

The Race to Improve Adult Vaccination Rates in the Information Age

BY SAMUEL STOLPE, PHARM.D, MPH



SAMUEL STOLPE, PHARM.D, MPH

“Information technology and business are becoming inextricably interwoven. I don’t think anybody can talk meaningfully about one without talking about the other.”¹ So wrote then Microsoft CEO, Bill Gates, nearly 20 years ago. While this truism is now apparent in virtually every industry, no one space has been more affected than health care. One need only take a cursory glance around a pharmacy to see how information technology (IT) has become part-and-parcel of the way the pharmacy space does business. There is an accompanying need that coincides with every business driven by technology: the need to innovate. Businesses that do not engage in innovation cycles often find themselves hamstrung in their ability to effectively compete.²

The pharmacy industry has increasingly sought to compete with other industries to address a large public health concern: undervaccination of the US adult population. In the United States, year after year, the health care system has inadequately addressed the vaccination gaps of adult patients. The public health implications of these gaps cannot be understated. Both pneumonia and influenza are listed in the top 10 causes of death, with pneumonia accounting for more than 55,000 deaths each year alone.³

Although mortality and morbidity from pneumonia cannot be entirely prevented through vaccination, the associated risks can be mitigated in adult patients by ensuring an up-to-date status in those older than 60 through the completion of an appropriate pneumococcal pneumonia vaccine regimen. The results of a study that included 84,496 adults 65 years and older in the Netherlands showed that the 13-valent polysaccharide conjugate vaccine protected 75% of vaccinated patients against invasive pneumococcal disease.⁴ From a public health standpoint, there is every reason to push for the nearly 40% of US seniors who remain unvaccinated against pneumococcal pneumonia to get up-to-date as soon as possible.⁵

Besides addressing a public health need, increases in vaccination rates can significantly impact a pharmacy’s bottom line. While profit margins

associated with vaccination programs are both proprietary and specific to each community pharmacy, the margins associated with vaccine administration have been noted by pricing experts to be higher than those associated with dispensed oral medications.⁶

The use of IT to accelerate adult vaccination rates is increasingly making its way into health care settings, including community pharmacies. Some pharmacies are discovering how to utilize their state immunization information system (IIS), comprising confidential state- and jurisdictional-based registries of child and adult vaccination histories, to proactively intervene on behalf of adult vaccination gaps. The American Pharmacists Association Foundation’s Senior Vice President of Research and Innovation, Benjamin Bluml, RPh, recently published findings from a prospective, multisite, observational study in *Population Health Management*. The study evaluated the impact of an innovative pharmacy practice model that drew upon vaccination histories from the IIS at the point of care to identify and close vaccination gaps in the US adult population.¹⁰ When adult patients enrolled in the study presented at a pharmacy to receive an influenza vaccination, the pharmacists sent a query to the IIS to obtain patient immunization histories. Using a forecasting tool compliant with the CDC’s Advisory Committee on Immunization Practices, pharmacists identified additional nonflu vaccination opportunities and attempted to resolve unmet vaccination needs. This approach resulted in a 41.4% increase in nonflu vaccinations rates above the influenza vaccinations they provided, closing over 33% of identified vaccination care gaps.⁷

In addition to improved community health and strengthening of patient–pharmacist relationships, pharmacies stand to see a substantial increase in revenue associated with IIS technology solutions in the pharmacy workflow. For example, using a conservative estimate of \$175 per vaccination as the aggregate price for nonflu vaccinations commonly administered by pharmacists, based on the CDC vaccination price list, pharmacists can approximate the revenue increase from the imple-

mentation of this program.⁸ With a 41.4% increase in vaccines administered, pharmacies can anticipate an additional \$72.50 in revenue from each new flu shot administered to an individual that would have otherwise gone unvaccinated, under the assumptions of this study. With that, a pharmacy that administers 1000 new influenza vaccinations over the flu season, after implementing the IIS query strategy, could potentially see more than \$70,000 in additional revenue.

There are multiple ways to access information in the registries, including the use of online portals managed by state departments of health,¹⁰ direct IIS integration into pharmacy management systems and parallel clinical management platforms, and other third-party technology vendors, such as communications vendors. Nearly every state and jurisdictional IIS allows for query of the registries. Those that do not have plans to introduce this feature in the near future.

