THE NATIONAL VACCINE PROGRAM OFFICE

NATIONAL ADULT IMMUNIZATION PLAN

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

EXECUTIVE SUMMARY

Vaccination is considered one of the most important public health achievements of the 20th century and continues to offer great promise in the 21st century. Vaccines save lives and improve the quality of life by preventing serious infectious diseases and their consequences. However, the benefits of vaccination are not realized equally across the U.S. population. Adult vaccination rates remain low in the United States, and significant racial and ethnic disparities also exist.

The U.S. Department of Health and Human Services National Vaccine Plan (NVP), released in 2010, is a road map for vaccines and immunization programs for the decade 2010–2020. While the NVP provides a vision for improving protection from vaccine- preventable diseases across the lifespan, vaccination coverage levels among adults are not on track to meet Healthy People 2020 targets. The National Vaccine Advisory Committee and numerous stakeholder groups have emphasized the need for focused attention on *adult vaccines and vaccination.*[1] The National Adult Immunization Plan (NAIP) outlined here results from the recognition that progress has been slow and that there is a need for a national adult immunization strategic plan.

As a national plan, the NAIP will require engagement from a wide range of stakeholders to achieve its full vision. The plan emphasizes collaboration and prioritization of efforts that will have the greatest impact. The NAIP also aims to leverage the unique opportunity presented by the implementation of the Affordable Care Act.

The NAIP is intended to facilitate coordinated action by federal and nonfederal partners to protect public health and achieve optimal prevention of infectious diseases and their consequences through vaccination of adults. The NAIP includes indicators to draw attention to and track progress against core goals. These indicators will measure progress against set standards and inform future implementation and quality improvement efforts. The plan establishes four key goals, each of which is supported by objectives and strategies to guide implementation through 2020:

Goal 1: Strengthen the adult immunization infrastructure.
Goal 2: Improve access to adult vaccines.
Goal 3: Increase community demand for adult immunizations.
Goal 4: Foster innovation in adult vaccine development and vaccination-related technologies.

Achieving the goals of the NAIP is facilitated by agreement on plan priorities and coordination of the wide range of programs that support them. The Assistant Secretary for Health serves as the director of the National Vaccine Program and will lead the NAIP and its implementation. In support of this mission, the National Vaccine Program Office will facilitate collaboration and coordinate the monitoring of progress for the NAIP.

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ABBREVIATIONS

Abbreviation	Definition
ACF	Administration for Children and Families
ACIP	Advisory Committee on Immunization Practices
ACL	Administration for Community Living
AHRQ	Agency for Healthcare Research and Quality
AITF	Interagency Adult Immunization Task Force
ASH	Assistant Secretary for Health
ASPE	Assistant Secretary for Planning and Evaluation
ASPR	Assistant Secretary for Preparedness and Response
BARDA	Biomedical Advanced Research and Development Authority
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare & Medicaid Services
DHS	U.S. Department of Homeland Security
DoD	U.S. Department of Defense
EHR	electronic health record
FDA	U.S. Food and Drug Administration
FOH	Federal Occupational Health
HHS	U.S. Department of Health and Human Services
HPV	human papilloma virus
HRSA	Health Resources and Services Administration
IHS	Indian Health Service
IID	Immunization and Infectious Diseases
IIS	immunization information systems
IT	information technology
NAIP	National Adult Immunization Plan
NIH	National Institutes of Health
NVAC	National Vaccine Advisory Committee
NVP	National Vaccine Plan
NVPO	National Vaccine Program Office
OASH	Office of the Assistant Secretary for Health
OMH	Office of Minority Health
ONC	Office of the National Coordinator for Health Information Technology
OWH	Office on Women's Health
RHA	Regional Health Administrator
Tdap	tetanus, diphtheria, and pertussis
VA	U.S. Department of Veterans Affairs
VAERS	Vaccine Adverse Event Reporting System
VFC	Vaccines for Children program
VICP	National Vaccine Injury Compensation Program

INTRODUCTION

Despite the widespread availability of safe and effective vaccines, adult vaccination rates remain low in the United States and far below Healthy People 2020 targets.[2,3] Vaccine-preventable diseases take a heavy toll on adults age 18 and older. The health and productivity costs of influenza alone are estimated to be as high as $87 billion per year.[4] The Centers for Disease Control and Prevention (CDC) estimates that, among U.S. adults, each year there are roughly 40,000 cases and 4,000 deaths attributable to invasive pneumococcal disease,[5] between 3,000 and 49,000 deaths due to seasonal influenza,[6] 9,000 reported cases of pertussis,[7] approximately 3,000 reported cases of acute hepatitis B,[8] and about one million cases of herpes zoster.[9] Adults have been directly affected in recent outbreaks of vaccine-preventable diseases, such as measles. Unvaccinated adults have also unknowingly spread vaccine-preventable diseases (e.g., to small children who are too young to be immunized); thus, limited vaccination of adults not only impacts adults directly but also has consequences for their families and communities. With the aging of the U.S. population, the public health impact of vaccine-preventable diseases and their complications in adults is likely to grow. The diminishing function of the aging immune system reduces the immune response to vaccination and underscores the need to develop more effective products for older adults.[10]

The CDC and its Advisory Committee on Immunization Practices (ACIP) currently recommend 13 different vaccines for adults age 18 and older to prevent a host of diseases (Appendix 1).[10] The adult vaccine schedule, which was first published in 2002, now includes vaccines that are universally recommended (e.g., influenza), those that are recommended for certain age groups (e.g., human papilloma virus [HPV]), and those that are targeted to individuals with specific risk factors (e.g., hepatitis A and B).[1,10] The adult schedule also includes catch-up vaccinations for those adults who never initiated or did not complete a multidose series when vaccination was first recommended during childhood. Catch-up vaccinations include such vaccines as measles, mumps, and rubella and varicella, which are routinely recommended for administration during childhood.

As shown in Table 1, despite the health benefits that result from implementation of ACIP/CDC recommendations, adults continue to be vaccinated at low and variable rates. In contrast, childhood vaccination rates in the United States typically exceed 90 percent. The success of childhood vaccination can be attributed to many factors unique to pediatric vaccination, such as state laws requiring vaccination for school entry and the coordinated public health infrastructure established by the Vaccines for Children program (VFC), a federally funded program to provide free vaccines to children who are

eligible for Medicaid, uninsured, underinsured, or American Indian or Alaska Native.[11] Another reason for the high rates of vaccination among children is that pediatricians and family physicians, the primary providers of health care and preventive health services for children, have long been committed to making immunization a core part of well-child care. For adults, chronic diseases and screenings for cancer, blood pressure, and cholesterol have historically been the primary focus of acute health care and preventive health services, respectively.[1] As a result, vaccinations are emphasized less and are underutilized in the adult population.

TABLE 1. HEALTHY PEOPLE OBJECTIVES SPECIFIC TO ADULT VACCINATION, 2013 COVERAGE AND 2020 TARGETS

Objective IID-12: Increase the percentage of	2013 Percentage	2020 Target Percentage*
Adults age >18 years	39†	70
Health care personnel	62‡	90
Pregnant women	52§	No target, in development

Objective IID-13: Increase the percentage of adults who are vaccinated against pneumococcal disease.	2013 Percentage	2020 Target Percentage**
Noninstitutionalized adults age >65 years	60††	90
Noninstitutionalized high-risk adults age 18– 64 years	21‡‡	60

Healthy People 2020.[2]

† National Health Interview Survey, as reported by Healthy People 2020.[2]

‡ National Health Interview Survey, as reported by Healthy People 2020.[2]

§ Ding (2014).[12] The most recent published statistics are for the 2013–2014 influenza season; the estimate is from an Internet panel survey. The study sample did not include women without Internet access; results might not be generalizable to all pregnant women in the United States. Also, the estimate might be biased if the selection processes for entry into the Internet panel and a woman's decision to participate in this survey were related to receipt of vaccination.

** Healthy People 2020.[2]

†† National Health Interview Survey (2013).[3]

‡‡ National Health Interview Survey (2013).[3]

Objective IID-13: Increase the percentage of adults who are vaccinated against pneumococcal disease.	2013 Percentage	2020 Target Percentage**
Institutionalized adults age >18 years in long-term care or nursing homes	66§§	90

Objective IID-14: Increase the percentage of adults age >60 who are vaccinated against zoster (shingles).	2013 Percentage	2020 Target Percentage***
Adults age >60 years	24†††	30

Objective IID-15: Increase hepatitis B vaccine coverage among high-risk populations.	2013 Percentage	2020 Target Percentage‡‡‡
Health care personnel age >19 years	64§§§	90

Notes: IID = Immunization and Infectious Diseases. The objective for influenza vaccination for pregnant women is developmental, and no target has been set. Some, but not all, of the ACIP/CDC-recommended vaccines are included in the Healthy People 2020 objectives.

In addition to achieving higher vaccination rates, the childhood vaccination program in the United States has been largely successful at reducing or eliminating racial and ethnic disparities in vaccination coverage. As a result of multiple interventions and programs implemented over the past two decades, including the VFC, disparities in vaccination coverage have dramatically declined between non-Hispanic white children and children of other racial and ethnic groups.[11] In contrast, various racial and ethnic minority adults (e.g., Blacks, Hispanics) receive recommended vaccinations at rates far below those of whites.[13] Appendix 2 shows the disparities in immunization rates for several racial and ethnic groups.

