfunction that results in decreased ejection fraction and hemodynamic compromise. Patients are also at risk of systemic embolism, endocarditis, and conduction abnormalities. The medical treatment for aortic stenosis other than symptom management is limited, and patients pursuing this course can expect a survival time of less than five years. Replacing the valve does address both the root cause and symptoms, with survival times up to twenty years or longer, depending on the type of valve implanted (Saric and Kronzon 2000). Many valves could thus outlast the life of the patient.

Operative mortality rates for AVR have been reported in the range of 3-6% (Culliford et al. 1991; Elayda et al. 1993; Levinson et al. 1989). A recent review of published studies (Abdul-Hamid and Mulley 1999) concluded that the surgical risk of AVR in those over age 70 who have severe aortic stenosis is justified by improvements in quality of life and life expectancy as a result of improved left ventricular function and hemodynamics. Factors associated with mortality include previous coronary artery bypass surgery, prior myocardial infarction, decreased renal function, and age over 80 years (Bouma et al. 1999), yet according to practice guidelines established by the American Heart Association (AHA), these factors should not deter the offering of AVR to symptomatic elderly patients. This guidance is based on the fact that there is no suitable medical management of aortic stenosis, and balloon valvuloplasty is usually not an

acceptable alternative owing to complications and restenosis (Bonow et al. 1998). They acknowledge that AVR surgery in the elderly may present challenges such as a narrow left ventricular outflow tract, a small aortic annulus, heavy calcification requiring debridement and marked left ventricular hypertrophy; however, these should not be viewed as surgical contraindications. According to the AHA, clinical indications and the patient's preferences for therapy should guide the decision-making process in each doctor-patient relationship.

As discussed earlier, the goals of medicine are understood to include cure of disease, prevention of an untimely death, improvement of functional status, and relief of symptoms, pain and suffering. Nowhere do these goals have an implicit or explicit age criterion, yet age value alone is openly used by some physicians to deny AVR to the elderly (Bouma et al. 1999; Sprigings 1999). Clearly there will be some elderly who make an informed choice not to pursue AVR, and there will be those who are not surgical candidates; however, the remaining population of symptomatic aortic stenosis patients should not be excluded from clinically indicated AVR.

Even with its benefits, cardiac technology is subject to rationing when it is in short supply or it is expensive (Barakat et al. 1999; Borkon et al. 1999; Lye 1997). Obviously the community cannot afford to pay for every technology for every patient; however, the criteria for deciding not to provide therapy should not be

based on an arbitrary value such as chronological age when empirical evidence validates the technology's beneficent potential in the elderly, the technology is cost-effective, and the technology is in ample supply. Unlike whole organ allografts, mechanical and bioprosthetic heart valves are readily manufactured and are available in multiple design configurations. Surgical and hospitalization costs for AVR in the elderly are similar to the costs incurred by younger patients (Olsson et al. 1992). In fact, while the cost of AVR is estimated at \$60,000 the yearly maintenance costs for the elderly are generally low because most elderly receive a bioprosthetic valve which requires only three months of anticoagulation therapy, whereas younger patients generally receive mechanical valves which require lifetime anticoagulation therapy (Lysaght and O'Loughlin 2000). Another cost saving resides in the fact that one AVR generally lasts the lifetime of a geriatric patient and they don't normally require a subsequent AVR unless there is a device failure.

If one were to suggest that the elderly are not active enough to need AVR, this proposal would fail on at least two counts. First, the lack of an AVR may be the root cause of their low activity level and the failure to provide an AVR to these patients is a penalty to them (maintaining their low activity level) and it perpetuates their inactivity. Secondly, from a clinical ethics perspective, a patient's activity level should not mediate a level of social worthiness to receive medical care. This stand has been taken by most professional medical societies, including the American Medical Association. On the contrary, a patient's

decreased activity level could be viewed as increasing his or her vulnerability as a person and should be an overt signal that the medical goal of functional improvement needs fulfillment. As discussed in chapter 4, it is permissible to reflect upon activity level in conjunction with a patient's capacity to benefit from a particular therapy. As an example, it is unsound to perform heart transplantation on a patient in a persistent vegetative state because the organ would be better allocated to an individual who can cognitively recognize therapeutic benefit and an improved quality of life owing to receipt of such a scarce resource.

In 1972 the United States Congress concluded that it was inappropriate to allocate kidney dialysis on the basis of a patient's social worth (United States Congress 1972); however, this decision was limited to dialysis and allocation discussions resurface each time new, expensive technologies hit the marketplace. This landmark decision is an appropriate place to return to when reflecting upon the concepts of patient productivity, activity level, and economic worth as health care allocation criteria. When the rationales of early dialysis allocation decisions were made public there was an outcry against using such criteria to ration care. Yet the risk for such criteria to reemerge and determine an older patient's ability to access clinically proven technologies is reality. While human productivity and activity level are things to be valued, the value is ethically prized when untied from the context of health care allocation. As discussed above, even if an 80-year old is not as active as a 45-year old, this fact alone should not inhibit their access to beneficent medicine.

The assumption that an elderly patient is too old to desire AVR is ethically troublesome for it fails to respect each individual's personal treatment preferences in light of his or her values and life goals. Patients with decision-making capacity should be approached with the appropriate clinical information (in a manner which they can comprehend) so that they themselves can make an informed choice on how to proceed once their aortic stenosis becomes symptomatic. In this situation judgements or assumptions might have "good intent"; however, they may not accurately reflect the patient's care preferences. Only by directly asking the patient or seeking counsel from possible surrogates or Advance Directive can the physician learn of the patient's values and preferences. The information learned is crucial to the maintenance of the trust component of the doctor-patient relationship, and crucial to understanding the patient's concepts of quality of life, risk, and best interests. Health care allocation will always involve choices, but these choices should be freely made, not forced choices based solely on a patient's age or assumptions of what a patient's treatment preference might be.

Knowing the price of medicine is one thing but to witness or experience the value of it is quite another. If medical decisions are distilled down to their economics, the value of medicine will be diminished as clinical decisions are based on price and service lists, instead of the goals of medicine. Medicine will become a mechanized profession whereby patients will be transformed from persons to

case numbers. Health care will change from a service for the relief of suffering and promotion of our species, to a commodity bought and sold like household appliances. Ethically appropriate allocation will reflect the patient's capacity to benefit from the therapy, his or her treatment preferences, and the experiential knowledge of the medical team such that they provide ample guidance and information amid the decision-making process.

As the next chapter will elaborate, I am not in favor of unlimited medical spending on any disease or population. Key to the concept of health care economics is an understanding of intensive care unit spending and the compartmentalization of care (dollars and services) for neonates, children, adults, and elderly adults. As I will argue, this compartmentalization promotes patient categories such as investments (youth) and consumers (elderly), which in turn can facilitate ageist health care practices.

CHAPTER 8

THE HIGH COST OF DYING: A ROLE FOR TECHNOLOGY STEWARDSHIP²⁴

With the world's geriatric population estimated at two billion by 2050, and financial resources seemingly limited, discussions of geriatric health care allocation are becoming more urgent. In life and in death, health care costs are expensive, and while older people are often viewed as too expensive to take care of alive, their death can be even more costly. Death under the influence of technology can be more expensive than life, whether dying in the neonatal intensive care unit (NICU), the pediatric intensive care unit (PICU) or an adult intensive care setting, yet it is geriatric intensive care medicine that grabs our economic attention. Geriatric patients generally receive the blame for medicine's overall high costs, when in fact, the development of technologies (in general) is very expensive and they are used by all patient populations, not just older persons. Singling out a vulnerable patient population in this manner is ethically problematic. Instead of generalized blame and arbitrary allocation limits, I argue that technology stewardship as expressed by the application of therapy withholding and therapy withdrawal should apply to patients of every age in all care settings. Further, therapy withholding and withdrawal are consistent with the capacity to benefit approach discussed in chapter 4.

²⁴ From Katrina A. Bramstedt, "Resisting the blame game: visualizing the high cost of dying and accepting the duty of technology stewardship for all patient populations," *Archives of Gerontology and Geriatrics* 2001;33:53-59. Copyright © 2001 by Elsevier. Used with permission.

Studies have shown that it is expensive to die in a hospital whether you're seven days old, seven years old, or seventy years old (Garcia et al. 1997; Meadow et al. 1996; Munoz et al. 1989). Figures vary depending on institutional setting and comorbidity, yet a large proportion of our total lifetime health care expenditures occur during the dying part of life. A recent study (Perls and Wood 1996) showed that the hospitalization costs of non-surviving geriatric patients ranged from 23% to 141% higher than that of geriatric patients who survived to discharge. Compared to intensive care unit (ICU) survivors, ICU non-survivors use considerably more technologies such as dialysis machines, ventilators, infusion pumps, various radiological and endoscopic procedures, medications and blood products. Further, they use these technologies for longer periods of time. Contributing to the largest fraction of ICU costs is personnel, as technology is intimately tied to human providers. Close monitoring of patients is time consuming, many procedures aren't self-conducting, and most equipment still requires human intervention for sustained safe and proper functioning.

It can be difficult to predict accurately who will die and when, and treatments are sometimes started without reflecting on the best interests of the patient. Some technologies such as artificial feeding and ventilation continue even though they could be considered inappropriate. For all patient populations, the longer treatments are applied, the more costs multiply, yet it is becoming routine for the provision of geriatric care to be pinpointed as the cause of health care's financial dilemma (Lubitz and Riley 1993). Obviously, the elderly population is large and

older people tend to have multiple comorbidities and require more health care services, but it might be that their *non-medical* characteristics are setting them up as targets for blame.

As discussed earlier, the prior role of the elderly as wise and spiritually profound mentors has weakened in Western society. Industrialization and computerization have added technical facets to many businesses, increasing the operating pace, often rendering the elderly "behind the times" compared to the skill set they grew up with. Some would say that the stories and wisdom of the elderly pale compared to the information obtainable through electronic databases. In general, the resultant picture consists of vocationally aggressive, technology oriented, youth and young adults with much to aim for, and an older population whose "useful" life has been viewed as lived out already and who need to step aside and stop draining those on their "way up" (Lamm 1986). Turning to the health care of the elderly, there is an approach that is less ethically problematic than use of one's age as a rationing criterion, namely, technology stewardship.

While medical technology can offer potential benefits to patients, these are not without a price that is often high, and the concurrent need to evaluate the technology in terms of its value to the patients' welfare throughout the clinical course, not just at treatment inception (McGregor 1989). I term these prudent exercises of evaluation, application and withdrawal as technology stewardship. The value of any technology is tied to its appropriate use, and this use should be

determined by the medical profession as part of the doctor-patient relationship, not industry sales and marketing departments. While it is common to consider medical technology in terms of its potential to improve quality of life and to relieve suffering, these are not the only potential outcomes that require reflection. Sometimes technology prolongs the dying process by maintaining biological life without improving quality of life or relieving suffering. Other times, it is ineffective and misapplied technology is met by death approaching uninterrupted. It is these scenarios which are associated with heavy costs—costs that prove much higher than when patients use the technologies successfully and live to discharge (Meadow et al. 1996). Unfortunately, resolving the dilemmas presented by these scenarios is not always easy. In many cases, the values and preferences of patients are unknown because they lack an Advance Directive, they lack decision-making capacity or communication skills, or they lack surrogates who could potentially assist with this information. In any case, it is controversial whether these alternatives would generally solve the problem.

Patients should be treated according to key elements of technology stewardship: clinical and ethical best interests. According to ethicists Jonsen, Siegler and Winslade, decisions serving the clinical and ethical best interests are those which promote the welfare of the patient in matters such as relief of suffering, preservation or restoration of function, and quality of life (Jonsen, Siegler, and Winslade 1992). These same ethicists argue that the concepts of clinical and ethical best interests are buttressed by the following principles: 1) respect for a

patient's treatment preferences (autonomy); 2) minimization of a patient's exposure to harm (non-maleficence); 3) maximization of a patient's opportunity for benefit (beneficence); and 4) aiming for an equitable distribution of burdens and benefits among patients (justice) (Jonsen, Siegler, and Winslade 1992). Because these principles are foundational to best interests decision-making, even in situations where a particular medical therapy would "make sense" from the standpoint of improving a patient's health status, patients with decision-making capacity retain the right to refuse such medical interventions (refer to principle #1, autonomy). With regard to the principles of non-maleficence and beneficence, decision-making must reflect on the risks and benefits of the proposed intervention, aiming to deliver the maximum benefit and minimum harm possible. With regard to justice, health care decision-making should not be based on criteria that are irrelevant to gaining or maintaining improvement in a patient's health status.

Understandably, there is always great concern about starting a questionable therapy or withdrawing it too soon. Also, what should rightfully be troublesome are health care expenditures not resulting in clinical benefit due to misapplication of technology or failure to withdraw ineffective or inappropriate technology. These considerations evidence components of the needed stewardship mentality in the medical profession. Clearly, the availability of a technology (from an inventory standpoint) should not automatically render its use acceptable for every patient. Once in use, stewardship requires that the technology be regularly

evaluated for clinical benefit, and withdrawn when the intended benefit is absent or is part of an unacceptable ratio of benefit and harm-- even if this overrides patient or family wishes (Jonsen, Siegler, and Winslade 1992). These evaluations are consistent with the capacity to benefit approach presented in chapter 4. Decisions to withdraw technology are best undertaken with the collaboration of the patient and family; however, when this is not possible, it does not absolve the medical team of their responsibility to manage the helm of technology stewardship and to withdraw treatment that is no longer clinically or ethically warranted. This may be viewed by some as paternalistic; however, continued use of inappropriate therapy can potentially prolong a patient's dying process, it increases the cost of a patient's inevitable death, and may make the technology/equipment unavailable for more suitable patients.

