# Supplementary materials

Supplementary Table 1: Determinants of SIV uptake and adherence

|  |  |  |
| --- | --- | --- |
| **Individual Socio-demographic characteristics** | **Clinical factors** | **Organizational and system factors** |
| Age | Self-rated health status | Insurance type and status |
| Gender | Provider-rated health status | Co-payment in health plan |
| Race/ethnicity | Number of chronic diseases | Access to healthcare services |
| Marital status | Specific chronic diseases | Average visits/patient/year |
| Immigration status | Frailty | Availability of a vaccine registry |
| Employment status | Immunosuppression | Vaccination mandated |
| Occupation | Immune deficiency | Consent and privacy laws |
| Religious beliefs | Use of medications | Availability of occupational healthcare services |
| Income | Obesity | Clinical guidelines |
| Transportation | Pregnancy | Vaccine cost |
| Education | Vaccination in previous years | Healthcare cost |
| Political views | Vaccination of one's own family | Health care worker vaccine status/policy |
| Close contact with high-risk persons | Receipt of other vaccines | Provider density |
| Household size | Use of other preventive interventions | Quality measures |
| Household type |  | Educational interventions (brochures, advertisement, academic detailing) |
| Household composition |  |  |
|  |  |  |
|  |  |  |
| **Residential area characteristics** | **Health behaviours** | **Provider factors** |
| Community/neighborhood characteristics | Tobacco use | Type of practice |
| Region | Alcohol use | Specialty |
| Population size | Other substance use | Training level |
| Rurality | Physical activity level | Age |
| Average income | Dietary habits | Gender |
| Poverty/material deprivation levels | Health utilization/previous medical visits | Volume |
| Unemployment rate |  | Remuneration for vaccine provision |
| Percentage of adult residents with less than a high school education |  | Continuity of care |
| Percentage of adult residents with less than a high school education |  | Payer mix |
| Measures of social capital |  | Continuing education |
| Voting patterns |  | Use of other preventive services |
| Levels of vaccine uptake |  | Use of electronic health records systems |
|  |  |  |

Supplementary Table 2: Search Strategy for Ovid MEDLINE(R) Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) <1946 to Present>, conducted January 12, 2018.

|  |  |  |
| --- | --- | --- |
| **#** | **Searches** | **Results** |
| 1 | Influenza Vaccines/ | 21669 |
| 2 | Influenza, Human/pc | 16649 |
| 3 | ("flu shot" or "flu shots").ti,ab,kf. | 328 |
| 4 | (Antiinfluenza or "anti influenza").ti,ab,kf. | 2467 |
| 5 | or/1-4 | 29034 |
| 6 | Influenza, Human/ | 47082 |
| 7 | exp influenzavirus a/ | 42729 |
| 8 | exp influenzavirus b/ | 4031 |
| 9 | flu.ti,ab,kf. | 11808 |
| 10 | Influenza\*.ti,ab,kf. | 111134 |
| 11 | or/6-10 | 125956 |
| 12 | Vaccines/ | 20632 |
| 13 | exp Immunization Programs/ | 12727 |
| 14 | inoculat\*.ti,ab,kf. | 113706 |
| 15 | vaccin\*.ti,ab,kf. | 295954 |
| 16 | immuni\*.ti,ab,kf. | 303112 |
| 17 | or/12-16 | 611320 |
| 18 | 5 or (11 and 17) | 49576 |
| 19 | exp aged/ | 3062849 |
| 20 | Elder\*.ti,ab,kf. | 249107 |
| 21 | Senior\*.ti,ab,kf. | 36561 |
| 22 | aging.ti,ab,kf. | 173903 |
| 23 | Geriatric\*.ti,ab,kf. | 59618 |
| 24 | (Retired or retiree\*).ti,ab,kf. | 6846 |
| 25 | ("post menopausal" or postmenopausal).ti,ab,kf. | 60767 |
| 26 | ((Old or older or oldest) adj3 (people or person\* or patient\* or individual\* or adult\*)).ti,ab,kf. | 259620 |
| 27 | "old old".ti,ab,kf. | 996 |
| 28 | "oldest old".ti,ab,kf. | 2225 |
| 29 | ("65" adj3 (age\* or years)).ti,ab,kf. | 99876 |
| 30 | (hexagenarian\* or sexagenarian\* or septuagenarian\* or octogenarian\* or nonagenarian\* or centenarian\* or supercentenarian\*).ti,ab,kf. | 5990 |
| 31 | or/19-30 | 3448862 |
| 32 | "Patient Acceptance of Health Care"/ | 42423 |
| 33 | patient compliance/ | 58674 |
| 34 | medication adherence/ | 16050 |
| 35 | exp Socioeconomic Factors/ | 435615 |
| 36 | Health Knowledge, Attitudes, Practice/ | 102680 |
| 37 | (Uptake or "up take").ti,ab,kf. | 347919 |
| 38 | Adhere\*.ti,ab,kf. | 166898 |
| 39 | (Complian\* or Comply or complied).ti,ab,kf. | 133628 |
| 40 | accept\*.ti,ab,kf. | 422990 |
| 41 | Predict\*.ti,ab,kf. | 1426246 |
| 42 | Factor\*.ti,ab,kf. | 3179334 |
| 43 | Facilitat\*.ti,ab,kf. | 472967 |
| 44 | Enabl\*.ti,ab,kf. | 377056 |
| 45 | encourag\*.ti,ab,kf. | 137781 |
| 46 | motivat\*.ti,ab,kf. | 117405 |
| 47 | help\*.ti,ab,kf. | 720667 |
| 48 | (succeed or success\*).ti,ab,kf. | 1054155 |
| 49 | Determinant\*.ti,ab,kf. | 226357 |
| 50 | characteristic\*.ti,ab,kf. | 1290718 |
| 51 | indicator\*.ti,ab,kf. | 255852 |
| 52 | (demographic\* or sociodemographic\*).ti,ab,kf. | 336634 |
| 53 | ((improv\* or increas\* or rise or rais\* or optimal\* or optimi\* or higher or influenc\*) adj4 (level\* or coverage or rate\* or access\*)).ti,ab,kf. | 1215268 |
| 54 | ((improv\* or increas\* or rise or rais\* or optimal\* or optimi\* or higher or influenc\*) adj4 (probability or chance\*)).ti,ab,kf. | 38981 |
| 55 | (barrier\* or obstacle\* or hinder\* or hesitan\* or hesitat\* or refus\* or noncomplian\* or "non complian\*" or deter\* or discourag\* or challeng\*).ti,ab,kf. | 4428346 |
| 56 | or/32-55 | 11261762 |
| 57 | 18 and 31 and 56 | 5136 |
| 58 | limit 57 to english language | 4713 |
| 59 | limit 58 to yr="2000 - 2017" | 4056 |
| 60 | remove duplicates from 59 | 3671 |
| 61 | 60 not (exp animals/ not humans/) | 3624 |

