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Medicare Health Care Quality Demonstration Evaluation

Indiana Health Information Exchange

Final Case Study Report

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RTI International is a trade name of Research Triangle Institute.

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EXECUTIVE SUMMARY

Introduction and Background

Section 1866C of the Social Security Act, as amended by Section 646 of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, P. L. 108-173, Section 1866C(b), requires the Secretary of the Department of Health and Human Services (DHHS) to establish a five-year demonstration program under which the Secretary may approve demonstration projects that examine health delivery factors that encourage improved quality in patient care. CMS intends to use this Medicare Health Care Quality (HCQ) demonstration to identify, develop, test, and disseminate major and multi-faceted improvements to the health care system.

At present, three demonstration sites are active, including the Indiana Health Information Exchange (IHIE), the North Carolina Community Care Network, and the Gundersen-Lutheran Health System. This case study addresses the IHIE site; companion case studies address the other two sites. The information presented in this case study reflects the situation at IHIE at the time this case study was written, in August 2010.

Case Study Goals, Methods, and Data Sources

The purpose of this case study is to provide an in-depth understanding of the IHIE's history and goals; organizational structure and operations; relationships to participating physician practices and other stakeholders; and the methods it is applying to improve health care delivery systems, improve quality of care, and improve efficiency. We also summarize planned changes to the IHIE demonstration in anticipation of future goals for improving and expanding the program.

To achieve these objectives, RTI International staff conducted a 3-day site visit to Indianapolis, where IHIE is based, in March 2010 and another 2-day site visit in July 2010. Both site visits were conducted by three-person teams. Secondary data sources included internal IHIE reports, IHIE slide presentations, Web sites, CMS reports, and other publications. An evaluation of the sites will continue through the 5-year demonstration period with the goal of examining the impact of these programs on Medicare beneficiaries' health and satisfaction, providers' ability to provide high-quality care, cost of health services, and utilization of health services.

Indianapolis Health Care Market

The IHIE demonstration includes the Indianapolis nine-county metropolitan area. The overall population of this nine-county region is 1,823,690. Medicare beneficiaries in this region total 229,931 in Part A and 207,800 in Part B.

Five major hospital systems serve the Indianapolis area. They operate 11 hospital facilities and over 100 clinics and day surgery facilities. The Indianapolis region also includes the Indiana University School of Medicine (IUSM). It trains a large proportion of the primary care physicians (PCPs) practicing in the region.

Indiana Health Information Exchange

IHIE is a nonprofit, 501(c)(3) organization formed in 2004 to support Indiana's communities by providing medical information and data-sharing services. IHIE represents a broad coalition of health care stakeholders in the Indianapolis region, including hospitals, physician groups and practices, other health care providers, public and private payers, education and research organizations such as the Regenstrief Institute (RI) and IUSM, employers, and state and local government agencies.

IHIE was formed, in part, by RI, which is a nonprofit, 501(c)(3) medical research and development organization founded in 1968. In 1995, RI developed a clinical data-sharing network that linked hospitals and other clinical providers, called the Indiana Network for Patient Care (INPC). IHIE is helping to expand INPC to communities outside the Indianapolis area. INPC includes health insurance claims and clinical data that follow patients, regardless of where they receive health care. IHIE provides additional data reporting and quality improvement programs to physician groups, physician practices, and public and private health insurance organizations.

INPC became a forum for the hospitals to begin building trust regarding the benefits of sharing health care data that later led to the broader health care data-sharing efforts now being championed by IHIE. Hospitals, physician groups, health insurance organizations, and other IHIE stakeholders emphasized the need for IHIE to be developed as a separate organization from RI, so that the research and development mission of RI would not be inhibited by the 24/7 demands of a production and service environment. At the same time, IHIE and RI staff work closely together. IHIE's chief executive officer is also a faculty member and department chairman at RI.

The first service IHIE implemented is called the DOCS4DOCS® Service; it delivers results from laboratory tests and other clinical results to physicians via electronic reporting. Local hospitals and physician groups pay fees to IHIE to receive this service. The second service IHIE conceptualized is called the Quality Health First® (QHF) Program, which provides quality measure reports to physicians, physician groups, and payers based on the expanded data repository. The QHF program helps physicians identify and prioritize necessary health screenings and other testing to ensure that patients are receiving recommended preventive care and that common chronic diseases are being appropriately monitored and managed.

The IHIE Medicare HCQ Demonstration is focused on the QHF program. Participating payers also include several private health insurance companies and Medicaid, which contract with IHIE to provide quality measure performance data for quality improvement initiatives and for their pay-for-performance incentive programs for the physicians in their provider networks.

Large employers, who are the clients of the private health insurance companies, are supportive of the development of QHF. Employers see it as a tool to improve both the quality of care provided to their employees and the overall health of their employees, which they believe will enable them in the long run to reduce costs for health insurance. Public payers, including Medicare and Medicaid, have become involved with QHF for similar reasons.

Members of IHIE's board of directors represent a broad range of stakeholders. They include hospital chief executive officers (CEOs), the RI president, the dean of IUSM, state and local government officials, and state medical and hospital association executives. In addition to the board of directors, three advisory committees also provide IHIE's stakeholders with input and transparency regarding the QHF program. The QHF Administrative Committee provides oversight for IHIE quality services. The QHF Measures Committee includes physicians who review and identify which quality measures will be included in the QHF program and how the data reports will be constructed and formatted. The QHF Consumer Participation Group includes local citizens and consumer groups. Finally, the Employers Forum of Indiana is an independent organization that consists of representatives from large corporations and other employers and provides input to IHIE from their perspective.

At the time of this case study, in August 2010, IHIE had about 50 full-time staff members. IHIE leadership anticipated that this number would increase over the following 12-18 months as new services are developed and the geographic coverage for existing services is expanded. Staff included physicians, nurses, systems analysts, software programmers, managers, and physician liaisons.

At the time of this case study, IHIE was funded by a variety of revenue sources, including grants. However, IHIE's goal for long-term financial sustainability is to gain most of its revenue from payment for its data repository–related services and thus to be less dependent on grant funding. In 2009, IHIE had about $5 million in revenue. IHIE currently receives revenue for its DOCS4DOCS service and QHF program. Grant funding was especially important for IHIE during its development phase, before the revenue-producing services were operational.

Major grants currently funding IHIE include Richard M. Fairbanks Foundation grants Robert Wood Johnson Foundation Aligning Forces for Quality grant, and a $16 million Beacon Community cooperative agreement program from the U.S. Office of the National Coordinator for Health Information Technology.

The Quality Health First Program

The QHF program is the focus of IHIE's Medicare HCQ Demonstration. QHF is a community-wide health care quality reporting, quality improvement, and disease management service that helps physicians identify and prioritize necessary health screenings and other testing to ensure that patients are receiving recommended preventive care and that chronic diseases are being appropriately monitored and managed. It is built upon RI's data repository system, which aggregates data from health insurance claims and enrollment information, hospital medical records, physician group medical records, and other clinical data. The data are analyzed to produce reports on evidence-based quality measures selected with input from physicians, payers, and employers. The reports provide information at several levels: individual patients, individual physicians, physician practice sites, physician groups, and payers.

QHF data reports can be used before, during, and after patient visits to help physicians improve care by providing information on reminders for health screening interventions that are due for individual patients, highlighting patients who need disease-specific follow-up care, and reporting on quality measures to help physicians monitor progress in providing evidence-based

care. Participating private health insurers use the QHF reports as a basis for pay-for-performance incentive programs for physicians.

Twenty-seven quality measures have been approved for use in QHF by the QHF Measures Committee and are listed in Appendix A. QHF also planned to add additional quality measures over time. QHF provides reports on 20 of its approved quality measures. They are the ones listed as "used for routine reporting" in the table in Appendix A. Of these, 10 quality measures are also listed as priority measures and are used for pay-for-performance incentive programs sponsored by payers such as Anthem Blue Cross Blue Shield. The 10 priority measures are the ones that the QHF Measures Committee has determined to be more reliable.

QHF focused on measurement and reporting on quality measures for primary care providers at the time of this case study in August 2010, but plans to expand to provide reports on cardiologists later in 2010 and on other specialist physicians in future years. In August 2010, QHF included about 1,300 participating PCPs, 600 of whom also participated in the Medicare HCQ Demonstration. QHF included data on about 700,000 patients.

QHF reports provide performance information related to the 20 of its approved quality measures. IHIE provides these reports to physicians free of charge:

- **Attribution Report** – includes a list of patients attributed to each physician practice. Physicians review these reports for accuracy in identifying the patients who are attributed to their practices.

- **Patient Care Report** – provides alerts and reminders about upcoming or past due needed care at the individual patient level. These reports are used in a reconciliation process for physician groups to check the QHF data against their own medical records and correct any data that may be missing or inaccurate.

- **Provider Summary Report** – provides a summary of monthly and quarterly quality measure performance scores at several levels, including scores for individual physicians, practice settings, and physician groups.

- **Measure Metrics Report** – includes a more detailed report on quality measure data and performance scores than the Provider Summary report, with detailed data on all 20 quality measures and breakdowns by payer. These reports are also produced at the individual physician, practice setting, and physician group levels.

IHIE staff conduct annual random audits of medical records at each participating physician practice to ensure the accuracy of the reported quality measure performance data.

Anthem Blue Cross Blue Shield (a Wellpoint company) was the first private health insurance company to join IHIE and contribute data to QHF. Anthem joined at the outset, and their support helped to sustain IHIE in its developmental period that lasted several years.

At the time of this case study, in August 2010, QHF program participants included Wellpoint, United Healthcare, and Unified Group Services. Two Medicaid managed care

organizations (MCOs) contributed claims data to INPC that were included in the QHF Program. IHIE was also conducting discussions with Humana and another Medicaid MCO, MHS. Still uncertain was whether CIGNA and Aetna would agree to participate.

QHF allows private payers to set their own levels of pay-for-performance incentives for physicians participating in their provider networks, based on the QHF reports. In this way the private payers are provided some flexibility for how they use the QHF reports in working with their own networks. However, QHF does require private payers to use at least half of the QHF quality measures to participate in the QHF program.

One of the important features of the QHF program is the broad range of data available for developing the quality-of-care performance reports. The combination of data from multiple payers, multiple hospitals, multiple physician groups, laboratories, and other clinical providers means that QHF can offer physicians comprehensive quality reports that represent most of the patients in their practices.

Patients are attributed to a PCP for QHF quality performance reports. The PCP is then held accountable for quality measure performance for that patient. PCPs include doctors who are identified as practicing internal medicine, family medicine, general practice, osteopathic medicine, geriatrics, obstetrics and gynecology, and pediatrics. IHIE plans to incorporate specialist physicians in the future.

Medicare Health Care Quality Demonstration

IHIE participates in the Medicare HCQ Demonstration by aggregating Medicare data into the QHF program, by measuring quality of care for Medicare beneficiaries, and by providing quality-of-care reports on Medicare beneficiaries. The goal of IHIE's Medicare HCQ Demonstration is to integrate Medicare data into QHF, along with the data from private insurance companies and Medicaid, thereby enabling the QHF program to be more comprehensive and represent a true multipayer health information exchange.

For this demonstration, Medicare provided claims data on its fee-for-service beneficiaries who receive at least one office or other outpatient evaluation and management (E&M) visit with a participating physician. IHIE then applies its attribution algorithm to those data to attribute the patient to a physician for quality performance measurement.

For the Medicare HCQ Demonstration, the focus for the first two performance years will be on 14 quality measures that are oriented toward the diseases common among Medicare beneficiaries. These 14 measures are described in Appendix A. Over the course of the IHIE demonstration, additional quality measures will be added. It is anticipated that by the fifth year of the demonstration, a total of 30 quality measures will be applied.

The benefits of the IHIE Medicare HCQ Demonstration are expected to vary across the different parties involved. Medicare beneficiaries may receive improved quality of care. The Medicare program will benefit by testing new types of quality measurement, quality improvement interventions, and potential effects of participation in a multipayer intervention. IHIE will benefit by having more comprehensive payer and data coverage for its QHF program.

Physicians will benefit by having more comprehensive quality-of-care reports for the range of patients they are treating in their practices.

The IHIE Medicare HCQ Demonstration is a 5-year project that began in 2009 and is scheduled to end in 2014. Physicians are eligible to join the demonstration in any of the 5 years and are included in panels representing those who joined in each individual year.

At the time of this case study, in August 2010, IHIE had incorporated historical Medicare claims data for two calendar years before the start of the demonstration. IHIE is receiving additional updates of Medicare claims data on a monthly basis. The first set of QHF monthly reports containing Medicare data, in addition to private insurance data and Medicaid data, were sent to physician groups at the end of May 2010.