Palliative care, focusing on control of pain and suffering at a time when curing or controlling disease is no longer possible, can be considered another form of technology stewardship. Resorting to comfort care solely as a money-saving option when cure or treatment is clinically and ethically appropriate is a misguided venture that will often not prove an economic reward owing to the high cost of certain palliative therapies such as the control of nausea and vomiting. Further, actions of this nature are also unprofessional in that they elevate the goal of cost-cutting to a higher priority than that of achieving the goals of medicine. This makes health care practitioners fall short of the ethical responsibilities of the medical profession.

Technology stewardship, as I approach it, should arise from and be shaped by the desire to alleviate human suffering through the practice of medicine. If, instead, health care policies arise out of the economic symptoms of the health care dilemma, then the answers derived are economic in nature and they skirt the ethical foundations of medicine. As discussed earlier, economic answers such as age-based allocation limits (Callahan 1990) tend to reconstruct human values with monetary fiber rather than moral fiber because the goal of cost-cutting is a higher priority than achieving the goals of medicine. This makes a humanistic approach to medicine more difficult for physicians to practice and more difficult for patients to experience because medicine becomes mechanized as shown by therapy allocation based upon generic criteria in standardized charts or tables, as opposed to weighing the coexisting variables and contextual factors of each patient's case. The unfortunate result is the devaluation of the physicians' experiential knowledge because this knowledge is intentionally underutilized in clinical decision-making. Similarly, patient treatment preferences are devalued because they are intentionally underutilized in clinical decision-making. The result is the inability to provide beneficent therapy when it is clinically achievable. Conversely, allocation schemes which actively employ technology stewardship not only permit, but foster weighing of clinical harms and benefits, as well as they show respect for the physician's experiential knowledge and patients' preferences amid a functional doctor-patient relationship.

There are many more old people than young people (and the gap is widening), and their aggregate costs as death approaches are higher, but to use these facts as permission to value the youth over the elderly, or to allow youth's health care spending to fall outside the technology stewardship model is ethically troublesome. Likewise, an argument that would allow unchecked costly health care spending on youth because they have the potential for more "productivity" [defined narrowly as economic return on investment] poses numerous ethical problems. If elderly patients are valued according to their economic earning potential, this devalues who they are as humans and does not foster care of the person who is the patient. If one accepts that health care costs for non-surviving patients (regardless of age) can be very expensive, that technology stewardship is a duty appropriate to all patient populations (regardless of age), and that moral values are weakened when economic variables have superior roles during clinical decision-making, health care policies that discriminate against older persons solely on the basis of their age are ethically indefensible.

The best application of technology stewardship is that which does not promote patient categories such as consumers (the aged) and investments (the young) but rather values and employs technology according to the clinical and ethical best interests of the patient, regardless of his or her age. I propose a wake up call to clinicians and health policy makers to recognize age-based health care allocation as the result of perceptions of the elderly, not empirical science. Health care allocation policies that provide or restrict therapy based on a

patient's numerical age value are arbitrary and will surely result in slicing off a section of needy population which is already minimally accessing indicated therapies (Bouma et al. 1999; Giugliano et al. 1998; Protheroe et al. 2000). When ethics becomes subservient to economics and health care allocation policies are derived out of blame, we run the risk of devaluing health care and humanity (Heubel 2000) as beneficent therapies are denied to the elderly and our species is shortchanged by the arbitrary cutoff in potential life span.

My primary rationale for terming technology stewardship as an ethically appropriate method of health care allocation is that it fosters equal eligibility for patients who have clinical indications for a particular therapy. Eliminating age as a treatment variable helps to level the playing field (even though there may be other inequities) and prevents clinically needed care from being omitted owing to a purely arbitrary--not clinically predictive--element. While not denying that economics are a component of the current health care dilemma, the economic issues should not be analyzed in a setting that fails to consider the clinical and non-clinical variables of each case. Allocation policies should arise by processes that are visible to the community, and they should support the healthy functioning of our species at whatever age the patients present. Policies that promote equal eligibility criteria among patients do not assign treatments based on clinically irrelevant age limits. The next chapter further explores the concept of economics as the driving force in health care allocation decisions. Specifically, I ponder my

hypothesis that the elderly compete against the young when a patient's economic productivity level is used to determine his or her health care allotments.

CHAPTER 9

PATIENT PRODUCTIVITY AS A VALUE AND A VARIABLE IN GERIATRIC
HEALTH CARE ALLOCATION²⁵

Strongly competitive societies in which too much emphasis is given to an individual's worth in terms of productive work and achievement, in which inactivity is somewhat suspect and leisure is highly commercialized and therefore expensive are not congenial environments in which to grow old.

United Nations, *The Aging: Trends and Policies*,
1975, p. 11

Admittedly, productivity is valued in America (Restrepo and Rozental 1994). This value is held so dearly that uselessness is feared (Butler 1969). For jobs which involve manufacturing, each minute of production is calculated in formats of cost and profit. Each percentage increase in efficiency is championed as economic success and eagerly strived for. Management sets goals for individual and team performance that foster competition and an ever-fervent culture of output. Industry and academia have gone to great lengths to develop tools that measure productivity as a variable and certainly productivity is a value in this setting as it promotes competition (thus more output) and efficiency (less waste). Some have argued that America has carried the value of production too far such that it is used as a health care rationing tool, with the result of health care being allocated to serve the community's economic ends rather than addressing patients as ends in themselves (Barry 1992).

²⁵ From Katrina A. Bramstedt, "Patient productivity as a value and a variable in geriatric health care allocation," *Cambridge Quarterly of Healthcare Ethics* 2002;11:94-96. Copyright © 2002 by Cambridge University Press. Used with permission.

"Productivity" is often viewed in terms of economics, yet there are other uses of this term. Rowe and Kahn (Rowe and Kahn 1997) have put forth the concept that any activity, paid or unpaid, can be productive if it creates societal value. From this point of view it could be argued that there need not even be a material product generated: activities included with this definition would be volunteer work, for example, or tutoring. But how does this play out for the sick who need medical care? Can other concepts of productivity be adopted as criteria for health care allocation (Fischer 1977) or is the concept implicit in the American work ethic (benefiting people in the prime of their productive years) the sole ethically appropriate route?

Using an economic definition of productivity (e.g., that which generates a material product or service with the potential for income) it could be argued that productivity should be a key variable in health care allocation. According to this argument, preferential allocation of health care to those who could be returned to a more productive state provides the greatest return on the economic investment. The economic investment on the front end pays an economic return on the back end as patients exit their sick beds and resume employment. Support for a philosophy such as this clearly benefits the youth and middle-aged of a community and discriminates against the elderly because not only are some elderly forced into retirement from their jobs, but they are often disfavored when seeking jobs (Bass, Caro, and Chen 1993). It would seem that elderly patients

could be caught in a loop that would limit their health care access because they are not productive, while concurrently facilitating their lack of productivity because they can't attain the health care needed to get them to a productive state. What is described is a system that would fail to make a health care investment in the elderly owing to their illness when in fact health care is needed simply owing to the presence of illness.

The elderly lack the ability to reflect the American value of productivity in schemes such as this; however, some use this same scheme to support health care allocation in the neonatal intensive care setting owing to the young patients' potential for future productivity if their illness can be successfully treated (Meadow et al. 1996). The inconsistency lies in the fact that while both groups (old and young) are sick, only the youth are seen as having the potential for productivity once their health is improved. Instead of health care being allotted with the sole goal of health status improvement, there is a second required goal, namely, improved patient productivity. With this second goal exclusively in terms of economic productivity (excluding non-economic productivity), the youth are favored in health care allocation.

As mentioned above, there are non-economic definitions of productivity that refer more broadly to the creation of societal value. According to this view, the elderly could contribute social value by being good listeners to their family and friends, by offering wisdom from their years of experience, or by possibly just the comfort

of their smile or touch. It would seem that the elderly can potentially generate much non-economic productivity but a lack of health care can limit their ability to do so. Additionally, owing to the current emphasis on economic success, social productivity such as that just described is not as highly valued as economic productivity (Restrepo and Rozental 1994). If an economic definition of productivity is applied to health care allocation then it seems to require [expect] an economic output from the patient. If, however, a non-economic definition of productivity is applied it allows for a non-economic output from patients, and respects patients as ends themselves rather than means to an end because it respects their personal, intimate construction of therapeutic benefit. A non-economic definition of productivity also validates the societal value of non-economic outputs.

Economic definitions of productivity reduce human value to measurable productivity and subsequently devalue the qualitative effects of providing health care to suffering people. To find "investment return" many look for a measurable output. However, qualitative relief of suffering (though attempts at measurement can be made) is also a goal of medicine, whether or not it cures patients and returns them to employment. Quantitative outputs, the return on economic health care investments, should therefore not be used as the sole criterion when not all the values held by individuals and communities at large are quantifiable (or economic). Economic outputs should not be required or expected when medicine has explicit goals that are non-economic (Hippocrates 1923).

Another concern about reliance on economic definitions of productivity and their use in health care allocation is that they lead to decision-making becoming merit-based. That is, they result in health care being allocated to those with an anticipated potential to deliver a return on the economic investment. A study of health care politicians in Sweden found a large proportion view employment as an appropriate variable that gives a patient priority (over those unemployed) when waiting in a surgical queue (Bjork and Rosen 1993). In the United States, health care is not a government endowed entitlement but rather an employer provided benefit of holding a full time job. Those who are unemployed or those who work only part time generally lack health insurance unless they have the personal funding to pay for it. Those who are at the poverty level (\$11,060 for a family of two, 1999 United States Department of Health and Human Services) or who are disabled are eligible for some forms of health care through State or Federal insurance. As discussed in chapter 2, those over age 65 are covered by Medicare insurance that offers limited medical services and no prescription medication coverage unless hospitalized. The American health care scheme facilitates the concept of health care as a reward for an individual's economic input rather than a service based on capacity to benefit or an entitlement to treatment. In the American scheme, the reward concept can be seen as closely associated with economic output because in general, those with the best health insurance coverage are those who are employed (and thus productive). If ability to pay and productivity level are health care allocation tools it is clear that the

distribution of health care will be most biased against economically disadvantaged elderly patients.

The age bias of productivity-based health care allocation is further facilitated by the perception of the elderly by the non-elderly. Newman et al. (Newman, Faux, and Larimer 1997) studied children's attitudes and views on aging and found the majority equated being old with being sick and weak and unable to do things. When asked how they would feel when they become old, 30% of responses included "worn out", "sick", "in pain" and "helpless". The results of a National Council on Aging study (Harris 1975) were no brighter. This study examined stereotypes and attitudes toward the aged and concluded that the views of those under 65 about the elderly were more negative than the views the elderly hold about other elderly persons. Accepting that numerous negative stereotypes exist toward the aged by the non-aged (Palmore 1982) it is pertinent also to examine the views of the elderly themselves.

Personal productivity is valued by the elderly (Collette-Pratt 1976). In the United States 30% of the elderly hold paying jobs and another 35% perform unpaid volunteer work (Burnight 2000). A 1998 United States Census Bureau report (Casper and Bryson 1998) found that 3.9 million children live in households maintained by a grandparent. Over half of these grandchildren are under the age of six and nearly half of grandparents are over age 55. In addition to raising these children, nearly half of these grandparents are concurrently employed.

Certainly this childcare role is an economic savings to parents who are unable to afford childcare outside the home. Also, the societal benefits of having a grandparent rear a child when parents are unable to lessens the burden of government assistance programs. Using the caregiving wage calculations provided by Arno et al. (Arno, Levine, and Memmott 1999), the economic value of the caregiving activities provided by grandparents over age 55 in 1999 was about \$285 million annually for families with one grandparent providing care. Even under the economic definition of productivity these elderly are definitely making an impact, yet this impact is not always acknowledged as some view this childrearing as an expected societal role that is not extractable in economic terms. Indeed, in the United States the construction of the Gross Domestic Product (the output of goods and services produced by labor and property located in the United States) does not include these contributions of the elderly, even though it does include economic calculations of the elderly's costs to the community, targeting everything from health care to housing assistance, and all matters in between. Failing to include the contributions of the elderly renders these cost calculations unbalanced.

A German study (Freund and Smith 1999) found that the activities of the elderly largely identify how they define themselves as individuals. An individual regards his or her current life, not past history, as predominantly self-defining. Highly ranked as self-defining are hobbies performed at home and jobs outside of the home. These beliefs should not be construed to mean that the elderly use these

forms of productivity merely to confer upon themselves a level of value or worthiness to receive health care. While these elderly viewed their health status as important to how they defined themselves, there is no indication from this study that they viewed health care as a reward for current employment or a specified level of home activity (though the study did not aim to answer this question). And while some elderly might be willing to lengthen their wait in a health care queue in favor of younger patients, there is no direct indication that they would do so as a result of the fact that these younger patients are employed or more productive than they are themselves (Mariantto et al. 1999).

