UNIVERSITY OF
Southampton

PRIORITISING HEALTH RESEARCH

PRIORITIES FOR INFECTIOUS DISEASE RESEARCH IN GHANA AND KENYA

WORKSHOP REPORT
14- 15 AUGUST 2018, ACCRA, GHANA

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CONTENTS

INTRODUCTION

Topical issues of public health importance were discussed at a round-table workshop, funded by the University of Southampton, UK. The workshop took place in Accra from 14-15 August 2018 with a focus on infectious disease research priorities for Ghana and Kenya.

This workshop brought together colleagues from a wide range of health disciplines and institutions from across Ghana, Kenya and the UK. Apart from identifying and discussing the priorities for research in infectious diseases, the workshop was intended to improve collaboration between the global south and global north, as well as promote African-led priority-setting and defining of health needs.

Attendees included Ghanaian-based stakeholders from academia, the Ghana Health Service (GHS), policy and advocacy groups. The others were four participants in academia from the University of Southampton, UK, and four invited colleagues from Kenya with expertise including health policy, translation of research evidence into policy and health research. The topics were discussed in themed sessions - antimicrobial resistance, maternal and child health, digital health, research during public health emergencies, and translating research evidence into policy. At the end of every session, specific research questions and topics were produced for consideration as research and policy priorities in Ghana and Kenya.

EXECUTIVE SUMMARY

A WORKSHOP ON PRIORITIES FOR INFECTIOUS DISEASE RESEARCH IN GHANA AND KENYA WAS HELD AT THE KEMPINSKI HOTEL IN ACCRA, GHANA FROM 14 - 15 AUGUST 2018.

This workshop was funded by the University of Southampton (UoS). The UoS has strong research links with numerous Ghanaian institutions, (1) and published a review of 'pneumonia in Ghana' in January 2018. (2) This event drew participants from academia, the Ghana Health Service (GHS), and many research institutions. The workshop themes included:

- Antimicrobial Resistance
- Maternal and Child Health
- Digital Health
- Research during Public Health Emergencies
- Translation of research evidence into policy and practice

Antimicrobial resistance (AMR) currently poses a major threat to global public health and the levels are increasing at an alarming rate. In 2016, the World Health Organisaton (WHO) launched an action plan, (3,4) urging member states to formulate national plans to combat the situation. During this workshop, the current trends of AMR in Ghana, contributory factors and ways of dealing with the menace were discussed at length. Experience from Kenya was shared. There were clear gaps in public health knowledge and research was particularly lacking on the epidemiology of microbes responsible for AMR as well as public behaviour, which has substantial influence on the propagation of the condition. Since the problem is multi-faceted involving laboratory science, clinicians, pharmacies, regulatory bodies, animal husbandry, the community and the public, the solution requires a multidisciplinary one-health approach.

Priority issues affecting the delivery of maternal and child health services were discussed. The discussions focussed on factors hindering the achievement of adequate coverage of health interventions and the disparity between research evidence and results after achieving optimal coverage. Some of the obstacles identified were inadequacies in data capture and weaknesses in the health system affecting coverage. Resolution would require political will, multidisciplinary approaches, quality assurance and implementation research to improve outcomes.

Timely and accurate information is needed for planning and delivering health services. The emergence of digital health has revolutionised data management and improved the efficiency of the health service in several countries. Experiences from Ghana, Kenya and the UK were discussed. The discussions revealed that while clinical and transactional applications were currently used in Ghana, for instance, there were still challenges integrating e-health into the health system. The lack of a cohesive Health ICT policy to harmonise, regulate and provide operating standards for e-health applications, e-health applications resulted in interoperability difficulties. This needs to be addressed, and research on the impact of e-health, translation of knowledge, its accessibility as well as feedback on its effect on end-users, stakeholders and the media are required.

Globalisation of travel, food and medicines, the rise of drug resistance and the recent outbreaks of diseases such as Ebola Virus Disease in Africa have highlighted gaps in preparedness for public health emergencies in developing countries. This has led to calls for each country to have its own emergency preparedness plan. Using examples from Kenya the discussions identified support systems such as the training of Field Epidemiologists by the Centre for Disease Control, USA, intra- and inter-country collaborations with neighbouring countries and research institutions. The main challenges and hindrances to research discussed were funding and meeting requirements for ethical clearance within the limited time of the epidemic. This will require policies and legislations as was suggested by experiences from the UK.

Traditionally information has been shared through journal publications, reports, newsletters, bulletins, and stakeholder workshops. However, the advent of technology and increasing complexity in governance and society calls for additional and innovative ways of disseminating information. The discussions focused on changing the research climate, identifying obstacles, stakeholders and their motivations, as well as the need to repackage research products to become beneficial to practitioners and policy makers.

This report provides a synopsis of the discussions that took place. It highlights current initiatives relating to the topical issues, approaches to dealing with challenges, knowledge gaps and opportunities for further research using experience from Ghana, Kenya and the UK.