Generalizability of the Indiana Health Information Exchange Model

Benefits of replicating the IHIE model would include not requiring new communities to reinvent the wheel by re-learning lessons that IHIE has learned over its past several years and that RI has worked on for over 20 years through INPC. Most communities will want ownership of the HIE development process but will also recognize the high costs and high risk of HIE projects, so they will be looking for models to replicate or at least to study and adapt to the needs of their local community.

Three of the particular advantages of QHF, as viewed by participating physicians, could help with replication efforts in other communities. First, IHIE provides a reconciliation process that enables physicians to correct the QHF data and thereby see the quality of the data improve over time. Second, IHIE includes a broad range of data—not just claims data but also medical records. IHIE also aggregates data across payers, so it includes up to 70% or 80% of a physician's patients, making it worthwhile for physicians to spend time reading and using the QHF reports. Third, physicians found that QHF provides data reports that are usable by physicians at the patient level in their daily practice of medicine; the monthly alerts and reminders reports provide information on needed care for individual patients.

Involving physicians in the selection of quality measures and in revision of quality measure specifications was also an important factor noted by several physicians. This built trust and confidence in the physician community in the value of QHF for improving patient care.

Gaining participation of a critical mass of physicians in the community was cited by many as important for ensuring sustainability of HIEs. In Indianapolis, IHIE now has about 70% of the PCPs involved in QHF, which makes QHF an established part of the physician community. This high participation rate is likely to take time and require persistence to replicate in other communities.

Several of the larger IHIE stakeholders noted that they are often very competitive with each other in their local community, especially the hospitals and physician groups. As a result, cooperation among them on HIE systems development efforts can be fragile. Replication efforts in new communities will need to find ways consistent with the medical and social culture of each local community to maintain the strength of that cooperation among these otherwise strong competitors.

I. INTRODUCTION AND BACKGROUND

The current payment methodology in the U.S. health care system typically fragments care while also encouraging both omissions in and duplication of care. To rectify this situation, Congress has directed the Centers for Medicare & Medicaid Services (CMS) to test major changes to the delivery and payment systems to improve the quality of care while also increasing efficiency across the health care system.

Section 1866C of the Social Security Act, as amended by Section 646 of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (P. L. 108-173, Section 1866C(b)), requires the Secretary of the Department of Health and Human Services to establish a 5-year demonstration program under which the Secretary may approve demonstration projects that examine health delivery factors that encourage improved quality in patient care. This section also authorizes the Secretary to waive compliance with such requirements of Titles XI and XVIII of the Social Security Act (42 U.S.C. 1395 et seq.) as may be necessary for the purposes of carrying out the demonstration project.

This legislation anticipates that CMS can facilitate these overarching goals by providing incentives for system redesign. Facilitation would be achieved through several types of interventions: adoption and use of information technology and decision support tools by physicians and their patients, such as evidence-based medicine guidelines, best practice guidelines, and shared decision-making programs; reform of payment methodologies; improved coordination of care among payers and providers serving defined communities; measurement of outcomes; and enhanced cultural competence in the delivery of care. CMS intends to use this demonstration to identify, develop, test, and disseminate major and multifaceted improvements to the health care system.

Three types of "health care groups" are eligible to participate in the Medicare Health Care Quality (HCQ) Demonstration: (1) groups of physicians, (2) integrated health care delivery systems (IDS), and (3) organizations representing regional coalitions of groups or systems. The HCQ Demonstration programs are designed to examine the extent to which major, multifaceted changes to traditional Medicare's health delivery and financing systems lead to improvements in the quality of care provided to Medicare beneficiaries without increasing total program expenditures.

At present, three demonstration sites are active, including the Indiana Health Information Exchange (IHIE), the North Carolina Community Care Network, and the Gundersen-Lutheran Health System. Each demonstration site uses a different approach for changing health delivery and financing systems, but all share the goal of improving quality of care for Medicare beneficiaries. This case study addresses the IHIE site; companion case studies address the other two sites. The information presented in this case study reflects the situation at IHIE at the time this case study was written, in August 2010.

II.   CASE STUDY GOALS, METHODS, AND DATA SOURCES

The purpose of this case study is to provide an in-depth understanding of the IHIE's history and goals; organizational structure and operations; relationships to participating physician practices and other stakeholders; and the methods it is applying to improve health care delivery systems, improve quality of care, and improve efficiency. We also summarize planned changes to the IHIE demonstration in anticipation of future goals for improving and expanding the program.

To achieve these objectives, RTI International staff conducted a 3-day site visit to Indianapolis, where IHIE is based, in March 2010 and another 2-day site visit in July 2010. For the first site visit, RTI interviewed a total of 28 individuals, including IHIE leadership and staff ($n = 10$); Regenstrief Institute (RI) leadership and staff ($n = 2$); representatives of employers, including local businesses and health care purchasers ($n = 8$); and representative of a private health insurance organization ($n = 1$), a large hospital system ($n = 1$), one large physician group ($n = 2$), and two physician practices ($n = 4$).

For the second site visit, RTI conducted interviews with a total of 13 individuals, including IHIE staff ($n = 3$) and representatives of three large physician groups ($n = 5$), one community health center ($n = 3$), and two smaller physician practices ($n = 2$). Both site visits were conducted by three-person teams, with two RTI staff members leading the interviews and one taking notes. The interview guides used for these site visits are included in Appendixes C and D.

In addition to the site visit interviews, we also observed one meeting of the IHIE Administrative Committee. It was attended by nine individuals representing IHIE staff, purchasers, hospitals, physicians, and health plans.

RTI's Institutional Review Board reviewed and approved the study protocols. We obtained informed consent from each participant before each interview.

Our case study analysis focused on documenting the current activities and future plans of IHIE as reported in the interviews. We identified patterns and common themes across the interviews conducted during the site visits. We used triangulation across multiple data sources, including interviews and secondary data sources. We also summarized and categorized the content of the interviews across the multiple participants. Secondary data sources included internal IHIE reports, IHIE slide presentations, Web sites, CMS reports, and other publications. Before finalizing this report, we shared a draft version with IHIE staff to review the accuracy of the information.

The IHIE Medicare HCQ Demonstration is still in its early stages. As a result, this case study is a first step to document its activities, accomplishments, impact, and future plans. An evaluation will continue through the entirety of the demonstration period, with the goal of examining the impact on Medicare beneficiaries' health, providers' ability to provide high-quality care, and efficiency of health services. Future evaluation efforts will also review the role of Medicare in the IHIE multipayer system that seeks to improve quality and efficiency.

III.   INDIANAPOLIS HEALTH CARE MARKET

The IHIE demonstration includes the Indianapolis nine-county metropolitan area. These counties and selected demographic statistics are listed in Table 1, along with a comparison to the statewide figures.

Marion County, which contains the City of Indianapolis, is by far the largest in terms of population in the nine-county metropolitan area. Among these nine counties, Marion also has the lowest median household income at $43,823 and the highest poverty rate at 16.5%. The overall population of this nine-county region is 1,823,690, which represents 28% of Indiana's total statewide population of 6,423,113.

Medicare beneficiaries in the Indianapolis nine-county region total 229,931 in Part A and 207,800 in Part B, in the most recent data publicly available (2007). Those nine-county figures represent 25% of the statewide total Medicare beneficiaries for Part A and 24% of the statewide total for Part B.

Table 1
Selected Demographic Characteristics for the Indianapolis Nine-County Region and the State of Indiana

County	Population (2009)	Median Household Income (2008)	Poverty Rate (2008)	Medicare Beneficiaries Part A (2007)	Medicare Beneficiaries Part B (2007)
Boone	56,287	$72,603	6.4%	6,873	6,504
Hamilton	279,287	$85,829	4.2%	21,847	20,425
Hancock	68,334	$64,783	5.7%	9,109	8,644
Hendricks	140,606	$67,429	5.2%	14,550	13,699
Johnson	141,501	$62,100	7.4%	17,540	16,568
Madison	131,417	$44,453	14.6%	23,407	22,528
Marion	890,879	$43,823	16.5%	113,168	103,956
Morgan	70,876	$56,309	10.6%	9,784	9,195
Shelby	44,503	$52,700	10.8%	6,653	6,281
Totals for Nine-County Region	1,823,690	N/A	N/A	229,931	207,800
State of Indiana	6,423,113	$48,010	12.9%	936,304	884,199

Sources: http://www.stats.indiana.edu; http://www.cms.hhs.gov

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Five major hospital systems serve the Indianapolis area. They include Community Hospitals Indianapolis, St. Vincent Hospitals and Health Services, St. Francis Hospital and Health Centers, Clarian Health, and Wishard Health Services. These five hospital systems operate 11 hospital facilities and over 100 clinics and day surgery facilities. Collectively, these systems admit 165,878 patients and serve more than 390,000 emergency room (ER) visits and 2.7 million clinic visits per year.

The Indianapolis region also includes the Indiana University School of Medicine (IUSM). It trains a large proportion of the primary care physicians (PCPs) practicing in the region.

IV.   INDIANA HEALTH INFORMATION EXCHANGE

IHIE is a nonprofit, 501(c)(3) organization formed in 2004 to support Indiana's communities by providing medical information and data-sharing services. IHIE represents a broad coalition of health care stakeholders in the Indianapolis region, including hospitals, physician groups and practices, other health care providers, public and private payers, education and research organizations such as RI and IUSM, employers, and state and local government agencies.

IHIE was formed, in part, by RI, which is a nonprofit, 501(c)(3) medical research and development organization founded in 1968 by Sam Regenstrief, a businessman and industrial production expert. Mr. Regenstrief founded RI in the aftermath of his own inpatient stay at Wishard Hospital, when he concluded that health care services could benefit from applying industrial efficiency techniques and computer automation. Located on the IUSM campus in Indianapolis, RI is a joint enterprise of the Regenstrief Foundation, Inc., the Indiana University School of Medicine, and the Health and Hospital Corporation of Marion County. RI investigators include members of the faculty of Indiana University's School of Medicine, School of Liberal Arts, and School of Informatics as well as staff of the Richard L. Roudebush Veterans Administration Medical Center.

In 1995, RI, in collaboration with the five large hospitals in Indianapolis, developed the Indiana Network for Patient Care (INPC), a clinical data-sharing network that links hospitals and other clinical providers. INPC includes health insurance claims and clinical data that follow patients regardless of where they receive health care. IHIE is helping to expand INPC to communities outside the Indianapolis area. IHIE also provides additional data reporting and quality improvement programs to physician groups, physician practices, and public and private health insurance organizations.

INPC was originally established with the goal of providing direct access across all five hospitals to each other's ER patient records. This enabled each hospital's ER to have more complete clinical information on patients who had been seen at another hospital's ER, and thereby provide better care for the patients with that additional information on the prior diagnoses and treatments the patient had received in the other hospitals. This later led to expanded efforts by these hospitals to share patient-level data on inpatient admissions and ambulatory care as well.

Despite being competitors, in the INPC forum the hospitals began building trust regarding the benefits of sharing health care data that later led to the broader health care data-sharing efforts now being championed by IHIE. At the time of this case study, in August 2010, 62 medical facilities in Indiana had signed contracts to exchange information via INPC and share their registration records, laboratory tests, and UB92 records (diagnosis, length of stay, and procedure codes) for hospital admissions and ER visits.

RI combines INPC clinical data with health insurance claims and enrollment data, point-of-care information from physicians, and corrections to patient data submitted by physicians to provide IHIE the patient-matched health care data needed to create high-quality reports that include a broader range of patient-level information. IHIE's focus is on operating clinical

messaging and quality improvement services. This includes a broad range of activities, including liaison with data providers and community stakeholders, quality reporting software programming, data reporting to physician groups and practices, customer service, systems support, and business operations.

Hospitals, physician groups, health insurance organizations, and other IHIE stakeholders emphasized the need for IHIE to be developed as a separate organization from RI, so that the research and development mission of RI would not be inhibited by the 24/7 demands of a production and service environment. RI's core mission is to improve health through research that enhances the quality and cost-effectiveness of health care. The development of IHIE has enabled a targeted focus on the quality improvement reporting and related operational needs of both payers and physician groups.

At the same time, IHIE and RI staff work closely together; their offices are located near each other in central Indianapolis and close to several of the major hospitals that helped to develop INPC. IHIE's chief executive officer is also a faculty member and department chairman at RI. IHIE leverages its relationship with RI and INPC, operated by RI, to perform its quality improvement functions.

1.   Indiana Health Information Exchange Services

The first service IHIE implemented (developed by RI) is called the DOCS4DOCS® Service; it delivers results from laboratory tests and other clinical results to physicians via electronic reporting. This service enables doctors to get the results of laboratory tests and other clinical examination more quickly than previously, when they were sent by mail or other methods. Local hospitals and physician groups pay fees to IHIE to receive this service, and many physicians interviewed reported being very satisfied with its benefits and value for their clinical work.