§§ Minimum Data Set data from 2005–2006, as reported by Healthy People 2020.[2]

*** Healthy People 2020.[2]

††† National Health Interview Survey (2013).[3]

‡‡‡ Healthy People 2020.[2]

§§§ National Health Interview Survey data from 2008, as reported by Healthy People 2020.[2]

Barriers to Adult Immunization

Numerous barriers must be addressed to make significant progress in adult vaccination, meet Healthy People 2020 objectives, and eliminate disparities. Barriers that are consistently highlighted by stakeholder groups and the research community include the following:

- Lack of coordination of adult immunization activities across all stakeholders, including multiple health care providers for adults[1]
- Lack of integration of vaccines into adult medical care[1]
- Lack or underuse of administrative systems (e.g., immunization information systems [IIS]) for documenting vaccination histories and identifying patients who are due for vaccinations in medical records[14,15]
- Skepticism regarding vaccine safety and effectiveness[1]
- Inability to pay for vaccination as a result of lack of insurance or variable coverage for recommended vaccinations across health plans[1,14]
- Provider concerns about reimbursement and vaccine administration fees paid by health insurers, which discourages some providers from stocking all adult vaccines[14,16,17]
- Lack of public knowledge regarding the adult immunization schedule and the risks and consequences of vaccine-preventable diseases; lack of awareness that adults are supposed to receive vaccines other than the influenza vaccine[1]
- Legal barriers at the state and federal levels (e.g., restricting which providers can administer vaccines) [1]
- Lack of and/or weak recommendations by health care providers[1,14]
- Limited use of evidence-based strategies to improve vaccine uptake, such as reminder-recall and related systems[18]
- Conflicting and inaccurate information about immunizations in mass media.[1,19]

The National Adult Immunization Plan (NAIP) was developed to help address these barriers, as well as other persistent challenges, through coordinated action.

Opportunities in the Changing Policy Landscape

The NAIP builds on work that has been completed, or is under way, for adult immunization and advances priorities that reflect the changing landscape of health care and preventive health services as a result of Affordable Care Act implementation.

There have been several important developments in recent years that provide context for the development and implementation of the NAIP at this time.

In 2012, the National Vaccine Advisory Committee (NVAC) published A Pathway to Leadership for Adult Immunization, which outlined three recommendations to the Assistant Secretary for Health (ASH) to support a NAIP: national leadership, allocation of resources, and the development of a strategic plan for the adult immunization program.[1]

- In 2014, NVAC again served in an advisory capacity and published updated Standards for Adult Immunization Practice to emphasize that all providers who care for adults are responsible for assessing immunization needs at every clinical encounter, strongly recommending needed vaccines, administering recommended vaccines, and documenting receipt in a state immunization information system. The standards, which have been endorsed by the U.S. Department of Health and Human Services (HHS), also instruct providers who do not vaccinate to refer adult patients to providers who administer vaccinations.[20]
- In 2012, the first annual National Adult and Influenza Immunization Summit was convened. The summit brings together public and private stakeholders involved in adult immunization and provides a forum to share new ideas and information and identify actions to increase adult vaccination rates for ACIP/CDC-recommended vaccines.[21]

In addition, passage of the Affordable Care Act in 2010 was an important milestone for adult vaccination in the United States. The Affordable Care Act expanded access to health insurance to millions of previously uninsured or underinsured Americans and required that certain recommended clinical preventive services, including routine vaccines, be covered without cost-sharing to individuals enrolled in most private health insurance plans and those who obtained Medicaid coverage through Medicaid expansion. Coverage of vaccinations did not change for individuals enrolled in Medicare and traditional Medicaid plans. An estimated 17.6 million Americans have gained health insurance since the first open enrollment period in the fall of 2013.[22] Furthermore, about 137 million individuals have private insurance coverage of preventive services without cost-sharing.[23] At the state level, the Affordable Care Act also authorizes use of funds for purchase of vaccines for adults at federally negotiated prices. Although the full impact of the Affordable Care Act is yet to be determined, it is anticipated that it will eliminate some of the financial barriers to adult vaccination.

While the Affordable Care Act represents an important step forward for adult vaccination, some challenges remain. For example, people who continue to lack health insurance (e.g., uninsured non-U.S. citizens, low-income individuals in states that have not expanded Medicaid to cover people with annual incomes of up to 133 percent of the federal poverty level) may continue to have difficulty accessing and paying for recommended vaccinations.

Furthermore, some Medicare beneficiaries may encounter financial barriers when accessing vaccines covered by Medicare Part D (e.g., herpes zoster and tetanus, diphtheria, and pertussis [Tdap] vaccines). Medicare Part B covers three preventive vaccines without cost-sharing (influenza, pneumococcal, and hepatitis B vaccines), as well as select vaccines directly related to the treatment of an injury or disease exposure; however, cost-sharing for vaccines covered under Medicare Part D (e.g., herpes zoster) varies widely from plan to plan and may discourage uptake among some beneficiaries. In a 2011 report, the U.S. Government Accountability Office noted that some stakeholders have raised concerns about the administrative challenges associated with Part D and recommended actions to improve access to Part D vaccinations.[24] The Centers for Medicare & Medicaid Services (CMS) has issued guidance on a number of approaches to help address administrative challenges, but stakeholders report that additional steps are needed.

PURPOSE AND LEADERSHIP OF THE NATIONAL ADULT IMMUNIZATION PLAN

To address ongoing barriers as well as new challenges, the NAIP is intended to promote coordinated planning and action across all stakeholder groups, including those within and outside the U.S. government. It provides direction by establishing a vision, four goals, 16 objectives, and numerous strategies to promote action through 2020.

The vision for adult immunization is to protect the public health and achieve optimal prevention of infectious diseases and their consequences through vaccination of all adults.

The goals are as follows:

Goal 1: Strengthen the adult immunization infrastructure.
Goal 2: Improve access to adult vaccines.
Goal 3: Increase community demand for adult immunizations.
Goal 4: Foster innovation in adult vaccine development and vaccination-related technologies.

Under each goal is a set of objectives to steer improvement efforts within functional areas critical to achieving each goal. Within these objectives, the NAIP identifies key strategies to guide implementation through 2020. The strategies encourage focused attention on areas that can have the greatest impact toward achieving the vision of a robust immunization system that will improve adult health by protecting adults against vaccine-preventable diseases and their complications. While the plan contains a list of strategies, it should be noted that many of the strategies are interdependent, and, as such, the appropriate sequencing of particular strategies is a key challenge for implementation. For example, before generating community-wide demand (Goal 3), it will be necessary to enhance the adult immunization infrastructure and remove access barriers (Goals 1–2) to ensure that the delivery system has sufficient capacity to serve a larger number of adults.

While there is recognition of the challenges facing adult vaccination, NAIP goals can be achieved through national leadership and collaboration among the many stakeholders who comprise the adult immunization system. National leadership is critical to focus our nation on disease prevention and to catalyze action to strengthen the vaccination delivery system across the country. The Office of the Assistant Secretary for Healt

(OASH), within HHS, is a strong advocate for the importance of adult immunization. The ASH serves as the director of the National Vaccine Program and will lead the NAIP and its implementation. In support of this mission, the National Vaccine Program Office (NVPO) within HHS will facilitate collaboration and coordinate the monitoring of progress for the NAIP, which will be reviewed annually by the ASH and the National Vaccine Advisory Committee (NVAC).

While federal leadership and the alignment of federal activities are critical to implementing this plan, participation by diverse stakeholders is necessary for the NAIP to realize its potential. The NAIP is a national rather than federal plan and thus calls for the coordinated action of governmental and nongovernmental partners. The success of this plan depends on state, local, territorial, and tribal governments; health care providers; professional associations; advocacy groups; vaccine manufacturers; academia and research organizations; payers and health plans; employers; and the general public working together to overcome barriers and improve access to adult vaccinations. Table 2 outlines some of the stakeholder groups that will be a part of plan implementation.

TABLE 2. NATIONAL ADULT IMMUNIZATION PLAN: FEDERAL AND NONFEDERAL STAKEHOLDERS	
Stakeholder Category	**Agency/Entity**
Federal government, HHS agencies	Administration for Community Living, Administration for Children and Families, Agency for Healthcare Research and Quality, Centers for Disease Control and Prevention, Centers for Medicare & Medicaid Services, U.S. Food and Drug Administration, Health Resources and Services Administration, Indian Health Service, National Institutes of Health, Office of the Assistant Secretary for Public Affairs, Office of the Assistant Secretary for Planning and Evaluation, Office of the Assistant Secretary for Preparedness and Response, Office of Global Affairs, Office of Minority Health, Office of the National Coordinator for Health Information Technology, Partnership Center, Office of the Assistant Secretary for Health, Office of Disease Prevention and Health Promotion, Office on Women's Health, Office of Adolescent Health, Regional Health Administrators
Federal government, other departments/agencies	Department of Defense, Department of Homeland Security, Department of Veterans Affairs, Department of Justice, Federal Occupational Health, Office of Personnel Management
Government, nonfederal	State, territorial, tribal, and local public health agencies and governments

Nongovernmental stakeholders	Academia/research organizations, health care providers, vaccine industry, health care systems, community immunizers, professional associations, payers and plans, employers, foundations, schools and training programs, community and patient advocacy organizations, philanthropic organizations, adult immunization coalitions, and the general public

DEVELOPMENT OF THE NATIONAL ADULT IMMUNIZATION PLAN

Lack of sufficient progress in increasing adult immunization rates coupled with the ASH's consideration of NVAC's recommendation led to the development of the NAIP.[1] The plan was drafted after deliberation, analysis, and input from a broad range of stakeholders, including health care providers; professional and advocacy organizations; federal, state, local, tribal, and territorial governments; researchers; health insurers; employers; vaccine manufacturers; and members of the general public. The RAND Corporation was enlisted to conduct an environmental scan, engage stakeholders, and collect data to identify plan priorities and key indicators.