RESEARCH RECOMMENDATIONS SUMMARY

SESSION 1

ANTIMICROBIAL RESISTANCE

- Public health research considering a new initiative to allow volunteers to give antimicrobials including intramuscular injections at community level and the potential impact on AMR

- Studies to quantify the economic burden of AMR in Kenya and Ghana

- Understanding the social factors associated with misuse of antibiotics

- Using surveillance data for research, in order to improve treatment outcomes in patients

Abbreviations

AMR	Antimicrobial resistance
CDC	Centre for Disease Control
CHPS	Community-based Health and Planning Services
DHIMS	District Health Information Management System
GDP	Gross Domestic Product
GHS	Ghana Health Service
GIS	geographic information systems
HIMS	Health Information Management System
ICT	information and communications technology
INASP	International Network for the Availability of Scientific Publications
IPT	intermittive preventive therapy
KEMRI	Kenya Medical Research Institute
MRSA	Methicillin-Resistant Staphylococcus aureus
MoH	Ministry of Health
RDD	Research and Development Directorates
UoG	University of Ghana
UoS	University of Southampton
WHO	World Health Organisaton

SESSION 2

MATERNAL AND CHILD HEALTH

- Longitudinal studies on birth cohorts that can examine child health interventions and outcomes over time

- Explore untapped healthcare data for theme development and priority-setting

- Use perinatal and maternal mortality audits to address issues relating to quality of care, quality assurance, infrastructure, competence assessments and reviewing health outcomes and referral patterns at various levels

- Examine issues relating to access to healthcare including physical access, affordability, and socio-cultural factors that influence health seeking behaviour around maternal and child health issues

- Feasibility studies that quantify and characterise the effects of fragmented maternal health care across Ghana

- Implementation research to identify factors influencing vaccine coverage and addressing the associated challenges (introducing spatial mapping to identify hot spots of low/ high coverage; baseline and post-vaccination studies on the prevalence of vaccine associated diseases and the strains of pathogens causing these diseases)

- Studies on ways of creating and fully tracking unique identification of patients across the national health system

RESEARCH RECOMMENDATIONS
SUMMARY (cont'd)

SESSION 3

DIGITAL HEALTH

- Consider how best to examine grey areas such as translation of knowledge and making it widely accessible

- Research on how end-users are influenced by introduction of digital health systems

- Research on the knowledge processes, contribution of the media in generating knowledge and how they can be best engaged to support health promotion

- Operational research on the processes and feedback of digital health systems

- Finding out viewpoints of partners and stakeholders on digital health

- Consider what can be learned and adopted from other digital health systems

SESSION 4

RESEARCH DURING PUBLIC HEALTH EMERGENCIES

- Research on the utility of available preparedness and response plans

- Research on the decision making process during emergencies

- Assessment on core capacities of WHO International Health Regulations (skills and knowledge gaps regarding the management of epidemics)

- Behavioural studies on responses of the general public

- Evaluate capability of laboratories to support rapid detection that would positively impact response times at source through automated reporting

- Research on innovative ways to build capacity before and after an epidemic including using proven dissemination methods to foster translation of health services research findings into practice

NOTE: Session 5 covered translation of research into policy and practice, so there were no research priorities generated during that session.

SESSION 1:
ANTIMICROBIAL RESISTANCE

CHAIR: PROFESSOR ERIC SAMPANE-DONKOR, UNIVERSITY OF GHANA

The problem

In this session Prof. Sampane-Donkor provided an overview of the problem of antimicrobial resistance worldwide and specifically to Ghana. Globally it has been projected that antimicrobial resistance will, by year 2050, cause 10 million deaths every year and cost 3.5% of global Gross Domestic Product (GDP), totalling trillions of dollars. (3,4) This impact would be felt more in Africa and Asia due to lack of limitations in antibiotic use and difficulty controlling antimicrobial resistance in these regions. Studies were cited indicating the magnitude of AMR: a global review of *Streptococcus pneumoniae* which showed high penicillin resistance in many countries;(5) a study of 5,000 isolates of *S. pneumoniae* in Ghana revealing the escalation of AMR over time with an increase in multidrug resistance to pneumococcus from 7.8% to 48% within 3 years; (6) and then to 87% between 2004 and 2014;(7) and a study from a Ghanaian psychiatric hospital that showed 100% drug resistance from *Proteus* and *Morganella* bacteria.(8)

AMR was attributed largely to drug use behaviour. Citing a study in Ghana, Prof Sampane-Donkor pointed out that self-medication with antibiotics among tertiary level students with over-the-counter antibiotics (most commonly with amoxicillin) reached 70-80% of students surveyed.(9) Prohibitive health care costs and long delays at clinics to see a doctor and to receive a prescription were cited as reasons for self-medication. Farmers were also major users of antibiotics, and contributing to resistance.(10) Poultry farmers and livestock keepers routinely administered antibiotics to livestock (sometimes weekly) which have subsequently been detected in samples of food especially milk, beef, chevon, and pork.(11) In addition evidence from samples of *E. coli* isolates suggests that these broad applications of antibiotics to animals may be contributing to the overall issue of antimicrobial resistance. Studies on the use of antibiotics in animal husbandry showed a mixed prevalence where resistance was high in animals than humans and lower in animals than farmers.(10)

Discussion

The discussion centred around questions related to factors contributing to the difficulties in limiting access to antibiotics over the counter and how to prevent resistance. It was noted that in countries such as the UK and Cote d'Ivoire, which shares a border with Ghana, access to antibiotics was strictly limited to distribution with a prescription. However, the situation was not the same in Ghana and Kenya, with antibiotics relatively freely available. This apparent ease of access to antibiotics was attributed to numerous factors including commercial nature of pharmacies, long waiting times in hospitals and clinics, limited number of doctors in rural areas (pharmacies and chemical shops became the main source of health care), sales by drug peddlers and herbalists, weak enforcement of policy by regulatory bodies (e.g. Ministry of Health (MoH), Food and Drugs Authority, and the Pharmacy Council), suboptimal prescription, and drug use behaviour by patients and pharmacists. Some pharmacies often sold a few days prescription expecting the patients to come for the rest when they get some income making it difficult to enforce a full dosage use. Discussants also noted that some laboratories used substandard media which had lower levels of sensitivity in identifying certain categories of resistant strains of organisms. This made it difficult to compile baseline data and other key information.