The second service IHIE conceptualized is called the Quality Health First® (QHF) Program, which provides quality measure reports to physicians, physician groups, and payers on the basis of the expanded data repository. The QHF program helps physicians identify and prioritize necessary health screenings and other testing to ensure that their patients are receiving the recommended preventive care and common chronic diseases are being appropriately monitored and managed. The IHIE Medicare HCQ Demonstration is focused on the QHF program. Participating payers also include several private health insurance companies and Medicaid, which contract with IHIE to provide quality measure performance data for quality improvement initiatives and for their pay-for-performance incentive programs for the physicians in their provider networks.

Large employers, who are the clients of the private health insurance companies, are supportive of the development of QHF. Employers see it as a tool to improve the quality of care provided to their employees and also improve the overall health of their employees, which they believe will enable them in the long run to reduce costs for health insurance. Public payers, including Medicare and Medicaid, have become involved with QHF for similar reasons.

For the future, IHIE is considering development of a range of additional services based on its data repository. These services could provide additional revenue and aid in achieving

financial sustainability. However, the timetable for developing new services was uncertain at the time of this case study, in August 2010.

2.   Board of Directors, Organizational Structure, Staffing, and Committees

The IHIE Board of Directors meets every 4 months to provide direction and guidance to the organization. In 2010, IHIE's board members represented a broad range of stakeholders. They included:

- Chief executive officer (CEO), St. Vincent Health

- President & CEO, Regenstrief Institute

- CEO, BioCrossroads

- Dean, Indiana University School of Medicine

- CEO, St. Francis Hospitals and Health Centers

- Commissioner, Marion County Health Department

- CEO, Community Health Network

- Executive Vice President & Chief Financial Officer, WellPoint, Inc.

- President, Indiana Hospital Association

- President, Indianapolis Medical Society

- CEO, Clarian Health Partners

- CEO, Health & Hospitals Corp. of Marion County

- President, Indiana Employers Quality Health Alliance

- Past chairman, Indiana State Medical Association Board of Trustees

- Commissioner, Indiana State Department of Health

In addition to the board of directors, three advisory committees also provide IHIE's stakeholders with input and transparency regarding the QHF program. The QHF Administrative Committee provides oversight for IHIE quality services. It is composed of payers and employers, which have eight votes, and hospitals and doctor groups, which also have eight votes. The QHF Measures Committee includes physicians who review and identify which quality measures will be included in the QHF program and how the data reports will be constructed and formatted. The QHF Consumer Participation Group includes local citizens and consumer groups. Finally, the Employers Forum of Indiana is an independent organization that consists of representatives from

large corporations and other employers. It provides input and guidance to IHIE on the QHF program from their perspective.

At the time of this case study, in August 2010, IHIE had about 50 full-time staff members. IHIE leadership anticipated that this number would increase over the following 12-18 months as new services are developed and the geographic coverage for existing services is expanded. Staff included physicians, nurses, systems analysts, software programmers, managers, and physician liaisons (PLs).

PLs are a unique type of staff member at IHIE. They support physician practices' participation in IHIE, including implementation of data corrections and data submissions to QHF, use of QHF data reports, and ongoing support. The PLs meet with physicians and practice staff for at least an hour at the start of their participation in IHIE, get to know them personally, and aim to understand how they work and what issues they may have with data reports and data submissions. The PLs developed a notebook to provide physician practice staff with a tool kit for reference and additional information they may need between PL visits. They also provide Web-based information for additional support. Physicians and practice staff noted that this type of personal assistance contrasts markedly with the quality measure reports provided by private health insurance companies, which they find often are based only on poor-quality data, lack opportunities to correct errors, and also lack effective training or support.

IHIE employed four PLs in August 2010 and may hire more if it expands to new geographic regions. IHIE is also considering ways to provide more of the PL services remotely through Web-based services.

PLs also participate in the QHF Measures Committee to discuss concerns voiced by practices about particular measures. They recommend changes and corrections to the quality measure specifications. Part of their role is also to be an auditor to ensure that the corrected patient-level data submitted by the practices to QHF are documented and appropriately reconciled.

3.   Revenue Sources and Financial Sustainability

At the time of this case study in August 2010, IHIE was funded by a variety of revenue sources, including grants. IHIE was set up as a nonprofit 501(c)(3) organization, so that, among other things, it would be eligible to receive grants from foundations. However, IHIE's goal for long-term financial sustainability is to gain most of its revenue from payment for its data repository–related services and to be less dependent on grant funding. In 2009, IHIE had about $5 million in revenue.

IHIE receives revenue for its DOCS4DOCS service and the QHF program. Data sources (i.e. hospitals, laboratories) pay fees to IHIE for it to deliver electronic clinical testing and examination results to physicians via the DOCS4DOCS service. Revenue for QHF comes from the participating payers, which in 2010 included several private health insurance companies. The private insurance companies were paying IHIE a small fee per member per month (PMPM) to participate in QHF. Medicaid was providing data to IHIE but was not yet participating in QHF.

As noted, IHIE plans to develop a range of revenue-producing services based on its data repository. IHIE's goal is to spread its data repository development and maintenance costs over multiple revenue-producing services.

Grant funding was especially important for IHIE during its start-up and development phase, before the revenue-producing services were operational. Large investments in staff time and information technology (IT) equipment were necessary to develop IHIE's organization, staff, and systems and to obtain and maintain active support from the range of community stakeholders involved in organizing IHIE. A great deal of staff time was required to develop the IT architecture and software programming necessary for a broad range of data inputs, interfaces, analyses, updates, and reports provided by IHIE.

Major grants currently funding IHIE include Richard M. Fairbanks Foundation grants, a Robert Wood Johnson Foundation Aligning Forces for Quality grant, and a Beacon Community cooperative agreement program from the U.S. Office of the National Coordinator for Health Information Technology. The Robert Wood Johnson Foundation grant focuses on reducing disparities in health care, publicly reporting quality data, and implementing quality improvement initiatives for hospitals and other health care providers.

The Beacon Community cooperative agreement is very large: $16 million for a 3-year period of performance. It provides funding for a range of initiatives in quality improvement, cost containment, population health, and meaningful use of electronic health records (EHRs) for physician practices. For example, IHIE has set goals for the Beacon Community to improve intermediate outcome measures for diabetes patients by reducing HbA1c levels and low-density lipoprotein cholesterol (LDL-C) levels. Cost containment goals include reducing hospital admissions and readmissions, reducing use of ERs, and reducing redundant testing. Population health goals include improving rates of preventive services including colorectal cancer screening, cervical cancer screening, and adult immunizations. Goals for expanding meaningful use of EHRs for physician practices will be based on the measures and objectives set in the final rule on this topic that was issued by the Office of the National Coordinator in July 2010. The Beacon Community cooperative agreement also enables IHIE to expand its geographic coverage to include 45 counties throughout Indiana.

V.   THE QUALITY HEALTH FIRST PROGRAM

1.   Overview

The QHF program is the focus of IHIE's Medicare HCQ Demonstration. QHF is a community-wide health care quality reporting, quality improvement, and disease management service that helps physicians identify and prioritize necessary health screenings and other testing to ensure that their patients are receiving the recommended preventive care and that common chronic diseases are being appropriately monitored and managed. As described in the last section, it is built upon RI's data repository system, which aggregates data from health insurance claims and enrollment information, hospital medical records, physician group medical records, and other clinical data. The data are analyzed to produce reports on evidence-based quality measures selected with input from physicians, payers, and employers. The reports provide information at several levels: individual patients, individual physicians, physician practice sites, physician groups, and payers.

QHF data reports can be used before, during, and after patient visits to help physicians improve care by providing information on reminders for health screening interventions that are due for individual patients, highlighting patients who need disease-specific follow-up care, and reporting on quality measures to help physicians monitor progress in providing evidence-based care. Participating private health insurers use the QHF reports as a basis for pay-for-performance incentive programs for physicians. However, the reports are made available to participating physicians for all of their patients, regardless of payer.

QHF is aiming to transition from the prevailing pay-for-performance systems for physician incentive payments, which focus on improving performance on quality measures, to a new pay-for-value approach that emphasizes how the payments represent subsidies to physicians to offset the cost of improving care. However, at the time of this case study, in 2010, that transition was still in process.

2.   Quality Measures

Twenty-seven quality measures have been approved for use in QHF by the QHF Measures Committee and are listed in Appendix A. At the time of this case study in 2010, QHF focused on these quality measures for selected chronic illness and preventive care services but planned to add additional quality measures over time.

The QHF quality measures, which are similar to those developed by the National Committee for Quality Assurance (NCQA) for the Healthcare Effectiveness Data and Information Set (HEDIS) and the American Medical Association (AMA), include measures for diabetes care, heart disease care, and preventive care. There are some differences, however, so scores on QHF measures can vary from scores for similar HEDIS or AMA measures. For example, quality measure reporting for QHF is done on a 12-month rolling basis (any sequential 12 months), not only on data from the previous calendar year, as is typical for HEDIS measures. Also, patients are not limited to those with continuous enrollment for a full calendar year with only one health insurance plan, as is also typical for HEDIS. Because IHIE has data from multiple payers and multiple clinical sources, it uses data from all of its sources on any given patient, for any given calendar year, even if a patient switches health insurance plans during the

year. In addition, all available clinical data, from all sources, are used for QHF measures. There is no chart sampling process as is sometimes done for HEDIS measures.

QHF provides reports on 20 of its approved quality measures. They are the ones listed as used for routine reporting in the table in Appendix A. Of these, 10 quality measures are also listed as priority measures and are used for pay-for-performance incentive programs sponsored by payers such as Anthem Blue Cross Blue Shield. The 10 priority measures are the ones that the IHIE Measures Committee has determined to be more reliable.

Private payers that agree to participate in IHIE are required to use at least half of the QHF 10 priority quality measures in their incentive programs and also to base at least half of their bonus payments to physicians on the scores for QHF's 10 priority quality measures. Other types of quality measures may also be used by individual payers in determining bonus payments for physicians or physician groups. For example, Anthem included additional measures on physicians' use of electronic funds transfer, use of radiology precertification, and generic drug prescribing.

QHF focused on measurement and reporting on quality measures for primary care providers at the time of this case study, in August 2010, but plans to expand to provide reports on cardiologists later in 2010 and on other specialist physicians in future years. At that time, QHF included about 1,300 participating PCPs, 600 of whom also participated in the Medicare HCQ Demonstration. QHF included data on about 700,000 patients.

The difference between the numbers of physicians participating in QHF and those participating in the Medicare HCQ Demonstration could be due to several factors. The QHF program sign-up includes a QHF program participation agreement and an INPC participation agreement. The physicians are provided information about the Medicare HCQ Demonstration and their eligibility for participation when they sign up for QHF program participation. There is an additional agreement that they sign to participate in the Medicare HCQ Demonstration. Because the QHF definition of primary care providers includes obstetricians/gynecologists, geriatricians, internists, family practitioners, doctors of osteopathic medicine, and general practitioners, some of them may not treat Medicare patients and thus may opt not to participate in the demonstration. Others may treat only small numbers of Medicare patients and thus feel less incentive to join.

The 14 QHF quality measures used for the Medicare HCQ Demonstration for its first two performance years are presented in Appendix B and are discussed further in Section VI.

3.   Reports

QHF reports provide performance information related to the 20 approved quality measures. IHIE provides these reports to physicians monthly free of charge. Four reports are generated through QHF:

- **Attribution Report** – includes a list of patients attributed to each physician practice. Physicians review these reports for accuracy in identifying the patients who are attributed to their practices. When attribution is inaccurate (e.g., patient moved, is

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deceased, or is incorrectly attributed), physicians send the correction to IHIE, and IHIE staff investigate and make appropriate changes.

- **Patient Care Report** – provides alerts and reminders about upcoming or past due needed care at the individual patient level. These reports highlight patients who require disease-specific follow-up care and provide reminders for health screening interventions. These reports are used in a reconciliation process for physician groups to check the QHF data against their own medical records and correct any data that may be missing or inaccurate. If errors are found, the physician practices correct the data and send the reports back to IHIE so the corrected data can be entered in the QHF data repository.

- **Provider Summary Report** – provides a summary of monthly and quarterly quality measure performance scores at several levels, including scores for individual physicians, practice settings, and physician groups. Graphics are also included for ease of interpretation.

- **Measure Metrics Report** – includes a more detailed report on quality measure data and performance scores than the Provider Summary report, with detailed data on all 20 quality measures and breakdowns by payer. These reports are also produced at the individual physician, practice setting, and physician group levels.

Several different types of quality measure data and performance scores are included in the Provider Summary Reports and Measure Metrics Reports:

1. Population by payer type and overall – the number of patients in the denominator for each quality measure who are attributed to a given physician or group.

2. Score – the percentage of the denominator population receiving the care indicated in each quality measure specification.