Both the business and public health needs for using the IIS to address adult vaccination gaps have not been lost on other sectors of the health care industry. There are additional incentives specific to certain practice settings outside of pharmacy that have advanced the utilization of the IIS within these settings. In 2010, the Community Preventive Services Task Force deemed utilization of the IIS a best practice. This was based on strong evidence found in 108 published studies and 132 conference abstracts, which showed that the IIS is effective in increasing vaccination rates and reducing vaccine-preventable disease.⁹ On the heels of this strong recommendation from the task force came the inclusion of quality metrics in a variety of federal quality- and performance-based payment programs. Incentives were provided for reporting and querying the IIS within the Meaningful Use of Healthcare Technology program administered by the Office of the National Coordinator for Healthcare Information Technology.¹⁰ Also, IIS reporting and querying measures were made available in the Merit-Based Incentive Payment System, a relatively new Medicare payment structure introduced by the Medicare Access and CHIP Reauthorization Act of 2015.¹¹ With these and other programs, the federal government is directly incentivizing health systems, clinics, and private physician practices to report to and query the IIS.

In order for the community pharmacy to remain a strong player in the immunization space, the profession must continue to innovatively use IT. Pharmacists need to know what gaps exist in a patient immunization record and create proactive programs to close those gaps. Pharmacy does not have the same incentives from the federal government to utilize the IIS that other health care providers do; these are incentives that have the potential to advance technological support tools within practice settings outside of pharmacy that compromise the profession's ability to address available vaccination opportunities. As such, the onus remains on pharmacy to deepen the utilization of available tools and rapidly implement technological innovations, such as the IIS, to close vaccination gaps before the competition.

REFERENCES

- Gates B, Hemingway C. *Business @ the Speed of Thought: Using a Digital Nervous System*. New York, NY: Warner Books, 1999.
- Rothaermel FT. Competitive advantage in technology intensive industries. In: Thursby MC, Ed. *Technological Innovation: Generating Economic Results (Advances in the Study of Entrepreneurship, Innovation: Economic Growth*. Volume 26. Bingley, United Kingdom: Emerald Publishing Limited; 2016:233-256.
- Trends in pneumonia and influenza: morbidity and mortality. American Lung Association website. lung.org/assets/documents/research/pi-trend-report.pdf. Published November 2015. Accessed July 27, 2017.
- Bonten MJM, Huijts SM, Bolkenbaas M. Polysaccharide conjugate vaccine against pneumococcal pneumonia in adults. *N Engl J Med*. 2015; 372:1114-1125. doi: 10.1056/NEJMoa1408544.
- Health, United States, 2016. CDC website. cdc.gov/nchs/data/abus/abus16.pdf#066. Accessed July 27, 2017.
- Johnsen M. Pharmacy-provided immunizations critical to patient care. Drug Store News website. drugstorenews.com/article/pharmacy-provided-immunizations-critical-patient-care. Published May 23, 2017. Accessed July 25, 2017.
- Bluml BM, Brock KA, Hamstra S, Tonrey L. Evaluation of the impact of an innovative immunization practice model designed to improve population health: results of the Project IMPACT Immunizations Pilot [ePub ahead of print]. *Popul Health Manag*. 2017. doi: 10.1089/pop.2017.0049.
- CDC vaccine price list. CDC website. cdc.gov/vaccines/programs/vfc/awardees/vaccine-management/price-list/index.html. Updated July 3, 2017. Accessed July 25, 2017.
- Vaccination programs: immunization information systems. The Community Guide website. thecommunityguide.org/findings/vaccination-programs-immunization-information-systems. Accessed July 25, 2017.
- Meaningful Use stage 1 responsibilities for immunization registries. CDC website. cdc.gov/vaccines/programs/iis/meaningful-use/mu-steps-ir-stage1.html. Accessed July 27, 2017.
- Notice of proposed rule making: Medicare Access and CHIP Reauthorization Act of 2015. Merit-based Incentive Payment System: advancing care information. Centers for Medicare & Medicaid Services website. cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/Advancing-Care-Information-Fact-Sheet.pdf. Updated April 27, 2016. Accessed July 25, 2017.

ABOUT THE AUTHOR

SAMUEL STOLPE, PHARM.D, MPH, is vice president, private sector, for Scientific Technologies Corporation.