Suggested ways of addressing the problem

Improving proper use of antibiotics can be achieved by applying MoH guidelines and standards, better regulation by the Food and Drug Authority and the pharmacy councils responsible for regulating drugs supply in the market, provision of licences, and the inspection and monitoring of pharmacies and drug shops. Additionally, attention needed to be paid to the quality of antibiotics in the market to eliminate exposure to substandard antibiotics and discourage the use of antimicrobials in herbal cocktails by drug peddlers. The Ministry of Food and Agriculture should also monitor the use of antibiotics for farm animals more diligently.

Improving access to mainstream health facilities could reduce the demand for over the counter antibiotics. Research on prescribing habits of doctors, as well as education of doctors on proper use of drugs and the importance of adherence to MoH guidelines to improve their prescribing habits, are needed. Other remedial measures discussed include increasing access to rapid diagnostic test kits to enable accurate diagnosis and prescription. At the community and individual level a better understanding of the health and treatment seeking behaviours of the public coupled with education of both the public and stakeholders such as drug peddlers is needed. The education should focus on the need to take the proper courses of antibiotics. The need to develop a platform for information sharing was also discussed. Adopting a one health approach to control antibiotic use in humans and animals as well as establishing key policy guidelines relating to AMR which can be championed at national level were recommended.

OPPORTUNITIES

The Fleming Fund is to make an award to Ghana to aid the surveillance of pathogens involved in AMR such as Methicillin-Resistant *Staphylococcus aureus* (MRSA) and generate a policy related to antibiotic resistance. This will lead to the establishment of a reference centre with links to several hospitals and clinics across the country. This endeavour will generate huge and robust data over a 10 year period relating to AMR and its control. Additionally, Standard Treatment Guidelines for health facilities are currently in place though doctors do not always adhere to them as prescribing habits vary. A similar experience of inappropriate prescribing in the UK, published by colleagues from University College London, was shared, thus, lessons can be learnt from the way the UK is dealing with this problem, for example utilising large high-quality primary care datasets that include information on prescribing and the symptoms presented at each encounter. (12) There is also the UK open-access database, https://ebmdatalab.net/open-prescribing/, that presents 5 years of prescribing data across

CONCLUSION

AMR has become a huge global problem. There is insufficient data on all the information needed to address this problem. There are clear gaps in understanding and research is particularly lacking on the epidemiology of MRSA in Ghana, and public behaviour. The problem is multi-faceted involving laboratory science, clinicians, pharmacies, community and the public which makes tackling it more difficult. Thus, research involving all stakeholders is needed to address this threat and must go beyond regulatory bodies to behaviour at household level. Finally, while MoH guidelines exists, there is a need to connect health, medical and social science research to address the evidence gaps and ensure that guidelines are effective.

Suggested Areas/Questions for research

1. A new initiative to allow volunteers to give antimicrobials including Intramuscular injections at community level is being considered to improve global health. Would this affect AMR?
2. Studies to quantify the economic burden of AMR in Kenya and Ghana
3. Understanding social factors associated antibiotics misuse
4. Surveillance data to be used for research that can improve treatment outcomes in patients

SESSION 2
MATERNAL AND CHILD HEALTH

CHAIR: DR ISABELLA SAGOE-MOSES, GHANA HEALTH SERVICE

The problem

In this session Dr Sagoe-Moses reported that currently, the major causes of infections in mothers and children in Ghana were malaria, acute respiratory tract infection, diarrhoea and sexually transmitted infections including HIV/AIDS. A number of evidence-based interventions - such as the use of insecticide bed-nets, intermittent preventive therapy (IPT) for malaria in pregnancy, and immunisation were currently being implemented by the GHS. However, follow-up data is lacking or incomplete on the benefits from using these interventions. In addition, there were differences in the coverage of these interventions for example although there was often a high coverage for the first dose of immunisations, coverage for subsequent doses was sub-optimal, which posed challenges to the MoH. A similar problem was encountered with coverage of other interventions such as IPT for malaria in pregnancy. She also noted efforts to prevent and treat infections in mothers and children were hampered by inattention to other problems, such as lack of clean water and sanitation and environmental pollution. The quality of institutional obstetric and postnatal care was another issue of concern as she reported that the increase in institutional deliveries to 70% was not accompanied by a commensurate reduction in neonatal mortality.

Discussion

The discussions centred around the factors contributing to sub-optimal coverage of immunisations. Technology such as geographic information systems (GIS) could monitor coverage, identify hard to reach areas, and improve data capture, for instance, by adding co-ordinates related to location to the routine data collected. The advantages of utilising a unique identifying number were discussed at length with reference made to the Kenya experience. In Kenya most births were registered, and every child had a unique identifying number that was used to track down children who missed their immunisations. In addition, immunisation records were checked at school entrance.