In viewing health care as an investment the fact that those over age 65 likely have been financially contributing to the Medicare insurance pool for 45 years or more should not be excluded. Their financial contributions (in the form of mandatory payroll deductions) and their history of employment [productivity] should be considered as part of investment calculations if health care is to be considered an economic investment. The return on their 45-year investment could be realized as their ability to access health care within the system they themselves funded. Conversely, not allowing them access to health care results in a futile investment for themselves because they cannot benefit from their prior financial contributions. In such a scenario, the elderly would be better off having contributed to a private investment account specifically created with a return strategy permitting health care access in the geriatric years. Even with this strategy, they could still face difficulty in accessing scarce medical technology

(e.g., organ transplantation) owing to arguments that these should be restricted to the non-elderly to maximize economic productivity.

The argument that there must be an economic return on health care allocation is ethically problematic when the return is gainable only for the non-elderly. It is unfair to bar the elderly from the return on their own economic investment, because it puts them in the position of facilitating health care access and economic output for the non-elderly, yet being unable to access health care themselves. It also reduces the practice of medicine to a profit-focused business, rather than maintaining it as a humanitarian service because clinical decisions are made to focus on arbitrary age limits and estimates of anticipated productivity rather than on acknowledgement of and respect for elderly patients as unique individuals with personal preferences and an identifiable capacity to benefit via the approach discussed in chapter 4.

The design of the Medicare insurance program prompts further reflection on the relationship between personal productivity and health care allocation. As discussed in chapter 2, Medicare is not an insurance program for people of all ages. Rather, it generally applies only to those aged 65 and older, thus segregating the health care of the elderly from the non-elderly. In pulling the elderly aside from the general population, Medicare has the power to determine the type of health care it will provide to this subpopulation even if the particular therapy is clinically applicable to patients of any age (e.g., prescription drugs).

Granted, even the private insurance of the non-elderly is not all-inclusive, but these individuals have access to a greater array of therapy that is clinically applicable to patients of all ages, usually including prescription drugs. By limiting the medical care of the elderly, not only are their therapeutic plans potentially incomplete (Donelan et al. 2000), but one might also argue that this implies that Medicare patients are not as worthy as non-Medicare patients.

Productivity based health care allocation argues that the elderly were worthy at one time in their life [when younger and economically productive] and now are no longer worthy. Compartmentalizing worth into the non-aged part of a person's life, productivity-based health care allocation devalues people (as shown by limiting their access to health care) when they reach a categorical limit such as their sixty fifth birthday. Such policies are ageist and resemble that of the *Kelley Blue Book*, a monthly handbook for the automobile industry which sets the value of vehicles based upon their age and features (e.g., cruise control, air conditioning, and sunroof). Generally, as vehicles age, their value declines. Older vehicles are upstaged by new models with new colors and options. Even if the older vehicles run well, providing safe, functional transportation, their economic value continues to decline as they age. Moving from cars to people, the *Kelley Blue Book of Geriatric Health Care* would likely note human "features" such as a feeding tube, wheelchair, tracheotomy tube, and diapers, further facilitating the concept of health care as commodity and older persons as

unfeeling objects with a quantitative worth to the community that is based on their chronological age and accompanying features.

If it is agreed that productivity must be a variable in health care allocation then the elderly should not be singled out as the sole group, but rather patients of all ages should be analyzed for their productivity potential. In particular, smokers should be high on the list of productivity-challenged persons. According to the American Lung Association (American Lung Association 1999) smoking costs the United States' economy at least \$100 billion in health care costs and lost productivity. Those over age 65 have the lowest prevalence of smoking (12%) whereas those aged 18-24 (a group argued to have high productivity potential) have the highest prevalence of smoking (nearly 29%). Lost productivity is reflected in time off work due to personal smoking related illness, time off work to take care of family members afflicted with illness due to second-hand smoke inhalation, and time away from the work site to allow for the act of smoking. According to the Agency for Health Care Policy and Research (Rockville, MD) lung transplants and tracheotomies are two of the most expensive medical procedures performed in the United States, costing \$191,000 and \$148,000 respectively. Goodwin and Shepard (Goodwin and Shepherd 1998) have studied the economics of smoking and concluded that the loss in productivity, due to morbidity and early mortality results in an overall net cost to communities.

Even if some elderly may have smoked in their youth and gave up the habit in later life (reflected in the smaller smoking prevalence rate), they should not be punished now (by limiting their health care access) for the behavior of their youth. After all, heart transplants are not denied to those who have eaten high fat diets all their life, and liver transplants are not denied to recovered alcoholics. Empirically proven productivity-detracting behaviors such as smoking and alcoholism are not used to limit one's health care access if the behavior has ceased. Chosen activities such as smoking, drinking alcohol and eating a high fat diet are forgiven whereas the non-chosen activity of aging is unforgivable in productivity-based health care allocation schemes. Such schemes discriminate against the elderly by comparing their current selves ('old', unproductive) to their former selves (younger, productive). In the case of the elderly, the act of comparing the present with the past finds the past working against them because they are matched up against their prior (more economically productive) selves and held to that standard (level of production).

Productivity-based health care allocation falsely assumes that all elderly people are sick or disabled. Another closely related myth is that the health care expenditures for all elderly people are the same. These assumptions are easy to make when viewing the elderly as a homogeneous group instead of individuals with unique clinical presentations. In 1997 the United States House of Representatives Ways and Means Committee published *Medicare and Health Care Chartbook* which reported the elderly's use of the Medicare system. The

report calculated the average annual Medicare benefit for each of the system's 33.3 million participants at approximately \$4808. The average annual Medicare benefit (inpatient and outpatient) paid on behalf of a 65-year old patient is approximately \$2500, whereas it is approximately \$6500 for those aged 85 and older. By contrast, per capita health care expenditure for those under age 65 was \$1849 in 1995 (Agency for Healthcare Research and Quality 1997). Approximately 21.3 million elderly tap into only 4% of the Medicare budget, likely indicating they are in a relatively healthy and functional state with much opportunity for productivity. Excluding the common cold, those between ages 45 and 64 predominantly experience primary care illnesses which have a greater impact on productivity (e.g., psychosomatic complaints, myalgia, and low back pain) than the most prevalent primary care afflictions of those aged 65 and older (urinary tract infection, ear wax buildup, bruises) (van Weel and Michels 1997).

Some have gone to great lengths to quantitatively balance health care investment dollars against a patient's average monthly salary, time off work, and time till the realization of investment return (Poirier 1991). These mathematical efforts weed out the unemployed elderly because the calculations include only economically productive people by way of the GDP. For example, in the case of left ventricular assist technology (LVAS) Poirier has determined that these devices could be economically acceptable if the patient returned to full time employment within six years of implantation. Even if one accepts Poirier's argument that those with salaries higher than \$40,000 per year can compensate

for those with low or no wages, the calculations themselves presuppose economically defined productivity as the core value. To quote Poirier, "...these systems [technologies] must allow recipients to return to society as a productive force" (Poirier 1991, 544). He further states that the economy and the allocation of health care should be run as a business, with patients being viewed as "machines" with productivity potential.

Poirier's representation is problematic for at least four reasons. First, it is a common business practice to remove unproductive people for the sake of a business rather than to rehabilitate them. Second, as previously discussed, the concept of wealthy people subsidizing the care of poorer people is generally not fostered in the United States, and health care is not viewed as an entitlement, but as a reward for full time employment. Third, viewing a patient as a machine within the doctor-patient relationship dehumanizes medicine and facilitates disregard for a patient's preferences and his or her capacity to benefit from medical intervention. Fourth, as with most mathematical productivity theories such as Poirier's, there is the very possible predicament of hospitals not encountering patients of the appropriate wage class. Referring again to left ventricular assist technology and Poirier's baseline wage of \$40,000 per year, what is to be done if all presenting LVAS candidates make under \$40,000 per year? Would this mean that this clinically beneficent technology should be shelved? Or should it be allowed to remain, in the hope that the economic returns of another technology may be enough to offset the economic loss of

LVAS technology? Should hospitals ration LVAS technology according to a patient's income? Rationing health care according to a patient's income level is another formulation of rationing health care according to a patient's worth rather than treatment preferences and capacity to benefit from medical intervention.

As discussed earlier, the United States government has concluded that it is inappropriate to allocate kidney dialysis on the basis of a patient's social worth (United States Congress 1972); however, this decision was limited to dialysis and allocation discussions resurface each time new, expensive technologies hit the marketplace. Just as it was ethically inappropriate then, it is ethically inappropriate now, yet the risk for the negative stereotypes and myths of the aged to determine their ability to access clinically proven technologies is reality. While productivity, a positive work ethic and successful investing are things to be valued, the value is ethically prized when untied from the context of health care allocation. It is ethically problematic to hold people to the economic productivity of their former [younger] selves or to a standard that communities or the government may set. The United States holds fast to these principles when allocating dialysis, yet there is the tendency to forget them as new technologies emerge and the business side of medicine takes over.

Where does this leave those who are in the position of allocating treatment? If it is accepted that social worth is an ethically inappropriate allocation tool, there are

other available and appropriate avenues. Further, these avenues (table 5) are applicable to patients of all ages and diseases of all types.

Table 5. Treatment avenues for patients of all ages, presenting with disease of any type

1	Clinically inappropriate treatment should be withdrawn.
2	Treatments that are not clinically appropriate (even if demanded by the patient or family) should not be initiated.
3	Treatments that are refused by patients with decision-making capacity should not be initiated.
4	Hospice care should be considered for terminal patients.
5	Do-Not-Resuscitate Orders should be initiated as clinically and ethically appropriate.
6	The guidance of a patient's Advance Directive, if available, should be followed.
7	Patients with decision-making capacity should be encouraged to draft an Advance Directive if they do not have one.

These seven avenues are not random or arbitrary but rather they consider each patient as an individual, they take into account the clinical and contextual variables of each case, and they are applicable to patients of all ages and disease states without bias. Doing so, these measures help ensure more equity in access to health care than do policies based on age limits, or a perceived productivity or social value that is constructed by way of myths and stereotypes. Also, these guidelines support technology stewardship that allows beneficent therapy to be in reach for those who would realize relief of suffering, whether or not they are cured from their underlying disease.

In summary, owing to the process of aging, an 80-year old might not be as "productive" as a 45-year old, yet this should not corrode their dignity or value to the community, and it should not inhibit their access to beneficent medicine.

Policies that incorporate myths, stereotypes, and implied productivity quotas during health care allocation decision-making are ethically suspect. Under these conditions, elderly patients risk being underserved by the health system they help to finance (Medicare) and the technologies their tax dollars help to develop. In order to facilitate equitable access to health care for patients of all ages, allocation should be based on health-related criteria and the patient's treatment preferences in light of their capacity to benefit from the proposed therapy.

CHAPTER 10

CONCLUSION

The purpose of this research has not been to create a novel health care insurance program; nor has it been to define a minimum allotment of dollars or services that would provide "basic health care". My focus has been on the conceptual and applied exploration of geriatric health care omissions — health care that would be routinely provided to the non-elderly but is considered for exclusion, or categorically excluded, when the patient is elderly. As shown in my analysis of various cardiac therapies, allocation dilemmas do arise and distribution decisions are sometimes based on policies as arbitrary as age-based rationing. Such policies evidence a disregard for a patient's treatment preferences, his or her capacity to benefit from treatment, and the medical team's experiential knowledge.

The reasons for such geriatric health care omissions stem from several sources and are influenced by today's construction of aging and what it means to be elderly. Modernization, industrialization, and a shifting of core values have changed what it means to age and to be old. As the review of the works of Cole, Stahmer, and others indicates, the constructions of aging and the elderly in pre-modern history are very different from those of today's modern, industrialized communities. In pre-modern times religion gave life and growing old significant meaning, but over time, values toward life, aging, and death have changed. Where once life was seen as a reflective spiritual journey toward heaven (in

which death was not postponed or avoided), modernization and industrialization have facilitated a faster life pace and a forward-thinking vision that esteems efficiency and productivity (Cole 1984).

In pre-modern times sickness and disease were widely viewed as expected parts of life's journey and these afflictions often functioned as reminders of God's overall sovereignty (Cole 1983). Today, few view sickness and disease as having spiritual meaning. Sickness and disease are often viewed as impediments to success and few stand by and simply tolerate them, but instead fight them by seeking treatment or cure. Aging has come to have significant meaning as a time of morbidity, as a burden that interrupts individual and societal productivity and the path to wealth. This view is subject to "validation" when technology and marketing step in to fight aging as if it were a disease. With the old seen as needing repairs to return them to a point of social and economic productivity, science offers parts (e.g., prostheses) and service (e.g., surgery). Medical advertising propels the demand for these technologies using various media that portray a vision of the elderly as weak, frail, and cosmetically unappealing, yet with the potential to overcome and be more "active" (productive). With today's construction of aging seemingly formulated with a focus on output and wealth, there seems to be little, if any, space for the prior role of aged people as spiritually righteous mentors and advisors (Gruman 1978). Elderly people are seen as occupying a new role, as that of the infirm or consuming burdens on the youth and middle-aged (Lamm 1993).

Attributes and variables that impinge on efficiency and productivity are devalued (Gadow 1983), and some people place the elderly and their disabilities into these categories. The generally slower mental and physical functioning of old people, as well as reduced dexterity compromise their potential contributions to manufacturing. The elderly's stories of the past are slower to obtain and sometimes of questionable validity (due to issues with memory) compared to accessing a computerized database. The wisdom of the elderly can be seen to be set aside when the youth eagerly say, *I can figure this out. I know where to look for the answer*--as opposed to, *I know who to ask for the answer*. With libraries, computers and the Internet at close reach, these sources can easily become replacements for discourse with the elderly.

