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Center for Information Technology Leadership

Contact: Gary Woonteiler or Krissy Johnson, 781-891-1232, info@woonteilerink.com

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## CITL PUBLISHES LATEST RESEARCH ON PHR'S: "THE LATEST NEW FRONTIER IN HEALTHCARE IT"

# PERSONAL HEALTH RECORDS PROJECTED TO SAVE $21 BILLION ANNUALLY

### *"PHRs will empower patients and improve the quality of care"*

Boston – The Center for Information Technology Leadership (CITL), a nonprofit research center based at Partners HealthCare System in Boston, has published its latest research findings on the value of personal health records (PHRs) and has determined that PHRs could save $21 billion annually on a national level. CITL found that PHRs—web-based systems that allow patients to maintain their medical data and use that data to better manage their healthcare—may result in an annual net value of $19 billon based on a 10-year rollout and a usage rate of 80% of the U.S. population.

CITL recently presented key findings from its report at the American Medical Informatics Association annual symposium in Washington, D.C. The study—supported by unrestricted research funding from Healthcare Information Management and Systems Society (HIMSS), Google, InterComponent Ware, Inc., Kaiser Permanente, Microsoft Corporation, and Partners HealthCare System—illustrates how PHRs can add value to the healthcare system through reduction of waste and error, decreased administrative costs, and decreased clinical costs.

CITL examined the financial value of four emerging PHR architectures—provider-tethered, payer-tethered, third-party, and interoperable PHR systems—all providing the functions of information collection and sharing, information for self-management, and healthcare information exchange.

Information sharing involves authorized and secure sharing of patient's test results and medication lists. Information self-management includes online tools to manage chronic conditions, such as congestive heart failure, and tools to support smoking cessation. Information exchange involves web-based appointment scheduling, medication renewals, pre-encounter questionnaires, and e-visits.

CITL projects that regardless of the type of PHR architecture, significant direct healthcare savings would accrue to payers and providers. ***The greatest value would result from providing interoperable PHRs for 80% of the U.S. population, saving $21 billion annually.***

**Focusing on Four PHR Architectures**

In its report, CITL examined the cost-benefit of PHRs and the ways providers and patients can integrate the following four model architectures:

- *Provider-tethered* PHRs represent healthcare delivery organizations that offer PHRs to patients and are internally connected to the database of the provider's electronic health records. Patients can communicate with other providers and payers via manual communication channels but are unable to directly integrate external data.
- *Payer-tethered* PHRs represent healthcare insurance companies that offer PHRs to their members and are connected to their administrative databases. Patients can communicate with providers and other payers via manual communication channels such as secure email but are unable to directly integrate external data.
- *Third-party* PHRs are aggregators of healthcare data for users. They aggregate data through manual data exchanges, which import data from external sources but are unable to feed the data into clinical or administrative systems in their native format. Users can only contact parties external to the PHR through manual communication channels.
- *Interoperable* PHRs rely on regional aggregation of patients' healthcare data to users. PHRs are populated with data from all regional data sources via standards-based automated data exchange. The connections with their sources would create a record that is more complete than any individual repository.

***CITL found that the benefits and annual savings far outweigh the costs of implementing these PHR architectures, and it concludes that interoperable PHR is the investment that will provide the most value to the national healthcare system and the maximum potential value of PHRs.***

"PHRs have the potential to dramatically improve efficiencies in our healthcare system," said Blackford Middleton, MD, Chairman of CITL and senior author of the report. "As more individuals actively participate in the management of their healthcare, we can realize enormous savings and enhanced

quality of care. In this regard, PHRs represent the latest frontier of health information technology that can effectively engage consumers in their care. PHRs represent a crucial tool – the hub of interoperability – for communications among multiple healthcare stakeholders."