3. Peer score – the overall percentage score for all QHF participating providers on each quality measure.

4. Adjusted peer score (APS) – this is the peer percentage score adjusted to reflect the given provider's payer mix (percentage of Medicare, Medicaid, and commercial patients).

5. Relative performance index (RPI) – this is shown as a percentage, reflecting the relationship of the provider's combined score divided by the adjusted peer score, less 1. If the RPI is zero, then the score is neutral; if it is positive, the given provider scored better than the adjusted peer score; if negative, the provider scored worse than the adjusted peer score.

6. Average RPI (ARPI) – the average of all the RPIs for all applicable quality measures for a given provider or group.

7. Ranking – All of the QHF participating physician groups are ranked from highest to lowest on their ARPIs.

8. Percentile – After physician group rankings are determined, percentile rankings are calculated. The percentile is calculated as $[(N + 1) - R]/N$, where N is the total number of groups and R is the ranking of a given group. Thus, the top-ranked group is always in the 100th percentile. For example, a group ranked 18 of 46 groups would be in the 63rd percentile: $[(46 + 1) - 18]/46$.

QHF reports are provided for the whole community, by type of payer, and for individual payers such as Anthem. This enables calculation of the APS that provides some risk stratification for physician group scores. Some physician groups had expressed concern to IHIE staff during the planning phase for QHF that those groups with higher percentages of Medicaid patients might have lower performance scores if their scores were not adjusted for payer mix, as is now done in the APS. QHF does not provide for more detailed risk adjustment of quality measure performance scores; that step is viewed as unnecessary.

IHIE staff conducts annual random audits of medical records at each participating physician practice to ensure the accuracy of the reported quality measure performance data. All of the participating physicians submitting reconciliation data are included in a process that includes a random audit of 5% of those physicians. For each physician selected for audit, five patients are chosen at random and medical records are pulled by IHIE staff and checked against reconciliation data submitted to IHIE. If a physician fails this audit, education is provided about the process and a repeat audit is conducted in 3 months. If the physician fails a second time, then education is again provided, that physician is permitted to submit only reconciliation data to IHIE with accompanying medical record documentation for 1 year, and another audit is conducted 6 months after that 1-year period has ended.

IHIE also conducts internal checks to ensure that data in its reports are consistent with other steps in the process. For its second performance year in the Medicare HCQ Demonstration, IHIE is arranging for an external audit of its internal processes. At the time of this case study, IHIE was in the process of selecting a vendor to conduct that external audit.

4.   Data Reconciliation Process

QHF allows physician practices to review and verify the data in the quality measure performance reports provided to them. If errors are found, the physicians can correct the data on the basis of information in patient medical records. This process is known as "reconciliation" and is a popular feature of QHF among physicians. As noted, many of the participating physician practices reported unpleasant interactions with private insurance companies who implement incentive programs using only their own claims data. They do not allow physicians to verify or correct the data, and frequently the data included are incorrect.

QHF facilitates reconciliation through an interactive process conducted every month, where IHIE staff provide the individual patient-level Patient Care Reports to physician practices for each physician's attributed patients who qualify for measure denominators and have an alert or reminder generated. Each patient has one page of information in these reports on clinical information and relevant quality measures (e.g., if the patient is diabetic, did he or she get an

HbA1c test in the last 12 months). Physician practices can then review, verify, and—if needed—correct the information from their own medical records. For example, a patient may be flagged as diabetic because an ICD-9 diagnosis code was entered incorrectly on a claim form. Reconciliation allows the practice to check the patient's medical record and correct the form sent by IHIE if the patient is in fact not diabetic. The form is then faxed back to IHIE, and their staff enter the corrected information into a database that flags the patient, so that next month's QHF reports to that practice will not show the patient as diabetic.

The reconciliation process is also used by physicians to review which patients are attributed to that practice, for whom the practice may be held accountable on the QHF quality measures. As noted, physicians can use the Attribution Report for this purpose. Physicians can similarly mark patients incorrectly attributed to them and fax this report back to IHIE for correction in the QHF reports.

5.   Participation of Private Payers and Medicaid

Anthem Blue Cross Blue Shield was the first private health insurance company to join IHIE and contribute data to QHF. Anthem joined at the outset, and their support helped to sustain IHIE in its developmental period that lasted several years. Anthem was given credit for its patience with the development of QHF, which at one point was delayed for about 15 months because of technical issues in constructing the data repository.

Anthem provides a broad range of data to QHF, including a membership file, a provider file, medical claims, pharmacy claims, and laboratory claims. They provide data on both fully insured and administrative services only clients. However, two parts of Anthem's business are not included in IHIE: Federal Employee Health Insurance and Medicare Advantage (Medicare capitated plan).

At the time of this case study, in August 2010, IHIE staff was working with other private payers to encourage them to join QHF. Two Medicaid managed care organizations (MCOs), Wellpoint and MDwise, were also contributing data to QHF, along with the state-run traditional Medicaid fee-for-service plan. Two private health insurance companies, United Healthcare and Unified Group Services, had signed contracts with IHIE at that time and had begun contributing claims data, but IHIE staff was still in the process of mapping their claims data fields to the HL7 data format required for the database. IHIE was also conducting discussions with Humana and another Medicaid MCO, MHS. Still uncertain was whether CIGNA and Aetna would agree to participate. The Employers Forum was active in working with IHIE to encourage the private health insurance companies covering their employees to join QHF.

QHF allows private payers to set their own levels of pay-for-performance incentives for physicians participating in their provider networks, based on the QHF reports. In this way, the private payers are provided some flexibility for how they use the QHF reports in working with their own networks. However, QHF does require private payers to use at least half of the QHF quality measures to participate in the QHF program.

One issue for the private payers is that QHF quality measures are similar to HEDIS measures but also have some differences in specifications, so the performance scores calculated by QHF can be different. For example, QHF includes a broad range of clinical data from INPC

in the calculation of the quality measure scores, so it is expected to have somewhat different results from the more limited data available to payers for HEDIS quality measure calculations. However, physician groups are expected to compare the results of QHF quality scores with those for HEDIS, so IHIE is providing assistance to private payers for explaining the reasons for the differences in the results.

While Medicaid does provide claims data to IHIE, it is not currently providing incentives to physicians on the basis of performance. Concern was raised that scores on quality measures for Medicaid enrollees may not improve as much as scores for private pay patients. Medicaid patients were viewed as potentially having more problems with adherence to prescribed care, so that physicians may not be able to work with them as easily to improve quality performance scores.

6.   Data Systems, Data Inputs, and Data Processing

One of the important features of the QHF program is the broad range of data available for developing the quality-of-care performance reports. The combination of data from multiple payers, multiple hospitals, multiple physician groups, laboratories, and other clinical providers means that QHF can offer physicians comprehensive quality reports that represent most of the patients in their practices. The types of data used for QHF reports as of August 2010 include:

- Claims data – commercial claims from Anthem and United Healthcare; Medicaid claims from the State of Indiana, MDwise, and Wellpoint; and Medicare claims for beneficiaries treated by physicians with practices located in the nine-county area included in the Medicare HCQ Demonstration

- Clinical data – inpatient and outpatient encounters from hospitals and integrated delivery systems, and ambulatory care data from physician groups and physician offices

- Pharmaceutical data – claims data and direct data feeds to INPC from pharmacy benefits managers

- Laboratory data – claims and direct data feeds to INPC from laboratory companies

- Other data – information from physicians' offices, including point-of-care laboratory testing data and reconciliation data

IHIE receives claims data directly from most participating payers. The data are converted by IHIE staff to HL7 format and then merged into the INPC database. Hospitals and laboratories provide HL7 data feeds directly to INPC. Point-of-care and reconciliation data are sent by physicians' offices via secure fax, e-mail, or encrypted FTP files. IHIE staff said that a secure Web portal was being developed so that the reconciliation data could be submitted to IHIE online in the future to make the process simpler and less time-consuming for physicians and their office staff.

Software programs developed by RI staff standardize all of the clinical data as it arrives at INPC, map laboratory test results to a set of common test codes with standard units of measure, and link patients with multiple medical record numbers. Data storage keeps data from different providers separated in "silos" by data source to ensure security and privacy. Each silo contains the data source's own raw data in addition to standardized clinical data. One challenge of this approach is that IHIE staff cannot modify incorrect data directly in the data owners' databases. They have to match patients and enter corrected data provided by physicians through the reconciliation process into a separate silo within INPC.

RI created a global patient index and a global provider index to be able to find patients and providers in all of the medical records and claims data contributed. These indexes enable RI to merge the data available for each individual patient and provider from all of the contributed data sources. Patient matching is conducted using an algorithm that includes factors such as name (first, middle, last), gender, date of birth (DOB), and Social Security Number (SSN); the average match rate is 89% (compared with an industry standard of 50%-60%). The remaining patients have data issues such as incomplete data (missing DOB), misspelled names, mistyped SSN or DOB, and data from family members sometimes confused in the original databases. As a result, a 100% match rate is viewed as unrealistic, given these data issues in the source databases.

Provider matching includes additional concrete identifiers (e.g., National Provider Identifier, Unique Physician Identification Number, Taxpayer Identification Number [TIN]), although TINs often refer to a physician group and not to an individual provider unless the provider is a solo practitioner. Provider matching achieves a slightly higher accuracy rate, about 94%.

RI also created a concept dictionary to link similar data fields across the data contributed by different data sources. For example, some databases may use Current Procedural Terminology (CPT) codes to identify laboratory tests, whereas others may use Logical Observation Identifiers Names and Codes (LOINC). To determine whether a patient has received the required care indicated by a quality measure, it is necessary to check all of the different ways a laboratory test or other type of clinical test or treatment may be recorded in the data.

Next, patients are attributed to a PCP. This enables that PCP to be held accountable for quality measure performance for that patient. IHIE does not include specialist physicians as PCPs—only doctors who are identified as internists, family practitioners, general practitioners, doctors of osteopathic medicine, geriatricians, obstetricians/gynecologists, and pediatricians. IHIE plans to incorporate cardiologists into QHF and attribute patients to them as well, then hold the patient's cardiologist accountable for quality measures for heart disease.

The attribution system uses a two-pass method. All of the medical record and claims data available for the patient over the past 1.5 years are first reviewed. If no attribution is possible on that first pass, then a second pass is done to look for data available over the past 3 years. If no attribution is found after the second pass, then the patient is not attributed to a PCP. The attribution calculation is based on several factors, including which PCP provided the most outpatient visits to the patient on distinct dates of service, which PCP provided the most recent visit to the patient, and which PCP has treated the patient for the longest time. Overall, about

61% of patients are attributed to a PCP. Medicaid MCOs assign about 5% of QHF patients to PCPs for Medicaid purposes, and this attribution is given priority over QHF attribution.

The accuracy of patient attribution is estimated at 80%. As noted, physicians are sent reports listing the patients attributed to them by IHIE and have an opportunity to indicate any errors in attribution. If errors are found, the patient is removed from that physician's list of attributed patients for purposes of calculating quality measures.

IHIE clinical staff review the CPT, LOINC, and other code sets and calculation logic included in the quality measure specification documents to ensure that they support both the claims data and the clinical data included in the system and the QHF monthly and quarterly reporting cycles. Additions or changes to the code sets are recommended by IHIE clinical staff where needed and reviewed and approved by the Measures Committee.

Quality measure reports are securely distributed to each physician office and group through a Web site where physician office staff can download the reports. Other secure distribution methods are also available.

7.   Motivations of Participants

Physicians. Staff from one large physician group said that they got involved in IHIE early on and has been active for the past 4 years. Their CEO saw improving quality of care as a key to success for their group practice, so they joined IHIE to help facilitate that strategy. They began focusing on managing populations of patients about 5 years ago, for example by setting goals for ensuring that all women of certain ages receive mammograms, and saw QHF as contributing to that process of patient population management. They were also impressed that the members of IHIE's Employer's Forum provided funding for IHIE to help support its development and also encouraged the private insurance companies they contract with for their employees to provide pay-for-performance incentive payments for the physician practices participating in QHF. This large group practice views employers as having a long-term investment in quality improvement for their employees, a 20-year focus. In contrast they see private payers as being much more focused on the short term because their enrollees turn over every 2-3 years.

Moreover, INPC data are much richer than either the data this large physician group has in its own EHR or data reports from insurance companies. Their physicians are suspicious of quality-of-care reports based only on claims data, which they view as often inaccurate.

The QHF reconciliation process helps to gain the trust of this large group's physicians in the quality of the data. This large group has seen the number of reconciliations decrease over time as the data improve. For example, use of generic drugs is not picked up in private payer claims because patients often pay out of pocket, but, it is picked up in EHR data that are provided to IHIE. As a result, the physicians feel that the IHIE process is a partnership with them, not an adversarial process as it can be with private payers.