Supplementary Table 3: Reported results in included studies

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **Factors Examined** | **Baseline Utilized** | **EE (OR)** | **LCI (OR)** | **UCI (OR)** |
| **Chen 2005** | African Americans | whites | 0.50 | 0.40 | 0.60\* |
|  | Latinos | whites | 0.60 | 0.50 | 0.80\* |
|  | Asians | whites | 1.40 | 1.00 | 1.80\* |
|  | American Indians & Alaskan Native | whites | 0.90 | 0.50 | 1.60 |
|  | Medicare & Medicaid | Medicare plus private insurance | 0.80 | 0.70 | 1.00 |
|  | Medicare only | Medicare plus private insurance | 0.70 | 0.50 | 0.80\* |
|  | Other insurance only | Medicare plus private insurance | 0.70 | 0.50 | 0.90\* |
|  | Uninsured | Medicare plus private insurance | 0.50 | 0.20 | 1.00 |
| **Appel 2006** | Any comorbidity | No medical comorbidity | 1.71 | 1.19 | 2.45\* |
|  | Health Insurance | Uninsured | 2.25 | 1.18 | 4.31\* |
|  | Age | 1-year increments | 1.03 | 1.00 | 1.06\* |
|  | Hospital visits >12.7 | Less than mean of 12.7 | 1.69 | 1.16 | 2.46\* |
|  | Blacks | whites | 0.74 | 0.44 | 1.23 |
|  | Other (excluding Hispanics) | whites | 0.57 | 0.24 | 1.34 |
| **Takayama 2012** | Age | 1-year increments | 1.01 | 1.011 | 1.014\* |
|  | Non-whites | whites | 0.88 | 0.85 | 0.91\* |
|  | Unmarried/No partner | Married/Partnered | 0.93 | 0.91 | 0.95\* |
|  | Less than High School Education | High School or More Education | 0.96 | 0.92 | 0.99\* |
|  | Less than $35,000 Annual Income | More than $35,000 Annual Income | 0.94 | 0.92 | 0.96\* |
|  | No Healthcare Coverage | Healthcare Coverage | 0.73 | 0.65 | 0.81\* |
|  | Current Smoking | Never Smoked | 0.94 | 0.89 | 0.99\* |
|  | Former Smoking | Never Smoked | 1.06 | 1.04 | 1.08\* |
|  | High blood pressure | No high blood pressure | 1.08 | 1.07 | 1.11\* |
|  | Arthritis | No arthritis | 1.07 | 1.05 | 1.10\* |
|  | Asthma | No asthma | 1.08 | 1.05 | 1.10\* |
|  | Diabetes | No diabetes | 1.09 | 1.07 | 1.11\* |
|  | Coronary heart disease | No coronary heart disease | 1.06 | 1.03 | 1.08\* |
|  | Myocardial infarction | No myocardial infarction | 0.97 | 0.94 | 0.99\* |
|  | Stroke | No stroke | 0.97 | 0.94 | 1.00 |
| **Khan 2017** | Age 65 – 74 years | Age≥85years | 0.74 | 0.63 | 0.86\* |
|  | Age 75 – 84 years | Age≥85years | 0.92 | 0.79 | 1.08 |
|  | Non-Hispanic Asian | Non-Hispanic White | 0.68 | 0.39 | 1.17 |
|  | Non-Hispanic Black | Non-Hispanic White | 0.66 | 0.54 | 0.80\* |
|  | Hispanic | Non-Hispanic White | 0.78 | 0.64 | 0.96\* |
