Value Proposition – Integration of Public Health and Primary Care: Case Study Immunizations

Vaccinations are one of the most cost-effective public health approaches to reducing healthcare costs because they prevent disease before it occurs and spreads through our communities. For each birth cohort vaccinated, society saves $13.6 billion in direct healthcare costs, 42,000 lives are saved, and 20 million cases of disease are prevented. In contrast, vaccine-preventable disease outbreaks are costly. A 2008 measles outbreak in San Diego amassed costs of $176,980. The county and state investigation and containment efforts came to $10,376 per case.

In the most straightforward terms then, there is value to a successful immunization program in the United States – it saves money, it reduces death and disability. The benefits of a successful program are maximized by the integration of public health and primary care.

“Lasker and the Committee on Medicine and Public Health (1997) conducted a review of more than 400 instances of medicine and public health collaboration and noted a number of benefits that arose from such endeavors. Specifically, the authors found that collaboration benefited clinicians by providing population-based information relative to their practices, enhancing their capacity to address behaviors and the underlying causes of illness, and generating better quality assurance standards and performance measures. Public health entities received support for their role in carrying out population-based strategies, including the collection of individual-level data for surveillance purposes, the dissemination of health education and key health promotion messages, and cooperation for the assurance of quality medical care for all members of a community.”

“Value” can refer to cost savings, improved quality, benefit to society, increased efficiency, etc. And one interest group will have a different lens in which to evaluate value compared to another. This document attempts to provide the value of the successful integration of public health and primary care to different interest groups using immunizations as an example.

“Beyond the benefits to providers and public health entities, it stands to reason that society gains from integration as well. Integration can improve the efficiencies and harness the capabilities of primary care and public health and their respective

Cost Effectiveness of Childhood Vaccines for Every Dollar Invested
Diphtheria, tetanus, pertussis saves $47.80.
Measles, mumps, rubella saves $23.30. Hepatitis B saves $2.40. Varicella saves $2.00. Inactivated polio saves $8.60. Every $1 spent on childhood vaccines saves $10.20
workforces to focus on common problems. By joining forces, primary care and public health are better able to meet the nation’s goals of improved population health” (IOM page 32)

Value of PH/PC Integration to Primary Care:
The US Immunization program has a long successful history of partnership with primary care. The majority of people receive their immunizations in a primary care setting (pediatricians office, family medicine, and community health centers).

Specific Value of Integration of Public Health and Primary Care
- Publicly funded and public health supported Vaccines for Children Program keeps patients in their medical home, reduces up-front costs for providers because vaccine is provided free of charge, provides quality care to vulnerable children and adults.
- Providers store and administer the vaccines. For the Vaccines for Children Program, public health departments provide education and training on storage practices and administration techniques that maximize vaccine effectiveness.
- Providers counsel patients about the importance of immunizations often utilizing materials developed by the CDC or public health departments – often available in multiple languages and formats for ease of use and based on the best science available for message effectiveness.
- In many cases, providers enter vaccines administered into the state immunization information system so that public health can monitor vaccination rates at the community level and work to maintain herd immunity.
- Public health provides feedback to provider practices on their immunization rates and provides training on strategies to improve rates.
- Public health works with vaccine manufacturers to maintain awareness on potential vaccine shortages and communicates information and strategies to providers on how to address.
- Public health and primary care work in tandem to respond to outbreaks whether it’s a pandemic or measles.
- Public health communicates to health care providers about current immunization standards of practice and the latest recommendations on new vaccines.
- With the help of state Immunization Information Systems providers can monitor their Healthcare Effectiveness Data and Information Set (HEDIS) measures (is the child up-to-date on their immunizations, and is the child due for catch-up immunizations?)

When this partnership is working well the increased value to primary care can be financial savings, increased quality of care, improved provider/patient relationship, and improved rate of immunization coverage for patients.

Value of PH/PC Integration to Public Health:
In general public health benefits from a well-integrated system with primary care by increasing their reach in population health efforts. For example, primary care assists public health in data collection, surveillance, and dissemination of health information and provides the lead role in developing systems for delivering quality care.

Specific immunization examples include:

- A trusted provider is the most effective communicator to patients about the benefits of vaccines. Public health provides tools and talking points to providers and providers in turn deliver those to patients – it is this partnership that maximizes the benefit, alone neither entity would be as effective.
- Many providers enter immunization information into the immunization information system, without their participation the data would be incomplete (there is room for improvement in this area but with increased collaboration with EHRs it should improve).
- Public health relies on health care providers to report diseases they are encountering in their offices. This information is critical for public health to detect outbreaks in a community.
- During an outbreak of a vaccine preventable disease, public health and primary care work in tandem to educate the public, detect and report cases, increase vaccination rates, etc.
- Providers report, and encourage their patients to report, any adverse events from a vaccine so that any signals can be identified at a population level and quickly addressed if necessary.
- For providers who participate in the Vaccines for Children program, public health and providers work together to ensure that the publically funded vaccine is properly stored and administered. PH and PC also work together to establish emergency back-up systems to preserve the vaccine in the event of a power outage.