Environmental Scan

The first step in developing the plan was to develop a comprehensive environmental scan and review all prior recommendations and reports on adult vaccination from 2005 to 2015. Numerous stakeholder groups have issued reports in recent years calling for action to improve adult vaccination.[14–16,25–31] These reports inventory past successes, ongoing barriers, and potential opportunities to improve adult vaccination and recommend actions to be taken by government agencies, health insurers, community vaccinators, and others to raise adult vaccination rates. The environmental scan identified both best practices and potential actions for strengthening adult vaccination. These actions were assessed for continued relevance in the current policy environment, and the chosen actions were organized by plan goal and objective.

Stakeholder Engagement

The second step in the process was robust stakeholder engagement. First, a survey was fielded to 96 respondents representing a range of stakeholder groups, such as health departments, payers, employers, research organizations, professional associations, and health care providers. Then, eight focus groups with a total of 90 participants were convened to review survey results. Lastly, in-depth interviews were conducted with dozens of governmental and nongovernmental subject matter experts. Stakeholders were asked to assess and prioritize actions identified in the environmental scan, as well as to identify any new actions.

Measuring Progress: Indicator Development

Once a final set of actions was identified, stakeholders were also asked to identify and prioritize indicators to track progress on plan goals and objectives and set ambitious yet attainable milestones for 2020, using a target-setting method consistent with Healthy People 2020. If a target had already been set by an existing policy or program, that target was adopted. In cases in which no target existed, stakeholders discussed trend data and determined target levels by consensus.

Following a number of stakeholder engagements, a draft plan was released for public comment through a notice in the Federal Register. The final NAIP reflects the input of the full range of stakeholders in the adult vaccine system in the United States.

Alignment with Existing HHS Programs and Plans

In developing the plan, care was taken to align with numerous HHS programs and plans, including the National Vaccine Plan (NVP), Healthy People 2020, the National Prevention Strategy, and the HHS Strategic Plan. These initiatives all contain specific objectives and indicators related to strengthening adult vaccination, including the following:

- Healthy People 2020: Healthy People 2020 includes four objectives related to improving vaccination coverage among adults within the topic of immunizations and infectious diseases and one within the topic of older adults. The NAIP supports the achievement of the adult vaccination targets specified in Healthy People 2020.
- National Prevention Strategy: The National Prevention Strategy emphasizes the importance of adult vaccination and other preventive services for increasing the number of Americans who are healthy at every stage of life.
- HHS Strategic Plan: One of the objectives of the HHS Strategic Plan is to reduce the occurrence of infectious diseases, including vaccine-preventable diseases. The HHS Strategic Plan includes a specific strategy to remove financial and other barriers to routine vaccination for adults, which is also a major focus of the NAIP.
- National Quality Strategy: Established as part of the Affordable Care Act, the National Quality Strategy focuses nationwide quality improvement and measurement efforts on six priorities, including working with communities to

promote wide use of best practices to enable healthy living. This priority encourages the adoption of recommended clinical preventive services for adults, such as vaccination.

- HHS Action Plan to Reduce Racial and Ethnic Health Disparities: The HHS Action Plan to Reduce Racial and Ethnic Health Disparities includes a measure to increase the percentage of racial and ethnic minority populations who receive the seasonal influenza vaccination.
- National Vaccine Plan: The 2010 NVP provides a guiding vision for vaccination for the decade 2010–2020 and strategic direction for coordination of the immunization system in the United States. The NAIP supports and can be described as being nested within the NVP, which is the road map for the broader set of efforts seeking to prevent serious infectious diseases and their complications through vaccination.

The NAIP was also designed to highlight areas of adult immunization that are addressed in a more focused and detailed manner by other efforts. While the NAIP provides a framework for approaching adult vaccination, there are unique issues for certain populations, such as pregnant women, that require focused attention:

- The NVAC Standards for Adult Immunization Practice, released in 2014, provide guidance for health care providers representing both traditional and complementary settings for vaccination of adults on how to implement many of the priorities in the plan.[20]
- The Community Guide to Preventive Services reviews the evidence for potential interventions and strategies to promote the use of screening, counseling, and other preventive services typically delivered in primary care settings. The Community Guide includes 13 recommendations on vaccination strategies and identifies five areas in which there is insufficient evidence.[32]
- NVAC also advises the ASH regarding strategies to improve vaccination for specific subgroups of adults, such as health care workers and pregnant women, by offering evidence-based strategies for overcoming patient and provider barriers that continue to hinder uptake of recommended vaccines in this population. In addition, NVAC provides forward-looking analyses to identify barriers and challenges to research and development of new vaccines specifically for pregnant women.[33] These analyses and resulting recommendations help guide efforts to expand the potential of vaccines to protect pregnant women and their infants.

NAIP GOALS, OBJECTIVES, AND STRATEGIES

This section presents the goals, objectives, and strategies that compose the NAIP. The activities outlined here will guide federal adult immunization efforts in collaboration with nonfederal partners in the upcoming years to advance strategic goals and supporting objectives. For each objective, the key federal agencies and nonfederal partners with relevant roles and responsibilities are presented in Appendix 4.

While all of the goals, objectives, and strategies are important for advancing adult immunization, the NAIP's priorities are captured by the plan performance indicators in Table 3. In many cases, progress on the performance indicators (e.g., adult vaccination rates) requires action on multiple objectives and strategies; thus, the indicators serve as a barometer for what is happening across the adult immunization system.

GOAL 1: STRENGTHEN THE ADULT IMMUNIZATION INFRASTRUCTURE

The adult immunization infrastructure in the United States is complex and multifaceted, consisting of numerous components with unique functions. While all the goals of the NAIP feature objectives that impact critical aspects of the infrastructure or interdependencies among system components, Goal 1 of the NAIP focuses on high level issues with the potential to have significant impact on adult vaccination rates in the next several years. One example is the increasing importance of health IT and the need for systems and providers to be able to exchange accurate, timely information. Goal 1 represents a commitment to strengthen the adult immunization infrastructure by improving and leveraging elements that already exist, rather than creating new systems, programs, and entities.

GOAL 1 OBJECTIVES

GOAL 1 INCLUDES SIX OBJECTIVES TO STRENGTHEN THE ADULT IMMUNIZATION INFRASTRUCTURE:					
GOAL 1 OBJECTIVE 1.1	**GOAL 1 OBJECTIVE 1.2**	**GOAL 1 OBJECTIVE 1.3**	**GOAL 1 OBJECTIVE 1.4**	**GOAL 1 OBJECTIVE 1.5**	**GOAL 1 OBJECTIVE 1.6**
Monitor and report trends in adult vaccine-preventable disease levels and vaccination coverage data for all ACIP/CDC-recommended vaccines. In cases where there are associated Healthy People 2020 goals, measure progress toward established targets.	Enhance current vaccine safety monitoring systems and develop new methods to accurately and more rapidly assess vaccine safety and effectiveness in adult subpopulations (e.g., pregnant women).	Continue to analyze claims filed as part of the National Vaccine Injury Compensation Program (VICP) to assess whether there was an association between vaccines that a claimant received and adverse events experienced.	Increase the use of electronic health records (EHRs) and immunization information systems (IIS) to collect and track adult immunization data.	Evaluate and advance targeted quality improvement initiatives.	Generate and disseminate evidence about the health and economic impact of adult immunization, including potential diseases averted and cost-effectiveness with the use of current vaccines.

Objective 1.1:
Monitor and report trends in adult vaccine-preventable disease levels and vaccination coverage data for all ACIP/CDC-recommended vaccines. In cases where there are associated Healthy People 2020 goals, measure progress toward established targets.

Translating vaccination policy into health outcomes depends on strong public health surveillance to evaluate the impact of adult vaccinations on vaccine-preventable diseases. Surveillance also provides needed data to assess progress on plan indicators, including the impact of activities on racial and ethnic disparities.

1.1.1 Evaluate the impact of adult vaccination on morbidity and mortality, with special emphasis on vulnerable populations (e.g., older adults and adults with chronic conditions, such as diabetes, heart disease, immune

compromising conditions, and stroke) where feasible.

1.1.2 Identify coverage gaps and disparities among racial and ethnic minorities and develop targeted strategies to reduce disparities.

1.1.3 Improve methods to verify vaccination coverage status.

1.1.4 Identify efficiencies to improve adult immunization delivery by encouraging greater use and increased functionality of existing systems (e.g., state and local IIS).

Objective 1.2:
Enhance current vaccine safety monitoring systems and develop new methods to accurately and more rapidly assess vaccine safety and effectiveness in adult subpopulations (e.g., pregnant women).

Vaccines have a long track record of safety and effectiveness in adults, yet there is a need to ensure that, when recommended and used broadly, vaccines perform as would be expected from the clinical trials that led to their licensure. In addition, there is a need to closely monitor vaccine safety and effectiveness in adult populations after new vaccines are licensed, when licensed vaccines are recommended for new populations, or when vaccines are used as part of the response to a public health emergency (e.g., an influenza pandemic). Vaccine safety and effectiveness monitoring is important not only for public health, but also to ensure public confidence in vaccines.

The federal vaccine safety systems include, for example, the Vaccine Adverse Event Reporting System (VAERS) co-sponsored by CDC and the Food and Drug Administration (FDA), CDC's Vaccine Safety Datalink (VSD) and Clinical Immunization Safety Assessment, FDA's Post-Licensure Rapid Immunization Safety Monitoring System, and the Vaccine Injury Compensation Program and the Countermeasures Injury Compensation Program, which are administered by the Health Resources and Services Administration (HRSA). Vaccine safety monitoring is not limited to the federal government, however, and a variety of nonfederal entities, including manufacturers and academia, are active in this arena.

1.2.1 Increase awareness of the federal vaccine safety systems among adult health care providers who vaccinate the public.