Recognizing aging as a "natural" process rather than a disease

If a particular therapy or procedure makes clinical and ethical sense, and the patient desires to undergo such a procedure, it would seem that the patient and doctor are appropriately managing an affliction. That said, it does not follow that aging in general is a disease that patient and doctor must seek to treat. What if aging were instead viewed as a natural process? As humans age they fall victim to various afflictions, but this is not unique to older persons. As children grow they experience infections and accidents, yet their aging is not termed a disease. When the afflictions of youth are battled, these attempts are generally praised, yet treating the afflictions of the elderly are often regarded as "aggressive"

measures that "fight death" and are economically suspect (Layon et al. 1995).

The elderly have been targeted as a group in relation to which it is acceptable to deny health care when there are other ways to save money. Neonatal and pediatric populations are not "marked" in this fashion, but perhaps this is because the elderly are often seen as consumers while the young are often viewed as investments which are likely to generate an economic return through future employment and community service (Meadow et al. 1996).

Even if it is ethically inappropriate to use patient age as a categorical treatment limit it does not follow that there is no role for patient age in the context of health care. Patient age is a routine data point in every patient's medical chart. On ward rounds, age is always reported as part of the patient presentation. Knowing the age of a patient does help to create a mental picture of him or her. For example, a 50 year-old likely has established a residence, completed his or her educational pursuits, and has undergone a varied range of life experiences, often including marriage, child rearing, and career. A 10 year-old, however, will still be pursuing an education, living under the supervision of others, and will have been exposed to a narrower range of life experiences involving less responsibility. Patient age can also be relevant to discussions about nutrition, as people in different age groups may have different nutritional needs based on their age. For example, women of childbearing age are advised to increase their folate intake, and older patients often advised to increase their vitamin D and calcium intake

due to the risk of osteoporosis. To argue that age should not drive health care allocation is not to argue that age is not relevant to discussions of health care.

Targeting the root cause versus the symptoms

While high prices are frequently cited as a key characteristic of medical technology, economics are merely a symptom of underlying issues. Economic discourse masks what some do not want to talk about, namely, their social and moral views of the elderly. As shown, these are deep and complex issues that are shaped by views of life and death, spiritual and cultural influences, and the influences of technology and modernization. Focusing on economics can cause diversion from the core issues. Economic answers crafted as policies still leave the remaining core issues in place, unexplored, and likely to stimulate resurfacing of the original dilemma when the economic "solutions" fail. Further, attempts at re-engineering these economic solutions may, in fact, be only temporary remedies laid atop the underlying root cause. As with most problems it would seem that addressing the root cause, not just the effects of the problem, is the best way to proceed. Similarly, addressing the effects of the problem may make it appear that the problem has been fixed; however, the problem is likely only suppressed as the root cause is still present. It would seem that focusing on the root cause could facilitate the best chance at addressing the effects felt by patients who are denied health care. Avoiding determination of the root cause allows the true problem to remain active.

Returning to the problem

The United States Medicare program does not and cannot pay for all beneficial therapies for all elderly patients. The public health care systems of Australia, Canada, France, Germany, Japan, and the United Kingdom would likely not be accepted by those in the United States due to the fact that patient choice of his or her doctor and hospital is not fundamental in these systems, whereas this value is fundamental to the value systems of most Americans (generally speaking). All of the six health care allocation philosophies presented (chapter 3) have clinical, ethical, and financial advantages and disadvantages. My conclusion that health care allocation should be based on each patient's treatment preferences and the potential for the therapy to achieve the goals of medicine renders the "natural life span" approach and the "fair innings" approach inappropriate on clinical, ethical, and financial grounds. The "Why not?", "Prudent Consent", and "Prudential Life Span Account" approaches are also fatally flawed for reasons discussed. The "capacity to benefit" approach, however, is the most appropriate health care allocation approach of the six presented.

As discussed in chapter 4, my capacity to benefit approach, which consists of seven variables essential to the evaluation of a patient's capacity to benefit from a proposed intervention, expands on Jecker's conceptual perspective. While lacking a quantitative formulation, the seven variables can nonetheless be used qualitatively to determine the most appropriate treatment route for each individual patient, without combining patients into generic treatment pools or limiting

therapeutic opportunities due to age value. While the capacity to benefit philosophy lacks validated measuring tools, speaks nothing to the problem of how to pay for health care, and will deny scarce interventions to patients with the capacity to benefit from them, it does help define an ethical framework from which to begin policy development. The approach recognizes each patient as a unique individual with clinical and contextual features imperative to decisions regarding therapeutic strategy. Further, this approach prevents potential resource waste by not allowing futile therapy to be implemented, requiring the withdrawal of therapies that become futile, and not forcing beneficial treatment upon patients with decision-making capacity who do not want treatment.

Economic finitude is only one symptom of a complex problem. Focusing solutions on an economic platform (as shown by Morris' "Why not?" approach) runs tangential to pursuing what is at the heart of the matter, namely the current constructions of aging and what it means to be elderly. Another has termed these types of actions a form of "camouflage" (Annas 1985). In the United States, it appears medical care is becoming an acquisition for those lucky enough or hard working enough to obtain. Treating the economic symptoms with an economic answer can fail to acknowledge the uniqueness of each clinical case, the patient's treatment preferences and the physician's experiential knowledge. The result can deem those whose personal or clinical situations are economically poor as potential losers in the health care allocation process.

Health care allocation policies can and should reflect consideration of economic impact, but economics need to remain a variable rather than the grounding, driving, consuming fundamental of the dilemma. As discussed, when ethics becomes subservient to economics there is the risk of devaluing health care as well as the patients which health care intends to serve. Devaluation is realized when medicine is mechanized and costs drive health care allocation instead of the goals of medicine. Commodifying medicine in this way also results in equity being applied only to an age-correct or economically-correct class of patients. Again, the capacity to benefit approach to health care allocation emerges as ethically appropriate in that these concerns are allayed.

Medical studies have yielded plentiful data indicating that the elderly are individuals who should not be clinically treated as a homogenous group (Perls and Wood 1996; Protheroe et al. 2000). An elderly patient's personal values and sense of meaning of life, death and aging should be sought from them directly whenever possible in the course of clinical decision-making (Tsevat et al. 1998). The appropriate stewardship of health care resources should consider each patient's clinical indications, quality of life, and capacity to benefit. Their treatment preferences, as well as their concepts of worth and value, should be appreciated without respect to an economic gain. If these values are stripped from health care allocation policies physicians will be providing medicine largely based on economic decision-making. A meaningful life for an elderly person might in fact comprise of resting comfortably, reflecting on life achievements or

one's spouse, children and grandchildren. In economic terms this equates to zero productivity and zero investment return, but to the individual it may produce feelings such as joy and inner peace. It is not possible to put a price on these personal experiences; thus it is inappropriate for insurance companies or the government to assign value to these experiences in the process of allocating health care.

I have not argued that the development and use of medical technologies is morally wrong, nor that those who desire to make themselves look or feel younger should be subjected to criticism. It would, however, be ethically inappropriate for societal values of productivity and wealth to be used as the basis for principles for allocating health care resources. Such usage would send a message that an individual's worth is defined by his or her potential to be brought to a more functional state, facilitating a return on the health care investment. When ethics is stripped away from the process of resource allocation, the resulting transactions are mere deposits for which an economic return is envisioned in terms of cost savings or productive output by the patient, for example. Whatever health care policies are generated they should not contain a message to the elderly that allocation limits impose on them a value that is other than ethically-based. Rationing their health care into finite dollar amounts or setting spending limits according to their age should not assign a monetary value to their life or suggest that this is all the elderly are worth unless they can provide a return on the economic investment made in them. Policies

which implicitly or explicitly send such messages are ethically inappropriate because the false, derogatory judgements are a form of injustice (Cupit 1998). Further, such policies undermine a patient's personal values, as well as the ability of health care to deliver relief to those suffering because the value fundamental to such policies is the return on the health care investment.

Respect for medical evidence and rejection of age as a categorical limit still leaves many appropriate approaches to health care allocation. In addition to the options presented in chapter 9, economic issues can be partly addressed by the reduction of health care administration costs and the reduction of corporate greed (Angell 2000). The solutions proposed throughout this thesis rely upon health-related variables to allocate care. As a result, these options do not force patients to compete against each other for care in the setting of ample technology, and they do not render moral judgements as to a patient's societal value. Collectively, these actions and consequences level the health care playing field and present an ethically appropriate approach to attaining equity in health care access for patients of all ages, in all medical specialties.

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Age-based health care allocation as a wedge separating the person from the patient and commodifying medicine

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Agism in the form of age-based health care allocation fosters the separation of the physiological part of a patient from the person who is the patient. It does so by ignoring the holistic best interests of the patient and instead focuses on providing certain procedures or therapies only when the patient's age is less than or equal to a specified value (the allocation limit). Certainly not all forms of clinically relevant care and treatment are age-restricted in the scheme of aged-based health care allocation, but it is clear that this scheme functions on the arbitrary, and patients may miss out on optimal therapy presumably because it will be ranked as too expensive¹ or too rare² to provide to older people. Arbitrarily chosen age limits or those chosen based upon an estimation of humans' natural lifespan have the effects of minimizing the patient's clinical choices, devaluing the experiential skills and knowledge of the medical team, weakening the doctor-patient relationship, and commodifying medicine. Policies of this nature do not solve our current health care dilemma, rather they are an economic bandage over the still present (and unattended to) root cause.

I pose that agist limits have the effect of slicing a patient into halves – two halves that are full of meaning and variables. The 'medical half' contains the diagnosis, prognosis, vital signs and other physiological matters. The 'other' half contains contextual and personal matters such as treatment preferences, personal beliefs, religious and cultural beliefs, and social dynamics. Agism as practised by limiting health care based on a person's chronological age profoundly denies a health care role for

these components in the 'other' half, because it renders their value zero when the specified age limit is reached. Like a locked door with a peephole, patients can see what is technologically possible, yet their chronological age value alone keeps these possibilities out of reach. Choices and opportunities are cut adrift as the wedge of agism is hammered into place (on one's 65-year birthday, for example). It is as if the matrix of ethical principles that once ran through the 'halves' like channels of valuable foundation and structure become crushed and severed as this wedge is inserted. It becomes difficult to treat the whole person due to this impediment, and it disrupts valuable communication between the patient's two 'halves'.

The wedge of agism reduces older people to physiologic machines and reduces medicine to a commodity bought and sold, practised in a mechanical format,³ devoid of humanistic qualities. With the wedge interrupting the flow and discourse of ethical principles during health care decision-making, patient preferences (formerly expressed and functioning via autonomy) are segregated and lack influence on the patient's treatment plan. Beneficence cannot be maximized because even optimal therapies can be placed on the excluded list for patients who don't make the age-cut. Justice is constrained and left gasping as its application is only to the age-correct class of patient. These effects weaken the doctor-patient relationship because clinicians end up doing less than their medical best, betraying the trust of their patients.⁴

Agism's act of slicing patients into their clinical and non-clinical halves is supported by an operating system based on a utilitarian approach that views the elderly as one large homogenous pool of people, rather than individual people with distinct clinical and non-clinical characteristics. With a

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utilitarian approach, all older people seemingly blend together and look more like case numbers and diagnosis codes rather than humans. Their clinical symptoms blend together, their emotional characteristics blend together, their cultural and religious values blend together. With all this blending, it is impossible to promote the existence and significance of personal and clinical variables of each elderly person. This approach does not give place to distinguish and recognize even one person from all the others.⁵ How do you see through the group to the individual if their characteristics don't have enough significance to stand out?

I offer that aged-based health care allocation is like an opaque shield that makes those impeded by it [patients] look the same. While doing so, it has a protective mechanism for those involved in the policy making themselves, for the opacity of the shield depersonalizes the allocation decisions because the elderly people on the other side appear as an expressionless, emotionless, generic group. Further, it renders medicine attribute-based rather than variables-based, when medicine itself is innately a field that comprises clinical and social situations that are abundant with variables. The attribute is expressed as a fixed, arbitrary age value even though technologies progress, costs change, and more possibilities for beneficence arise. Rather than 'drawing a line in the sand', agist health care policies draw the line in wet concrete and it permanently sets. The result is a dulling of patient preferences and a blurring of who the elderly are, so that the policies don't have to deal with each patient on an individual basis. While the advancements of medical technology flourish, the elderly are viewed as a static group potentially held back from medicine's growing opportunities for both cure and care.

Agism functions by devaluing the relevance of patients' clinical indications, their personal treatment preferences and their physician's experiential knowledge. Agist health care policies highlight and emphasize a patient's chronological age as having supreme value in health care allocation, and simultaneously elevate the economics of a treatment plan to prominent heights, as opposed to its clinical benefits. They cause value to shift from a moral concept to an economic concept, with the arbitrary foundation being the patient's age. The age-limit is arbitrary because the cut-off number is randomly chosen and not based on published scientific evidence or a physician's experi-

ential knowledge and skills in treating patients of various disease states and with various clinical and non-clinical variables.

Health care allocation policies based on age also have the potential to hinder the possibility of gaining empirical evidence that proves certain therapies would be beneficial for geriatric patients by preventing the collection of data on those who would be using the therapies. Agist policies would of course not limit the small pool of forthcoming data generated by those who can afford to pay for the technologies themselves, but is this an ethical arrangement? Deriving experiential evidence from the use of medical technology only on wealthy people appears to set the stage for an ethical uproar as this approach is a form of economic discrimination. Not only is it unfair for therapies to be provided only to those geriatric patients who can pay for them outright, it would likely create an unrepresentative data pool from which to examine clinical outcomes. Wealthy patients are likely to have experienced the protective mechanisms of better diet and education than that of the poorer pool of patients who don't have access to the same therapies.⁶ Wealthy patients may also have less co-morbidity and other characteristics that might make their outcome data not generalizable to the patient pool at large.⁷ Additionally, basing use-criteria on a patient's economic status further commodifies medicine. It is ethically troublesome to envision health care, a service that supports the health and propagation of our species, heading toward the commodification evidenced by cars and household appliances.