This large group has become so confident in the quality of the QHF data that they decided to share the QHF quality performance reports on individual physicians openly within their group of physicians, so they can all see each other's scores on the quality measures. The

physicians accept this and focus on using the data to consider ways to improve patient care, rather than on arguing over the quality of the data as they did before when the reports were from a private payer and based only on claims data. This unblinded internal reporting of quality measure results also enables large groups with multiple practice sites to see variations in local results across different areas within Indianapolis. They also find that unblinded internal reporting is a good way to provide physicians with incentives to improve, as peer review means that naturally competitive physicians will work harder.

This large physician group also listed several other reasons to join IHIE:

- Individual QHF patient reports help to facilitate follow-up with individual patients, which shows the patients that the doctor cares more, raises the patients' expectations, and encourages the patients to improve self-management of their diseases.

- They appreciate the support from QHF's PL staff.

- They prefer the local control of the process by the nonprofit IHIE that is located in Indianapolis, rather than getting reports from a large, for-profit health insurance company that is based outside the state and that they view as lacking local commitment.

- They appreciate IHIE's willingness to improve their database, its responsiveness to physicians' suggestions, and the involvement of physicians on IHIE committees.

- RI, which developed the QHF database, is well regarded and is led by physicians, so the database has credibility.

- Incentive payments from private payers support the time that physician groups invest in reconciling the QHF data and responding to the reports.

Another large medical group affiliated with one of the INPC founding hospitals echoed those comments. QHF seems very realistic to them, and they appreciate how IHIE encourages physician participation rather than taking a "Big Brother" approach. This group views IHIE as trying to improve community health, and they want to contribute to the process. They like the QHF alerts and reminders report that helps them to monitor the compliance of patients with prescribed tests and preventive care. They also appreciate being able to correct the patient-level data through the reconciliation process, both for clinical data and attribution of patients to their doctors. The financial incentives from the private insurers' pay-for-performance programs available through QHF are an added bonus. They also appreciate the other services provided by IHIE, such as the DOCS4DOCS service that quickly provides them with clinical test results.

Several doctors interviewed at small and solo practices had similar comments regarding QHF. They view QHF as making sense by providing a central repository for the broad range of clinical and claims data that are collected by different institutions for each patient. They find the QHF attribution reports to be fairly accurate and the process of correcting them easy. The reminders from QHF on patients' needing vaccinations, laboratory tests, or other indicated care are useful to them. They appreciate the opportunities to gain additional practice revenue through

the pay-for-performance programs linked to the QHF reports, as well as the ability to verify and update the clinical data through the reconciliation process. The QHF database was viewed as having improved in accuracy over time because of reconciliation. They noted that physicians are competitive by nature and the QHF quality performance scores are a way to promote friendly competition that helps to improve quality of care. They also appreciated the useful clinical results they get from DOCS4DOCS, so they do not have to track down laboratory results and do not have to wait as long for the results.

One of the solo practitioners reported experiencing frustration in working with large health insurance companies that imposed business contracts on him that he thought had "lousy" quality measurement systems and were based on unreliable claims data. Because of his status as a solo practice, he felt that he had no choice in agreeing to the contracts and no leverage to negotiate terms with the large company.

Staff at a community health center also gave similar reasons for participating in IHIE. They get useful information from DOCS4DOCS, including clinical notes from specialists, laboratory reports, ER visit reports, and ambulatory visit reports. They find it helpful to receive all of this information more reliably and faster than they would otherwise. QHF reports are helpful for providing alerts and reminders for needed care. They enter that information directly into their EHR, so it is flagged for clinicians at the next visit. The ability to reconcile the data is helpful for ensuring that the data are of high quality. The QHF reports are helpful to them, are not punitive, and do not create a lot of extra work for the staff. (There was more work at the start with reconciliation to correct historical errors in the data and respond to a backlog of alerts and reminders, but less work now that they have caught up on the backlog.) They see the value of QHF data for improving patient care and have confidence in it as the data are not just from claims but also from medical records.

Hospitals. The five largest Indianapolis hospitals—Clarian, Wishard, St. Francis, Community, and St. Vincent—subscribe to IHIE services because of their long-standing commitment to data sharing through INPC. That collaboration has a long history, and its success means that they are willing to participate more broadly with IHIE on additional quality measurement and quality improvement initiatives.

Employers. Employers joined IHIE to support the development of QHF. They saw that the health insurance companies providing coverage to their employees were starting to produce quality-of-care performance reports using claims-based quality measures, but those were viewed as lacking in accuracy and needing improvement. Pay-for-performance bonus payments for physicians that were tied to those claims-based reports were unstable and not clearly linked to actual improved quality of care. Employers also wanted to develop new types of information and reports that could help improve engagement of the patients (their employees) in maintaining their own health.

Employers see the value in merging the clinical data in INPC with the health insurance claims data to develop a more comprehensive data repository. The employers' goals include:

- Provide for larger sample sizes in one large data repository for better statistical analysis

- Cover at least 70% of patients in one data repository

- Enable physicians to correct the data in the reports to improve its accuracy

- Make the quality of care measures a common set, used uniformly across payers and across communities to enable better performance comparisons

- Enable employers to have more input on what quality-of-care measures are used and how they are used

- Enable self-insured employers to have more control over quality-of-care analysis and reporting

- Reduce costs for employers in the long run by improving quality of care and the overall health of their employee populations

- Expand the range of cost control measures in this way, because the obvious solutions such as higher deductibles and copays have already been implemented by employers and their health insurance companies

- Help ensure the sustainability of the Medicare system, so their employees will be willing to retire before getting very old and increasing the medical care costs borne by employers; the overall goal is a sustainable cost structure for health care for the entire population in Indianapolis and eventually the entire state of Indiana

- Enable an overall community perspective so all employers can work together, not focus just on the health of their own employee populations

- Mitigate their concern that Congress might enact new legislation that would shift some Medicare costs to employers if Medicare's own costs are not brought under control

Payers. Commercial health insurance companies joined IHIE as a way to provide more effective pay-for-performance programs. Physicians were asking the payers for higher fees and more reimbursement, but the payers were able to provide pay-for-performance through QHF as an alternative.

Payers are also interested in improving the health of their enrollees. Their clients are the employers who are concerned about keeping their employees healthy, holding down their health care costs, and reducing absenteeism due to illness. QHF is viewed by payers as superior to trying to do quality-of-care performance reporting and pay-for-performance on their own because QHF has better credibility with physicians and a much larger range of data to draw upon than any individual payer has access to.

Payers acknowledge that IHIE is viewed by the physicians as a neutral party, unlike payers, who are viewed with suspicion by the physicians. IHIE creates the quality measure reports, so the physicians are not suspicious that the data might be manipulated by payers.

Physicians also like having just one set of quality measures to review, not multiple sets of quality measures as they would if payers each tried to develop their own programs.

8.   Current Challenges and Future Goals

Geographic expansion. IHIE's goals include expanding QHF and its other services across the State of Indiana—but not into other states—so that local stakeholders can maintain involvement and control. A companion goal is to have INPC expand across Indiana so that it can continue contributing clinical data to the QHF data repository. Additional goals are to expand the QHF program to include all providers and payers in Indiana, and expand the range of IHIE revenue-producing services to improve financial sustainability.

The Medicare HCQ Demonstration is focused on the 9 counties of greater Indianapolis, but the IHIE's new Beacon Community cooperative agreement will extend its services to 45 counties in Indiana. Overall, Indiana has 92 counties.

Some employers expressed concern that IHIE might become too large if it expands throughout Indiana, and its size might make it difficult to enable meaningful local involvement for stakeholders. These employers suggested that a network of several smaller, local IHIEs should be set up around Indiana to ensure that local hospitals, physician groups, and employers continue to experience a satisfactory level of involvement and influence. IHIE's Administration Committee is planning to bring in new representatives from other communities outside of Indianapolis to facilitate efforts to expand QHF to other regions within Indiana while maintaining local involvement.

Large insurance companies such as Anthem have an even broader, multistate perspective, as they are active in multiple states. Anthem staff said that they may want IHIE to expand to encompass several states to provide better coverage for the range of their enrollees and for their clients that are large corporations with employees located in multiple states. Anthem operates in 14 states and does not want to have to work with 14 different HIEs. They may prefer to work with one HIE that serves multiple states.

Wellpoint, the parent company of Anthem, has a subsidiary called Resolution Health, Inc. (RHI), which calculates 150 different quality measures. RHI's quality measures are helpful for Wellpoint clients that cross multiple states. However, it uses only claims data, so it lacks the clinical data from INPC and the capability for physicians to verify data though the reconciliation process. Wellpoint senior staff is concerned about working jointly with other payers in IHIE, rather than focusing on RHI. They are concerned that competition with other payers could be undermined by participating in cooperative programs like IHIE.

Relations with RI. Another goal is for IHIE to expand its partnership with RI and support the growth of INPC. For example, adding more communities to INPC could provide for a more extensive database and more informative QHF quality-of-care performance reports and comparisons.

IHIE and RI collaborate closely in data analysis to support QHF. Claims data are uploaded to IHIE servers, where they are converted into HL7 format. Those data are then transferred to INPC, which is located on RI servers, so it can be aggregated into the overall QHF

data repository. Selected data are then sent back to IHIE servers for the quality measure reports. Those reports are calculated and populated into the QHF report formats and sent to the physician groups, practices, and payers.

Adding new services. As noted, a long-term goal of IHIE is to become financially sustainable through payments for IHIE services from data sources and thus to rely less on grant funding. To accomplish this goal, new revenue-producing services are needed. For example, one being studied would include a focus on medication adherence. Data on medication usage might be used to identify ways that physicians and hospitals could reduce the cost of pharmaceuticals.

Adding new payers and providers. Another goal was growth in terms of engagement of additional payers and hospitals and recruitment of physicians and physician practices for QHF. IHIE is expanding physician enrollment through its IUSM and RI networks, existing participants, and PL activity. Recruitment of other payer organizations is ongoing. Some hospitals, laboratories, and other health care providers in the Indianapolis region are not yet providing data to QHF, but others are being added steadily. One solo practitioner, for example, noted that he works with eight hospitals, and three of them are not yet reporting data to QHF. Thus, the clinical data on his patients treated at those hospitals are not yet in the QHF reports.

Online systems for physicians. IHIE is also working to implement a Web-based system to make the reconciliation process easier for physician practices. Several physicians interviewed for this case study noted that the paper system currently used for QHF reports and reconciliation is time consuming; online systems should be possible. They would also like online systems for uploading their EHR data to make the QHF database more comprehensive. Physician groups said that an online system would be much easier than having to print out all of the individual patient reports each month, correct them by hand, and then fax them back to IHIE, where someone then has to manually enter the updated data into the IHIE database. For large groups, this can involve 500-1,000 individual pieces of paper to print, review, correct, and fax each month. Doing this process online would eliminate several of the steps required by the paper-based process and save a lot of time.

Public reporting. Public reporting of the QHF quality measure reports, for the whole local community to view on the IHIE public Web site, is another issue for IHIE to consider for the future. The employer groups involved in IHIE are supportive of public reporting, but the physician groups are opposed. Physician groups do not believe the public can understand the quality measure data very well, such as whether or not differences reported between groups on quality measures are statistically significant. Also, does public reporting really improve patient care? Physicians said that internal, unblinded quality performance reporting, among only the physicians within groups, is more effective for improving patient care.

Physician groups also suggested that public reporting could pit practices and other stakeholders against each other and damage the spirit of community cooperation that is needed for IHIE to grow and succeed. It is hard to get competing physician groups and competing hospitals to come together in a community like Indianapolis and work together to share data. Also, some practices are likely to game the system if there is more public reporting and hence more external competition between physician groups on quality scores. For example, they could accept patients' self-reports that they got retinal eye exams, even though patients sometimes lie

to doctors. Quality measures are useful, but they don't provide the whole picture of what makes a good physician. Physician groups suggested instead that public reporting be limited to the whole Indianapolis community as a group. That would encourage the view that improving the health of Indianapolis is a cooperative community project. Indianapolis could compete with other cities or regions, thus avoiding intracity competition between physician groups and hospitals that could damage the cooperative community spirit that is needed for broad-based data sharing.

Employers said that they want public reporting to provide additional pressure for quality improvement. If doctors' data are public, then everyone would be able to see which doctors need to do more to improve the quality of their care. Public reporting will also enable their employees to have more access to data, so they can educate themselves about health care issues and become more involved in their health care. Employers agreed, however, with a broader focus on improving overall community levels of quality, not focusing only on trying to identify bad doctors.

IHIE staff said that the initial goal will be for public reporting only at the community level and not at the physician group level. Because of the much larger sample size at the community level, this level of reporting will increase the statistical reliability of the data and will avoid raising concerns of the participating physician groups. The motivation for public reporting is mainly to provide transparency, as there is no clear evidence to support the notion that public reporting can have an impact on quality of care.