1.2.2 Increase the percentage of adult vaccination providers and patients that report adverse events into VAERS.

1.2.3 Support improved online reporting interfaces (e.g., VAERS) to facilitate the electronic submission of adverse event reports that occur after the administration of vaccines.

1.2.4 Improve the timeliness and precision of vaccine effectiveness assessments.

1.2.5 Encourage use of clinical research and population-based epidemiologic studies for vaccine safety and effectiveness monitoring among vaccinated

adults.

1.2.6 Encourage greater use of EHRs and IIS to more rapidly identify persons who may be impacted when a safety concern has been raised about a particular vaccine or vaccine lot.

1.2.7 Determine the data needs to monitor vaccine safety and effectiveness in pregnant women and newborns and the ability of these systems to capture relevant data.

Objective 1.3:
Continue to analyze claims files as part of the National Vaccine Injury Compensation Program (VICP) to assess whether there was an association between vaccines that a claimant received and adverse events experienced.

The VICP was established in 1988 to provide compensation to individuals, including adults, thought to have been injured or whose death was thought to have been related to receiving certain vaccines. While adverse events following vaccination are extremely rare, the VICP provides a no-fault alternative to the traditional tort system for resolving vaccine injury claims. This program is instrumental in helping to ensure an adequate supply of vaccines, encourage innovation, and stabilize vaccine costs by establishing and maintaining an accessible and efficient forum for individuals thought to be injured by select vaccines.

1.3.1 Review the latest medical and scientific literature for evidence of associations between vaccines and adverse events when reviewing claims.

Objective 1.4:
Increase the use of electronic health records (EHRs) and immunization information systems (IIS) to collect and track adult immunization data.

While IIS have the potential to act as a centralized repository of adult vaccination records, the maturation of EHRs, IIS, and interoperability will also play a critical role in ensuring coordination of adult vaccination activities and improving coverage.[34] A centralized source of vaccination information is especially critical for adults who see variety of providers and receive vaccinations in a variety of settings (e.g., medical settings, workplaces, schools, colleges, universities, pharmacies).

Many adult vaccination improvements are dependent on or would be accelerated by better data exchange, and interoperability between EHRs and IIS facilitates better health outcomes.

In order to achieve these outcomes, EHRs must be able to electronically send data to IIS and to receive consolidated histories and forecasts from IIS in a secure manner.

EHRs also must be able to reconcile a patient's history and forecast what might be needed to ensure that the appropriate vaccines are given at the right times. Information technology enhancements can lead to better recordkeeping and submission to IIS that addresses the barrier of unknown vaccination history, avoids the administration of duplicate doses of vaccine, and helps ensure that opportunities for vaccination are not missed. EHR and IIS-related strategies include the following:

1.4.1 Increase the ability of EHRs to generate a query using nationally accepted standards and accept a standardized immunization history and forecast, consistent with the objectives and measures set forth in rulemaking for the Medicare and Medicaid EHR Incentive Programs.

1.4.2 Increase the ability of IIS to accept a query using nationally accepted standards and respond with a standardized immunization history and forecast to inform providers of needed vaccinations, consistent with the objectives and measures set forth in rulemaking for the Medicare and Medicaid EHR Incentive Programs.

1.4.3 Increase adoption of standardized transport methods, including use of the CDC Web Services Definition Language (WSDL), by IIS and by EHRs to allow for more consistent information exchange across all in the health care system who provide vaccine services for adults.

1.4.4 Expand IIS and EHR functionality to facilitate interstate immunization data exchange through a centralized hub.

1.4.5 Develop and disseminate "model agreements" to address the documented legal and policy barriers that preclude data sharing between states and systems.

1.4.6 Expand consumers' access to their own vaccination data through secure IIS and EHR consumer portals.

1.4.7 Develop and encourage adoption of standardized clinical decision support tools for adult vaccination.

1.4.8 Encourage evaluation of IIS and EHR usage for adult vaccinations among providers, facilities, and organizations delivering vaccines to adults.

1.4.9 Promote automation strategies for documenting adult vaccinations, such as the inclusion of 2D barcode data from vials and syringes, and by building IIS and EHR capacity to accept barcode data.

1.4.10 Encourage bidirectional exchange between EHRs and IIS for adult vaccinations among clinics and health systems already entering pediatric data (e.g.,federally qualified health, center–funded clinics, health maintenance organizations).

1.4.11 Increase participation of federal agencies in IIS and the connectivity between IIS and EHR in these organizations (e.g., federal occupational health clinics, VA health systems, DoD-run clinics).

1.4.12 Promote the use of Clinical Decision Support for Immunizations (CDSi) resources by IIS and EHRs to standardize vaccine recommendations for

adult populations.

1.4.13 Increase the capability of IIS to onboard adult providers for bidirectional data exchange between the provider and IIS.

Objective 1.5:
Evaluate and advance targeted quality improvement initiatives.

Targeted quality improvement efforts, such as the development and use of clinical performance measures by providers and health plans, play an important role in helping providers set priorities and establish practice patterns and, thus, can motivate providers to improve adult vaccination rates. To ensure progress on plan goals and objectives, it is helpful to encourage and incentivize providers to recommend, provide, and maintain records of adult vaccinations. To date, there have been several efforts to assess current performance measures, identify measurement gaps, and make recommendations regarding the development and implementation of new measures. Most existing measures focus on uptake of select vaccines (e.g., the percentage of health care workers who receive an influenza vaccination); however, others also gather information about processes of care (e.g., the percentage of nursing home residents assessed and appropriately given the pneumococcal vaccine). Many future quality improvement projects will be facilitated by strengthening the IT tools outlined in objectives 1.3 and 1.4.

1.5.1 Evaluate impact of current adult vaccination quality measures and the feasibility of future quality measure development projects.

1.5.2 Disseminate best practices and lessons learned from successful and unsuccessful adult quality measure and adult quality improvement pilot projects.

1.5.3 Develop and validate new metrics to track progress on NAIP objectives.

Objective 1.6:
Generate and disseminate evidence about the health and economic impact of adult immunization, including potential diseases averted and cost-effectiveness with the use of current vaccines.

Generating information on the economic impact of adult immunization is a critically important element of the plan. While economic evaluations of the childhood immunization program in the United States have assessed the impact of all routinely recommended vaccines on direct and indirect costs, no parallel research has been published on adult immunization. Economic evaluations are critically important because they help to inform policymakers, health insurance plans, providers, employers, and the public about the value and importance of adult immunizations and can inform decisions

regarding promotion of and reimbursement for adult immunization services.

1.6.1 Encourage the development and evaluation of models to estimate the cost-effectiveness of adult immunization programs.

1.6.2 Encourage employers to offer and promote adult immunization using evidence on economic impact.

GOAL 2: IMPROVE ACCESS TO ADULT VACCINES

The passage of the Affordable Care Act marked an important opportunity for adult vaccination, with more consumers having improved access to preventive services. However, despite the Affordable Care Act's impact, critical challenges remain in achieving access to low cost, high quality vaccination services. More than 17 million adults have gained health insurance coverage since the beginning of open enrollment in October 2013 through September 12, 2015. Over that period, the uninsured rate declined from 20.3 percent to 12.6 percent a 38 percent (or 7.7 percentage point) reduction in the uninsured rate. Nonetheless, some adults will continue to be uninsured or underinsured.[22] The NAIP aims to leverage the full potential of the Affordable Care Act to improve access to adult vaccinations and to identify solutions to ongoing challenges.

GOAL 2 OBJECTIVES

GOAL 2 INCLUDES FOUR OBJECTIVES TO IMPROVE ACCESS TO ADULT VACCINES:			
GOAL 2 OBJECTIVE 2.1	**GOAL 2 OBJECTIVE 2.2**	**GOAL 2 OBJECTIVE 2.3**	**GOAL 2 OBJECTIVE 2.4**
Reduce financial barriers for individuals who receive recommended adult vaccines.	Assess and improve understanding of providers' financial barriers to delivering vaccinations, including stocking and administering vaccines.	Expand the adult immunization provider network.	Ensure a reliable supply of vaccines and the ability to track vaccine inventories, including during public health emergencies.

Objective 2.1:
Reduce financial barriers for individuals who receive recommended adult vaccines.

The inability of some individuals to pay for vaccines is a commonly cited barrier to increasing adult vaccination. There is no adult program comparable to the VFC, which offers free vaccines to eligible child populations and supports a robust delivery infrastructure, including provider education. While the Affordable Care Act has reduced financial barriers to vaccination for millions of Americans, certain segments of the population (e.g., the uninsured) will continue to have out-of-pocket costs for recommended vaccines. Thus, understanding and reducing financial barriers for these segments of the population is an important objective of the NAIP.

2.1.1 Evaluate the impact of financial barriers, such as co-pays, on adult vaccination uptake.

2.1.2 Advance efforts to have consistency in the individual state Medicaid benefit for ACIP/CDC-recommended vaccines for adults.

2.1.3 Evaluate the impact of state Medicaid program approaches to cost sharing for recommended adult vaccines on vaccination rates (e.g., compare programs that elect to offer the same benefits for traditional and expansion populations and those that maintain different benefits for these populations.)

2.1.4 Evaluate the advantages and disadvantages of novel state vaccine financing pilot programs that provide vaccines to adults, including health, economic, and innovation impacts.

Objective 2.2:
Assess and improve understanding of providers' financial barriers to delivering vaccinations, including stocking and administering vaccines.

Providers need to be educated about the importance of routinely assessing the vaccine needs of their patients, strongly recommending needed vaccines, and either vaccinating or referring patients to others who administer vaccinations. They also must be empowered to pursue these activities with tailored guidance, education, and tools.

Currently, many factors prevent providers from consistently vaccinating all patients who could benefit, and providers in underserved and minority communities may face unique challenges. The Affordable Care Act does not address providers' financial barriers to maintaining a vaccine inventory; thus, other policies and programs need to focus on understanding these issues and work toward improving providers' business practices when providing vaccination services.