Security and border issues were also discussed. For instance in Ghana, nationals from Burkina Faso were reported to access services across the northern border of Ghana. In Kenyan, where similar problems with cross border access and utilisation of services were encountered, birth certificates and passports were used to address identity issues relating to service delivery. Other factors affecting optimum utilisation of services that were discussed include the fragmentation of care that led to children failing to access some services, poorly-trained staff, and lack of baseline data on strains of pathogens of vaccine preventable diseases before and after introducing vaccines. Other problems discussed were poor data capture and cultural issues related to adolescent pregnancy, such as stigma and associated shame, which prevented pregnant teenagers from accessing antenatal care.

OPPORTUNITIES

Discussions regarding opportunities revolved around the Ghanaian government plan to introduce electronic medical records throughout the health service to improve data capture and identification of children who miss their immunisations. Discussants observed that the current use of the e-tracker, a hand held device to enter data was improving efficiency in data capture. The presence of communities undergoing surveillance in the three research sites of Ghana health service research centres offered a unique opportunity for research. In addition, the zoning of Community-based Health and Planning Services (CHPS), the basic units of health delivery, in rural communities to correspond with electoral areas has made it easier to locate hard-to-reach areas. The recent introduction of combined maternal and child health records was expected to improve the availability of maternal and child health data.

SOLUTIONS

Suggested solutions included - the need for the establishment of a vaccine register; better use of the unique identification number in Ghana and using the National Health Insurance Scheme number in the interim to identify children who miss their immunisations; stricter demand for and updating immunisations card at school entry; attention to human resource development, infrastructure and equipment to improve the quality of care.

CONCLUSION

There appears to be adequate knowledge of the major causes of infections in mothers and children in Ghana, and interventions to prevent them are ongoing. However, there are significant implementation challenges relating to data capture, weaknesses in the health system affecting coverage. While these challenges are being addressed, some of the solutions require country-wide initiatives such as the use of electronic health records, providing unique identification numbers and improving the quality of care through the development of the human resource and provision of infrastructure, equipment and a sanitary environment. These require political will, multidisciplinary working, quality assurance and implementation research to improve outcomes.

Suggested Areas/Questions for research

1. To explore the feasibility of longitudinal studies on birth cohorts to examine child health interventions and outcomes over time
2. Explore untapped data for theme development
3. Research to address issues relating to quality of care using perinatal and maternal mortality audits, quality assurance studies, infrastructure, and competence assessments and reviewing health outcomes and referral patterns at various levels
4. Examining issues relating to access to healthcare including physical access, affordability, and socio-cultural factors that influence health seeking behaviour around maternal and child health issues
5. Feasibility studies to quantify and characterise the effects of fragmented maternal health care across Ghana
6. Implementation research to identify factors influencing vaccine coverage and surveillance, including documenting and and addressing the associated challenges; introducing spatial mapping to identify hot spots of low/high coverage; baseline and post-vaccination studies on the prevalence of vaccine associated diseases and the strains of pathogens causing these diseases
7. Studies on ways of creating unique identification of patients in in health systems

SESSION 3:
DIGITAL HEALTH

CHAIR: DR SETH AFAGBEDZI, UNIVERSITY OF GHANA

The problem

Dr Afagbedzi reported that digital health or e-health involved the use of technology to enhance the efficiency of healthcare delivery and the convergence of technology and health to increase access to health and information and to accelerate Universal Health Coverage. There were several such applications including clinical and transactional applications. Currently some transactional applications are employed for billing in health facilities in Ghana, while applications for clinical care such as electronic medical records were used by others. The enhanced form of the District Health Information Management System (DHIMS II) is a comprehensive Health Information Management System (HIMS) which stores and manages aggregated routine health facility data from the 216 Districts in Ghana.

Despite the potential of e-health systems to improve health care delivery, there are constraints in implementing such solutions. For instance, currently the quality of the various applications is varied. Some applications are custom-made and do not communicate well with other systems. Other applications are via open-source programs and efficient integration with different systems is typically much easier. There are a lack of standards and consequent interoperability challenges. Thus, Dr Afagbedzi stressed the need for strict implementation of the Health ICT policy to harmonise, regulate and provide operating standards for e-health applications in Ghana. This he said was largely the responsibility of the MoH. He added that successful implementation of any e-health policy must be led by a committee of experts responsible for setting of standards, certification of health applications, ensuring protection of patient data and regulation of the overall e-health system.

Dr. Afagbezi observed that although e-health was yet to be operationalised on a national scale in Ghana, several applications were already in use, which included the Hospital Administration and Management System (HAMS), Logistics Management Information Systems (LMIS), iHost, NHIA – e-Claims, DHIMS I and II - hosted by GHS. In November 2017 the MoH launched a nationwide electronic medical records and patient management system. The project involved the networking of all hospitals, clinics and community health centres in every region including districts, as well as the networking of all agencies under the MoH such as the Food and Drugs Authority (FDA) and the GHS. Under the project to be executed by Lightwave eHealthcare Services, a healthcare infrastructure solution, a centralised data centre and a 24-hour data recovery unit will be developed. Currently, the project is being piloted in the Central Region of Ghana and is linked to the National Health Insurance Scheme claims. In addition to this, Ghana has registered success in telemedicine and mHealth initiatives, evidenced by applications such as Senesmart phone project, MoTeCH, MVP Project – telemedicine, SMS for life, EWS, Fio-GHS, RDT smart reader. The government of Ghana through the Ministry of Communication rolled out a National Broadband Policy and Implementation Strategy in 2012. This policy intends to lay a national internet broadband connecting all the ten regional capitals and the 216 districts and consequently link district hospitals to teaching hospitals to provide avenues for virtual consultations and discussions between clinicians, and between clinicians and patients.