Adding new measures. Another issue is expanding the range of quality measures reported by QHF and adding efficiency measures, both for the Medicare population and for other populations. IHIE is working with the QHF Measures Committee to expand into a broader set of chronic disease and cardiology measures that will be relevant to the Medicare population, including measures for heart failure, coronary artery disease patients, and chronic obstructive pulmonary disease patients. Additional QHF quality measures suggested for Medicare by several physicians were more diabetes measures, falls prevention assessment and counseling, and osteoporosis screening. The range of new measures to be implemented and the timetable for implementing them are key issues for QHF for the next several years.

The current set of QHF priority quality measures was viewed as positive by most physicians interviewed, although many suggested that more measures could be added to the reports. Some physicians also expressed concern about further expansion of the QHF quality measures, because that would mean more rounds of detailed reconciliation review of the data needed for the new measures.

New measures may also include efficiency measures, which are different from quality measures. IHIE staff recognizes that Medicare and the other payers want to see efficiency improvement as well as quality improvement. They plan to work with providers to find efficiency measures that will be beneficial to them in reducing costs if they have the information they need from QHF. This goal is also consistent with those of the new Beacon Community cooperative agreement. Examples of efficiency measures that will be considered are reducing unnecessary hospital readmissions, improving continuity of care, improving transitions of care, reducing unnecessary use of ER services, reducing redundant radiology imaging, and improving population health on ambulatory care sensitive conditions (ACSCs) that are associated with

hospital admissions. The rate of admissions for ACSCs is believed to be significantly affected by the quality of primary care services provided to patients. New QHF reports will be prepared for community physicians to review utilization on these key indicators.

The Beacon Community cooperative agreement will also provide funding for development of new quality measures. This funding will facilitate their use in the Medicare HCQ Demonstration as well. The Beacon Community will also provide funding for efforts to integrate specialty physician groups into the QHF attribution process and quality measure reports. Cardiologists will be added later in 2010, and other specialty physicians are being considered for future expansion efforts. Others being considered include oncologists, endocrinologists, obstetricians/gynecologists, and orthopedists.

New data could be added to the QHF data repository as well to allow for additional quality measures. Several physicians suggested that useful data to add to QHF would include body mass index, blood pressure levels, and smoking cessation interventions, among others.

Complexities of participation status. QHF "participation" status is currently complicated for both physicians and payers. Physicians have separate participation agreements for INPC, QHF, and the Medicare HCQ Demonstration. Payers receive quality measure score reports only if they are participating in QHF. However, alerts and reminders reports are sent to attributed physicians even if the payer is not participating. In this situation the payer is listed as "unknown" on the QHF quality measure reports.

VI.   MEDICARE HEALTH CARE QUALITY DEMONSTRATION

1.   Demonstration Design

IHIE participates in the Medicare HCQ Demonstration by aggregating Medicare data into the QHF program, by measuring quality of care for Medicare beneficiaries, and by providing quality-of-care reports on Medicare beneficiaries. RI aggregates Medicare claims and administrative data with other data processed in the QHF program. By incorporating Medicare data into the QHF program, IHIE is able to provide participating physicians with the information they need to improve the quality of care provided to the Medicare beneficiaries whom they treat in their practices.

As a result, as described in the last section, the goal of the IHIE's Medicare HCQ Demonstration is to integrate Medicare data into QHF's reporting systems, along with the data from private insurance companies and Medicaid, thereby enabling the QHF program to be more comprehensive and represent a true multipayer HIE. The demonstration is thus not a stand-alone program, but rather one that is integrated into the existing QHF data systems and data reports.

Medicare provided claims data for this demonstration on its fee-for-service beneficiaries who receive at least one office or other outpatient evaluation and management (E&M) visit with a participating physician. This is known as the "one-touch rule." IHIE then applies its attribution algorithm, described in the last section, to those data to attribute the patient to a physician for quality performance measurement.

The QHF priority quality measures for the Medicare HCQ Demonstration are different from the priority measures for private health insurance companies. QHF currently focuses on 10 priority quality measures for private insurance pay-for-performance programs, as identified in Appendix B. However, for the demonstration, the focus for the first two performance years will be on 14 quality measures that are oriented toward the diseases common among Medicare beneficiaries. These 14 measures are described in Appendix A and summarized below:

- Diabetes care: HbA1c testing

- Diabetes care: HbA1c $\leq$ 9%

- Diabetes care: LDL-C screening

- Diabetes care: LDL-C controlled at < 100 mg/dl

- Diabetes care: Kidney disease monitored

- Diabetes care: Retinal exam

- Heart health: LDL-C screening for patients with cardiovascular conditions

- Heart health: LDL-C controlled at < 100mg/dl for patients with cardiovascular conditions

- Heart health: Lipid lowering therapy for patients with chronic stable coronary artery disease (CAD)

- Heart health: Lipid profile for patients with chronic stable CAD

- Heart health: angiotensin-converting enzyme/angiotensin receptor blocker (ACE/ARB) therapy for patients with chronic stable CAD

- Heart health: ACE/ARB therapy for patients with heart failure

- Breast cancer screening

- Colorectal cancer screening

Over the course of the IHIE Medicare HCQ Demonstration, additional quality measures will be added. It is anticipated that, by the fifth year of the demonstration, a total of 30 quality measures will be applied.

For purposes of setting targets for the Medicare quality measures, a straight-line method was used. This is done by calculating the difference between the current QHF program Medicare scores and a 75th-percentile NCQA HEDIS benchmark score, assuming a goal of improving toward that target in increments over 5 years. If a measure was not comparable to HEDIS, the target was improvement to 2% and a minimum of 1% improvement. This approach was chosen to be both feasible and aggressive. A possible alternative would be to use historical Medicare scores along with the QHF program scores to set the targets, but those data are not yet available.

The benefits of the IHIE Medicare HCQ Demonstration are expected to vary across the different parties involved. Medicare beneficiaries may receive improved quality of care. The Medicare program will benefit by testing new types of quality measurement, quality improvement interventions, and potential effects of participation in a multipayer intervention. IHIE will benefit by having more comprehensive payer and data coverage for its QHF program. Physicians will benefit by having more comprehensive quality-of-care reports for the range of patients they are treating in their practices.

2. Demonstration Timetable

The IHIE Medicare HCQ Demonstration is a 5-year project that began in 2009 and is scheduled to end in 2014. Physicians are eligible to join the demonstration in any of the 5 years and are included in panels representing those who joined in each individual year. It is anticipated that specialist physicians will be included in the demonstration in the panels for Years 3-5.

Beneficiaries are included in each demonstration year separately as well, because attribution is based on at least one E&M visit provided by a participating physician. Thus, as the number of participating physicians increases over the course of the demonstration, the number of attributed beneficiaries will increase as well. Beneficiaries are included in panels representing those assigned on the basis of E&M visits with physicians in the different physician panels.

3.   Implementation Experiences to Date

At the time of this case study, in August 2010, IHIE had incorporated historical Medicare claims data for 2 calendar years before the start of the demonstration, from July 2007 to July 2009, into the QHF program. IHIE is receiving additional updates of Medicare claims data on a monthly basis.

The first set of QHF monthly reports containing Medicare data, in addition to private insurance data and Medicaid data, was sent to physician groups at the end of May 2010. The first set of QHF quarterly reports was sent to physician groups in July 2010.

As noted, the data were drawn from Medicare claims based on a one-touch rule, which attributed any Medicare beneficiaries who received at least one primary care service during those 2 years from a participating physician practice. These beneficiaries represented those treated by IHIE participating physicians who had also agreed to participate in the Medicare HCQ demonstration as of June 30, 2009.

Medicare plans to provide claims data to IHIE for a second, expanded panel of beneficiaries based on the second, expanded panel of physicians who agreed to participate in the Medicare HCQ demonstration by June 30, 2010.

Medicare data issues. IHIE staff found some issues with the Medicare claims data it received for QHF in 2010. The data were for a 2-year period, from July 2007 to July 2009. The claims data included 109,000 Medicare beneficiaries who received at least one E&M service from a participating PCP during that 2-year period. However, RI was able to attribute only 61,000 of them to PCPs using its attribution algorithm. Several reasons were suggested for this difference:

- Some of the beneficiaries, about 11,000 over the 2-year period, died

- CMS pulled its one-touch sample of beneficiaries sometimes using physician group level identifiers, such as TINs, rather than individual physician identifiers such as NPIs; in this situation some of the one-touch encounters identified by CMS through TINs might have been visits to medical specialists who were members of a physician group but did not have any patients attributed to them in the QHF system (which attributes patients only to PCPs)

- Some beneficiaries did not have Indiana addresses and may have been from out of state; these would not be attributed to QHF physicians either

- Some Medicare beneficiaries may have had their Medicare identification numbers (also known as HIC numbers) changed over time; this is probably true for only a small number of beneficiaries

One concern is the limited take-up of PCPs in terms of participating in the Medicare HCQ Demonstration. In the nine counties of metropolitan Indianapolis identified for the

demonstration, there are about 1,600 PCPs total. Of those, in August 2010 about 1,300 participated in QHF, but only about 600 also participated in the Medicare HCQ Demonstration.

IHIE staff faced some challenges in converting CMS claims data into HL7 format, somewhat more than had been found with private insurance claims. However, although the process took longer with the CMS claims data, it had been completed by the time of the second RTI site visit to IHIE in July 2010.

Reports. At the time of RTI's second site visit, physician groups had been receiving QHF reports with Medicare data for several months and had also received one quarterly report with Medicare data. Physicians interviewed during that site visit said that they had not seen any major changes in the overall quality measure results due to the new Medicare data included in these QHF reports. Most physicians were focusing their attention on their overall quality measure performance, not on the payer-specific reports for Medicare, private payers, or Medicaid.

Several physicians and practice staff also noted that the QHF reports did include some Medicare patients before the Medicare claims data were added to QHF, because those patients could be identified through hospital stays or ambulatory visits to physician groups who provide data to INPC. Medicare patients were previously listed in the quality measure reports as having an "unknown" payer, like some other patients who are still listed in that way because their insurance companies are not yet participating in QHF. Physician groups were nonetheless following up on QHF alerts and reminders reports for these patients, so they had likely achieved some improvement in quality-of-care performance measures for Medicare patients before the Medicare data were included in the reports.

VII. GENERALIZABILITY OF THE INDIANA HEALTH INFORMATION EXCHANGE MODEL

Benefits of replicating the IHIE model would include not requiring new communities to relearn lessons that IHIE has learned over its past several years and that RI, which developed and manages INPC, has worked on for over 20 years. Most communities will want ownership of the HIE development process, but they will also recognize the high costs and high risk of HIE projects, so they will be looking for models to replicate or at least to study and adapt to the needs of their local communities. A number of challenges for new communities that may plan to replicate IHIE were identified in our interviews:

- Engaging the clinical community and maintaining a cooperative spirit for data repository development and quality improvement reporting among hospitals and physician groups that may be intense competitors

- Hiring staff with the range of technical, organizational, and community-building skills and experience needed to develop and manage an HIE

- Developing multiple revenue-producing services; QHF services alone will not cover the costs of developing and maintaining the data repository

- Recognizing that few economies of scale are available for HIEs; if financial sustainability were easy for HIEs, then large IT companies like IBM and Accenture would already be doing it

- Building new interfaces to physicians, hospitals, laboratories, and other data providers increases costs substantially as HIE geographic coverage increases

- Finding a source of community leadership with persistence to maintain stakeholder involvement over multiple years during start-up, like Anthem did for IHIE

- Bringing employers on board to understand and promote the benefits of the HIE and to maintain the funding and focus from private health insurance companies with whom employers contract

- Bringing in public payers. including Medicare and Medicaid, so the INPC data repository represents a large percentage of all physicians' patients and QHF becomes the main focus of physician and payer quality measurement, improvement, and pay-for-performance efforts

An active role for IHIE's medical director was important for gaining the trust of the physician community. As noted, physicians often do not like quality reports from for-profit health insurance companies that use poor-quality data only from claims and that represent only a small percentage of physicians' patients. IHIE is a nonprofit community organization, with physician staff members that listen to physicians' concerns and respond to them.

Three of the particular advantages of QHF, as viewed by participating physicians, could help with replication efforts in other communities. First, providing for a reconciliation process enables physicians and their staff to correct the QHF data and thereby see that the quality of the data and quality performance reports improves over time. Second, IHIE includes a broad range of data—not just claims data but also medical records—and aggregates data across payers, so it includes up to 70% or 80% of a physician's patients, making it worthwhile for physicians to spend time reading and using the QHF reports. Third, physicians found that QHF provides data reports that are usable by physicians at the patient level in their daily practice of medicine; the monthly alerts and reminders reports provide information on needed care for individual patients.