The marks of an effective partnership for public health are an efficient system that enables effective communications to the public about the benefits of vaccines, complete immunization records in the IIS, timely and complete reporting of vaccine preventable diseases and adverse events, and accountability for publically funded vaccines. All of these factors contribute to increased protection of the population from VPDs and good stewardship of public resources.

**Value of PH/PC Integration to Payers:**
Payers are well aware of the cost benefit of providing immunizations. It is clearly in the best interest of the insurance companies to reduce costly episodes in their covered lives.

“Transforming our health care system from one that simply treats people when they are sick to preventing illness is critically important – not only because it will keep people healthier and more productive, but also because chronic diseases are a major contributor to rising health care spending in the United States and thus rising insurance premiums.” (AHIP webpage Promoting Prevention and Wellness).
The integral partnership of public health and primary care outlined above, helps to achieve many of the goals that insurance companies are working towards:

- Increased quality of care through education and training on storage and handling of costly vaccines.
- Tracking immunization series completion through coordinated efforts of the IIS improves the likelihood that members in an insurance plan are fully covered against preventable and often costly diseases.
- Public health and primary care work together to increase access to immunizations for all people – exploring venues such as pharmacies, schools, and workplace. Increased access can lead to increased protection from vaccine preventable diseases.
- As demonstrated on the American Health Insurance Plans website – many insurance companies have initiated communications campaigns, immunization reminder programs, and tracking systems for their members – all of these activities further enhance the benefits of a well-integrated system.
- AHIP lists the top challenges of a successful immunization program as:
  - Parental concerns about safety (an effort being studied by PH, looking for causes and effective communication strategies, information is communicated by providers)
  - Adults may lack medical home (public health is works to increase providers – both primary care and others such as pharmacies, schools and workplace)
  - Confusion over new vaccines (Public health provides information through the Vaccine Information Sheets about all vaccines, providers give the information to patients and answer questions)
  - Inconsistent storage and handling practices (for VFC program public health inspects the storage and handling and provides education and training to providers).

**Value of PH/PC Integration to Medicaid:**

Immunizations are an important health service for the Medicaid population for several reasons. First, beneficiaries have greater health care needs and higher health risks than other individuals in the U.S. Adult Medicaid beneficiaries report that they are in fair or poor health at triple the rate of any population group and tend to experience disproportionately low rates of preventive care. Second, Medicaid beneficiaries may be more likely to live with persons who are not citizens, are at elevated risk for communicable disease, and experience reduced access to medical care. Because living arrangements alone may elevate the risk of disease for certain groups of Medicaid eligible persons, immunizations are important. (The Epidemiology of US immunization Law: A National Study for NCIRD, Medicaid Coverage of Immunizations for Non-Institutionalized Adults, November 2003, GWU, Rosenbaum, Steward, Cox, Lee).

Medicaid now covers over 62 million Americans, more than Medicare or any single private insurer. Medicaid covers more than 1 in 3 children and over 40% of births. Medicaid is also a
major source of health care financing, funding a sixth of total national spending on personal health care.

State Medicaid programs are focused on improving quality care and health of the eligible population in the most cost effective way. One way that can assist in their goals is the coordination between public health and providers to ensure quality, safety, and access to immunizations.

Medicaid benefits from a well-coordinated, efficient and effective immunization system by:

- by improving herd immunity which protects the most vulnerable in the population and those that do not have access or coverage.
- assuring high quality storage and handling which reduces the cost of re-vaccination,
- working together to create up-to-date complete immunization records – again which reduces the need for costly and unnecessary re-vaccinations.
- Assisting with questions about eligibility and referral for the Medicaid eligible children the majority of which are served by the Vaccines for Children program.
- No cost value added to Medicaid patients – quality control for VFC, immunization information systems, communications materials developed in multiple languages, assessment of unmet needs, identifying barriers and solutions to access issues for immunizations for vulnerable populations.

Partnership contributes to the Triple Aim of improving population health (herd immunity); improving patients experience of care through the benefit of tested communications messages being delivered by a trusted provider, and high quality storage and handling reduces the need for re-vaccination. Cost of care is reduced by a low-cost intervention resulting in protection from high cost (both in terms of money and morbidity and mortality) diseases. Partnership can work together to determine the most efficient service delivery, can work together to evaluate coverage data for Medicaid population and target areas of need.