It has been argued that agism can be justified amid the 'fair innings'⁸ approach to health care allocation. Quoting John Harris, 'it is not a tragedy to die in old age, but it is, on the other hand, both a tragedy and a misfortune to be cut off prematurely'. He goes on to say that 'people who had achieved old age or who were closely approaching it would not have their lives further prolonged when this could only be achieved at the cost of the lives of those who were not nearing old age'. The 'fair innings' approach operates with the assumption that having lived to the geriatric stage is to say that the finish line has been crossed and others, on their way to the finish line need their chance to get there (with the help of health care). The result is treatment exclusions for geriatric patients with the capacity to benefit. While not explicitly stating a 'drop-dead date', the act

of setting a finish line out in front of the path of life and limiting health care access does certainly imply one. The 'fair innings' approach is not clinical decision-making but rather economic decision-making. Further, it makes an assumption that there is reduced personal value to life in the geriatric years when this, in fact, is not consistent with the views of elderly people themselves.⁹

Acknowledging that age-based health care allocation is an arbitrary method of deciding who gets therapies and who doesn't, Callahan¹⁰ seems to imply that the practice has a protective effect on society by limiting personal autonomy in favor of the financial good of society at large. He sees minimizing the choices of elderly patients and their doctors as an effective way of controlling spending – and it might work, but at a cost of minimizing the doctor-patient relationship, and side-stepping the experiential knowledge of the medical team. Even if agist policies are applied only to curative technologies and unlimited access to comfort-care technologies remains, they still impose forced choices on the elderly when cure is technically achievable. Callahan has argued that curative medicine is expensive medicine (which involves costly research), and that this money would be better spent on controlling patient suffering with comfort-care therapies. Complicating his theory is the fact that religious values and personal and cultural preferences vary among people, and thus society does not have a uniform definition of comfort care. For some, comfort care can include costly technology such as mechanical feeding. Also problematic to Callahan's math is the fact that commonly accepted comfort measures such as the control of nausea and vomiting can be extremely expensive, yet provide much benefit.¹¹

While age-based health care allocation may assist with solving the economic problems of health care decision-making, it surely creates new ethical issues, as well as enhancing existing ones. Policies of this nature do nothing to foster equity in medical care, nor do they support the role of patient autonomy. They do not spread beneficence to those in need, neither do they dispel the belief that wealthy people are more valuable and worthy than those less fortunate. Similarly, they do nothing to support the concept that medical care should be provided to those who cannot afford it, or that a physician's experiential knowledge and the humanitarian components of science are essential to the professional and compassionate prac-

tice of medicine. Rather, these policies devalue human dignity and the medical profession by promoting medicine as a commodity rather than a humanitarian service practised by dedicated, caring professionals with a learned skill. Whether the age-limit is arbitrarily chosen or is based on an estimation of humans' natural lifespan, the effects are still the same. I pose that many elderly would view these forced choices as unethical and unfair, with a conjoined message that younger society disrespects and devalues them.

In addition to disrespecting the treatment preferences of each individual patient, I am most troubled by agism's wilful disregard for medical evidence that concludes that age is not necessarily a predictor of clinical outcome.¹² Knowingly blocking patient access to beneficent therapy because patients have reached their 'natural lifespan' or crossed the 'fair-innings' finish line sends the message that the elderly need to step aside. Is this a humane practice of medicine? Respecting medical evidence and rejecting age as a categorical limit still leaves many approaches to health care allocation. These include (1) respecting the preference to forgo treatment by patients with decision-making capacity (2) withholding treatment that is clinically inappropriate (3) withdrawing treatment that becomes clinically inappropriate (4) the use of Advance Directives to guide the treatment of patients who have lost their decision-making capacity, (5) the use of Do Not Resuscitate Orders in situations where resuscitation would likely result in a worse clinical outcome, (6) the reduction of health care administration costs (7) reduction of corporate greed.¹³

Certainly there is an economic component to our current health care crisis, but framing the dilemma itself as entirely economic and then applying an economic 'solution' is problematic. Extracting economics from the network of other associated issues and then elevating it to the driving force of allocation decisions does not fool the affected patients, or society at large. Numerous variables of the dilemma remain untouched – namely, our changing values towards older people, corporate pricing of medical therapies, and overall technology stewardship for patients of all ages. They lie both ignored and blurred by the opaque shield of age-based health care allocation. Agism packages the practice of medicine in such a way that each individual's capacity to

benefit is of little relevance if their age exceeds the set allocation limit. To know the price tag of medical technology is one thing; to witness or experience the value of it is another.

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Scientific Breakthroughs: Cause or Cure of the Aging 'Problem'

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Key Words

Aging · Technology · Society · Stewardship · Economics

Abstract

Could it be that society's construction of what it means to be elderly has created and now fuels the current immortality revolution? Have we defined aging in such a manner that we 'need' technological breakthroughs in order to fight the 'problem' of the soaring geriatric population? This fight may indeed improve quality of life and increase longevity, but while doing so, society must accept that this strategy will result in an ever increasing elderly population, a population that cannot be expected to let beneficent medical technology (comfort or cure oriented) pass them by. Society's medical breakthroughs are creating a population that ethically we cannot turn our backs on.

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The soaring elderly population (aged 65 and older) is a fact which causes many to term aging a 'problem'. Intricately bound to this fact is the reality of a marketplace which puts forth many products and technologies aimed at improving health and quality of life. The youth and middle-aged are daily presented with inviting opportunities of beauty, vigor, better health and longevity, so can we blame the elderly for wanting to also partake? Can we con-

demn the elderly for desiring to halt or push back the aging process, when society often promotes the view that they are frail and unproductive [1], and when technologies such as prosthetics, gene therapy and artificial replacement organs [2] are waved under their nose?

Instead of regarding old people as the natural result of the aging process, some regard aging itself as a disease, and the elderly as the afflicted (diseased) of that process. Considered as a disease, aging becomes something that needs to be cured or fought, not something to be lived with. Industry has not let this opportunity go by, creating a myriad of 'treatment' possibilities ranging from the inexpensive (vitamins) to the very expensive (gene therapy). Likewise, the marketing and sales professions have jumped on the gravy train and heartily send the message that youthfulness is exciting and old age is a period of weakness and lack of vivacity. Magazine and journal advertising frequently shows images of pills and other medical products side by side with images of smiling, dancing elderly people. Their skin appears supple; couples are holding hands. What elderly person wouldn't want to live like this? If this buffet of scientific breakthroughs set before them potentially offers improved quality of life and longevity, can we expect them not to want to indulge?

It appears that a technological bounty has been created, yet we slap the hands of the elderly when they ask for or indeed grasp it. They are theoretically offered beneficent products and services, yet scorned as a problem

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population when attempting to gain access. As examples, the elderly have been accused of financially robbing their children and grandchildren, as well as society's pool of educational and defense funds [3]. This forces the question: is society creating the aging 'problem'? Are we, with our 'healthful' technologies, increasing the life span and expanding the number of potentially eligible health care participants? Considering corporate marketing and pricing strategies as distinctly separate issues, is the mere development and production of these technologies ethically wrong? The rule of double effect would say no.

The rule of double effect, popular in the realm of clinical ethics decision making, relates to actions that produce an intended beneficial outcome, while, in parallel, also producing an unavoidable undesired outcome. While the undesired outcome may be foreseen, it is the beneficent effect which motivates the initial action and makes the action ethically permissible. Within this discourse, the many wares of medicine and scientific technology have the goal of improving the quality of patients' lives, often extending their life; however, at the same time this facilitates the 'problem' of increasing the geriatric population and their perceived drain on society [4]. If we apply and accept the rule of double effect regarding the concept under discussion, it functions to acknowledge that technological developments feed the population increase, and also deems the development of these technologies (in general) as ethically appropriate. Moreover, it would seem ethically problematic to have the tools of medical beneficence but not be allowed to use them. Of course, this formulary analysis does nothing to solve the economic problems that coexist with the availability of these technologies, but it does call into question society's branding of aging as a 'problem'; namely, society simultaneously promulgates a devaluation of the elderly and encourages the biomedicalization of aging [5].

Philosopher-ethicist Daniel Callahan has made the argument that science shouldn't be going down the research path in the first place [6]. He argues that conducting research that results in expensive technologies is inappropriate, and instead we should focus on comforting our elderly patients, not curing them. This argument fails on several counts, for even comfort care technologies (e.g. antiemetics and painkillers) require research to develop and optimize them, and it these research expenses contribute heavily to the final cost of the technology. Also, in the course of developing comfort care technologies, knowledge gained often has tangential relationships to curative therapy, and it seems ethically problematic to simply shut down these potentially beneficent avenues.

Even if medical technologies are costly at the outset, the cost generally declines over time as research and development expenses are recouped. Taking Callahan's approach, it is as if the elderly are 'worth' only comfort-oriented technologies, even if the benefit-harm ratio of curative technologies is favorable. An approach of this nature could be seen as allowing economics to be a treatment variable when the patient is old, but not when the patient is young.

Unfolding Callahan's approach reveals that the research process has limits placed on it which are purported to limit the research itself, when actually what is limited is the elderly's access to the products of this research. Clearly, derailing research altogether limits not only potential health care products, it also thus seals off access by all needy age populations. In a sense, the unfairness is evenly distributed to all patient pools and all patients as individuals as there are simply no products to provide anyone. If one attempts to modify this blanket approach by allowing the research and development of curative products, then, according to Callahan, one must limit access to these products according to patient age – an arbitrary limit. If one modifies the blanket approach by allowing research and development of only comfort care technologies, then the research process itself must be clearly and definitively constructed so that it stays within the boundaries of comfort care. Callahan's philosophy takes a comfort care-oriented path which uses the variables of cost and patient age to limit or shut down research (and its tangential applications) even when potentially curative technology is seen to emerge from basic science investigations. Overall, I find this approach ethically problematic, because it allows the reshaping of ethical principles (autonomy, beneficence, nonmaleficence, justice) according to a patient's age, rather than applying the ethical principles squarely against the patient's clinical indications and personal preferences. Further, it ranks economics with a higher priority than relief of a patient's suffering.

While the analytical approach of the rule of double effect may render the availability and use of comfort and curative medical technologies in the marketplace morally permissible, we are still left with the matter of the persecution often inflicted on the elderly when they use these technologies or when they express a desire to use them. Simultaneously praising scientific achievements and bashing the elderly is ethically troublesome, for it sends the message that the principle of beneficence applies for some (younger populations), but not for all. When we allow ethical principles to assume new constructions based upon arbitrary variables such as cost and patient

age, this disintegrates not only the moral fiber of the principles themselves, but also the value of patients as individual people. It also serves to group their health status into generic clinical sets, disrespecting their specific clinical variables, as well as the physician's experiential knowledge and contextual factors that may be relevant to the case. Further, the personal preferences of the patient are permitted to be ignored, rendering the principle of autonomy almost invisible. Rather than singling out the elderly as a 'problem population', a more appropriate approach might be to search for economically feasible ways of getting these technologies to *all* patient populations, such as optimizing manufacturing efficiency, reducing corporate industry and third party payer greed (a recognizably difficult pill to swallow), improving patient selection and overall better stewardship of the technologies.

It surely seems that society's construction of what it means to be elderly has created and now fuels the current

immortality revolution. Generally, this modern construction of aging requires technological breakthroughs in order to fight the aging 'problem'. The products and technologies of this fight may indeed improve quality of life and increase longevity, but while doing so, society must accept that this strategy will result in an ever increasing geriatric population, a population that cannot be expected to let beneficent medical technology (comfort or cure oriented) pass them by. We ourselves are creating the soaring geriatric population, making it ethically problematic to turn our backs on them. While not in support of unlimited health care spending on any population, I suggest that blanket health care access restrictions for the elderly are inappropriate, and, in fact, further contribute to society's shrinking back from the responsibilities owed to the population whom our technological advances have created. We must not fail to see the role we play in the overall geriatric health care equation.

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article

Why an Alternate Recipient List for Heart Transplantation Is Not a Form of Ageism

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Abstract

Numerous studies have shown that the use of marginal hearts for organ transplantation produces clinically favourable results, however the association of these marginal hearts with a separate list of potential recipients, often the elderly, is ethically disturbing for some transplant facilities. Examination of the outcome data alone is not enough to justify the use of an alternate recipient list (ARL) as an ethical practice. However, upon analysis and reflection on the allocation process and the goals of medicine, the operating principles of medical ethics clearly emerge. Based upon this ethical analysis, an ARL for heart transplantation is not a form of ageism but rather a method of technology stewardship that operates by way of facilitating transplant eligibility to those with the capacity to benefit.