- **2.2.1** Research the total costs of providing vaccination services in a provider setting to improve understanding of costs associated with the range of activities that are needed to ensure efficient and effective immunization services (e.g., ordering, handling, storage, administration, patient recall/reminders, and counseling).
- **2.2.2** Encourage the development of tools to improve immunization provider business practices and work flow (e.g., practice efficiency and inventory management), and assess the impact of these tools on adult vaccination rates at the practice level.
- **2.2.3** Encourage vaccine manufacturers and third-party vaccine distributors to build on existing work with providers to reduce the financial burden of maintaining vaccine inventories (e.g., permitting providers to purchase small quantities of vaccines).
- **2.2.4** Evaluate the impact of various methods to encourage and incentivize provider recommendations for, provision of, and recordkeeping related to adult vaccination (e.g., standing orders, IIS).
- **2.2.5** Evaluate the impact of various tools and other business models that address financial risks associated with providing adult vaccination services.

Objective 2.3:
Expand the adult immunization provider network.

To ensure that vaccines are available at convenient locations and to expand the capacity of the health care system to administer vaccines, the adult immunization provider network should be strengthened. Adults frequently obtain recommended vaccinations in complementary settings, such as workplaces, schools, community health centers and pharmacies, so it is especially important for these providers to have the capability to exchange information and document administration in collaboration with physicians and patients' medical homes. Pharmacists and others can play an even larger role in adult vaccine delivery if they can offer the full range of recommended vaccinations and bill for Medicare Part D vaccines. They are an important resource in the immunization system, as more than 250,000 pharmacists have been trained to administer vaccines in the United States, and nearly 95 percent of Americans live within five miles of a community pharmacy.

The Affordable Care Act established an immunization coverage standard that requires most new health plans to cover routine vaccines recommended by the ACIP/CDC without cost-sharing when administered by an in-network provider. This has led to questions about which providers are considered in and out of network and whether the network is adequate to meet demand in all geographic settings.[1] Therefore, the plan's goal of improving access to adult vaccination services includes an objective to collect data to better understand and evaluate reported insurance network provider adequacy concerns.

Another important element of the plan is to expand access through employers to improve employee health and wellness and create healthier workplaces. The most immediate impact from an employer perspective may be with seasonal influenza immunization campaigns, but such efforts may offer the possibility of expanding to other recommended adult vaccines.

2.3.1 Encourage in-network coverage of adult vaccinations administered in accessible health care delivery settings (e.g., public health clinics, pharmacies).

2.3.2 Identify and promote best practices related to collaborative models among physicians and complementary settings (e.g., streamlined referrals and information sharing).

2.3.3 Improve data collection efforts to support evaluation of reported in-network adequacy concerns.

2.3.4 Identify, promote, and disseminate effective practices for billing private health insurers (e.g., among health departments and others).

2.3.5 Continue to identify the barriers that prevent or discourage pharmacists and other providers in complementary settings from accessing and entering vaccinations into state and local IIS and reporting vaccinations to patients' primary care providers.

2.3.6 Identify legal, practical, and policy barriers that may impede expansion

of the adult immunization provider network and communicate challenges to policy makers.

2.3.7 Assess the impact of providing immunization services in complementary settings on vaccination coverage, cost-effectiveness, and health outcomes.

2.3.8 Increase the number of community health centers that routinely administer vaccinations to adults and report vaccinations to IIS and primary care providers.

2.3.9 Encourage on-site, occupational health vaccination clinics and involvement of employers to increase employee vaccination rates and reporting of vaccinations to IIS.

2.3.10 Conduct research on barriers and facilitators to delivering vaccines to adults in pediatric settings.

Objective 2.4:
Ensure a reliable supply of vaccines and the ability to track vaccine inventories, including during public health emergencies.

Many of the priorities described in the plan, if implemented, could result in increased demand for adult vaccines and vaccination services. Thus, a reliable and steady supply of adult vaccines is needed to realize the full benefit of the goals, objectives, and strategies described in the plan. In addition, ensuring the functioning of routine systems and engaging existing health care providers will be critical in monitoring the response to public health emergencies requiring vaccines, such as an influenza pandemic.

2.4.1 Increase the transparency of vaccine distribution strategies to public and private entities to facilitate equitable distribution of vaccines in times of shortage.

2.4.2 Develop and evaluate the impact of pilot projects designed to improve supply and innovative inventory management (e.g., the use of 2D bar coding on vaccine units of sale) to improve accuracy and timeliness of vaccine distribution tracking.

2.4.3 Evaluate strategies that encourage multiple suppliers of vaccines for adults.

2.4.4 Encourage manufacturers and public health authorities to work collaboratively to develop contingency plans for the timing and prioritization of vaccine supplies in case of shortages.

GOAL 3: INCREASE COMMUNITY DEMAND FOR ADULT IMMUNIZATIONS

As described in the NVP, HHS is committed to providing accurate, timely, transparent, complete, and audience appropriate information about vaccinations. Furthermore, communication activities concerning vaccination should be strategic, evidence based, and culturally and linguistically appropriate and should reflect the health literacy, language proficiency, and functional and access needs of specific target populations. While the NVP includes a goal to support communications to enhance informed vaccine decision making more broadly, Goal 3 of the NAIP is intended to address the needs of adults and providers of adult vaccination services specifically. Further, because adults make decisions for their children regarding vaccination, education of adults and their health care providers is likely to have impacts beyond this population.

GOAL 3 OBJECTIVES

GOAL 3 INCLUDES THREE OBJECTIVES TO INCREASE COMMUNITY		
GOAL 3 OBJECTIVE 3.1	**GOAL 3 OBJECTIVE 3.2**	**GOAL 3 OBJECTIVE 3.3**
Educate and encourage *individuals* to be aware of and receive recommended adult immunizations.	Educate and encourage *health care providers* to recommend and/or deliver adult vaccinations.	Educate and encourage *other groups* (e.g., community and faith-based groups, tribal organizations) to promote the importance of adult immunization.

Objective 3.1:
Educate and encourage *individuals* to be aware of and receive recommended adult immunizations.

Communications and outreach to the public are critical to address a lack of knowledge, as well as common misconceptions and skepticism about adult vaccinations. Frequent outreach raises awareness that vaccination is recommended across the lifespan and helps establish vaccination as a routine part of preventive services and as a societal norm. Although education alone is insufficient to increase vaccination rates, it can have significant impact as a part of a number of broader, evidence-based strategies. Adults are often unaware of their potential risk of acquiring diseases that can be prevented by vaccination and of the availability of specific vaccines. This lack of knowledge may be particularly acute among populations with limited English proficiency and persons with disabilities.[36–38] While there are many existing materials that can be used to educate the public and health care providers about adult vaccination, innovative strategies are needed to address the lack of knowledge regarding the risk of vaccine-preventable diseases and their consequences and the benefits of vaccines in preventing these infections. In a digital age in which information travels rapidly and misinformation can reach millions, novel outreach strategies that take into account patients' preferences, cognitive styles, literacy levels, preferred sources of information, and cultural backgrounds should be tested, deployed, and broadly disseminated. Furthermore, these strategies should recognize competing demands in providers' office-based practices that limit the length of provider-patient interactions about vaccination.

3.1.1 Conduct research on public awareness and acceptance of adult vaccines (including vaccine financing, vaccine effectiveness, and vaccine safety concerns) among the public, with a focus on racial, ethnic, and economic disparities.

social media) for different adult subpopulations to inform communication efforts.

3.1.3 Develop and implement accessible and culturally and linguistically appropriate communications and outreach strategies in multiple formats for people with disabilities, including those who are deaf or hard of hearing, people with limited English proficiency, people with cognitive limitations, and people who do not use traditional media.

3.1.4 Increase the public's understanding of the presence and role of vaccine safety monitoring systems and the meaning of reported data and how it is used to assess vaccine safety.

Objective 3.2:
Educate and encourage *health care providers* to recommend and/or deliver adult vaccinations.

Health care providers are a highly influential source of information and advice about vaccinations, and a strong recommendation about the importance of immunizations can exert a strong influence over the vaccination decisions of patients, including those patients who may have reservations about some or all vaccines.[39,40] However, adult immunization status is not routinely assessed, and the rationale for evidence-based vaccine recommendations is not always articulated from providers to patients. This is one reason why NVAC issued the updated Standards for Adult Immunization Practice to encourage assessment of vaccination needs at every patient encounter.

Many health care providers stock some, but not all, adult vaccines. Cost and reimbursement concerns; competing clinical priorities, such as the management of acute medical issues; and the complexities of vaccine storage and handling continue to be reported barriers to providing office-based immunization services. While educational outreach targeted at the public is important, health care providers also require the knowledge and tools to recommend and either deliver vaccinations or to refer their adult patients to others who administer vaccinations. Furthermore, increasing consumer demand without simultaneously addressing health care provider vaccination barriers could have a detrimental effect on efforts to improve adult immunization.

This NAIP objective focuses on activities that will have the most meaningful impact, while also recognizing the existence and importance of addressing provider barriers that may hinder uptake.

3.2.1 Encourage all providers, including providers in complementary settings, to implement the NVAC Standards for Adult Immunization Practice, which includes assessing patients' vaccination status at every clinical encounter, strongly recommending needed immunizations, and either administering

vaccines (including documentation in an IIS) or referring patients to others who administer vaccinations.

3.2.2 Encourage health care providers to request immunization records from patients to support vaccination status assessment and recommendations.

3.2.3 Encourage the incorporation of adult vaccine education into the training of health care providers (e.g., medical, nursing, and pharmacist education curricula; postgraduate training, certification, and board examinations; and required continuing education credits).

