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Vaccinations and preventive screening services for older adults: opportunities and challenges in the USA

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Abstract

Vaccinations and disease-screening services occupy an important position within the constellation of interventions designed to prevent, forestall or mitigate illness: they straddle the worlds of clinical medicine and public health. This paper focuses on a set of clinical preventive services that are recommended in the USA for adults aged 65 and older, based on their age and gender. These services include immunisations against influenza and pneumococcal disease, and screening for colorectal and breast cancers. We explore opportunities and challenges to enhance the delivery of these interventions, and describe some recently developed models for integrating prevention efforts based in clinician offices and in communities. We also report on a state-level surveillance measure that assesses whether older adults are ‘up to date’ on this subset of preventive services. To better protect the health of older Americans and change the projected trajectory of medical costs, expanded delivery of recommended vaccinations and disease screenings is likely to remain a focus for both US medicine and public health.

Keywords

clinical preventive services; cancer screening and prevention; vaccinations; surveillance; preventive health services; preventive medicine; elderly; behavioural risk factor surveillance system; medical system; older adults

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Introduction

The number of older adults in the USA is increasing rapidly. In 1950, just over 10 million Americans were 65 years of age and older; in 2010, there were 35 million older adults and by 2030, there will be more than 70 million.[1] The ageing of the population is accompanied by significant increases in chronic disease. By 2030, more than 81 million Americans are expected to have multiple chronic conditions.[2] If left unchecked, the aggregate costs associated with treating these conditions will escalate sharply, from $1.3 trillion in 2003 to $4.2 trillion by 2023.[3]

Disease prevention has never been as important to the health of older Americans, and to the health of the US economy, as it is today. A recent economic analysis concludes that the rise of health care expenditures would be moderated by significantly broadening the provision of 20 proven clinical preventive services, including screenings and vaccinations.[4] Farley *et al*. estimate that 50,000–100,000 deaths per year among persons aged 80 or younger could be prevented through optimal use of nine clinical preventive services.[5] However, current US spending on prevention accounts for only 2%–3% of health care expenditures;[6] with the overwhelming portion of financial outlays covering hospital care, physician services, pharmaceutical treatments and administrative costs.[7]

This paper focuses on a set of clinical preventive services that are distinct in that they are recommended for adults aged 65 and older based on demographic characteristics (age and gender). We report on a state-level measure that tracks whether or not older adults are ‘up to date’ on this subset of clinical preventive services. With this foundation, the paper then explores opportunities and challenges to enhance the delivery and uptake of vaccinations and screenings for older adults, and describes some recently developed models for integrating the efforts of clinicians and communities. Combining the respective strengths of health care and public health is vital to assuring improved health for older Americans.[8]

Recommendations for routine vaccinations and screenings in the USA

Clinical preventive services occupy an important position within the constellation of interventions designed to prevent, forestall or mitigate illness: they straddle the worlds of clinical medicine and public health. In the USA, recommendations for clinicians regarding the delivery of clinical preventive services are issued by two independent groups of experts: the Advisory Committee on Immunization Practices (ACIP)[9] and the US Preventive Services Task Force (USPSTF).[10] These entities, convened by the Federal Government, are charged with rigorously evaluating the merits of preventive services, including immunisations (ACIP) and screening tests, counselling and chemoprophylaxis (USPSTF). The USPSTF presents its guidelines with an assigned grade. Services that receive grades ‘A’ or ‘B’ are fully recommended and deemed to provide a net benefit to recipients (Table 1). Grade ‘C’ indicates that the service should be provided only when there are compelling reasons, while a grade ‘D’ discourages a service from being used. A grade of ‘I’ indicates that there is insufficient evidence to assess the balance of the benefits and harms of the service properly. The Community Preventive Services Task Force (CPSTF), a national independent body of public health and prevention experts, makes recommendations about

public health interventions and policies designed to improve health and promote safety.[11] Between them, the USPSTF and the CPSTF evaluate evidence of how health can be improved by prevention in both clinical and community settings.

Recommended clinical preventive services are typically endorsed by leading US medical and public health organizations, although there are differences in expert opinion as to the optimal age range for the provision of some of them. The work of the ACIP and the USPSTF is updated periodically as research findings emerge. Recently, for example, breast cancer and prostate cancer screening recommendations have been revised.[12] Although there are some differences in the guidelines for the delivery of cancer-screening services and adult vaccinations – and no clear consensus in the UK as to the effectiveness of routine breast cancer screening[13] – public health recommendations in the USA, the UK[14] and other European countries[15] are broadly similar.