The thirty-year history of heart transplantation has seen the emergence of new technologies and improved clinical outcomes. At the same time, the UNOS (United Network for Organ Sharing) heart transplantation waiting list continues to grow and the supply of donor hearts is in constant shortfall. With approximately 4,100 patients on the United States waiting list and a yearly supply of 2,200 donor hearts, approximately 25% of waiting patients die (United Network for Organ Sharing, 1999). Efforts to expand the donor heart pool have largely consisted of educating the public about the needs and benefits of organ donation, and educating hospitals about the function and utility of organ procurement organizations. Other efforts to assist waiting patients have included clinical trials of total artificial replacement organs (Joyce *et al.*, 1983) and xenografts (Bailey *et al.*, 1985) as either bridging or destination therapies. At present, these two strategies cannot be employed as solutions to the dilemma and they have an uncertain future. In the United States, ventricular assist devices are frequently used as bridging technology prior to heart transplantation; however, these devices are not approved by the Food and Drug Administration for permanent implantation. Some hospitals have engaged another strategy, namely, an alternate recipient list (ARL) for heart transplantation, yet examination of their outcome data alone is not enough to justify its use as an ethical practice. Specifically, issues regarding using age as a transplant eligibility criterion must be explored.

An ARL for heart transplantation functions by attempting to match donor organs for which the long term outcome is unknown with recipients who are elderly. Generally, these patients are over age 60, however age criteria vary among transplant centres. The use of the term 'alternate' can carry with it emotionally charged visions of organs that are defective or recipients who are 'second class'. These perceptions are both unfortunate and inaccurate. Organs allocated through an alternate list program are those for which the long-term clinical outcome is uncertain due to variables such as increased donor age, the presence of coronary artery disease, prolonged ischemic time, elevated central venous pressure, elevated dopamine exposure and reduced ejection fraction (Laks & Marelli, 1999). Data (Livi *et al.* 1996; Laks *et al.*, 1997) have shown that these variables do not necessarily impart statistically significant negative impact on the short or medium-term outcomes of recipients, nor do they significantly impact ejection fraction, the number of rejection episodes, or the length of post-transplant hospitalization when compared to 'standard' donor heart transplantation. However, because ARLs have been used in only a few transplant centres for approximately five years (single centre data varies widely), the long-term outcome of these transplants is not known.

There have been reports of older donor hearts transmitting coronary artery disease (Livi and Caforio, 2000) and

prostate cancer (Loh *et al*, 1997). Not all centres evidence similar atherosclerosis results, and it may be that this is related to variables such as organ screening, donor/recipient risk screening, donor recipient/viral screening, and immunosuppressive regimen. Some older hearts also evidence chronotropic incompetence after implantation and require placement of a pacemaker for treatment of the conduction abnormality (Chau *et al*, 1995). The combination of positive and negative clinical findings (some treatable or screenable), as well as an unclear long-term outcome, creates a unique dilemma in determining the criteria for recipient selection. Some have suggested donor testing, balancing the resulting risk with the risk of dying without a heart transplant (Detry *et al*, 2000).

The University of California, Los Angeles is one of the largest volume users of marginal hearts in older recipients, reporting a 4yr survival of 78%. They report no significant difference in early mortality or actuarial survival between patients on the ARL and patients on the standard waiting list (Laks *et al*, 1997). The University of Padova, Italy reports a 4yr survival of 81% for older patients receiving a marginal heart and 80% for older patients receiving non-marginal hearts (Luciani *et al*, 1992). International transplantation registry data (1991-1997) indicates a 4yr survival rate of 68% for patients receiving a marginal heart (Hosenpud *et al*, 1997). Several centres report that the use of standard hearts and marginal hearts has not shown significant difference with regards to the incidence of post-transplant acute rejection or infection, however, older recipients are more likely to die of infection or malignant disease. Many older patients receiving a marginal heart have shown significant reduction in their New York Heart Association (NHYA) score which can be correlated to an improved quality of life due to less pain and fatigue, and more mobility which can facilitate independence (Laks *et al*, 1997; Luciani *et al*, 1992).

Regarding marginal hearts, it is likely that single centre survival data are more favorable than registry data as single centres with a distinct ARL protocol will have adopted logistical and surgical expertise as compared to the pooled registry data that includes non-ARL protocol facilities. Poor outcomes can be affected by organ-recipient size matching issues, as well as the quality of the heart, namely, a history of donor substance abuse, myocardial contusion due to chest

trauma, hepatitis B, and low left ventricular function. In the absence of problems related to the donor heart, and in the presence of immunosuppression, the 6 year survival for a 61 year old transplant recipient free from other co-morbidity has been reported to be 54% (Bull *et al*, 1996). For all US heart transplants (regular and marginal), UNOS reports a 5yr survival rate of 66% (Keck *et al*, 1998).

Accepting that these 'marginal' hearts are indeed clinically effective (with or without pre-implantation revascularization) it could be problematic not to use them due to the fact that their potential benefit (though possibly time-limited) will be discarded along with the organ. Probing further it could also be problematic to give a marginal heart to a patient who would optimally benefit from a long-term implant due to their anticipated life expectancy. While each patient's life span is unknown because humans can theoretically die at any moment, it is nonetheless reasonable to assume that the potential quantity of years remaining for a young person is greater than that remaining for an elderly person. If there is reason to believe that long-term transplant outcomes might be reduced with marginal hearts, then these organs should be offered to a patient pool that includes those of advanced age as they have a shorter span of life ahead of them as part of their baseline presentation. Patients who are likely candidates for a long-term result, should be in line for a long-term organ, and transplant centres may have to adjust their ARL entry criteria as further morbidity and survival data is gained while using these protocols.

The fact that ARLs are predominantly comprised of elderly patients does not make their use an ageist practice (that is, treatment discrimination based solely on a patient's age). It would seem that as long as these marginal hearts are offered to the most critical patients first (UNOS Status I) with complete disclosure as to the heart's marginal classification and the risks and uncertainties associated with it, there is no discrimination against those on the standard waiting list (e.g., the non-elderly). Additionally, there is no discrimination against the potential elderly recipients as they are offered organs that have a close match of potential life span. An ARL allocation strategy respects a patient's capacity to benefit from transplantation regardless of their age, prevents the discard of usable organs, respects the urgency of the Status I category, and overall, represents

transplant medicine's striving for ethical technology stewardship. Restated, alternate recipients make use of hearts that will go to waste if not used by those on the standard list. It gives them a chance they would otherwise not have because their age automatically excludes them from the Status I UNOS list. Those placed on the ARL accept the fact that younger, urgent patients (Status I UNOS) will be offered the marginal heart first because they would receive more benefit if in fact the marginal heart did hold out for their lifetime.

Understanding technology stewardship as the prudent exercise of evaluation and application of technology, the practice of using an ARL for heart transplantation can be argued to be compliant. The value of any technology is tied to its appropriate use, and the elimination of age as a categorical treatment variable helps to level the playing field so that there is equal eligibility for a technology (in the light of the capacity of the patient to benefit from it). Several studies (Luciani *et al*, 1992; Livi *et al*, 1994) evidence clinical support for patients in their sixties and seventies to receive hearts from elderly donors, even donors in their sixties (Chau *et al*, 1995; Potapov *et al*, 1999). Given this, formal rules that completely exclude patients from receiving a heart transplant on the basis of their age alone (categorical age limits) are problematic and could cause the wastage of organs rejected by other potential recipients. In fact, excluding older patients from receiving a transplant on the basis of their age alone could result in multiple implants of marginal hearts in single patients on the standard waiting list while elderly patients are banned from the opportunity for even their first transplant. Additionally, multiple implants have implications for medical costs both in terms of risk and resource expenditure. Further, if we allow the donation of hearts from older donors yet decline their implant into older patients are we not using these older donors as a means to an end (e.g., mere warehouses for donor organs)? If the capacity to benefit from transplantation is evident in these older patients, then it is ethically problematic to exclude them from the technology while at the same time accepting their donated organs for use in younger patients.

In the light of ethical technology stewardship, and the structure and function of an ARL, it appears that age-based exclusions to transplantation are unacceptable. The reasons which make such an exclusion unnecessary (the inability to

determine each potential recipient's life span, the potential diminution of capacity to benefit towards the end of an elderly patient's life when they have clinical exclusion factors or elevated surgical risks, the availability of marginal organs that will go unused or be placed in patients who are unsuitably matched for potential long term outcome) are the same reasons which render aged-based categorical limits unethical. Further, instead of making transplantation age-based, using capacity to benefit (with the organ matching concept espoused by an ARL) is more just because it defines eligibility in a non-arbitrary way.

Certainly there will be those who will argue that ARL programs are ethically troublesome because while potentially allowing transplant eligibility for the elderly and reducing organ wastage, there is no economic mechanism to increase the financial resources to pay for these additional surgical procedures (and their related medical expenses).

An argument could be made that short- and medium-term outcomes are economically burdensome from the standpoint of dollars spent and years of life gained post-transplant, and that only those patients with the potential for long-term outcomes should be considered. However even non-marginal hearts can evidence short- or medium-term clinical outcomes due to a variety of potential transplant complications such as rejection and infection. There is no accurate way of predicting how long a donor heart will optimally function or how long an organ recipient will live. Generalizations can be made using transplant registry data, however, each patient is as unique as the donor organ they receive and variables abound. If one argues that only long-term outcomes are ethically appropriate, then those who would benefit from an improved quality of life, even if only short- or medium-term, would be automatically excluded from transplant eligibility (and these would most likely be older persons). Also, the definition of short-, medium-, and long-term outcome will likely change over time as medical and surgical techniques improve, and as donor-recipient matching strategies are continually optimized. The act of limiting heart transplantation endeavours will not serve to address these matters, but rather it will complicate them due to the limitation of data and experience that can be potentially gained. The economic issue should not be an automatic barrier to the use of this technology, but rather it should be recognized as an unsolved problem to be reflected

upon in conjunction with the clinical beneficence that an ARL program can provide.

It is acknowledged that use of an ARL will not resolve the significant shortfall of donor organs experienced by transplant centres each year. It is possible however that the ethical acceptance of ARLs could cause an increase in organ donation by the elderly community and an increasing availability of heart transplant technology to older patients. As of November 30, 2000 there were 484 geriatric patients (age 65 and older) on the UNOS heart transplant waiting list. It is unknown how many clinically eligible patients are not placed on this waiting list due to hospitals deterring patients from transplantation based on age value alone. The number of geriatric patients receiving a heart transplant is growing each year with 208 recipients in 1999, up from 104 recipients in 1993. It is hoped that this trend will continue by way of more transplant centres adopting the ARL philosophy as clinically and ethically permissible.

In my argument, I interpret justice in terms of treating equals as equals via the concept of life-span matching. In simplistic terms, tallying the good that can potentially be realized from allowing clinically appropriate elderly to be eligible to receive an organ that would otherwise go to waste is enough to justify the concept of an ARL, even if ARLs do not simultaneously possess the solution to the economic problem of 'more transplant operations'. This tallying means that the transplantation playing field becomes more level in the face of an ARL because age as an arbitrary exclusion criteria is no longer allowed. It maximises the potential for life extension and improved quality of life that marginal hearts have been empirically shown to provide. Additionally, empirical evidence shifts the elderly from being only donor-capable (a means to transplantation) to both donor- and recipient-capable (an end of transplantation). Lastly, ARLs are not an injustice to those currently waiting for a heart on the 'standard' list because all donor hearts (marginal and standard) are offered to these patients first, and only those declined by these patients and thus destined for the waste bin are then re-routed to the ARL. Justice is dealt to those waiting on the standard list as they do not lose their chance at any organ. Justice is dealt to the elderly by way of the fact that they have a chance at a life span-matched organ that they would otherwise not be considered for (due to an age-based exclusion).

In the face of an ever present allograft shortfall for the entire pool of clinically indicated patients, alongside the fact that there will likely forever be an uneven distribution of organ sizes and other characteristics, I suggest that this results in an even spread of injustice due to the general nature of competing for an organ. In spite of this 'evenly spread' injustice, there is still the eligibility imbalance within the current system that is the result of disregarding the empirical evidence that some elderly can potentially benefit from an allograft. Knowing the scarcity of allografts, and the prolific measures taken to increase organ donation, it is ironic to think that any rate of organ discard would be acceptable when, in fact, these organs are clinically suitable for implantation, yet unimplanted due to an arbitrary age-based cut-off. By not discarding organs that are suitable for transplant, the potential for beneficence is maximized. Organ discard that does occur is justified by non-arbitrary criteria.

Some might argue that my argument is a flawed consequentialist approach, looking only to the outcome, not the nature of the act itself or the foundation out of which the act arises. I accept that the nature of the act, providing a transplantation eligibility slot, does swell the size of the waiting list pool, but the current pool size is already large in relation to the number of allografts that become available. Yet, the use of ARLs might actually result in an increase in organ donation from the elderly as previously described. Also, the foundation out of which the act arises is that of attempting to level the playing field for all those who are clinically indicated for a transplant but who might otherwise be excluded due to a variable (age value) that is not empirically substantiated. Based upon this ethical construction, the use of an ARL is ethically justified.

Certainly comorbidity reduces the number of geriatric organs suitable for transplant, but a significant step to increasing geriatric organ donation and transplantation might be a heightened awareness of the ethical appropriateness and potential clinical beneficence of an ARL. Adopting an ARL policy will cause enlargement of the heart transplant waiting pool and should require an obligation to expand the allograft donor pool (or allow for access to mechanical technology). The US Census Bureau estimates an American's life expectancy in 2025 at nearly 81 years of age. Accordingly, the definitions of elderly and

geriatric may need revision and, based upon UNOS trends, older people will likely comprise a larger percentage of those on the heart transplant waiting list. Ethical stewardship of transplantation technology is fostered when surgeons consider each patient's unique capacity to benefit, rather than their age value alone.