One physician noted that the affiliation with IUSM, through RI, was helpful in showing physicians the credibility of the IHIE effort. He indicated that about 80% of the PCPs in central Indiana graduated from IUSM, so IHIE has broad credibility in the physician community as a result.

Involving physicians in the selection of quality measures and in revision of quality measures specifications was also an important factor noted by several physicians. This built trust and confidence in the physician community in the value of the QHF process for genuinely improving patient care.

Avoiding adding a lot of new work for physicians and their practice staff was another factor cited as beneficial for IHIE. Some quality measurement programs require physicians and their office staff to conduct time-consuming chart abstraction to collect data for quality measures.

Gaining participation of a critical mass of physicians in the community was cited by many as important for ensuring the sustainability of HIEs. In Indianapolis, IHIE now has about 70% of the PCPs involved in QHF, which makes QHF an established part of the physician community. This high participation rate is likely to take time and require persistence to replicate in other communities. For IHIE, a senior physician at Anthem took a leadership role and supported development of IHIE for 3 years before Anthem received any data reports. Anthem has also supported IHIE by providing generous pay-for-performance bonus payments that went to a broad range of doctors for the first year of QHF reporting; it provided physician fee increases up to 10% based on quality-of-care performance found in the QHF reports. Lower bonus payments were made in subsequent years, but these initially generous pay-for-performance payments got QHF off to positive start with physicians.

Several stakeholder representatives noted that it is important to get a community's major hospitals, physician groups, payers, and other stakeholders together at the outset of the HIE development process. All stakeholders must understand that it is a long process to develop the necessary IT systems and to steadily improve and clean the data through data analysis and reconciliation processes. The stakeholders also need to understand that there is no easy financial return available for the large, up-front investments required for community-wide HIE systems development. The major stakeholders need to recognize that HIE development is a philanthropic effort for the benefit of the community, and they should not expect to make a profit on it.

Some of the major stakeholders noted that they are often very competitive with each other in their local community, especially hospitals and physician groups. As a result, cooperation among them on HIE systems development efforts can be fragile. Replication efforts in new communities will need to find ways consistent with the medical and social culture of each local community to maintain the strength of that cooperation among these otherwise strong competitors.

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APPENDIX A
THE 14 QUALITY MEASURES USED IN THE INDIANA HEALTH INFORMATION
EXCHANGE MEDICARE DEMONSTRATION, YEARS 1 AND 2

Table A.1
The 14 Quality Measures Used in the IHIE Medicare Demonstration, Years 1 and 2

No.	Code	Quality Measure	Quality Measure Definition
1	DC1	Diabetes care: HbA1c testing	Percentage of patients 18-75 years of age with type 1 or type 2 diabetes who had HbA1c testing during the previous 12 months
2	DC2	Diabetes care: HbA1c ≤ 9%	Percentage of patients 18-75 years of age with type 1 or type 2 diabetes whose HbA1c was controlled at ≤ 9% at their most recent HbA1c testing during the previous 12 months
3	CM1	Diabetes care: LDL-C screening	Percentage of patients 18-75 years of age with type 1 or type 2 diabetes who had LDL-C screening performed during the previous 12 months
4	CM3	Diabetes care: LDL-C controlled at < 100 mg/dl	Percentage of patients 18-75 years of age with type 1 or type 2 diabetes whose most recent LDL-C during the previous 12 months was controlled at < 100 mg/dl
5	DC6	Diabetes care: Kidney disease monitored	Percentage of patients 18-75 years of age with type 1 or type 2 diabetes who were monitored for kidney disease (nephropathy) during the previous 12 months
6	DC7	Diabetes care: Retinal exam	Percentage of patients 18-75 years of age with type 1 or type 2 diabetes who had a retinal exam during the previous 12 months or a negative retinal exam during the previous 24 months

No.	Code	Quality Measure	Quality Measure Definition
7	CM1	Heart health: LDL-C screening for patients with cardiovascular conditions	Percentage of patients 18-75 years of age discharged alive for AMI, CABG, or PTCA in the 12 months before the measurement period, or those patients who had an IVD diagnosis during the measurement period and the 12 months before the measurement period, who had LDL-C screening during the previous 12 months
8	CM3	Heart health: LDL-C controlled at < 100 mg/dl for patients with cardiovascular conditions	Percentage of patients 18-75 years of age discharged alive for AMI, CABG, or PTCA in the 12 months before the measurement period, or those patients who had an IVD diagnosis during the measurement period and the 12 months before the measurement period, whose most recent LDL-C screening during the previous 12 months was controlled at < 100 mg/dl
9	CAD2	Heart health: Lipid lowering therapy for patients with chronic stable CAD	Percentage of patients 18 years and older with a CAD diagnosis who were prescribed a lipid-lowering therapy (based on current ACC/AHA guidelines)
10	CAD5	Heart health: Lipid profile for patients with chronic stable CAD	Percentage of patients 18 years and older with a CAD diagnosis who received at least one lipid profile (for all component tests—total cholesterol, HDL-C, LDL-C, triglicerides)
11	CAD7	Heart health: ACE/ARB therapy for patients with chronic stable CAD	Percentage of patients 18 years and older with a CAD diagnosis who also have diabetes, LVSD, or both and who were prescribed ACE inhibitor or ARB therapy

Table A.1
The 14 Quality Measures Used in the IHIE Medicare Demonstration, Years 1 and 2
(continued)

No.	Code	Quality Measure	Quality Measure Definition
12	HF7	Heart health: ACE/ARB therapy for patients with heart failure	Percentage of patients 18 years and older with diagnoses of heart failure and LVSD who were prescribed a lipid-lowering therapy (based on current ACC/AHA guidelines)
13	BCS	Breast cancer screening	Percentage of women 40-69 years of age who had a mammogram to screen for breast cancer during the previous 24 months
14	COL	Colorectal cancer screening	Percentage of adults 50-75 years of age who had appropriate screening for colorectal cancer with FOBT in the last 12 months, flexible sigmoidoscopy in the last 5 years, or colonoscopy in the last 10 years

APPENDIX B
BRIEF DEFINITIONS OF THE 27 QUALITY HEALTH FIRST APPROVED QUALITY MEASURES

Table B1
Brief Definitions of the 27 Quality Health First Approved Quality Measures

No.	Category	Code	QHF Reporting Status in 2010*	Brief Quality Measure Definition
1	Asthma	ASM	Priority, Routine	Medications for people with asthma
2	Children's health	W15	Priority, Routine	Well-baby visits
3	Children's health	W34	Priority, Routine	Well-child visits
4	Children's health	AWC	Priority, Routine	Adolescent well-care visit
5	Children's health	CWP	Routine	Appropriate testing for children with pharyngitis
6	Children's health	URI	Routine	Appropriate treatment for children with upper respiratory infection
7	Heart health	CAD2	Not reported	Lipid lowering therapy for patients with chronic stable CAD
8	Heart health	CAD5	Not reported	Lipid profile for patients with chronic stable CAD
9	Heart health	CAD7	Not reported	ACE/ARB therapy for patients with chronic stable CAD
10	Heart health	CM1	Priority, Routine	LDL-C screening for patients with cardiovascular conditions
11	Heart health	CM3	Routine	LDL-C controlled at <100 mg/dl for patients with cardiovascular conditions
12	Heart health	HF7	Not reported	ACE/ARB therapy for patients with heart failure
13	Comprehensive diabetes care	DC1	Priority, Routine	HbA1c testing for patients with diabetes
14	Comprehensive diabetes care	DC8	Routine	HbA1c good control < 7% for patients with diabetes without complications

(continued)

No.	Category	Code	QHF Reporting Status in 2010*	Brief Quality Measure Definition
15	Comprehensive diabetes care	DC9	Not reported	HbA1c good control < 8% for patients with diabetes
16	Comprehensive diabetes care	DC2	Routine	HbA1c good control ≤ 9% for patients with diabetes without complications
17	Comprehensive diabetes care	DC3	Priority, Routine	LDL-C screening for patients with diabetes
18	Comprehensive diabetes care	DC5	Routine	LDL-C controlled at < 100 mg/dl for patients with diabetes
19	Comprehensive diabetes care	DC6	Routine	Kidney disease monitored for patients with diabetes
20	Comprehensive diabetes care	DC7	Routine	Retinal exam for patients with diabetes
21	Mental health	AM1	Not reported	Antidepressant medication management—effective acute phase treatment
22	Mental health	AM2	Not reported	Effective antidepressant medication treatment during the continuous stage
23	Other measures	COL	Routine	Colorectal cancer screening
24	Other measures	LBP	Routine	Use of imaging studies for low back pain
25	Women's health	BCS	Priority, Routine	Breast cancer screening in women 40-69
26	Women's health	CCS	Priority, Routine	Cervical cancer screening in women 21-64
27	Women's health	CHL	Priority, Routine	Chlamydia screening in women 15-24

*Priority = top 10 measures, highest level of reliability, used for pay-for-performance programs; Routine = top 20 measures, included in monthly and quarterly Measure Metrics Report

APPENDIX C
INTERVIEW GUIDES USED FOR MARCH 2010 RTI SITE VISIT TO THE INDIANA
HEALTH INFORMATION EXCHANGE

Interview Guide for IHIE and Regenstrief Management and Program Staff

General Questions Regarding IHIE and Quality Health First

1. First, we would like to ask about your relationship with IHIE. What is your title and area of responsibility?

2. What is IHIE?

3. What is the Regenstrief Institute?

4. How do IHIE and the Regenstrief Institute work together?

5. What prompted the original effort to establish IHIE?

6. What have been the main phases in IHIE's historical development up to the present day?

7. What are the current goals of IHIE?

8. Please describe IHIE's current organizational structure.

9. What is the role of the IHIE board of directors?

10. What is Quality Health First?

11. IHIE's Quality Health First service is described as a program that helps physicians and patients achieve better health outcomes. Please describe the specific outcomes that it aims to achieve and the different components of this program.

12. What is the target population for Quality Health First? Does it focus on payers, health care providers, patients, or some combination of these?

13. What are the key mechanisms that the Quality Health First program uses to influence these populations? Are data and reports the main focus or are other interventions also used?

14. How will we know if Quality Health First is successful?

15. What is the Indiana Network for Patient Care?

16. How do Quality Health First and the Indiana Network for Patient Care work together?

17. What are current revenue sources?

18. What are IHIE's future plans for development of new services, new revenue sources, and new geographic service areas? For expansion of existing services and revenue sources?

19. Which payers (private or public) does IHIE currently have relationships with? How do they work together? Why is IHIE working with multiple payers?

20. What other organizations are also IHIE's collaborators? How do they work with IHIE? How do they influence IHIE's activities?

21. How did IHIE develop its data collection, data reporting, and data tracking systems? What challenges did it face? How did it overcome them?

22. What is the complete range of data sources for IHIE? What are the motivations for each data source to provide its data to IHIE?

23. What new types of data does IHIE plan to add to its data collection and reporting systems in the future?

24. What incentives does IHIE use to support participation by health insurance organizations? What incentives are used to attract labs and other providers that contribute data but don't receive reports?

25. What do you think motivates physicians to use the IHIE system? What were some of the difficulties that IHIE experienced in gaining physician participation? What helped to overcome these difficulties?

26. Based on what you know, how do physicians and physician groups use IHIE data and reports to improve medical care? How would you like them to use the data?

27. Based on what you know, how do hospitals and integrated health care delivery systems (IDS's) use IHIE data and reports to improve medical care? How would you like them to use the data?

28. In your opinion, could the IHIE model of health information exchange be generalized to other communities? What basic components would be necessary for other communities to implement a health information exchange like IHIE?

Medicare Demonstration Questions

29. What is your understanding of IHIE's role in the Medicare Health Care Quality demonstration? How will this role change over time?

30. How does this Medicare demonstration fit with the current goals and services of IHIE?

31. How is Quality Health First used in the Medicare demonstration?

32. What motivated IHIE to participate in the Medicare demonstration?

33. How does IHIE's involvement in the Medicare demonstration enhance or inhibit IHIE's work with private insurance companies such as Anthem (Wellpoint) Blue Cross/Blue Shield and United Healthcare and other public insurers such as Medicaid?

34. What benefits does the IHIE Medicare demonstration project bring to Medicare patients? What benefits have already been achieved and what benefits are expected in the future?

35. What benefits does IHIE bring to the Medicare program?

36. What do you think are the strengths and weaknesses of the IHIE Medicare demonstration design?

37. What changes did IHIE have to make to existing processes or information technology systems in order to participate in the Medicare demonstration?

38. In your opinion, what risks does participation in this Medicare demonstration bring to IHIE? What are IHIE's plans for mitigating those risks?

39. Which performance measures has IHIE implemented thus far for the Medicare demonstration? Which measures remain to be implemented?

40. What hinders IHIE's ability to carry out its role in the Medicare demonstration? Which of these issues are specific to the Medicare demonstration and which ones apply to IHIE operations in general?