Discussion

Kenya has experience with electronic records implementation, and elsewhere, Ethiopia has used spare capacity with copper masts. The Commonwealth Digital Health initiative has lessons of good practice from the UK, Republic of Ireland and Sri Lanka. Majority of the above successful digital systems are customised Open Source Systems which have several advantages, especially for developing countries. Although operationally, research information is usually separate from health systems information, the two can be linked and experience from the Canadian Cancer Trial Network (3CTN) shows how 5 people were able to use health systems to develop an accelerated research portfolio. This emphasizes the importance of learning from other countries.

Challenges

Lack of internet connectivity in rural areas, certified e-health applications and the cost of computer hardware and software were among the major drawbacks of e-health solutions in Ghana. It is hoped that a national repository for disease reporting will also be created to store granular (transactional) health and research data. Currently, information on the benefits of using digital systems in Ghana is limited; however, current evidence shows that the use of e-prescriptions and e–records increases efficiency. Thus, research is needed to document the effect of these applications on health outcomes in Ghana.

Funding for operating digital health systems is a major challenge - licences need to be renewed and internet connectivity is necessary to keep systems running. Some of these systems are funded by donor agencies for a particular purpose, for example, tuberculosis control, data collection on pregnant women and HIV in Ghana, among others are funded by private enterprises. These applications are often custom made and once the project ends, it becomes difficult to renew licences, or provide technical support due to loss of capacity and donor funding. Thus it is necessary to have common standards and a policy on harmonisation to enable such systems to be integrated into mainstream services.

Another major challenge for the health system is the lack of capacity for IT by health providers expected to man the digital health applications. Lack of harmonisation between skills gained during training and those required at health facilities, is another challenge. For example, teaching hospitals such as Korle Bu Teaching Hospital use different systems from those employed at health facilities. Additionally, it is important to consider skills levels of health workers when procuring new technologies. The technical personnel need to be adequately trained to use the applications and deal with the technical problems that may occur. Thus leadership skills are needed in capacity building to operationalise digital health systems in Ghana and elsewhere.

OPPORTUNITIES

The development of a Masters degree course in Health Informatics at the School of Public Health, University of Ghana (UoG) provides an opportunity for training technical personnel to supply the expertise needed to operate digital health systems. This course has been running for more than 10 years. Additionally although funding is a challenge, opportunities exist to use local media networks, Bluetooth, smart phones, and email to introduce e-health into the health system. There are also several open source applications that, if well regulated, could introduce connectivity in the health system. The intention of the GHS to move towards using electronic medical records provides an opportunity to implement digital health on a national scale

SOLUTION

In the discussions that followed, an oversight committee of experts was proposed to guide the ministry in providing governance and regulation in the use of e-health applications in Ghana. A suggestion was made that after trying commercial applications the health service should broaden its choices to include open source applications some of which were in use in other countries such as the Republic of Ireland and Sri Lanka (the latter is part of the Asia e-health information network, AHIN). The need for dialogue between the Universities and MoH on the e-health strategy and standards was also highlighted.

CONCLUSION

Digital health enhances the efficiency of health care delivery. However, there are critical issues relating to its implementation that require resolution such as interoperability, regulation and funding. Currently, a limited number of these applications are used in health facilities in Ghana. However government commitment and funding is needed to scale up these applications nationwide. In the meantime, research is required to determine how to obtain maximum benefit at lower cost using commercial software currently available and to document the benefit of using these applications in health care to justify the need to scale up.

Suggested Areas/Questions for research

1. Examine grey areas such as translation of knowledge and making it accessible
2. Examine how end-users are influenced by introduction of digital health systems
3. Examine the knowledge processes, contribution of the media in generating knowledge and how they can be engaged
4. Operational research on the processes and feedback when implementing digital health systems
5. Finding out what partners and stakeholders think about digital health
6. Finding out what can be learned and adopted from other systems

SESSION 4:
RESEARCH DURING PUBLIC HEALTH EMERGENCIES

CHAIR: DR WILLIS SIMON AKHWALE – CPH CONSULTING, KENYA

The problem

Dr Akhwale reported that in recent times, the world had experienced an increase in infectious disease outbreaks, due to emergence and spread of new pathogens, globalization of travel, food and medicines and rise of antimicrobial resistance. Examples of high-profile infectious disease threats include avian flu, anthrax, MRSA, multi-drug resistant tuberculosis, and Ebola. Vulnerabilities and risks include geographic areas with limited disease surveillance systems, institutional and logistical barriers to adequate delivery of healthcare services, reluctance to share outbreak information, emergence of new or drug-resistant pathogens, limited border public health security measures, and intentional or accidental release of biological agents.