In a society where \$52 billion is spent annually on cut flowers and candy (Corporateinformation.com), the cost of additional geriatric heart transplants each year doesn't seem so significant considering the quality of life benefit that can be potentially achieved. To know the price tag of a particular medical technology is one thing; to witness or experience the value of it is another. Even if one accepts the notion that due to the process of aging, a 60 year old might not be as 'economically productive' as a 45 year old, neither this concept nor age value alone should be accepted as a variable of human dignity or societal value, and neither should affect a person's eligibility for beneficent medicine. ARLs could result in an increase in organ donation by the elderly community and an increasing availability of heart transplant technology to older patients. Transplantation ARLs are not a form of ageism but rather a method of technology stewardship that operates by way of facilitating transplants for those with the capacity to benefit.

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Left ventricular assist devices and the slippery slope of ageism

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Abstract

The use of left ventricular assist devices is growing each year, as is the size of the United Network for Organ Sharing cardiac waiting pool. Notably, the geriatric waiting pool (age 65 and older), although small, is growing each year and this growth is predicted to increase as geriatric population projection curves soar. While left ventricular assist devices have clinically proven benefit, their use in geriatric patients raises ethical issues. Where these devices are currently not approved as destination therapy, their use must be reflected upon in conjunction with allograft transplantation. Age-based organ allocation policies could facilitate left ventricular assist devices as a bridge to nowhere for some geriatric patients. Specifically, the extended use of a left ventricular assist device by older patients could, in theory, put them in a position of not being able to get an allograft due to the fact that they have aged while on the waiting list. Unless these devices are approved as destination therapy, or age-based organ allocation policies contain exception clauses, an older person's cardiac dilemma could be confounded as an assist device recipient. Without these measures one might argue the devices themselves should be subject to age-based allocation procedures. Is this the slippery slope of ageism? © 2001 Elsevier Science Ireland Ltd. All rights reserved.

Keywords: Ventricle-assist device; Ethics; Elderly; Transplantation; Health care rationing

A review of the latest United Network for Organ Sharing Annual Report [1] indicates a rising trend in the number of elderly patients (age 65 and older) on the heart transplant waiting list. Although the size of this waiting pool is small (485 as of September 30, 2000) compared to other age strata pools, the geriatric waiting pool is growing each year. In the face of soaring projections for both the elderly population and the incidence of heart disease [2] it could be anticipated that this waiting pool might expand significantly. In light of the fact that left ventricular assist devices are readily available for use and the

yearly pool of donor hearts remains relatively constant, there will likely be increased competition for allografts by the elderly. It is also foreseeable that organ allocation policies that are age-based could confound an older person's cardiac dilemma.

This discussion expands on previous analyses of left ventricular assist technology [3,4] that explored the ethically problematic features of these clinically beneficent bridge to transplant devices. These prior reviews were conducted at a time when this technology was generally in use by the non-elderly and concluded that while some patients may successfully wean from their implant and not require subsequent transplantation, the vast majority of patients are not weanable, and they swell the pool of those waiting for an allograft amid United Network for Organ Sharing category I. As demographic and usage pat-

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terms change for this technology there is the need to reflect on new and potential ethical issues.

While studies have shown that age is not necessarily a predictor of the clinical outcome of left ventricular assist device therapy [5,6] or heart transplantation [7,8] some transplant centers use recipient age as a transplant eligibility criterion. While such organ allocation policies are more common outside of the United States, some United States transplant centers do take this approach in an effort to cap the pool of patients considered for a scarce human donor heart. By their nature, these policies create the obligation to identify cardiac therapies that have an intrinsic relationship to transplantation, as well as the obligation to determine if the patients who use these therapies could be impacted by heart transplantation age restrictions. Left ventricular assist device therapy falls into this category because in many countries, these devices are indicated only as a bridge to transplant, not as destination therapy.

Surely not all elderly patients on the allograft waiting list have the need for a left ventricular assist device; nonetheless, it is problematic to ignore the ethical issues that may be faced by elderly patients who are device candidates. Specifically, it is theoretically possible that an elderly patient might satisfy transplantation age criterion and be offered left ventricular assist device therapy while waiting for a donor organ, yet, if they fail to obtain a donor organ 'in time' or fail to wean from the device successfully, they could age themselves out of a transplant opportunity and into 'device limbo'. While there are no published reports indicating that this dilemma has in fact occurred, it is certainly theoretically possible given the continued scarcity of allografts, the existence of age-based organ allocation policies, the soaring geriatric population, and the continuing preponderance of heart disease. Accepting these facts, the time is ripe to explore the ethical ramifications of this potential clinical scenario.

Knowing that left ventricular assist devices do not restore left ventricular function optimally in all patients and that median transplantation waiting times are lengthiest for older patients [9], it would seem that age-based heart transplantation policies confound an elderly patient's dilemma by time limiting their therapeutic options. It is as if once placed on the transplant waiting list the elderly are also given a

countdown timer that is pre-set to delete any transplantation opportunity after they reach a certain age, say 65. What is left to happen to an older person who has a left ventricular assist device implant yet is 'age-unsuited' for a donor heart due to their lengthy time on the allograft waiting list? Are they bridged to nowhere? There are several ways to address this dilemma from a clinical standpoint, however the ethical appropriateness of these strategies requires exploration.

The purpose of this discussion is not to debate the ethical palatability of age-based transplantation policies (that matter is worthy of an entirely separate paper), but rather to analyze the impact that these policies impose on elderly patients who require left ventricular assist device support while waiting for a transplant. Granted, no patient should assume that they will receive a donor heart due to the fact they are receiving bridging therapy, but to apply this as rationale to justify dropping patients off a transplant waiting list once they reach a certain age is ethically problematic. While left ventricular assist device limbo does exist for some patients, these situations should happen as unplanned outcomes (e.g. neurological compromise), not planned events.

Because the elimination of age-based transplant policies is unlikely to occur, it would seem that two other options remain: 1) incorporate waiting list extensions to those patients receiving left ventricular assist device therapy, 2) pair age-based transplantation policies with age-based left ventricular assist device implantation policies. An extension plan for device recipients would allow them to remain on the heart transplantation waiting list. Not only would this likely foster a patient's sense of hope, it would give them a chance at a heart that might otherwise go to waste. With the clinical knowledge we have about age not necessarily being a predictor of clinical outcome, and the fact that organs turned down by other patients (yet usable) are discarded each year, this model of health care policy is far less ethically problematic than that of the second option.

In option 2, buttressing one age-based allocation policy with another appears to be a logical way of preventing potentially clinically conjoined therapies from becoming at odds with each other. In the case of left ventricular assist devices and heart transplants, if transplant centers are going to rigidly enforce an age

criterion for transplantation, one might argue that they should also initiate and enforce an age criterion for implantation of left ventricular assist devices as a bridge to transplant — at least until left ventricular assist device therapy becomes approved as destination therapy. How would the device allocation age criterion be chosen? Generally, health care allocation age limits are arbitrarily chosen. Even if device registry data were analyzed in conjunction with median transplantation waiting list times to empirically determine an age-based cut off point, age-based policies by their nature will always be ethically troublesome because they slice away a segment of the population that could potentially realize therapeutic benefit. By not considering each patient's clinical indications and their capacity to benefit, age-based health care allocation potentially limits clinical beneficence of both scarce resources (allografts) and plentiful resources (left ventricular assist devices). Option 2 is also problematic because the possibility still remains for patients to be 'age-acceptable' for a left-ventricular assist device and yet 'age-unacceptable' for an allograft due to a lengthy period on the transplant waiting list. Only option 1 would give these patients an extension to facilitate transplantation (as long as the capacity to benefit was still present).

Taking the position that age-based health care allocation policies are unethical, it would seem that 'option 2' is an example of 'two wrongs trying to make a right'. Option 2 is also worrisome because as it appears to be the slippery slope of ageism (age-based discrimination) in action. If we link left ventricular assist device therapy with transplantation and deem the age-based transactions within them as ethically appropriate, what other technologies downstream might also be allocated in an age-based fashion? Cardiac prescription medications? Will it become easier to 'approve' of age-based allocation because of the domino effect of linkage? While clinical links may be clear and logical, they should not occur so quickly and firmly that ethical reflection is bypassed or ignored.

Clinical indications, patient preferences and the patient's capacity to benefit should be our guidance

for allocating any technology. In a time when we allow 'younger' patients to receive two or even three heart transplants, and yet declined organs are discarded, elderly of a 'certain age' are left to watch the opportunities of beneficent technology pass them by. This is the slippery slope of ageism in action. With the number of donor organs remaining fairly constant, and artificial replacement hearts not yet clinical reality, the task to coordinate left ventricular device policies with transplant policies is imperative. Until clinically proven and licensed as destination therapy, all those with a left ventricular assist device implant should be considered for allograft transplantation as long as the capacity to benefit is present. These patients should not be arbitrarily dropped off the transplant waiting list based upon their chronological age value alone.

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Resisting the blame game: visualizing the high cost of dying and accepting the duty of technology stewardship for all patient populations. A review

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Abstract

This article explores the concepts of therapy withholding and withdrawal as expressions of technology stewardship. With the world's geriatric population growing sharply, and advances in medical technology announced almost weekly, the time is ripe for the application of technology stewardship to patients of all ages, rather than arbitrary allocation limits for older persons. In life and in death, health care costs are expensive, and while society often views older people as too expensive to take care of alive, their death can be even more costly. For patients of all ages, death under the influence of technology is more expensive than life, yet it is geriatric intensive care medicine that grabs society's economic attention. While possibly not the financial bargain that arbitrary allocation limits have been proposed to be, technology stewardship fosters beneficence and autonomy as human values instead of mere variables subservient to economics. © 2001 Elsevier Science Ireland Ltd. All rights reserved.

Keywords: Economics; Technology; Bias; Responsibility; Justice

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1. Introduction

With the world's geriatric population soaring (estimated at 2 billion by 2050) and financial resources seemingly finite, discussions of geriatric health care allocation and distributive justice are becoming frequent. In life and in death, health care costs are expensive, and while society often views older people as too expensive to take care of alive, their death can be even more costly. Death under the influence of technology is more expensive than life, whether dying in the neonatal intensive care unit (NICU), the pediatric intensive care unit (PICU) or an adult intensive care setting, yet it is geriatric intensive care medicine that grabs society's economic attention. Geriatric patients generally receive the blame for medicine's overall high costs, when in fact, the development of technologies (in general) is very expensive and they are used by all patient populations, not just older persons. Singling out a vulnerable patient population in this manner is ethically problematic. Instead of generalized blame and arbitrary allocation limits, I offer that technology stewardship as expressed by the application of therapy withholding and therapy withdrawal should apply to patients of every age in all care settings.

2. Statistics

Studies have shown that it is expensive to die in a hospital whether you are 7 days old, 7 years old, or 70 years old (Munoz et al., 1989; Meadow et al., 1996; Garcia et al., 1997). Figures vary depending on institutional setting and comorbidity, nonetheless, a large proportion of our total lifetime health care expenditures occur during the dying part of life. A recent study (Perls and Wood, 1996) showed that the hospitalization costs of non-surviving geriatric patients ranged from 23 to 141% higher than that of geriatric patients who survived to discharge. Compared to intensive care unit (ICU) survivors, ICU non-survivors use considerably more technologies such as dialysis machines, ventilators, infusion pumps, various radiological and endoscopic procedures, medications and blood products, and they use these technologies for longer periods of time. Contributing to the largest fraction of ICU costs is personnel, as technology is intimately tied to human providers. Close monitoring of patients is time consuming, procedures are not self-conducting, and most equipment still requires human intervention for sustained safe and proper functioning. It can be difficult to accurately predict who will die and when they will die, and treatments are sometimes started without stewardship consideration. Some technologies such as artificial feeding and ventilation continue even though they could be considered futile. For all patient populations, the longer treatments are applied, the more costs multiply, yet it is becoming routine for the provision of geriatric care to be pinpointed as the cause of health care's financial dilemma (Lubitz and Riley, 1993).

3. The elderly as victims of a blame game?

The studies I have cited substantiate the fact that the elderly are victims of a 'blame game' but the underlying question remains: why are they receiving the blame? Logic would say that the best way to solve health care's financial problems is to thoroughly investigate the matter to get to the root cause. Clearly, assigning blame is faster than a detailed investigation, but it is likely that there are other reasons for choosing this route as well. Obviously, the elderly population is large and older people tend to have multiple comorbidities, thus requiring more health care services, but it might be that their non-medical characteristics are setting them up as targets for blame.

A historical review of the role of elderly persons over time reveals that this role has not been constant (Cole, 1984). Once seen as wise and spiritually profound mentors, the elderly's role in Western society has weakened as youth no longer stay in the home during early adulthood and venture out for education and career opportunities. Industrialization and computerization have revved up the pace of society and rendered the elderly 'behind the times' compared to the skill set they grew up with. Some would say that their stories and wisdom pale compared to the information obtainable through electronic databases. The resultant picture consists of a vocationally aggressive, technology oriented, youthful society with much to aim for, and an older society whose 'useful' life has been viewed as lived out already and who need to step aside and stop draining those on their 'way up' (Lamm, 1986).