**Summarizing Benefits of PHRs**

- Providing interoperable PHRs for 80% of the U.S. population could cost an estimated $3.7 billion to acquire and $1.9 billion annually to maintain. Based on the eight functions of this model—information sharing of test results, information sharing of medication lists, congestive heart failure management, smoking cessation management, appointment scheduling, medication renewals, pre-encounter questionnaires, and e-visits—interoperable PHRs would save $21 billion annually.
- The net annual value of interoperable PHRs could be $19 billion annually.
- Regardless of the type of PHR, direct healthcare savings could accrue to both payers and providers, with payers realizing the majority of the cost savings.
- PHR-enabled e-visits can help reduce the amount of patient travel to doctors and equate to annual savings. CITL's PHR Advisory Board estimated that the average American would save 7.6 hours per year though e-visits, equating to an annual savings of $20 billion in recovered wages (given a national workforce of 150 million people with an average wage of $17.63 per hour).

"The inefficient exchange of patient information within our healthcare system significantly contributes to rising costs in the U.S. healthcare marketplace," said Doug Johnston, Executive Director of CITL and one of the report's authors. "In the course of a year, patients in the United States typically make over one billion visits to provider offices, many of these for routine care. Often, their visits are with different providers, with their information stored on different systems. By adopting PHRs and enabling e-visits, we have the potential to dramatically improve the quality of care and contain costs."

**Improving Quality of Care**

According to Johnston, improved quality of care is the greatest benefit of increased patient engagement. "With PHRs, patients can manage their healthcare through alerts and reminders that will enhance their compliance with medications and scheduled appointments.
Involving patients more actively in their care should improve outcomes and overall satisfaction."

In addition to increased patient involvement, CITL reports other patient care benefits through PHR use. This includes helping providers make more informed decisions using pre-encounter questionnaires that collect more complete and accurate information.

**Weighing Barriers to Implementation**

"In order for the benefits of PHRs to be realized, these systems naturally need to be implemented, and, as is the case with many evolving areas of healthcare IT, there are barriers that need to be addressed," said Eric Pan, MD, MSc, an author of the report. According to Dr. Pan, PHR architectures are affected by economies of scale, and their value proposition is affected by the number of patients covered in one PHR installation. He said that large provider organizations would realize greater value than smaller practices.

The number of users estimated to make a single installation of a PHR net positive are 47 million users for third-party PHRs, 62,000 users for payer-tethered PHRs, 59,000 users for provider-tethered PHRs, and 52,000 users for interoperable PHRs.

CITL also studied the reimbursement model of an e-visit and found that the PHR net value is highly dependent on reimbursement levels, and changes in the reimbursement rate could significantly affect the value proposition.

Finally, the report addressed the issue of privacy and underscored the importance of ensuring security with PHRs that are robust and reliable.

"Our report did not consider additional functions and applications, and for this reason, our findings may be considered conservative. Even with limited functionality, we have the potential to save billions of dollars—and there is actually room for considerably more cost savings and benefits," said Johnston.

**Looking Ahead**

"While interoperable PHRs are not in existence today, they have enormous potential for changing the healthcare environment in the future," said Dr. Middleton. "In the provider, payer, and third-party arenas, PHRs can all become interoperable through the development and adoption of national data standards within the U.S. healthcare system. Public policy will clearly affect the pace of PHR implementation and the realization of value from these systems."

The full report, *The Value of Personal Health Records (PHRs),* is available for download on CITL's web site (www.citl.org), and a soft-bound copy is available from the Healthcare Information and Management Systems Society (www.himss.org).

The report's authors are: David C. Kaelber, MD, PhD; Sapna Shah, MS; Adam Vincent, MPP; Eric Pan, MD, Msc; Julie M. Hook, MA, MHP; Doug Johnston, MTS; David W. Bates, MD, MSc; and Blackford Middleton, MD, MPH, Msc.

For its next project, CITL will examine the value of electronic prescribing and end-to-end medication management. CITL has previously published reports on the value of telehealth, information

technology-enabled diabetes management, the value of standardized national healthcare information exchange and interoperability, and the value of computerized provider order entry in ambulatory care.

**About the Center for Information Technology Leadership (CITL)**

Chartered in 2002 by Boston-based Partners HealthCare System, CITL assesses the value that information technology (IT) brings to healthcare. Using a rigorous approach, CITL performs research, disseminates findings, and provides additional services designed to help healthcare providers and other stakeholders improve quality and reduce cost using IT. For more information, visit www.citl.org.

**About the Health Information Management Systems Society (HIMSS)**

HIMSS provides leadership in healthcare for the advancement and management of information technology and management systems (www.himss.org).

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