Most countries are unprepared to manage and control complex public health emergencies and have recognized the need to have preparedness plans to prevent, detect and respond to infectious disease threats at source. This, according to Dr Akhwale would , involve taking steps to prevent the number and magnitude of epidemics, by: controlling zoonotic diseases, food safety, building laboratory capacity and, establishing effective regional and global networks. Real time surveillance, he said, is also essential for early detection and response. An effective early response should ideally involve multi-sectoral, in-country actions, interconnected with emergency operating centres to provide global access and an international response. These processes offer several opportunities for research from policy planning to response

Dr Akhwale added that the Ebola epidemic in West Africa underlined the need for country and global leadership, behaviour change communication, including food safety in the handling of bush meat and syndromic reporting. (13) It also revealed the need for developing diagnostic mechanisms, transport systems, information systems, training of staff for case finding, monitoring, patient care and follow up when preparing for an epidemic, all of which are amenable to research. Dr Akhwale reported that Kenya had Cholera, Dengue Fever and Rift Valley Fever outbreaks. However like many other developing countries during these outbreaks, (13) there were capacity challenges especially with core capacities as recommended by the WHO International Health Regulations, (14) such as data management, equipment and infrastructure, absence of clear emergency plans and funding. All these were compounded by the fact that policymakers only considered evidence that benefited them. This suggests a need for research to find innovative ways of communicating with policy-makers, capacity building and behaviour change communication.

Dr Damaris Matoke from the Kenyan Medical Research Institute (KEMRI) discussed the role that the KEMRI played in the investigation and management of epidemics. She reported that during the Rift Valley fever outbreak in 2016, KEMRI put together a protocol for investigating the epidemic, which involved three teams of scientists. One team comprised epidemiologists who investigated the outbreak; a second clinical team was responsible for patient screening and management while the third team was responsible for vector screening and studying the entomological aspects of the disease. The knowledge gained was made available in a report by the institute and shared with the MoH. The same was done during dengue fever and leishmaniasis outbreaks in Kenya.

Discussion

The discussion centred on food safety, resource mobilisation, capacity building, including laboratory capacity for diagnosing haemorrhagic fevers, reporting and data management, and ethics during outbreaks. It was reported that in Kenya, cholera epidemics were recurrent especially in rural semi-arid regions making them more costly to manage in terms of resources – time, money and personnel. In Ghana, cholera epidemics tended to occur in urban slums. However it highlights the need for research on the usefulness of deploying laboratory infrastructure and technology such as electronic messaging and records to aid in the transmission of results from rural areas during epidemics to support prompt response. Emphasis was placed on the need for a proactive approach to early warning surveillance, and capacity for research to take place during epidemics.

Funding - like most countries in Africa, Kenya and Ghana allocate low funding for public health emergency response. There is thus a need for a stand-by budget stream with funds for every stage of the preparedness process: from prevention, detection, to response and emergency preparedness for capacity building including refresher trainings.

Human resources - the capacity to respond requires experts with the capacity and skills to respond. One of the goals of any emergency preparedness plan is to improve the skillset of people who work in institutions involved in controlling epidemics over time. Staff attrition is a major problem; thus it was important for institutional preparedness plans to be constantly reviewed. An example of a WHO sponsored training and cross-border co-operation between Kenya and Uganda during an outbreak of Ebola in Uganda was discussed. It involved the exchange of health staff for training along and across the border between the two countries. In addition, Kenya organises simulations of outbreaks targeting districts. Personal protective equipment are deployed from a buffer stock during these training programmes.

Ethical Issues - Ethical issues surrounding research during epidemics were discussed. In Ghana, expedited review of protocols are available if a justification can be made though it can take up to a week to process. However during the Ebola epidemic, parliament blocked clinical trials on the Ebola vaccine even though ethical approval for the study had been granted. In Kenya, researchers have access to an accelerated ethical clearance for research during epidemics using a special template for the application. Similar processes to deal with ethical issues in the UK were discussed. A law allows expedited review of protocols in the UK and research in situations in which the beneficial value of the research at global level can be demonstrated. In some instances consent can be waived if it cannot be obtained, and there are ethical and legal precedents for dealing with these scenarios.

OPPORTUNITIES

In 2004, the CDC, USA, established a postgraduate course to train Field Epidemiologists in Kenya, which produced one of the most resourceful personnel in outbreak control. Since the training started, the graduates have worked in close collaboration with the MoH, and are deployed to the field during epidemics.

This course is also offered by the UoG School of Public Health in Accra and more recently the University for Allied Health Studies, in Ho, Ghana. The creation of public health units in hospitals in Ghana has also aided the preparation, early diagnosis and treatment of epidemics since there is better monitoring of the threshold for response. A weekly bulletin on diseases under surveillance is also available in Ghana.

SOLUTION

Emergencies, by their very nature, present challenges in terms of the required time and speed for response, funding and abiding by ethical requirements. To overcome these barriers countries including the UK have developed mechanisms for funding "sleeping grants". These are research awards intended to take place during the next public health emergency (for example an influenza pandemic), whenever it actually happens. The funding is already agreed, and ethics and other approvals are already in place. Thus, the research can start quickly and be of most use during the ongoing emergency as well as providing lessons for future pandemic and emergency planning. Funding of emergencies and research can also be achieved by ring-fencing funding for responsive use by units that are most

CONCLUSION

Preparations for public health emergencies, require preventive interventions, early detection and response. While several constraints hamper preparedness plans including funding, staff attrition, limitations in laboratory capacity, information systems and resource mobilisation, various opportunities exist for research during epidemics. However, these require proactive approaches, the use of novel research methods and research policies.

