# Using a Networked PHR to Support Value-Added Care Processes

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**Overview**

Since 2001, Geisinger's networked PHR has become a critical tool for enabling patients and their caregivers to work with the rest of the healthcare team (including doctors, nurses, case managers, schedulers, and therapists) to carry out higher-quality, lower-cost (that is, value-added) care processes. *(Walker, J. and P. Carayon (2009). "From Tasks to Processes: The Case For Changing Health Information Technology To Improve Health Care." Health Affairs **28**(2): 467-477.)*

The networked PHR provides this support in a number of ways. Most fundamentally, it provides secure electronic messaging with every Geisinger practice that the patient uses, enabling patients to co-manage, for example (1) blood-pressure medications with their doctors—by sending in blood pressure readings, (2) heart failure with their case managers—daily weights, and (3) anticoagulant dosing with the Anticoagulation Clinic. This communication link is especially beneficial for rural patients, who often must drive two hours one way to see a sub-specialist.

The networked PHR also gives patients access to their problem list and lab test results—along with their doctor's interpretation of the results and recommendations for further action. Many patients report that having ready access to this information motivates their self-management of such conditions as diabetes and high cholesterol more effectively than usual care. Patients also value the ability to show this information to any healthcare provider (for example, an ED doctor) who has a computer that is connected to the Internet. Patients have informed us of many instances when this feature has enabled them to get faster, more appropriate emergency care and avoid duplicate testing.

Our networked PHR provides the patient evidence-based preventative and chronic care reminders that lets her know the status of those needs and to have the testing (e.g., mammogram) or treatment (e.g., flu vaccination) performed and documented without the requirement of an office visit.

The networked PHR also enables patients and their chosen caregivers to perform self-service conveniently. For example, to request medication renewals, a patient simply clicks the box next to the medications he needs, then clicks on the "Submit" button. The renewal request is received electronically by a practice nurse, who either transmits appropriate maintenance medications (e.g., for blood pressure or cholesterol) directly to the patient's pharmacy, or to the doctor's electronic inbasket if the medication requires approval prior to transmission. The patient receives electronic notification when the prescriptions have been sent to the patient's pharmacy. Two other popular

self-service processes are the ability of parents to print their children's immunization records and of patients to self-schedule office visits (resulting in a decrease from a 5% no-show rate to 2%).

As these examples suggest, self-service processes have the potential to save time and money, both for the patient (who may avoid a 10-minute wait on the phone and then a wasted trip to the pharmacy) and the provider (who avoids staffing phone lines and paying for staff to wait for the pharmacy's staff to answer the phone). Roger Burlton reports that such self-service processes cut costs by an order of magnitude. *(Burlton, R. (2001). Business Process Management: Profiting from Process. Indianapolis, SAMS.)*

**Prospect**

Over time, we are using the PHR to support care processes that are more patient-centered, more seamless, more evidence-based, and more accountable. At its heart, this means increasing the ways in which patients can use the PHR for self-management. These ways include (1) increasing the number of conditions for which an established patient can complete a validated questionnaire and receive treatment recommendations (e.g., for a cough) without an office visit—with clinician review of the answers and close follow-up; (2) extending self-management of conditions such as diabetes and treatments such as anticoagulation; (3) increasing the effectiveness of online, interactive patient education and decision support, and (4) increasing the number of administrative tasks which patients can perform themselves.

At present 123,000 patients (about 25% of patients with whom we have an ongoing care relationship) use the PHR. We anticipate this percentage growing to 50% over the next decade.

As our PHR is increasingly refined to support value-added care processes and as those care processes (particularly the interfaces among sub-processes) are themselves better standardized, the potential will grow to include additional stakeholders in the performance of care processes. Although the PHR is not involved, this sharing of responsibility for value-added care processes is currently underway in five non-Geisinger clinics.

**Security**

Because it may contain so much sensitive information that needs to be shared among many healthcare-team members, securing the PHR is vital. Appropriate hardware and software design—such as hosting communications on a secure server rather than sending patient information over the Internet—is the foundation on which organizational policy can be based.

To develop appropriate policies, Geisinger's legal, patient-privacy, information-security, IT, and medical records personnel worked with clinicians (particularly in adolescent medicine) and patients to review federal and state laws and community expectations.

This review led to a revision of Geisinger's general patient-information-management policies as well as to a specific set of policies for PHR access and use. (A summary is attached.) Briefly, any patient of a Geisinger clinician may request a PHR account, which the patient accesses with a self-selected ID and password. If a patient wishes to, they may give a caregiver(s) proxy access (under a separate ID and password). Based on Pennsylvania state law, a parent or legal guardian may request access to the PHR of their child to age 14. At age 14, access is automatically terminated, but may be renewed if the parent and child agree to share access. At age 18 (or legal emancipation) the patient may apply for access on his own. Independent patient-privacy and information-security teams that report to the governing board contribute to the enforcement of these policies.

When we have done focus groups with patients and caregivers, they have consistently requested robust privacy protections that are very simple to use. This level of trust can probably be attributed to a combination of (1) the general trust patients feel for their doctors, (2) our rural setting, and (3) our efforts over more than a decade to educate patients and the public regarding the care we take to secure their information, whether on our servers, in our clinics (EHR), or in the PHR.