While the underuse of vaccinations and cancer screenings for older adults is a pressing concern, there is also evidence of the overuse of these services. For example, pneumococcal vaccination is sometimes repeated for patients who do not recall whether they have been previously immunised;[16] indeed, ACIP recommendations state that the vaccine should be provided to patients whose immunisation status is uncertain.[17] There is also evidence of the overuse of screening colonoscopy, mammography and Pap test among older Americans.[18,19] The USPSTF is cognisant of this problem and now explicitly recommends a minimum and maximum age for the routine use of each of these screenings.[10] The USPSTF considers several areas of evidence in determining the appropriate age range for screening: whether the risk and potential burden of the targeted condition is absent or decreased in age-related subgroups; whether the potential burden of the condition is decreased by competing risks such as a shorter life expectancy; whether the accuracy of screening is modified by age; whether the risks of treatment of the condition differ by age; and whether negative results of prior screening tests significantly modify the risks of the condition in older adults.[20]

Public health surveillance for Vaccinations and screening

National and state tracking of clinical preventive services delivery is undertaken by a variety of surveillance initiatives. Public health surveillance refers to the ‘ongoing, systematic collection, analysis, and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevention and control.’[21] Beyond the traditional collection and analysis of vital records, state-level surveillance systems form the basis of a large network of surveillance systems in the USA. The Behavioral Risk Factor Surveillance System (BRFSS) is an essential mechanism for monitoring the uptake of clinical preventive services in states. The BRFSS collects monthly self-reported data in all 50 states and four US territories on health risk behaviours, preventive health practices and health care access among community-dwelling adults. For many states, the BRFSS is the only available source of timely data on health-related behaviours, chronic disease and injury. More than 350,000 non-institutionalised adults aged 18 and older are interviewed each year, making the BRFSS the largest ongoing telephone health survey in the world.[22]

The BRFSS has collected self-reported data on the receipt of adult immunisations and screenings for many years. Published national 2008 BRFSS data indicate that, among adults aged 65 and older, 70.9% reported receiving an influenza vaccination in the past year (as recommended by the ACIP), and 66.9% reported receiving the recommended one-time pneumococcal vaccination.[23] In that same year, 72.8% of respondents aged 65 and older reported being screened for colorectal cancer (i.e. using a faecal occult blood test within one year or a lower endoscopy within ten years).[24] Among women in the same age group, 78.5% reported receiving a mammogram within the past two years and 65.8% reported having a Pap test within the past three years. A recent report, *Enhancing Use of Clinical Preventive Services among Older Adults*, issued by four Health and Human Services agencies, provides data on a wide range of clinical preventive services, including those discussed here.[25]

In addition, *The State of Aging and Health in America* report has included an 'up to date' indicator for states focused on a subset of clinical preventive services available in the BRFSS that were recommended based on demographic characteristics (age and gender).[26] As such, these services are unlike other preventive services for older Americans – for example, abdominal aortic aneurism screening, which is recommended primarily for men aged 65–75 who have smoked, is contingent on a behavioural criterion.[10] In 2010, *Healthy People 2020*, the ten-year national objectives for improving the health of all Americans, established an objective to increase by 10% the proportion of older adults aged 65 and older who are up-to-date on a subset of age- and gender-based preventive services.[27] The indicator reports data separately for men (i.e. receipt of influenza and pneumococcal vaccinations and colorectal cancer screenings) and women (i.e. receipt of influenza and pneumococcal vaccinations and colorectal cancer and breast cancer screenings (all according to ACIP and USPSTF recommendations). Using 2008 BRFSS data, 46.3% of men aged 65 and older were up to date with core clinical preventive services, as were 47.9% of women. However, this measure does not include several USPSTF recommendations related to the prevention of critical prevention services related to smoking, cardiovascular events, obesity or alcohol misuse.