**Value of PH/PC Integration to Business Community:**
The impact on the bottom line of an unhealthy workforce and the increasing costs of health insurance for employees have led to increasing interest in and involvement of workplaces in prevention.

“The unsustainable rise in health care rates has created an urgent need for innovative ways to deliver health care more efficiently. This imperative has been evident not only in the activities of government health organizations but also in the private sector. As purchasers of health care, many employers have been exploring ways to reduce the growth in these costs. A recent survey by Towers Watson and National Business Group on Health (2010) found that many employers are incentivizing a number of healthy lifestyle activities for their employees... The concern about health care expenditures has opened the door for innovative approaches to improving health and health care.” IOM page 18)
Employers’ investment in health insurance has grown continuously since the mid-1990s. The lion’s share of this growth occurred between 2000 and 2005, when health insurance premiums increased 73 percent overall. In 2005, the 9.2 percent annual premium growth rate outpaced the inflation rate of the US economy by nearly six percent and the national increase in workers’ hourly earnings by more than six percent. (Why Invest) p 3

“Organizations need to view employee health as a productivity strategy rather than as an exercise in health care cost management. Over the past decade, the emerging discipline of Health and Productivity Management has shown that health and productivity are inextricably linked and that a healthy workforce leads to a healthy bottom line.” (Healthy Workforce 2010 and Beyond, PfP page 3)

Findings from 56 studies of worksite health promotion programs showed an average:

- 27 percent reduction in sick leave absenteeism
- 26% reduction in health care costs
- 32% reduction in workers’ compensation and disability management cost claims
- $5.81 to $1 ROI ratio

Business can serve as a vehicle for successfully integrating public health and primary care. Some businesses have on-site clinics on wellness programs – those efforts can be enhanced through partnership with public health (linking to the immunization registry, sharing of data to assess priority needs of a population, providing appropriate outreach tools, campaigns and strategies developed by public health experts, etc). This partnership with public health and primary care can prove particularly beneficial to smaller employers that may not have the resources for a full on-site clinic or extensive worksite wellness program.

**Immunizations**
Between 40,000 and 50,000 adults die each year from vaccine-preventable illnesses, according to a 2010 report from the Infectious Diseases Society of America, the Robert Wood Johnson Foundation and the Trust for America’s Health. The Centers for Disease Control and Prevention estimates that adult vaccine-preventable diseases cost about $10 billion annually in direct medical costs.

One innovative approach that can help address some of the cost to businesses is the effective integration of public health and primary care. The partnership helps to ensure access to and quality of care for employees. The increased likelihood of employees getting the influenza vaccine, for example, leads to lower direct and indirect employer costs. Vaccinated adults make fewer health care/provider visits which could result in lower insurance costs, fewer days off of work, and fewer work days with reduced effectiveness.
Influenza Example

The National Business Group on Health and others have been documenting the cost to business of the annual influenza season and the impact on cost and productivity.

Flu costs businesses approximately $10.4 billion in direct costs for hospitalizations and outpatient visits for adults each year. The flu is responsible for 200 million days of diminished productivity, 100 million days of bed disability and 75 million days of work absence. Each episode of illness translates into five to six days of symptoms and between a half day and five days of work missed. This not only disrupts the lives of the affected persons, it also impedes how well employers can function without the affected employees. (National Business Group on Health web page). Among unvaccinated participants, ILIs accounted for 45% of all days of illness during the influenza season, 39% of all illness-related work days lost and 49% of all days with illness-related reduced on-the-job productivity. (Vaccinating Against the Flu: A Business Case)

Only slightly more than half (55%) of all employers offer flu vaccination. Yet this high-value, relatively low-cost service has been shown to create savings in at least two ways: reduced absenteeism (by as much as 45%) and reduced health care expenditures, such as physician office visits. (Why Invest p 8) This provides an opportunity for public health and primary care utilize business as a vehicle for enhanced integration.
The Survey Says: Employers Can Boost Their Investment in Clinical Preventive Services

Employers who want to invest their health care dollars wisely will emphasize preventive services that are proven to be cost-effective, as well as beneficial to their employee’s health.

In 2001, Partnership investigated which clinical preventive services employers nationwide covered under their employee health plans. Partnership collaborated with Mercer on its National Survey of Employer-Sponsored Health Plans, which asked employers about their coverage of clinical preventive services recommended by national expert sources, including the U.S. Preventive Services Task Force (USPSTF) and the Advisory Committee on Immunization Practices (ACIP).

