

# The Personal Health Partner: Using Health Information Technology to Promote Better Pediatric Primary Care



Pediatric primary care providers are responsible for delivering a comprehensive set of preventive care services during well-child visits. These visits give providers an opportunity to examine the growth, development, and well-being of a child on a regular basis (e.g., annually). Due to time constraints and the lengthy list of recommended preventive services, it is often difficult for providers to address all care needs within a single well-child visit.

Dr. William Adams, a pediatrician at the Boston Medical Center (BMC), understands the challenges of providing well-child care and the need to balance delivery of recommended preventive services within time constraints. He remarked that “the potential content for primary care is greater than anyone would have time for,” and suggests engaging the patient outside of the visit as a way to deliver comprehensive primary care. For example, some types of preventive screening and counseling, such as assessing a child’s exposure to secondhand smoke and counseling a parent to make a quit plan, could occur outside of patient office visits. To that end, Dr. Adams and his team developed the Personal Health Partner (PHP) to help providers deliver preventive care services. The PHP is a telephony-based health information technology system that uses interactive voice response technology to engage parents before a scheduled well-child visit, collect child health data related to preventive care (e.g., developmental screening, obesity screening) and medication management (e.g., asthma medication use, fever medication use) to inform the visit, and provide personalized followup assessment and counseling as needed. Dr. Adams chose telephony technology because it is ubiquitous and convenient

for patients. Telephony also accommodates low-literacy patients by directing the conversation and providing a clear path for parents to share specific health information and receive counseling in return.

Parents call into the PHP and answer automated questions that assess their child’s health status. The PHP assesses a wide range of health topics and then counsels parents based on their responses. The PHP also interfaces with the provider’s electronic health record (EHR) system, making the child’s data available during the call to guide the conversation and counseling. Parent-reported data are reviewed by the child’s provider who confirms or updates these data prior to integrating them into the EHR. Providers can refer to the data to inform upcoming well-child visits and clinical decisionmaking. By capturing these data in advance, the PHP helps providers tailor the well-child visit to the specific needs of a child and family and to improve overall efficiency and effectiveness of the visit.

Evaluation of the PHP demonstrated its promise as a clinical support tool for providers.

- Parents who used the PHP reported being better prepared for visits.
- Parents who used the PHP were more likely to report discussing important issues during visits, such as parental depression and their child’s prescription medication use.
- The PHP was well-received by both providers and parents; most parents (89 percent) would recommend the PHP to others.

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## What is the PHP and how does it work?

The PHP is an automated, interactive, data-driven system that uses synthetic text-to-speech and automatic speech recognition to converse with parents and gather health data. With this high-quality speech recognition capability, conversation between the PHP and parent flows without the parent having to use a telephone keypad to respond to questions. During the call, the PHP follows a script linked to a database with all possible responses. When the PHP asks a question, the parent's response in spoken language signals the PHP to ask more questions or activates counseling messages predetermined in the script and database.

Data gathered during a call are stored in a database linked to the PHP and then transferred to a form that interfaces with the provider's EHR. Providers can review the data, confirm or update them as needed, and then accept the data collected during the PHP call into the EHR.

## What does the PHP do?

The PHP reviews three general health topics with parents: asthma symptom assessment, medication safety, and routine health care maintenance. Routine health care maintenance questions address a child's developmental screening, diet and physical activity, tuberculosis risk, home safety, and parental smoking and depression. These questions are based on the U.S. Preventive Services Task Force, the American Academy of Pediatrics, and other evidence-based recommendations.

The PHP is able to collect health data on a range of topics; alert parents and providers to health issues or concerns, including misuse of common over-the-counter and asthma medications; and engage parents in pre-visit behavior change by providing counseling on topics identified during the PHP assessment. For example, if parents indicate they smoke and their

*If parents screen positive for depression during a call, the PHP reminds them that providers are available to listen to their feelings. The PHP then prompts the parent to talk about these feelings during the well-child visit.*

children are exposed to secondhand smoke, the PHP is programmed to inform these parents of the risks associated with exposure to secondhand smoke and counsel them to make a quit plan or call a quit line. The PHP also shares information with providers and notifies them of health issues reported during the call, and informs content of upcoming well-child visits.

## The PHP shows promise in supporting parents and providers.

The PHP was successful in engaging parents prior to their child's well-visit, identifying potential health issues, counseling parents accordingly, and alerting providers to address issues (e.g., asthma medication misuse) during visits. The PHP offers an easy way for parents to provide their child's health information over the phone at a time convenient for them. Based on the project findings, the PHP has potential to facilitate the delivery of comprehensive primary care for children, better prepare parents and providers for regularly scheduled well-child visits, and support providers in clinical decisionmaking.

Dr. Adams and his team at BMC continue to enhance the PHP. They are making it available in both English and Spanish and plan to engage parents when they check in for a well-child visit by asking them to call the PHP while in the clinic waiting room. The PHP has been well received by BMC's pediatric clinical leadership who support full implementation of the system within the BMC's Department of Pediatrics in the future.