Ideally, the 'up to date' measure should include a full array of services recommended by the USPTF and the ACIP. The Agency for Healthcare Research and Quality (AHRQ) is providing leadership to the development of a set of measures on clinical preventive services for adults aged 50 years or over.[28]

Broadening the delivery of vaccinations and screenings: opportunities and challenges

Health care coverage for older adults is almost universal, due to the Medicare programme enacted in 1965.[29] In 2008, Medicare covered nearly 45 million Americans[30] – mainly adults ages 65 and older. Medicare's commitment to providing preventive care to the nation's older population was strengthened in 2010 by the Patient Protection and Affordable Care Act (Affordable Care Act or ACA),[31] by eliminating cost-sharing requirements for certain clinical preventive services ranked 'A' or 'B' by the USPSTF. Moreover, ACA's provision for a new annual wellness visit for Medicare beneficiaries includes a tailored assessment of prevention recommendations for individual enrollees.

Although vaccinations are frequently delivered by health care organizations (visiting nurse agencies, pharmacies and for-profit companies) and local public health authorities, the provision of most preventive services falls primarily to work done in clinical settings. There have been ongoing efforts to introduce clinical system enhancements that dependably prompt patients and providers to adhere to preventive service recommendations. As early as 1994, the US Public Health Services' Office of Disease Prevention and Health Promotion launched the initiative *Put Prevention into Practice* to make practice guidelines and tools available to physicians to facilitate their delivery of preventive services in clinical settings.[32]

The expansion of electronic medical record databases and the increased linkages between patients, clinicians, health care systems and community-based services are at the core of efforts to improve the health information infrastructure. Such technology enhancements are critical to improving the quality, efficiency and patient-centredness of care,[33] and health information exchanges are designed to improve the capability to electronically move clinical data among disparate systems while maintaining the confidentiality of the information being exchanged.[34] Furthermore, health information organizations have been expanding their networks to include public health departments. Shapiro and colleagues describe potential applications to public health, wherein public health is directly responsible for providing health care for certain conditions as well as for tracking the delivery of clinical preventive services in neighbourhood settings, outside of the closed health care delivery system.[35] The *State Health Information Exchange Cooperative Agreement Program* is currently providing funding for states to rapidly build capacity for exchanging health information at both the state and regional level.[36]

Another promising area is the development of personal health records that interface with the electronic health records used by health care systems.[37] This type of technology is being used in health systems such as *Partners Health Care* in Massachusetts and offers the potential for consumers to record in their personal health record the screenings and vaccinations they have obtained outside of the system, and for this information to be transferred to their electronic health record. Barriers to the use of such technologies include the capital costs to develop these systems, inconsistencies across vendors limiting their interoperability, as well as data privacy concerns. In addition, access to such services may result in increased racial and ethnic disparities because such technology may not be equally available due to the economic differences between communities.[38]

Promoting clinical and community integration

To further acknowledge and reinforce the value of prevention, the ACA called for the development of the first-ever *National Prevention and Health Promotion Strategy* (National Prevention Strategy). One of the cornerstones of the National Prevention Strategy, issued in 2011, is a focus on clinical and community preventive services with the goal to 'ensure that prevention-focused health care and community prevention efforts are available, integrated, and mutually reinforcing. The provision of evidence-based clinical and community preventive services and the integration of these activities are central to improving and enhancing physical and mental health.'[8]

As the National Prevention Strategy notes, some elements of improved integration of activities between medicine and public health can begin in the clinical setting. For example, if the clinician counsels a patient to stop smoking and prescribes an appropriate nicotine substitute, the patient might also be referred to a community 'quit line'. Appropriate referrals can also be made to other community-based resources, such as chronic disease management programmes that focus on blood pressure, diabetes and cholesterol control.[8,39]

Another promising approach involves delivering amenable services in non-traditional settings. Special work sites, school sites and even polling places can provide convenient points of care for traditional populations that have yet to be reached.[11,40–42] Additionally, community-based programmes can serve as conveners to ensure that people are linked by appointments to appropriate clinical settings for delivery of preventive services (e.g. mammography[43] and colorectal cancer screening[44]). Voluntary health organizations, including the American Cancer Society and American Heart Association, have played important roles in overcoming barriers to increase uptake of preventive services. In the USA, more than 12,000 community members are working in schools, work sites, faith- and community-based organizations, clinics and hospitals to provide peer-to-peer support that increases access to health information, supports behaviour change, and improves access to care.[45,46]