Employer Coverage of Selected Clinical Preventive Services, 2001

<table>
<thead>
<tr>
<th>Service</th>
<th>Small Employers: 10-199 employees</th>
<th>Medium Employers: 200-999 employees</th>
<th>Large Employers: 1,000+ employees</th>
<th>Included in Employer Primary Plan</th>
<th>Priority Ranking for Impact and Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunizations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Childhood immunizations</td>
<td>79%</td>
<td>88%</td>
<td>94%</td>
<td>71%</td>
<td>High</td>
</tr>
<tr>
<td>Flu vaccine</td>
<td>60%</td>
<td>61%</td>
<td>68%</td>
<td>55%</td>
<td>High</td>
</tr>
<tr>
<td>Health Screenings</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Cholesterol screening</td>
<td>62%</td>
<td>68%</td>
<td>77%</td>
<td>57%</td>
<td>Medium</td>
</tr>
<tr>
<td>Chlamydia screening</td>
<td>39%</td>
<td>46%</td>
<td>54%</td>
<td>37%</td>
<td>Medium</td>
</tr>
<tr>
<td>Cancer Screenings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast cancer screening</td>
<td>88%</td>
<td>91%</td>
<td>95%</td>
<td>80%</td>
<td>Medium</td>
</tr>
<tr>
<td>Cervical cancer screening</td>
<td>85%</td>
<td>90%</td>
<td>92%</td>
<td>79%</td>
<td>Medium</td>
</tr>
<tr>
<td>Colorectal cancer screening</td>
<td>73%</td>
<td>78%</td>
<td>79%</td>
<td>68%</td>
<td>High</td>
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<tr>
<td>Lifestyle Modification Services</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco cessation services</td>
<td>4%</td>
<td>4%</td>
<td>2%</td>
<td>4%</td>
<td>High</td>
</tr>
<tr>
<td>Alcohol problem prevention</td>
<td>21%</td>
<td>22%</td>
<td>19%</td>
<td>18%</td>
<td>Low</td>
</tr>
</tbody>
</table>

The survey responses, summarized in table below, reveal where employers have been making effective preventive care purchases. But more importantly, they bring to light where employers’ health insurance dollars can be invested more wisely.

Source and explanation of these data: Data on employer coverage were collected by William M. Mercer, Inc. as part of its National Survey of Employer-Sponsored Health Plans, 2001. They are based on responses from more than 2,000 employers and have been generalized to represent more than 884,000 U.S. employers that sponsor employee health insurance benefits and have a staff of at least 10. The data are based on each employer’s most popular health plan (Primary Plan) for three types of plans: HMO, PPO, and POS. The most popular plan is the plan with the highest employee enrollment. Employer size is based on the number of employees on staff, indicated in parentheses. For each size category, the number of employers responding to the survey was: small=600; medium =506; large=1,074.

The priority ranking is based on research published in the July 2006 issue of the American Journal of Preventive Medicine. Partnership for Prevention sponsored a large research study in which clinical preventive services were ranked based on their health impact and value (cost-effectiveness), each criterion receiving a score from 5 to 1. Scores for the two criteria were combined to create an overall ranking, resulting in a scoring range from 10 to 2. In this table, combined scores from 8 to 10 are labeled High priority; from 5 to 7 are labeled Medium; and from 2 to 4 are labeled Low.

This symbol indicates a service that has high priority but is offered as a health benefit by approximately 2/3 or fewer employers.
**Value of PH/PC Integration to Schools:** Healthier student body translates to less absenteeism. Attendance rates impact funding levels for public schools. All 50 states base funding on student population, but students are counted in different ways. In San Diego, for example perfect attendance equals $5,230 in payments to a school, every day absent (excused or not) is a loss of $29. Last year 12 schools in one San Diego school district lost over $1 million due to absent students.

Specific Examples:

- **H1N1 school located vaccination campaign in four Maine counties – Higher School Located Vaccination** rates associated with decreased absenteeism and missed work days for teachers.
- **Seasonal flu in 2 MD counties – Absenteeism lower in county with SLV vs. adjacent county without SLV.**
- **Seasonal flu in MD over three years – Decreased absenteeism associated with SLV.**

Integration Example – Schools

“The health department of Alachua County, Florida, joined with the local public school system and the University of Florida to initiate a program designed to increase rates of influenza vaccination among school-aged children. A critical component of the program’s success, however, was establishing linkages with primary care providers. Through the vaccination program, children received a free nasal-spray flu vaccine in school, regardless of their insurance status. Children who were ineligible for the vaccine because of underlying medical conditions were referred to their provider for evaluation and the flu shot…. Both pediatricians and the health department input flu vaccination status into the state’s registry so both groups could share information about their patients. In the 3 years since the program became fully operational, immunization rates have increased…. In schools where 80% or more of the students were eligible for free or reduced price lunches, the immunization rate went from 12% in the 2006 pilot program to 47% in 2009-2010. (IOM page 55)

Similar to workplaces, schools provide a beneficial setting for the integration of public health and primary care for immunizations. Ideally immunization activity at a school is well-coordinated with both the medical home and with the IIS.