|  | Other | Non-Hispanic White | 0.75 | 0.51 | 1.09 |
|  | Less than high school | College Graduate | 0.83 | 0.68 | 1.02 |
|  | High School/GED graduate | College Graduate | 0.79 | 0.70 | 0.88\* |
|  | Some College | College Graduate | 0.81 | 0.73 | 0.91\* |
|  | Employed | Unable to Work | 0.64 | 0.48 | 0.85\* |
|  | Unemployed | Unable to Work | 0.67 | 0.42 | 1.05 |
|  | Retired | Unable to Work | 1.00 | 0.77 | 1.29 |
|  | Less than $15,000 | ≥$50,000 | 0.63 | 0.52 | 0.78\* |
|  | $15,000 to < than $25,000 | ≥$50,000 | 0.85 | 0.74 | 0.98\* |
|  | $25,000 to <$35,000 | ≥$50,000 | 0.88 | 0.76 | 1.01 |
|  | $35,000 to <$50,000 | ≥$50,000 | 0.93 | 0.81 | 1.05 |
|  | Divorced/Separated | Married | 0.91 | 0.79 | 1.06 |
|  | Widowed | Married | 0.99 | 0.88 | 1.12 |
|  | Never married | Married | 0.89 | 0.67 | 1.20 |
|  | Medicare | No Medicare | 1.33 | 0.84 | 2.13 |
|  | Regular Doctor | No Regular Doctor | 2.18 | 1.71 | 2.79\* |
|  | Disability | No Disability | 1.26 | 1.15 | 1.39\* |
| **La 2018** | Age 70 to 74 years | Age 65-69 years | 1.89 | 1.10 | 3.26\* |
|  | Age 75 to 79 years | Age 65-69 years | 0.92 | 0.47 | 1.78 |
|  | ≥80 years | Age 65-69 years | 0.76 | 0.35 | 1.65 |
|  | Female | Male | 0.92 | 0.59 | 1.44 |
|  | Hispanic | Non-Hispanic White | 2.32 | 0.92 | 5.84 |
|  | Non-Hispanic Black | Non-Hispanic White | 0.80 | 0.24 | 2.62 |
|  | Other (Non-Hispanic) | Non-Hispanic White | 2.64 | 0.94 | 7.37 |
|  | Multiracial (Non-Hispanic) | Non-Hispanic White | 1.31 | 0.37 | 4.70 |
|  | High school graduate | Less than High School Education | 1.66 | 0.67 | 4.15 |
|  | Some College or Technical School | Less than High School Education | 2.39 | 1.14 | 4.99\* |
|  | College Graduate | Less than High School Education | 3.29 | 1.55 | 6.99\* |
|  | Health Status – Very good | Health Status - Excellent | 0.74 | 0.40 | 1.34 |
|  | Health Status – Good | Health Status - Excellent | 0.39 | 0.2 | 0.76\* |
|  | Health Status - Fair | Health Status - Excellent | 0.51 | 0.22 | 1.15 |
|  | Health Status – Poor | Health Status - Excellent | 0.23 | 0.09 | 0.62\* |
|  | Presence of ≥1 chronic condition | No chronic condition | 0.96 | 0.59 | 1.55 |
|  | Last Checkup: 1-2years | Last Checkup within Past Year | 0.33 | 0.15 | 0.72\* |
|  | Last Checkup ≥2years | Last Checkup within Past Year | 0.21 | 0.06 | 0.75\* |

OR = odds ratio, EE = effect estimate, LCI = lower confidence interval, UCI = upper confidence interval, \* = statistically significant result

Supplementary Figure 1: Study quality assessment