Although most of these efforts are focused on the delivery of a single type of clinical preventive service, a recent review revealed several promising models for increasing the use of multiple preventive services.[41] For example, Sickness Prevention Achieved through Regional Collaboration (SPARC) is a community-based collaborative model for delivering two or more preventive services as a 'bundle' in accessible community sites.[47] The responsible 'convening agency' establishes strong partnerships between community organizations and clinical providers for vaccinations, screenings and follow-up care. Increases in the use of specific preventive services have been documented.[42,48]

As creative models continue to be tested, the need for detailed local data on their implementation and impact becomes critical. Considerable progress has been made to increase the accuracy of local information, for example through the BRFSS metropolitan and micropolitan statistical areas.[49] However, policies and new technologies are needed to help improve timely access to administrative and records data, along with advancement in the ways in which data are collected, managed, accessed and shared.

Conclusion

Improving the delivery of vaccinations and screenings to older Americans remains an important US public health and policy challenge. This goal is one element in a comprehensive set of national strategies to effectively and systematically reduce the impact of disease on a rapidly ageing population. Although clinical preventive services are covered by Medicare – and there is a broad consensus among health professions that they are of benefit – no more than half of the adult population aged 65 and older receives the full protection conferred by a core set of services. Successfully tackling this challenge will require more innovation, more translation of promising research into public health practice,

better health promotion, and fuller deployment of model programmes that can create ‘prevention zones’ in which clinical and community services are accessible and fully integrated. Such efforts will be particularly important in underserved communities. For the US health system to truly protect the health of older Americans and change the projected trajectory of medical costs, expanded delivery of recommended vaccinations and disease screenings must remain a focus for both medicine and public health.

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Table 1

Clinical preventive services for adults age 50 and older, recommended based on age and gender*

Preventive service	Recommendation
Influenza vaccine†	All persons six months and older should receive one dose annually.
Pneumococcal vaccine†	All persons age 65 and older should receive one dose of the pneumococcal vaccine, including previously unvaccinated persons and persons who have not received vaccine within five years (and were less than 65 years of age at the time of vaccination). All persons in this age category who have unknown vaccination status should receive one dose of vaccine.
Tetanus-diphtheria booster	All adults should receive one dose every 10 years.
Varicella vaccine	All adults without evidence of immunity (documentation of previous immunization or a history of varicella/chickenpox) should receive two doses.
Zoster vaccine	All adults age 60 and older should receive one dose.
Alcohol misuse screening and counselling	All adults age 50 and older.
Aspirin prophylaxis	Men aged 45–79 and women aged 55–79, when the benefit of aspirin prophylaxis is likely to exceed the risk.
Blood pressure screening	All adults age 18 and older should have their blood pressure checked. A recommended screening interval is every two years in persons with blood pressure less than 120/80 mm Hg; every year with systolic blood pressure of 120–139 mm Hg or diastolic blood pressure of 80–89 mm Hg.
Breast cancer screening†	All women, beginning at age 50 and continuing until age 74, should have a mammogram every two years.
Cervical cancer screening†	All women who have been sexually active should receive screening, if they have a cervix. Women older than age 65 do not need routine screening if they have had recent screenings with normal results and are not otherwise at high risk for cervical cancer.
Cholesterol screening	All men age 35 and older should be screened. A recommended screening interval is every five years, but shorter for adults who have lipid levels close to patients warranting therapy, and longer for adults who have had repeatedly normal lipid levels.
Colorectal cancer screening†	All adults, beginning at age 50 years and continuing until age 75, should receive screening for colorectal cancer using faecal occult blood testing, sigmoidoscopy or colonoscopy. Evidence suggests a maximal benefit from screening every 10 years.
Depression screening	All adults age 18 and older when staff-assisted support is in place.
Obesity screening and counselling	All adults.
Osteoporosis screening	All women age 65 years or older and in younger women whose fracture risk is equal to or greater than that of a 65-year-old white woman who has no additional risk factors.
Tobacco screening and counselling	All adults

*Each of these clinical preventive services is rated at the ‘A’ (highly recommended) or ‘B’ (recommended) level by the US Preventive Services Task Force (USPSTF) or by the Advisory Committee on Immunization Practices (ACIP).

†Included in the *Healthy People 2020* national health objectives ‘up to date’ measure for older adults.