3.2.4 Encourage integration of vaccination into the provision of other adult preventive services and chronic disease management.

3.2.5 Encourage the incorporation of immunization status assessment into comprehensive medication reviews in medical therapy management programs.

3.2.6 Promote increased attention to vaccine-specific recommendations in disease-specific clinical practice guidelines (e.g., diabetes, heart disease, lung disease, and immunocompromising conditions).

3.2.7 Educate providers and health systems about evidence-based strategies and existing tools within EHRs and IIS to support adult immunization: standing orders, reminder and recall systems, clinical decision support for immunizations into EHRs, and other tools.

3.2.8 Reduce vaccine storage and handling errors by improving provider education and awareness of vaccine delivery best practices and the need for standardized vaccine management plans.

3.2.9 Improve provider awareness of the Affordable Care Act's impact on adult vaccine insurance coverage in Medicare, Medicaid, and private health insurance plans, both outside and inside the marketplaces.

3.2.10 Educate health care providers about the VICP.

Objective 3.3:
Educate and encourage other groups (e.g., community and faith-based groups to promote the importance of adult immunization.

While health care providers are critical to promoting vaccination, they are not the only influential source of vaccine-related information. Education through social and community networks may help to increase adults' knowledge of the risks of vaccine-preventable diseases and the benefits of vaccination. A variety of networks can be leveraged, including faith-based and community organizations, employers, and individual trusted leaders.

Prior research has shown that outreach on preventive services through faith-based organizations and individual faith communities is effective in increasing uptake of these services.[1] Community and faith-based organizations are likely to play an especially important role in reducing racial and ethnic disparities in adult immunization, as they can deliver education that is culturally sensitive, linguistically appropriate, and tailored to specific subpopulations.

- **3.3.1** Engage community leaders in reaching the public with information about the importance of adult vaccination.
- **3.3.2** Encourage the development of adult immunization champions across all sectors.

GOAL 4: FOSTER INNOVATION IN ADULT VACCINE DEVELOPMENT AND RELATED TECHNOLOGIES

One of the five goals of the NVP is to develop new and improved vaccines. The NVP, as well as a myriad other policy documents, recognizes that vaccines have led to enormous reductions in the incidence and impact of several once widespread infectious diseases. Goals 1 through 3 in the NAIP focus on enhancing vaccine delivery. However, achieving these goals is dependent on the existence of safe and effective vaccines. Goal 4 recognizes that there are opportunities for the development of new vaccines, more effective versions of existing vaccines for adults, and technological advancements to improve vaccine delivery.

GOAL 4 OBJECTIVES

GOAL 4 INCLUDES TWO OBJECTIVES TO FOSTER INNOVATION AND	
GOAL 4 OBJECTIVE 4.1	**GOAL 4 OBJECTIVE 4.2**
Develop new vaccines and improve the effectiveness of existing vaccines for adults.	Encourage new technologies to improve the distribution, storage, and delivery of adult vaccines.

Objective 4.1:
Develop new vaccines and improve the effectiveness of existing vaccines for adults.

While most existing vaccines are highly effective in children, vaccines recommended for adults are generally less effective, especially older adults and those with immune systems compromised by underlying diseases or medications. In general, the immune response of currently recommended vaccines declines with advancing age and the onset of chronic diseases. The perception that vaccines may have limited effectiveness in some adults may, in turn, negatively influence demand and contribute to low vaccination rates. However, the changing demographics of an aging society highlight the importance of improving our understanding of the aging immune system and the development of next-generation vaccines that can protect against serious infections that occur in this population.

There are numerous challenges that must be overcome in developing new vaccines. Bringing a new product to market can take ten or more years in development and can require a significant financial investment on the part of manufacturers. The market is also limited for special populations that are smaller in size than the general population of adults, suggesting the need for targeted efforts to develop vaccines for use, for example, in pregnant women and in immunocompromised individuals.

4.1.1 Encourage ongoing efforts to develop and license new and improved vaccines, including support for research, development, and licensure of vaccines; improved effectiveness; and longer duration of immunity. Ensure that progress in these areas does not compromise the effectiveness of vaccines or the rigorous, scientific standards used to evaluate vaccines during the approval phase.

4.1.2 Encourage ongoing efforts to support the discovery, validation, development, standardization and distribution of specialized reagents, assays, technologies (i.e., genomic sequencing, bioinformatics, and systems biology tools), and animal models needed to facilitate basic, preclinical, and clinical research programs aimed at developing and testing vaccine candidates.

4.1.3 Continue ongoing efforts to support research and advanced development of vaccine adjuvants and formulations in order to enhance the immune response.

4.1.4 Develop and encourage use of internationally adopted standards for evaluating vaccine effectiveness that take into account diagnosis, study design, and correlates of protection.

4.1.5 Optimize predictive values of vaccine effectiveness in animal models, and develop and validate new analytical methods and biomarkers that will establish early-phase correlates of protection.

4.1.6 Evaluate existing and identify new incentives to accelerate vaccine development.

Objective 4.2:
Encourage new technologies to improve the distribution, storage, and delivery of adult vaccines.

Numerous studies have highlighted the challenges that health care providers face in storing and managing their vaccine inventories. New technologies are in development to address these challenges and reduce the administrative burden on providers. New technologies are also being developed to change the ways that vaccines are administered (e.g., jet injector for select products and populations). These

developments may further reduce barriers to adult immunization by offering new solutions that appeal to both providers and consumers. The NAIP encourages innovation in the realm of both new vaccine development and new technologies to facilitate the management and administration of vaccines.

- **4.2.1** Apply new distribution tools and methods to strengthen the supply chain.
- **4.2.2** Improve the storage and handling of vaccines through the application of new technologies.
- **4.2.3** Support and promote new technologies that improve the administration of vaccines.

MONITORING AND EVALUATION

Achieving the goals of the NAIP requires the collaboration of partners around a shared vision and coordination of activities through focused implementation efforts. Meaningful progress will be achieved only if stakeholders are engaged in shared, sustained, focused, and coordinated actions. The strategies noted above operationalize the objectives and goals laid out in the plan. However, these strategies are not intended to be comprehensive; rather, they are focused on the areas of highest priority. The strategies described in the plan are conditional and are subject to engagement by all stakeholders and to the availability of resources to achieve them. To foster action and accountability, federal stakeholders with leading or supporting roles have been identified for each objective in the NAIP. Appendix 5 also offers recommendations regarding how nonfederal stakeholders can play a role. All stakeholders are invited to review these materials and identify novel ways that they can contribute.

An Adult Immunization Implementation Plan, which reflects available resources and federal priorities, will be developed by the Interagency Adult Immunization Task Force (AITF). The AITF was created to help improve coordination and collaboration across HHS agencies and other federal groups during the 2009 H1N1 pandemic. The AITF membership is composed entirely of HHS entities and representatives with a vested interest in adult immunization.

Implementing the NAIP will require not just federal action, but also national action. The success of the plan will require state, local, tribal, and territorial governments; components of the health care delivery system; communities; manufacturers; and other stakeholders to work together to ensure a coordinated and comprehensive adult immunization program. The strategies identified here are intended to serve as a catalyst for other stakeholders to develop their own plans for participation in adult immunization activities.

The implementation of this plan demands regular monitoring and documentation of progress, challenges, and opportunities—all of which provide transparency to policymakers and the public. NVPO, in partnership with the AITF, will regularly track and annually summarize progress on achieving the goals and priorities in the NAIP and present them to NVAC and the ASH in an effort to highlight the impact of the implementation of strategies outlined here, as well as to identify areas where progress is lagging and propose corrective action where needed. An update on plan progress also will be presented at an NVAC meeting, which is open to the public and is attended by many stakeholders.

A key feature of the NAIP is the indicators (Table 3) and accompanying milestones for specific improvements to be achieved by 2020. These indicators reflect the priorities within each goal of the plan. The indicators will be used to measure progress and inform future implementation and quality improvement efforts. While many things could be measured, a limited number of indicators—one or more for each plan goal—will be tracked to monitor progress on priority issues. Indicators were selected to draw attention to some of the most critical challenges within each goal of the plan and were drawn primarily from existing measurement and data collection efforts, such as Healthy People 2020 and annual national surveys. In most cases, required data are already being collected by partner agencies. A small number of developmental indicators have also been included to shed light on key aspects of adult vaccination programs where ongoing attention and improved data collection may be needed. NVPO has chosen to include the developmental indicators to draw attention to these important areas of opportunity. Research is planned to identify baseline levels for the developmental measures. The data sources for the full set of indicators are listed in Appendix 3.

Target milestones for most indicators were identified by subject matter experts or adapted from previously published goals. Certain developmental measures do not have target milestones because trend data are not available to inform the target-setting process. As data sources and indicators are developed or enhanced, the NAIP indicators and accompanying milestones will be updated.

TABLE 3. PLAN PRIORITIES: INDICATORS FOR THE GOALS OF THE NAIP			
Goal 1: Strengthen the Adult Immunization Infrastructure			
Key Indicator[****]	**Baseline (Year)**[††††]	**2020 Milestone**	**Entity Responsible for Data Collection (Data Source)**
Adult vaccination coverage for Healthy People 2020 measures and racial/ethnic disparities in coverage			CDC (National Health Interview Survey, CMS Minimum Data Set, Internet panel surveys of pregnant women and health care providers)
Percentage of adults age >18 years who are vaccinated annually against seasonal influenza	39 (2013)	70	
Percentage of health care personnel who are vaccinated annually against seasonal influenza	62 (2013)	90	
Percentage of pregnant women who are vaccinated annually against influenza	52 (2013)	N/A	
Percentage of adults age >65 years who are vaccinated annually against pneumococcal disease	60 (2013)	90	
Percentage of noninstitutionalized high-risk adults age 18–64 years who are vaccinated annually against pneumococcal disease	21 (2013)	60	

[****] Items in italics are developmental.