Suggested Areas/Questions for research

1. Research on utility of available preparedness and response plans
2. Research on the decision making process during emergencies
3. Assessment on core capacities of WHO IHR (skills and knowledge gaps regarding the management of epidemics)
4. Behavioural studies
5. Evaluate capability of laboratories to support rapid detection that would positively impact response times at source through automated reporting
6. Research on innovative ways to build capacity before and after an epidemic including using proven dissemination methods to foster translation of health services research findings into practice (for example, see Damschroder et al, 2009).(15)

SESSION 5:
TRANSLATION OF RESEARCH EVIDENCE INTO POLICY AND PRACTICE

CHAIR: MR KIRCHUFFS ATENGBLE, PACKS AFRICA

The problem

Mr Atengble explained that translation of research evidence in to policy and practice was part of knowledge translation, which is the production of knowledge for use and application beyond simple dissemination. This, he said, involved repackaging of research products for the ultimate benefit of practitioners and policy makers. The key stakeholders in this process were policymakers such as: the ministries and district assemblies and implementers such as the GHS, non-governmental institutions and the public. Other users were practitioners, research units, academics and related organisations such as the Medical and Dental Council, Ghana Education Service and Food and Drugs Authority.

Traditionally information sharing has been done through journal publications, reports, newsletters, bulletins, policy briefs, fact sheets, and stakeholder workshops. Today, with the advent of technology and increasing complexity in governance and society, additional and innovative ways of disseminating information need to be sought. This is because the process of translating research into practice and policy can be hindered by several factors such as financing and the external environment. The external environment consists of the macro context which relates to the extent of academic and media freedom, strategic planning and relationships with state and non-state organisations. Others are incentives and the motivation which drive evidence and the prevailing culture, which determines beliefs, values and openness to change. Organisational capacity to produce, use and share information, including leadership and management processes also affect knowledge translation. Thus, in order to translate research into policy and practice, attention needs to be paid to the interaction between three entities: the processes, the partners and the context. According to Mr Atengble, the processes involve the design, gathering, synthesis, communication and use of research information; while partners for this exercise are the different stakeholders, the users and collectors of information, including the collaborators. The context refers to relationships and prevailing power dynamics such as incentives and motivations (figure1).

Discussion

The discussions centred on the interaction between the processes, the partners and contexts and what could be done differently to promote knowledge translation. Participants also indicated priority areas for the translation of health research into policy and practice in Ghana and Kenya. According to Mr. Atengble, the policy making process involved pronouncements by senior policymakers, documentation of such pronouncements, and their implementation. Thus, in order to translate research into policy, researchers must first convince stakeholders of the need and importance of scientific evidence in decision-making. This means that they must be clear about what the evidence shows, and present it to stakeholders in a form they can easily understand. If considered, this may lead to the drafting of a policy by technical personnel, followed by consensus building meetings with a larger group of stakeholders and policy makers. Modifications and further drafts are made until a consensus is reached and the final document accepted. Sometimes, the evidence is provided at global level such as those generated by the WHO. These are also evaluated and implemented if the evidence is strong enough; alternatively, they may be subjected to operational research or piloted before they are accepted.

Lack of capacity to develop policies was identified as a major limiting factor. The GHS, as the implementing arm of the MoH, sometime writes the policies for Ministry of Health to endorse. It also became clear that one of the reasons why policy makers were reluctant to adopt research findings from academia into policy is that they are not consulted before the research is conducted. On the other hand research units of the GHS mentioned that they usually write letters to policy makers to request priority areas for research and research questions before developing them. They also invited service personnel with technical expertise to their meetings to brainstorm and plan together. Often there is a cycle of blame between researchers and policymakers which often impede the use of scientific evidence in policy formulation.
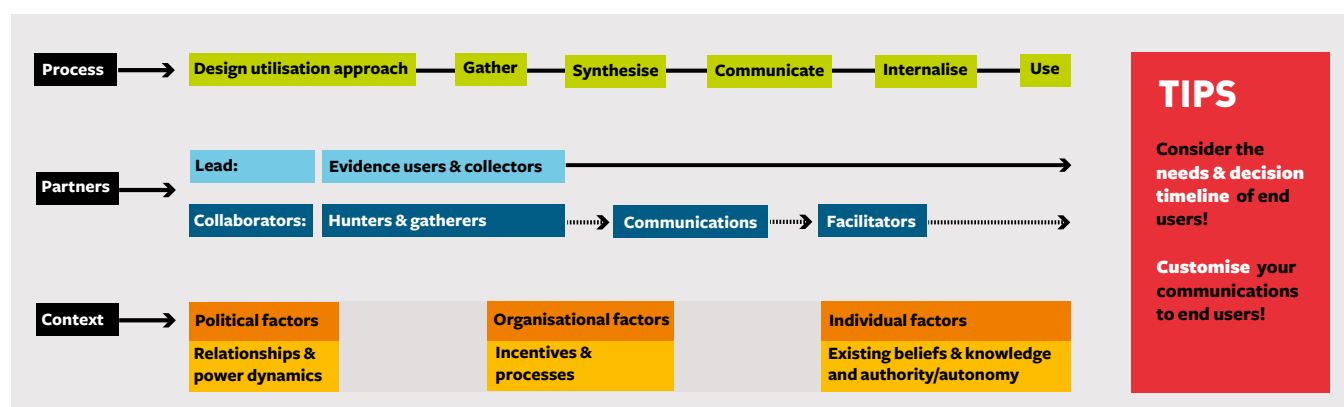

Figure 1: Flowchart illustrating the processes and procedures behind evidence-informed decision-making (Credit: Factors for Evidence Decision Making, USAID Learning Lab 2017)

PRIORITY AREAS FOR THE TRANSLATION OF HEALTH RESEARCH INTO POLICY AND PRACTICE IN GHANA AND KENYA

Improved research (near real-time) processes (14/88)

This was the highest rated research area. Participants presented issues that concerned time taken to gather data, process them and make presentations of their analysis in different evidence products. Specifically, they wished to have near real-time access to data, so that they could meet the demands of policymakers in their expected times.