4. Technology stewardship

I propose a wake up call to clinicians to recognize age-based health care allocation as the result of perceptions of the elderly, not empirical science. Health care allocation policies that provide or restrict therapy based on a patient's numerical age value are arbitrary and will surely result in slicing off a section of needy population which is already minimally accessing indicated therapies (Giugliano et al., 1998; Bouma et al., 1999; Protheroe et al., 2000). The provision of health care actively promotes the survival of our species so it is no stretch to offer that we are using the withholding of clinically indicated health care as a way of doing away with a section of society that may not be ready to die. Not only do we limit our own life span when we create policies of this nature, we denervate the humanitarian practice of medicine. While not attempting to resolve the economic issues of the dilemma during this discussion, I offer an allocation approach that is less ethically problematic than age-based rationing, namely, technology stewardship.

While medical technology can offer potential benefits to our patients, these are not without an often expensive price, and the concurrent need to evaluate the technology in terms of its value to our patients' welfare throughout the clinical course, not just at treatment inception (McGregor, 1989). I term these prudent

exercises of evaluation, application and withdrawal as technology stewardship. The value of any technology is tied to its appropriate use, and this use should be determined by the medical profession as part of the doctor–patient relationship, not industry sales and marketing departments. While it is more common to consider medical technology in terms of its potential to improve quality of life (QOL) and to relieve suffering, these are not the only potential outcomes that require reflection. Sometimes technology prolongs the dying process by maintaining biological life without improving QOL or relieving suffering. Other times, it is ineffective and our futile attempts are met by death approaching on its uninterrupted timeline. It is these scenarios which impact striking financial costs — costs that prove much higher than when patients use the technologies successfully and live to discharge (Meadow et al., 1996). Unfortunately resolving the dilemmas presented by these scenarios is not always easy. In many cases, the values and preferences of our patients are unknown because they lack an advance directive, they lack decision-making capacity or communication skills, or they lack surrogates who could potentially assist with this information. In situations of this nature, the patient should be treated according to key variables of technology stewardship: clinical and ethical best interests.

The concepts of clinical and ethical best interests can be argued to be buttressed by four guiding ethical principles, namely, autonomy, justice, beneficence, and nonmaleficence. I pose that these principles have moral value that shifts economics to a lower priority during clinical decision-making. Age-based allocation, on the other hand, elevates economic considerations during clinical decision-making. Technology stewardship, as I approach it, should arise from and be shaped by our desire to alleviate human suffering through the practice of medicine. If instead we allow health care policies to arise out of the economic symptoms of our health care dilemma, then the answers derived are economic in nature and they skirt the ethical foundations of medicine. Economic answers such as age-based allocation limits (Callahan, 1990) tend to reconstruct human values with monetary fiber rather than moral fiber, making a humanistic approach to medicine much more difficult for physicians to practice and more difficult for patients to experience. Under policies of this nature, the practice of medicine becomes mechanized because therapy allocation is arbitrary in that does not weigh the coexisting variables and contextual factors of our patients' cases, either as individuals or as a group. The unfortunate result is the devaluation of the physicians' experiential knowledge, the minimization of patient autonomy, and the inability to provide beneficent therapy when it is clinically achievable. Conversely, allocation schemes which actively employ technology stewardship not only permit, but foster weighing of clinical harms and benefits, as well as they show respect for the physician's experiential knowledge and our patients' preferences amid a functional doctor–patient relationship.

5. Leveling the playing field

My primary rationale for terming technology stewardship as an ethically appropriate method of health care allocation is that it fosters equal eligibility for patients

who have clinical indications for a particular therapy. Eliminating age as a treatment variable helps to level the playing field (even though there may be other inequities) and prevents clinically needed care from being omitted due to a purely arbitrary — not clinically predictive — element. While not denying that economics are a component of the current health care dilemma, the economic issues should not be analyzed in a vacuum that fails to consider the clinical and non-clinical variables of each case. Allocation policies should arise by processes that are visible to society, and they should support the healthy functioning of our species at whatever age the patients present. Policies that promote equal eligibility criteria among patients recognize that the humanitarian practice of medicine cannot have the variables of each case and the ethical principles of medicine cored out from it by assigning treatments based on age limits.

Understandably, there is great concern about starting a questionable therapy or withdrawing it too soon. Also, what should rightfully be troublesome are health care expenditures not resulting in clinical benefit due to misapplication of technology or failure to withdraw ineffective or futile technology. These considerations evidence components of the needed stewardship mentality in the medical profession. Clearly, the availability of a technology (from an inventory standpoint) should not automatically render its use acceptable for every patient. Once in use, stewardship requires that the technology be regularly evaluated for clinical benefit, and withdrawn when the intended benefit is absent or is part of an unacceptable ratio of benefit and harm — even if this overrides patient or family wishes (Jonsen et al., 1992). Decisions of technology withdrawal are best undertaken with the collaboration of the patient and family, however when this dynamic is not possible, this does not absolve the medical team of their responsibility to manage the helm of technology stewardship and to withdraw treatment that is no longer clinically or ethically warranted. This may be viewed by some as paternalistic, however, continued use of inappropriate therapy can potentially sufferably prolong a patient's dying process, it increases the cost of their inevitable death, and may make the technology/equipment unavailable for more suitable patients.

Palliative care can be considered another form of technology stewardship, and is evidenced by focusing on the control of pain and suffering at a time when curing or controlling the disease is no longer possible. Resorting to comfort care as solely a money-saving option when cure or treatment is clinically and ethically appropriate is a foolish and unprofessional venture that will often not prove an economic reward. Further, actions of this nature attempt to use the patient as a means to an end and make practitioners fall short of the ethical responsibilities of the medical profession.

Granted, there are many more old people than young people (and the gap is widening), and their aggregate costs as death approaches are higher, but to use these facts as permission to value the youth over the elderly, or to allow youth's health care spending to fall outside the technology stewardship model is ethically troublesome. Likewise, an argument that would allow unchecked costly health

care spending on youth because they have the potential for more productivity [economic return on investment] poses numerous ethical problems. There are multiple definitions of productivity and if we specifically value our patients according to their economic earning potential, this devalues who they are as a person and does not foster care of the person who is the patient. If one accepts that health care costs for non-surviving patients (regardless of age) can be very expensive, that technology stewardship is a duty appropriate to all patient populations (regardless of age), and that moral values are weakened when economic variables have superior roles during clinical decision-making, health care policies that discriminate against older persons solely on the basis of their age are ethically undefendable.

A person's age, whether young or old should not usurp our duty to employ technology stewardship and to appreciate our patients as persons, rather than potential labor value or otherwise. The best application of technology stewardship is that which does not promote patient categories such as consumers (the aged) and investments (the young) but rather values and employs technology according to the clinical and ethical best interests of the patient, regardless of their age. When ethics becomes subservient to economics and health care allocation policies are derived out of blame, we run the risk of devaluing health care and humanity (Heubel, 2000). Health care policies should arise from a foundation of ethical principles, not the economic symptoms of our current health care dilemma. While economics is surely a variable to the dilemma, its appropriate place, subservient to moral values, needs to be acknowledged during policy development and application. To do otherwise fosters arbitrary health care allocation limits and injustice to vulnerable populations like the aged. Our species is also shortchanged by the arbitrary cutoff in potential life span.

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Patient Productivity as a Value and a Variable in Geriatric Healthcare Allocation

KATRINA A. BRAMSTEDT

Strongly competitive societies in which too much emphasis is given to an individual's worth in terms of productive work and achievement, in which inactivity is somewhat suspect and leisure is highly commercialized and therefore expensive are not congenial environments in which to grow old.

United Nations, *The Aging: Trends and Policies*, 1975:11

Admittedly, productivity is valued in American society.¹ For jobs that involve manufacturing, each minute of production is calculated in formats of cost and profit. Management sets goals for individual and team performance that foster competition and an ever-fervent culture of output. Industry and academia have gone to great lengths to develop tools that measure productivity as a variable, and certainly, in the manufacturing setting, productivity is a value because it promotes competition (thus more output) and efficiency (less waste). But is it ethically appropriate for productivity-based values and goals to cross over to healthcare allocation? Can other constructions of productivity be valued in terms of healthcare allocation or is the American work ethic (benefiting people in the prime of their productive years) an ethically appropriate route?

Using an economic definition of productivity (e.g., that which generates a material product or service with the potential for income) it could be argued that productivity should be a variable to healthcare allocation if the economic investment on the front end pays an economic return on the back end as patients exit their sick beds and resume employment. A philoso-

phy such as this clearly benefits the youth and middle-aged of society and discriminates against the elderly because not only are some elderly forced into retirement from their jobs, but they are often disfavored when seeking jobs.² It would seem that elderly patients could be caught in a circuitous loop that would limit their healthcare access because they are not productive, while concurrently facilitating their lack of productivity because they can't attain the healthcare needed to get them to a productive state. What is described is a system that would fail to make a healthcare investment in the elderly due to their illness when in fact healthcare is needed simply due to the presence of illness. The elderly lack the ability to reflect the American value of productivity in schemes such as this; however, some use this same scheme to support healthcare allocation in the neonatal intensive care setting due to the young patients' potential for future productivity if their illness can be successfully treated.³

Accepting that there are noneconomic definitions of productivity, the elderly can contribute social value by being good listeners to their family and friends, by offering wisdom from

their years of experience, or by possibly just the comfort of their smile or touch. It would seem that the elderly can generate much noneconomic productivity but a lack of healthcare can limit their potential. If an economic definition of productivity is applied to healthcare allocation, then it seems to require [expect] an economic output from the patient. If, however, a noneconomic definition of productivity is applied, it allows for a noneconomic output from patients and respects patients as ends themselves rather than means to an end because it respects their personal, intimate construction of therapeutic benefit. A noneconomic definition of productivity also validates the societal value of noneconomic outputs, begging the question of whether or not economic definitions of productivity reduce human value to measurable productivity and subsequently devalue the qualitative effects of providing healthcare to suffering people. Should we be expecting or requiring quantitative outputs as the return on economic healthcare investments when not all the values held by individuals and society at large are economic? Should we expect or require economic outputs when medicine, a humanistic profession, has explicit goals that are noneconomic?⁴

In the United States, 30% of the elderly hold paying jobs and another 35% perform unpaid volunteer work.⁵ A 1998 United States Census Bureau report⁶ found that 3.9 million children live in households maintained by a grandparent. Using the caregiving wage calculations provided by Arno, Levine, and Memmott,⁷ the economic value of the caregiving activities provided by grandparents over age 55 is \$285 million annually for families with one grandparent providing care. Under the economic definition of productivity, these elderly are definitely making an

impact, yet I fear that this impact might not always be acknowledged as some might view this childrearing as an expected societal role that is not extractable in economic terms. In the United States the construction of the Gross Domestic Product (the output of goods and services produced by labor and property located in the United States) does not include these contributions of the elderly, yet economic calculations of the elderly's costs to society target everything from healthcare to housing assistance, and all matters in between. Failing to include the contributions of the elderly renders these cost calculations unbalanced.

In viewing healthcare as an investment it is critical to point out that those over 65 years of age likely have been financially contributing to the Medicare insurance pool for 45 years or more. Their financial contribution (in the form of payroll deductions) and their history of employment (i.e., productivity) should be considered as part of the investment equation if considering healthcare as an economic investment. The argument that there must be an economic return on healthcare allocation is ethically problematic when the return is gainable only for the nonelderly. It is inappropriate to bar the elderly from the return on their own economic investment—namely, because it puts the elderly in the position of being a means to an end (facilitating healthcare access and economic output for the nonelderly).

Productivity-based healthcare allocation compartmentalizes worth into the nonaged part of a person's life, devaluing them (as shown by limiting their access to healthcare) when they reach a categorical limit such as their sixty-fifth birthday. As such, this policy resembles that of the *Kelley Blue Book*, a monthly handbook for the automobile industry that sets the value of vehicles based on their age and fea-

tures (e.g., cruise control, air conditioning, sunroof). A *Kelley Blue Book of Geriatric Healthcare* would likely note human "features" such as a feeding tube, wheelchair, and diapers, further facilitating the concept of healthcare as a commodity and older persons as unfeeling objects with a quantitative worth to society that is based on their chronological age and accompanying features.

If it is determined that productivity must be a variable to healthcare allocation, then the elderly should not be singled out as the lone offending group, but rather patients of all ages should be analyzed for their productivity potential. Smokers should be high on the list of productivity-challenged persons, for example. According to the American Lung Association⁸ smoking costs the United States' economy at least 100 billion dollars in healthcare costs and lost productivity. Those aged 18-24 (a group argued to have high productivity potential) have the highest prevalence of smoking, nearly 29%. Granted, some elderly may have smoked in their youth and gave up the habit in later life, but should they be punished now (by limiting their healthcare access) for the behavior of their youth? Heart transplants are not denied to those who have eaten high fat diets all their life. Liver transplants are not denied to recovered alcoholics. Chosen activities such as smoking, drinking alcohol, and eating a high-fat diet are forgiven whereas the nonchosen activity of aging is unforgivable in productivity-based healthcare allocation. This scheme discriminates against the elderly by comparing their current self ("old," unproductive) to their former self (younger, productive). In the case of the elderly, the act of comparing the present with the past finds their past working against them because they are matched up against a more economically productive self and held to that standard.

Although productivity, a positive work ethic, and successful investing are things to be valued, the value is ethically prized when untied from the context of healthcare allocation. It is ethically problematic to hold people to the economic productivity of their former (i.e., younger) self. Further, it is ethically problematic for the elderly to be underserved by the health system they help to finance and the technologies their tax dollars help to develop. Due to the process of aging, an 80-year-old might not be as "productive" as a 45-year-old, yet this should not corrode their dignity or value to society, and it should not inhibit their access to beneficent medicine.

Notes

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