[††††] The baseline year is 2012 unless otherwise specific

Percentage of institutionalized adults age >18 years in long-term care or nursing homes who are vaccinated annually against pneumococcal disease	66 (2006)	90	
Percentage of adults age >60 who are vaccinated against zoster	24 (2013)	30	
Percentage of health care personnel age >19 years who are vaccinated against hepatitis B	64 (2008)	90	
Percentage of surveyed primary care physicians who record information on adult vaccinations in state or regional IIS	8% of internists; 36% of family physicians	50%	CDC
Percentage of surveyed pharmacists who submit adult vaccination data to IIS	28% (2013)	60%	CDC
Percentage of adults age >19 with one or more immunizations recorded in an IIS	25% (2012)	50%	CDC (IIS Annual Report)
Developmental measure: (Among adult health care providers who have identified an adverse event following immunization) Percentage of providers who have reported one or more events to VAERS[41]	17%	In development	NVPO

Goal 2: Improve Access to Adult Vaccines			
Key Indicator‡‡‡‡	**Baseline (Year)§§§§**	**2020 Milestone**	**Entity Responsible for Data Collection (Data Source)**
Percentage of states and territories that allow pharmacists to administer all routinely recommended vaccines for adults >19 without a patient-specific prescription	85% (2013)	100%	American Pharmacists Association
Percentage of surveyed primary care providers who stock vaccines routinely recommended for adults*****	20% of internists; 31% of family physicians	60%	CDC
Percentage of state Medicaid programs that provide coverage of all ACIP/CDC-recommended vaccinations for adults and prohibit cost-sharing	20%	100%	CMS

‡‡‡‡ Items in italics are developmental.

§§§§ The baseline year is 2012 unless otherwise specified.

***** The survey will capture stocking behavior for different adult vaccines, as well as provider-reported rationale for not stocking some products.

Goal 3: Increase Community Demand for Adult Vaccinations			
Key Indicator[†††††]	**Baseline (Year)**[‡‡‡‡‡]	**2020 Milestone**	**Entity Responsible for Data Collection (Data Source)**
Percentage of surveyed adults who believe that they are recommended to receive a flu vaccine	45%	75%	CDC
Percentage of surveyed adults who report receiving a provider recommendation for flu vaccine	45%	90%	CDC
Percentage of surveyed adult health care providers who report assessing vaccination status at every visit	29% of internists; 32% of family physicians	60%	CDC
Developmental measure: Percentage of surveyed adults who are aware that certain vaccines are recommended for adults[§§§§§]	*In development*	*In development*	CDC
Developmental measure: Percentage of pregnant women who reported receiving the following immunizations during pregnancy: *1) Influenza* *2) Tdap*	*In development*	*In development*	CDC

[†††††] Items in italics are developmental.

[‡‡‡‡‡] The baseline year is 2012 unless otherwise specified.

[§§§§§] Research will capture data for selected adult subpopulations. However, this research is not meant to be inclusive of every group, but to provide an estimate of adult vaccine consumer awareness and areas of opportunity.

Goal 4: Foster Innovation in Adult Vaccine Development and Vaccination-Related Technologies			
Key Indicator[******]	**Baseline (Year)**[††††††]	**2020 Milestone**	**Entity Responsible for Data Collection (Data Source)**
Developmental measure: Number of vaccines in clinical development (Phase II or Phase III clinical trials) with an expected adult indication	*In development*	*In development*	Biotechnology industry organization (publicly available data)
Developmental measure: Number of vaccines on CDC-contracted vaccine pricelist that include a 2D barcode on unit of use or primary vaccine product (e.g., vials, syringes)	*In development*	100%	CDC

[******] Items in italics are developmental.

[††††††] The baseline year is 2012 unless otherwise specified.

APPENDIX 1: ADULT IMMUNIZATION SCHEDULE

Adult Immunization Schedule and Tools (CDC):
http://www.cdc.gov/vaccines/schedules/easy-to-read/adult.html

APPENDIX 2: DISPARITIES IN ADULT IMMUNIZATION COVERAGE BY RACE/ETHNICITY

Vaccine and Age Group	White (%)	Black (%)	Hispanic (%)	Asian (%)	Other (%)
Pneumococcal vaccination, ever (age 19–64, high risk)‡‡‡‡‡‡	22.3	21.2	17.9	11.0	19.8
Pneumococcal vaccination, ever (age ≥65)§§§§§§	63.6	48.7	39.2	45.3	54.6
Tetanus vaccination, past - 19–49)*******	69.0	54.1	52.5	52.7	66.0
Tetanus vaccination, past 10 years (age 50–64)†††††††	67.3	54.4	55.0	53.4	69.7
Tetanus vaccination, past 10 years (age ≥65)‡‡‡‡‡‡‡	59.6	40.3	45.3	42.8	72.4
Tetanus vaccination including pertussis vaccine, past 8 years (age ≥19)§§§§§§§	19.7	12.6	10.2	15.5	22.4
Hepatitis A vaccination (≥2 doses), ever (age 19–49)********	12.6	11.0	10.6	16.1	15.2
Hepatitis B vaccination (≥3 doses), ever (age 19–49)†††††††††	35.2	30.5	23.7	39.3	34.8
Herpes zoster (shingles) vaccination, ever (age ≥60)‡‡‡‡‡‡‡‡	27.4	10.7	9.5	22.6	24.5
HPV vaccination among females (≥1 dose), ever (age 19–26)§§§§§§§§	41.7	30.6	30.3	19.8	43.1
Influenza vaccination, 2013–2014 season (age ≥18)*********	47.4	41.5	44.3	51.3	47.3

‡‡‡‡‡‡ National Health Interview Survey (2013).[3]

§§§§§§ National Health Interview Survey (2013).[3]

******* National Health Interview Survey (2013).[3]

††††††† National Health Interview Survey (2013).[3]

‡‡‡‡‡‡‡ National Health Interview Survey (2013).[3]

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‡‡‡‡‡‡‡‡ National Health Interview Survey (2013).[3]

§§§§§§§§ National Health Interview Survey (2013).[3]

********* National Immunization Survey—Flu and Behavioral Risk Factor Surveillance System (2013–2014).[4]

APPENDIX 3: FEDERAL PARTNER EFFORTS

Agencies across HHS support a host of efforts that directly or indirectly support adult immunization. The table below lists just a small sampling of agency efforts. These select activities highlight how agencies across HHS advance adult immunization within their respective organizations.

Agency	Activities
Agency for Healthcare Research and Quality (AHRQ)	AHRQ has developed a data management tool, or dashboard, to depict Healthy People 2020 immunization data in a clear, easy-to-view format. This dashboard highlights ongoing racial and ethnic disparities in adult immunization and brings more attention to key gaps in coverage.
Assistant Secretary for Preparedness and Response (ASPR)	ASPR, in conjunction with DoD, has supported the development of Centers for Innovation in Advanced Development and Manufacturing. These centers help to bolster the nation's existing manufacturing surge capacity and flexible manufacturing of vaccines for pandemic influenza and other therapeutic products in a health emergency.
Centers for Disease Control and Prevention (CDC)	CDC has advanced new contracts with academic institutions and health systems for vaccine safety and ongoing surveillance; annually collects, analyzes, and disseminates influenza and adult vaccination coverage estimates and conducts economic evaluations for new vaccine recommendations; promotes immunization information system improvements; expands public and private sector partnerships; conducts research and disseminates materials to increase awareness of adult immunization; annually updates the adult immunization schedule; and works with state immunization programs to improve adult immunization infrastructure. CDC is also working with ONC and other partners to develop Clinical Decision Support for Immunizations (CDSi) tools.

Agency	Activities
Centers for Medicare & Medicaid Services (CMS)	CMS has encouraged states to expand coverage of ACIP/CDC-recommended immunizations to all adults enrolled in the Medicaid program and has included the HEDIS measure—Flu Vaccinations for Adults Ages 18 to 64—in the core set of adult health care quality measures for the Medicaid program. Within the Medicare program, the CMS Quality Improvement Initiative includes a number of quality measures relating to immunizations for adults. In addition, CMS expanded coverage of the adult pneumococcal immunizations so that adults enrolled in Medicare can obtain them, as recommended by the ACIP.
Health Resources and Services Administration (HRSA)	HRSA has announced the Health Center Patient-Centered Medical Home and Quality Improvement Awards to recognize health centers that have focused on practice transformation and quality improvement, including efforts to strengthen adult immunization. HRSA also administers the VICP jointly with the Department of Justice and the U.S. Court of Federal Claims. The VICP provides compensation to individuals, including adults, thought to have been injured or whose death was thought to have been related to receiving certain vaccines covered by the program.
Indian Health Service (IHS)	IHS has implemented performance measures for adult immunizations and partnered with NVPO to evaluate the feasibility and usefulness of a composite adult immunization measure to facilitate monitoring of vaccine coverage.

