



# University of Pittsburgh

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**Featured Inventors: Richard Zimmerman, MD MPH, Mary Nowalk, PhD,  
Jonathan Raviotta, PhD MPH**

## **The 4 Pillars™ Practice Transformation Program**

*Step-by-step guides to increasing vaccination in outpatient settings*

Despite national recommendations for vaccination, rates can be lower than practitioners assume. For example, flu vaccines are so ubiquitously offered in the fall and winter that it feels natural to assume that patients are adequately protected, but most practices don't actively track or work to increase immunization rates. The 4 Pillars™ Practice Transformation (4 Pillars™) Program is a compilation of evidence-based steps for increasing immunizations using an online implementation tracking dashboard. The program provides an easy guide for outpatient clinics to estimate current vaccination rates and then boost those numbers. Not only does widespread vaccination serve the public good, but it also eliminates costs associated with treating preventable illnesses.

### **Technology Description**

The 4 Pillars™ Program ([4pillarstoolkit.pitt.edu](http://4pillarstoolkit.pitt.edu)) is an online compilation of evidence-based best practices and step-by-step guides for increasing immunizations in outpatient practice settings.

The program is founded on four key domains or pillars: convenience, communication, facilitation, and motivation. Clinicians receive guidance for implementing the strategies, and the online practice transformation dashboard showed the practices' progress through the change process.

The 4 Pillars™ Program has been used in 3 large scale clinical trials, where it has minimized missed opportunities for immunization and increased vaccination rates.

### **Applications**

- Tracking and increasing immunization rates in outpatient clinics



*Step-by-step guides to quality improvement in outpatient settings*

### **Advantages**

- Ready-to-implement format crafted by academic experts
- Cost-effective
- User-friendly
- Increases vaccination rates

### **Stage of Development**

The 4 Pillars™ Program is being pilot-tested in a health system with more than 110 primary care practices. The next major release is funded and planning is underway.

### **IP Status**

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# FEATURED INVENTORS:



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Zimmerman,  
MD MPH*

Dr. Zimmerman is a tenured Professor in the Department of Family Medicine and Clinical Epidemiology, School of Medicine, with a joint appointment in the Graduate School of Public Health, University of Pittsburgh. He was founding chairperson of the Group on Immunization Education of the Society of Teachers of Family Medicine and is one of the developers of the award-winning app *Shots*. In 2016, he won the Curtis Hanes MD lifetime research achievement award.



*Mary Patricia  
Nowalk, PhD*

Dr. Nowalk has served as epidemiologist, project director, research coordinator, and manuscript writer/editor with the PittVax Research Group for nearly two decades. In this time she has published more than 100 vaccine-related research articles.



*Jonathan  
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Dr. Raviotta is a senior research specialist with the PittVax Research Group. He holds a PhD and MPH from the University of Pittsburgh School of Public Health.

## *Publications*

- Zimmerman, et al. (2017). Using the 4 Pillars™ Practice Transformation Program to increase adolescent human papillomavirus, meningococcal, tetanus-diphtheria-pertussis and influenza vaccination. *Vaccine*; 35(1):109-17.
- Smith KJ, et al. (2017). Cost-Effectiveness of the 4 Pillars Practice Transformation Program to Improve Vaccination of Adults Aged 65 and Older. *Journal of the American Geriatrics Society*; 65(4):763-8.
- Nowalk MP, et al. (2016). Using the 4 Pillars™ Practice Transformation Program to increase adult Tdap immunization in a randomized controlled cluster trial. *Vaccine*; 34(41):5026-33.
- Zimmerman RK, et al. Using the 4 Pillars™ Immunization Toolkit to increase pneumococcal immunizations for older adults: A cluster randomized trial. *J Am Geriatr Soc*; 65(1):114-22.
- Hawk M, et al. (2016). Using a mixed methods approach to examine practice characteristics associated with implementation of an adult immunization intervention using the 4 Pillars™ Immunization Toolkit. *J Healthcare Qual* 2016; In press.
- Nowalk MP, et al. (2016). Maintenance of increased childhood influenza vaccination rates one year after an intervention in primary care practices. *Academ Pediatr*; 16(1):57-63.
- Lin CJ, (2015). Reducing racial disparities in influenza vaccination among children with asthma, *J Pediatr Healthcare*; 30(3):208-215.
- Zimmerman RK, et al. Cluster randomized trial of a toolkit and early vaccine delivery to improve childhood influenza vaccination rates in primary care. *Vaccine* 2014; 32 (29):3656-3663.
- Nowalk MP, et al. (2014). Increasing childhood influenza vaccination: A cluster randomized trial. *Am J Prev Med*; 47(4):435-443.
- Nowalk MP, et al. (2013). Success of the 4 Pillars Toolkit for Influenza and Pneumococcal Vaccination in Adults. *J Healthcare Qual*; 36(6):5-15.

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