Enhanced funding mechanism (both domestic and foreign) (13/88)

Researchers highlighted the limited funding available for their work. Most funding was obtained from foreign sources whose agenda may not always be responsive to specific local needs.

Common research agenda (12/88)

The GHS had representation at this workshop, and participants considered a common research agenda, developed through a collaboration of stakeholders, as an issue of high priority to them. This suggests that participants agree collectively that the current Health Sector Research Agenda is valuable.

Enhanced collaborations among stakeholders (12/88)

A high priority issue in this session was the desire for enhanced collaborations among stakeholders. In this regard, participants called for the maintenance of a regularly updated register of sector players, both public and private agencies, policymakers and researchers, non-governmental organisations and Chief Scientific Offices, practitioners, funders, the Media and a representation of the general public as a way of enhancing the level of collaboration. This should reflect in co-development of research agendas, joint commissioning of research projects, and co-exploration of research and policy needs.

Improved dissemination of evidence (11/88)

A recommendation was made concerning the process of dissemination, documentation, and advocacy by departments under the Research and Development Directorates (RDDs) of the GHS. Other issues related to the targeting of technical officers at the Ministry and not necessarily senior officers in the Ministry for their evidence needs; the development of advocacy groups (brokers) to drive policy initiation and reforms, as opposed to campaigns and impositions of political groups.

Strategic planning for evidence production and use (8/88)

Participants considered the issue of strategic planning by both policy making institutions and research and evidence producers. Here, it was advocated that policymakers state in advance (based on a scanning of prevailing or upcoming issues) their needs for evidence, and make efforts to engage the different sources to obtain the evidence. Research organisations were also encouraged to consider exploring from policymakers what their research needs were prior to the initiation of research projects. This can be realized if both parties engage each other in technical working groups on specific issues.

Enhanced capacities (skills) for evidence use (EIPM training modules) (7/88)

Another issue that was considered priority to workshop participants was the development of individual capacities (knowledge, skills & motivations) of both researchers and policymakers, the capacities of their organisations (management, processes & culture) and the general environment in which they interact. The Evidence-Informed Policymaking toolkit developed by International Network for the Availability of Scientific Publications (INASP) is a useful tool, (13) alongside the Context Matters framework jointly developed by Politics & Ideas and INASP. (13)

Culturally sensitive research (7/88)

To meet the specific needs of society, workshop participants advocated that research conducted should be culturally relevant to the people. In this regard, it is recommended that, although international collaboration is useful, local knowledge and experience should be incorporated into research design, through the inclusion of local researchers in such teams. The issue of exploring local sources of funding research can help to realize this aspiration.

Sharing lessons from elsewhere (Benchmarking) (3/88

It was acknowledged that much of local knowledge is relevant for policy initiatives, however, the exploration of and learning from experiences from other contexts provide some ideas that are useful opportunities for overcoming developmental challenges.

Re-engineered business process (reduced bureaucracy) (1/88)

Participants considered the issue of strategic planning by policymakers. This issue was in relation to the processes (red-tape) associated with the uptake of research evidence in policy processes. All stakeholders should be given fair recognition and treatment. There should be an opportunity for policymakers to check whether or not there is existing research or data on an issue of interest, prior to commissioning of research projects (for example, via regularly-updated research registers).

OPPORTUNITIES

A central research pool and/or sector specific research councils were advocated to coordinate the attraction and administration of (private, public and corporate) funds for the conduct of research and their translation into policy. This will provide more opportunities for research. Learning from others experience provided an opportunity to overcome some developmental challenges.

SOLUTIONS

Participants suggested that researchers should engage with policy makers in defining the research problems from the onset. At the same time, policy makers should commission research from academics. Secondly, researchers should make the evidence they produce get to the policy makers and share it in appreciable formats, using policy briefs and other similar information products to improve intellectual access. Advocacy groups, knowledge brokers and intermediaries such as librarians can be used to enhance the dissemination process. Passage of a 'Right to Information' bill would also be helpful, and a balance between copyright and open access initiatives needs to be considered. It is also important to learn from other settings and apply the lessons learnt.

CONCLUSION

Although quite extensive, the issues discussed in the workshop reflect the prevailing challenges for research translation. While researchers desire to make their research findings useful for policymaking purposes, policymakers are also eager to gain deep insight into policy issues prior to issuing directives on them. Both parties do sometimes (and in this workshop) blame each other for the failure to incorporate evidence in policy making. For improved translation of research evidence to policy and practice, which is mutually beneficial, all stakeholders must consider working to address the issues uncovered in this session of the workshop.

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