Agency	Activities
National Vaccine Program Office (NVPO)	NVPO led the development of the NAIP and chairs (with CDC and the Immunization Action Coalition) the National Adult and Influenza Immunization Summit. NVPO collaborated on the advancement of a vaccine safety agenda, developed a tool kit to increase influenza vaccination among health care personnel in long- term care settings, published a report and recommendations on reducing barriers to increased uptake of recommended vaccines in pregnant women, co-authored an article on the Affordable Care Act and its impact on immunization insurance coverage for health care providers, and collaborated with CMS on the development of a Medicare claims data map for influenza. Through its support of NVAC, NVPO has supported publication of the 2011 report *A Pathway to Leadership for Adult Immunization: Recommendations of the National Vaccine Advisory Committee and NVAC's Standards for Adult Immunization Practice.*
Office of Minority Health (OMH)	OMH developed and maintains a co-sponsorship agreement between HHS and Walgreens Inc. that provides $15 million in free seasonal influenza vaccine annually to uninsured individuals. Working with community and faith-based organizations, this initiative has successfully vaccinated over 800,000 individuals.
Office of the National Coordinator for Health Information Technology (ONC)	ONC continues to advance pilot projects designed to improve the exchange of vaccination data and improve access to vaccination data by consumers. This includes the "data hub" initiative that is being advanced in collaboration with NVPO, CDC, and state and local partners. The data hub enables state and local IIS to exchange data with each other through a centralized model utilizing existing standards. By connecting to the central hub, jurisdictions can then connect to any other jurisdiction also connected to the central hub. ONC is also working in close collaboration with CDC to specify CDC's Clinical Decision Support for Immunizations tools into sharable clinical decision support artifacts.
Department of Veterans Affairs (VA) National Institutes of Health (NIH) U.S. Food and Drug Administration (FDA)	VA, NIH, and FDA have supported the development of new and improved vaccines. They have engaged in activities related to zoster vaccine research, maternal vaccination, and a host of other initiatives. These agencies and other stakeholders are working to advance adult vaccination safety, research, and development needs.

APPENDIX 4: FEDERAL ROLES AND RESPONSIBILITIES

GOAL AND OBJECTIVE	FEDERAL																		
	Department of Health and Human Services																		
	ACF	AHRQ	ASPR/BARDA	CDC	CMS	HRSA	IHS	NIH	NVPO	ONC	OWH	FDA	RHA	ACL	FOH	DHS	DOD	VA	OPM
Goal 1: Strengthen the adult immunization infrastructure																			
Objective 1.1: Monitor and report trends in adult vaccine preventable disease levels and vaccination coverage data for all ACIP/CDC recommended vaccines. In cases where there are associated Healthy People 2020 goals, measure progress toward established targets.		.		.			.						.	.	.		.	.	.
Objective 1.2: Enhance current vaccine safety monitoring systems and develop new methods to accurately and more rapidly assess vaccine safety and effectiveness in adult populations (e.g., pregnant women).		.	.	.	.	.	.		.			.	.				.	.	

GOAL AND OBJECTIVE	FEDERAL																		
	Department of Health and Human Services																		
	ACF	AHRQ	ASPR/BARDA	CDC	CMS	HRSA	IHS	NIH	NVPO	ONC	OWH	FDA	RHA	ACL	FOH	DHS	DOD	VA	OPM
Objective 1.3: Continue to analyze claims filed as part of the National Vaccine Injury Compensation Program (VICP) to assess whether there was an association between vaccines that a claimant received and adverse events experienced.						▪													
Objective 1.4: Increase the use of EHRs and IIS.				▪	▪	▪	▪		▪	▪	▪		▪					▪	
Objective 1.5: Evaluate and advance targeted quality improvement initiatives.		▪			▪	▪	▪						▪						

GOAL AND OBJECTIVE	FEDERAL																		
	Department of Health and Human Services																		
	ACF	AHRQ	ASPR/BARDA	CDC	CMS	HRSA	IHS	NIH	NVPO	ONC	OWH	FDA	RHA	ACL	FOH	DHS	DOD	VA	OPM
Objective 1.6: Generate and disseminate evidence about the health and economic impact of adult immunization, including potential disease burden averted and cost effectiveness with the use of current vaccines.				.									.						
Goal 2: Improve access to adult vaccines.																			
Objective 2.1: Reduce financial barriers for individuals who receive recommended adult vaccines.				.	.	.	.		.				.	.	.			.	.
Objective 2.2: Assess and improve understanding of providers' financial barriers to delivering vaccinations, including stocking and administering.				.	.	.	.		.		.		.						

GOAL AND OBJECTIVE	FEDERAL																		
	Department of Health and Human Services																		
	ACF	AHRQ	ASPR/BARDA	CDC	CMS	HRSA	IHS	NIH	NVPO	ONC	OWH	FDA	RHA	ACL	FOH	DHS	DOD	VA	OPM
Objective 2.3: Expand the adult immunization provider network.	▪			▪	▪	▪			▪		▪		▪		▪			▪	▪
Objective 2.4: Ensure a reliable supply of vaccines and the ability to track vaccine inventories, including during public health emergencies.			▪	▪					▪			▪	▪			▪	▪		
Goal 3: Increase community demand for adult immunizations.																			
Objective 3.1: Educate and encourage *individuals* to be aware of and receive recommended adult immunizations.	▪		▪	▪		▪	▪		▪	▪	▪	▪	▪	▪	▪		▪	▪	▪

GOAL AND OBJECTIVE	FEDERAL																		
	Department of Health and Human Services																		
	ACF	AHRQ	ASPR/BARDA	CDC	CMS	HRSA	IHS	NIH	NVPO	ONC	OWH	FDA	RHA	ACL	FOH	DHS	DOD	VA	OPM
Objective 3.2: Educate and encourage *health care providers* to recommend and/or deliver adult vaccinations.			.	.		.	.		.		.		.	.	.		.	.	.
Objective 3.3: Educate and encourage *other groups* (e.g., community and faith based groups) to promote the importance of adult immunization.	.			.			.		.				.	.					
Goal 4: Foster innovation in adult vaccine development and vaccination-related technologies.																			
Objective 4.1: Develop new vaccines and improve the effectiveness of existing vaccines for adults.			.					.	.			.				.	.	.	
Objective 4.2: Encourage new technologies to improve distribution, storage, and delivery of adult vaccines.			.						.							.	.		

APPENDIX 5: NONFEDERAL ROLES AND RESPONSIBILITIES

GOAL AND OBJECTIVE	Health Care Providers	Professional Organizations	Public and Private Health Care Payers and Plans	State, Local, Territorial, and Tribal Governments	Academia and Research Organizations	Advocacy Organizations	Employers	Vaccine Manufacturers
Goal 1: Strengthen the adult immunization infrastructure								
Objective 1.1: Monitor and report trends in adult vaccine preventable disease levels and vaccination coverage data for all ACIP/CDC recommended vaccines. In cases where there are associated Healthy People 2020 goals, measure progress toward established targets.	▪	▪		▪	▪			
Objective 1.2: Enhance current vaccine safety monitoring systems and develop new methods to accurately and more rapidly assess vaccine safety and effectiveness in adult populations (e.g., pregnant women).	▪			▪	▪			▪

GOAL AND OBJECTIVE	Health Care Providers	Professional Organizations	Public and Private Health Care Payers and Plans	State, Local, Territorial, and Tribal Governments	Academia and Research Organizations	Advocacy Organizations	Employers	Vaccine Manufacturers
Objective 1.3: Continue to analyze claims filed as part of the National Vaccine Injury Compensation Program (VICP) to assess whether there was an association between vaccines that a claimant received and adverse events experienced.								
Objective 1.4: Increase the use of EHRs and IIS to collect and track adult immunization data.	▪	▪	▪	▪	▪	▪	▪	
Objective 1.5: Evaluate and advance targeted quality improvement initiatives.	▪	▪	▪	▪	▪	▪	▪	▪

GOAL AND OBJECTIVE	Health Care Providers	Professional Organizations	Public and Private Health Care Payers and Plans	State, Local, Territorial, and Tribal Governments	Academia and Research Organizations	Advocacy Organizations	Employers	Vaccine Manufacturers
Objective 1.6: Generate and disseminate evidence about the health and economic impact of adult immunization, including potential disease burden averted and cost effectiveness with the use of current vaccines.		▪		▪	▪		▪	▪
Goal 2: Improve access to adult vaccines.								
Objective 2.1: Reduce financial barriers for individuals who receive recommended adult vaccines.	▪	▪	▪	▪	▪		▪	
Objective 2.2: Assess and improve understanding of providers' financial barriers to delivering vaccinations, including stocking and administering vaccines.	▪	▪	▪	▪	▪	▪		▪

GOAL AND OBJECTIVE	Health Care Providers	Professional Organizations	Public and Private Health Care Payers and Plans	State, Local, Territorial, and Tribal Governments	Academia and Research Organizations	Advocacy Organizations	Employers	Vaccine Manufacturers
Objective 2.3: Expand the adult immunization provider network.	▪	▪	▪	▪		▪	▪	
Objective 2.3: Expand the adult immunization provider network.	▪	▪	▪	▪		▪	▪	
Objective 2.4: Ensure a reliable supply of vaccines and the ability to track vaccine inventories, including during public health emergencies.	▪		▪	▪		▪		▪
Goal 3: Increase community demand for adult immunizations.								
Objective 3.1: Educate and encourage *individuals* to be aware of and receive recommended adult immunizations.	▪	▪	▪	▪	▪	▪	▪	▪

GOAL AND OBJECTIVE	Health Care Providers	Professional Organizations	Public and Private Health Care Payers and Plans	State, Local, Territorial, and Tribal Governments	Academia and Research Organizations	Advocacy Organizations	Employers	Vaccine Manufacturers
Objective 3.2: Educate, encourage, and motivate health care providers to recommend and/or deliver adult vaccinations.	▪	▪	▪	▪	▪	▪	▪	▪
Objective 3.3: Educate and encourage other groups (e.g., community and faith based groups, tribal organizations) to promote the importance of adult immunization.	▪	▪	▪	▪	▪	▪	▪	▪
Goal 4: Foster innovation in adult vaccine development and vaccination-related technologies.								
Objective 4.1: Develop new vaccines and improve the effectiveness of existing vaccines for adults.					▪			▪
Objective 4.2: Encourage new technologies to improve distribution, storage, and delivery of adult vaccines.		▪	▪		▪	▪		▪

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