41. What "big picture" comments or advice would you have for the Medicare program?

Interview Guide for IHIE and Regenstrief Data Center Staff and Database Managers

General Questions Regarding IHIE and Regenstrief Institute

1. First, we would like to ask about your relationship with IHIE. What is your title and area of responsibility?

2. What is IHIE?

3. What is the Regenstrief Institute?

4. How do IHIE and the Regenstrief Institute work together?

5. Please describe the data center's operations.

6. Please describe how the data center fits into IHIE's current organizational structure. How many and what types of employees does it have?

7. What is Quality Health First?

8. Please describe the data input, data processing, and data reporting systems of Quality Health First.

9. How did IHIE and its collaborators develop the Quality Health First program's data collection, data processing, and data reporting systems? What challenges did it face? How did it overcome them?

10. What are the future plans for Quality Health First in terms of development of new data sources, new data processing capabilities, new reports, new services, new revenue sources, and new geographic service areas?

11. How does IHIE provide data reports and other types of feedback to physicians and other providers? How will these data reports and other types of performance feedback change in the future?

12. How is the quality of data monitored? Through what processes do you get feedback or corrections of the data? How are corrections processed?

13. What is the complete range of data sources for IHIE? What are the motivations for each data source to provide its data to IHIE?

14. How does IHIE attribute patients to physicians and physician groups for its Quality Health First program? How often do you run/modify attribution? How are corrections made?

15. How does IHIE identify and match physician data?

16. What are the strengths and weaknesses of IHIE's data collection, data reporting, and data tracking systems for the Quality Health First program? How does IHIE conduct data quality assurance and enable updates and corrections to faulty data?

17. Has IHIE had any issues with data security? If yes, please provide examples.

18. In your opinion, could the IHIE model of health information exchange be generalized to other communities? What basic components would be necessary for other communities to implement a health information exchange like IHIE?

Medicare Demonstration Questions

19. What is your understanding of IHIE's role in the Medicare Health Care Quality demonstration?

20. What is your involvement with this Medicare demonstration?

21. How is the Quality Health First program used in the Medicare demonstration?

22. What changes did IHIE have to make to existing processes or information technology systems in order to participate in the Medicare demonstration?

23. How well do IHIE's patient attribution algorithms for the Quality Health First program fit Medicare beneficiaries who are older, have more chronic conditions, and more physicians? Are there any age limits for patients who are attributed?

24. Did IHIE's participation in this Medicare demonstration require staff training, recruitment, or external technical assistance?

25. What challenges has IHIE experienced in carrying out this Medicare demonstration?

26. What is IHIE's experience to date with Medicare data? How does this compare with IHIE's experiences to date with private insurance data and with Medicaid data?

27. Are there any obstacles that hinder IHIE's ability to carry out its role in the Medicare demonstration? Which of these issues are specific to the Medicare demonstration and which ones apply to IHIE operations in general?

Interview Guide for IHIE's Collaborating Stakeholders

General Questions

1. First, we would like to ask about your role at [NAME OF ORGANIZATION]. What is your title and area of responsibility?

2. What is [NAME OF ORGANIZATION]?

3. Please describe how your organization and IHIE work together.

4. What prompted your organization to work with IHIE?

5. Was your organization involved in the development of Quality Health First? If yes, what was your organization's contribution? What was the motivation for your organization to participate?

6. Is your organization involved in IHIE's data collection activities? Does your organization use IHIE data and reports?

7. What changes has collaboration with IHIE brought to your organization?

8. What benefits has IHIE provided to patients and to health care providers in the Indianapolis community?

9. In your opinion, could the IHIE model of health information exchange be generalized to other communities? What basic components would be necessary for other communities to implement a health information exchange like IHIE?

Medicare Demonstration Questions

10. What is your understanding of IHIE's role in the Medicare Health Care Quality demonstration?

11. How is Quality Health First used in the Medicare demonstration?

12. Is your organization involved with the Medicare demonstration? If so, please describe the ways that your organization is involved with the Medicare demonstration.

13. What benefits does this Medicare demonstration project bring to Medicare patients?

14. Do you think the demonstration has resulted in an improvement in the quality of care for Medicare beneficiaries thus far? If yes, please provide specifics. If no, what improvements do you anticipate in the future?

15. What "big picture" comments or advice would you have for the Medicare program?

The following questions will be asked only if applicable:

16. How does this Medicare demonstration fit with the current goals and services of your organization?

17. How does this Medicare demonstration meet the needs of your organization?

Interview Guide for IHIE's Data Providers

General Questions

1. First, we would like to ask about your role at [NAME OF ORGANIZATION]. What is your title and area of responsibility?

2. What is [NAME OF ORGANIZATION]?

3. Does your organization provide data to IHIE or to the Indiana Network for Patient Care (INPC)?

4. What has been the nature of your organization's involvement with IHIE (or INPC)? How has this involvement changed over time?

5. What prompted your organization to provide data for the Quality Health First program or for the INPC?

6. What types of data does your organization provide to the Quality Health First program or the INPC?

7. How does your organization provide those data?

8. What motivates your organization to provide those data?

9. What are the strengths and weaknesses of IHIE's (or INPC's) data collection, data processing, and data reporting systems?

10. Does IHIE (or INPC) monitor data quality and enable updates and corrections to faulty data? If so, how? Do any organizations both provide data *and* receive reports? For those who do not see any of the reports, does the data provider have any further contact with IHIE/INPC after submitting data?

11. Are there any types of data that your organization considers important to provide that is not currently collected by IHIE (or INPC)?

12. Does your organization also use IHIE (or INPC) data and reports as well as provide data to IHIE (or INPC)?

13. What benefits has your organization received thus far as a result participation in IHIE or INPC? Do you anticipate any additional benefits?

14. What benefits has IHIE provided to patients and to health care providers in the Indianapolis community?

15. In your opinion, could the IHIE health information exchange model be generalized to other communities?

Medicare Demonstration Questions

16. What is your understanding of IHIE's role in the Medicare Health Care Quality demonstration?

17. What is your involvement, if any, with this Medicare demonstration?

18. How does IHIE's involvement with the Medicare demonstration impact the goals of your organization?

19. What benefits does the IHIE Medicare demonstration project bring to Medicare patients?

20. What benefits does IHIE bring to the Medicare program?

21. What do you think are the strengths and weaknesses of the IHIE Medicare demonstration design?

22. How well does the IHIE Quality Health First program's method of assigning patients to physicians fit Medicare beneficiaries who are older, have more chronic conditions, and more physicians?

23. In your opinion, which elements of the Medicare demonstration have been most effective?

24. What "big picture" comments or advice would you have for the Medicare program?

Interview Guide for IHIE's Data Users

General Questions

1. First, we would like to ask about your role at [NAME OF PHYSICIAN GROUP OR PRACTICE]. What is your title and area of responsibility?

2. What is [NAME OF PHYSICIAN GROUP OR PRACTICE]?

3. What has been the nature of your practice's involvement with IHIE? How long has your practice been involved with IHIE?

4. What prompted your practice to collaborate with IHIE and use its data resources and reports?

5. How has your practice used data and reports from IHIE's Quality Health First program?

6. How does IHIE provide data reports and other types of feedback to physicians about their quality of care and cost efficiency performance?

7. In what ways have your office practices or processes been modified due to your participation in IHIE's Quality Health First program? In what ways do you anticipate they may be modified in the future?

8. Are you aware of any ways in which IHIE may change its data reports and other types of feedback in the future?

9. What is your understanding of IHIE's data collection, data processing, and data reporting, systems? In your opinion, what are strengths and weaknesses of the IHIE data systems?

10. How do you provide feedback to IHIE on incorrect data you find in reports you receive from IHIE? Is the incorrect data changed by IHIE to make it accurate?

11. What incentives are offered to physicians for participation in IHIE?

12. What else could IHIE do to improve physician participation?

13. What changes in medical care practices have you observed in physicians or in physician groups that receive IHIE data reports?

14. What benefits has your practice received thus far from its involvement with IHIE?

15. What benefits has IHIE provided to patients and to health care providers in the Indianapolis community?

16. In your opinion, could the IHIE health information exchange model be generalized to other communities?

Medicare Demonstration Questions

17. What portion of your patients are Medicare beneficiaries?

18. What is your understanding of IHIE's role in the Medicare Health Care Quality demonstration?

19. What is your practice's involvement with this Medicare demonstration?

20. How is IHIE's Quality Health First program used in the Medicare demonstration?

21. What benefits does the Medicare demonstration project bring to your practice or group?

22. What benefits does the Medicare demonstration project bring to Medicare patients?

23. What benefits does IHIE bring to the Medicare program?

24. What do you think are the strengths and weaknesses of the IHIE Medicare demonstration design?

25. How well does IHIE's Quality Health First program's rules for assigning patients to physicians fit Medicare beneficiaries who are older, have more chronic conditions, and more physicians?

26. Do you think the Medicare demonstration has resulted in an improvement in the quality of care for Medicare beneficiaries thus far? If yes, please provide specifics. If no, what improvements do you anticipate in the future?

27. What "big picture" comments or advice would you have for the Medicare program?

APPENDIX D
INTERVIEW GUIDES USED FOR JULY 2010 RTI SITE VISIT TO THE INDIANA
HEALTH INFORMATION EXCHANGE

Second Site Visit Interview Guide for IHIE Managers and Program Staff

General Questions Regarding IHIE and Quality Health First

1. What are the current goals of IHIE? How have they evolved in recent months with the award of the Beacon Communities grant to IHIE and other developments?

2. What are the current goals of Quality Health First? How have they evolved in recent months?

3. Please describe IHIE's current organizational structure. How do you expect it to change in the future?

4. How do you anticipate IHIE's geographic range of coverage may change in the future?

5. How do you anticipate IHIE's range of services provided and revenue sources may change in the future?

6. Which payers (private or public) does IHIE currently have relationships with? How do they work together? Why is IHIE working with multiple payers?

7. How will the role of the IHIE board of directors change in the future?

8. Has IHIE developed new collaborations with other organizations in the past six months, including data contributors and data users? Will the Beacon Communities grant facilitate new collaborations?

9. What new types of data does IHIE plan to add to its data collection and reporting systems in the future?

10. How do you anticipate IHIE's data collection, data management, data analysis, and data reporting systems will change in the future?

11. In your opinion, could the IHIE model of health information exchange be generalized to other communities? What basic components would be necessary for other communities to implement a health information exchange like IHIE?

Medicare Demonstration Questions

12. What has been the reaction of physicians and other data users to the new quality data reports Quality Health First recently distributed with the Medicare data included?

13. Which quality measures has IHIE implemented thus far for the Medicare demonstration? Which measures remain to be implemented?

14. How do you anticipate the quality data reports will change in the future?

15. What changes did IHIE have to make to existing processes or information technology systems in order to participate in the Medicare demonstration?

16. What data issues or problems did IHIE have with accessing or analyzing the Medicare data? How did this compare to data issues with data from other data sources, including private payers, Medicaid, hospitals, and physician practices?

17. How can the Medicare data issues or problems be mitigated or solved in the future?

18. How does this Medicare demonstration fit with the current goals and services of IHIE?

19. How does IHIE's involvement in the Medicare demonstration enhance or inhibit IHIE's work with private insurance companies such as Anthem (Wellpoint) Blue Cross/Blue Shield, United Healthcare, other private payers, and public insurers such as Medicaid?

20. How does IHIE's involvement in the Medicare demonstration enhance or inhibit IHIE's work with health care provider organizations, including hospitals and physician practices?

21. What benefits does the IHIE Medicare demonstration project bring to Medicare patients? What benefits have already been achieved and what benefits are expected in the future?

22. What benefits does IHIE bring to the Medicare program?

23. What do you think are the strengths and weaknesses of the IHIE Medicare demonstration design?

24. What other challenges/barriers has IHIE encountered during the demonstration so far?

25. What "big picture" comments would you have for the Medicare program?

Second Site Visit Interview Guide for IHIE's Data Users

<u>**Introductory Questions**</u>

1. First, we would like to ask about your role at [NAME OF PHYSICIAN GROUP OR PRACTICE]. What is your title and area of responsibility?

2. What is [NAME OF PHYSICIAN GROUP OR PRACTICE]?

3. What has been the nature of your practice's involvement with IHIE? How long has your practice been involved with IHIE?

4. What prompted your practice to collaborate with IHIE and use its data resources and reports?

5. How has your practice used data and reports from IHIE's Quality Health First program?

6. How does IHIE provide data reports and other types of feedback to physicians about their quality of care performance?

7. What benefits has your practice received thus far from its involvement with IHIE?

8. What is your understanding of IHIE's data collection, data processing, and data reporting, systems? In your opinion, what are strengths and weaknesses of the IHIE data systems?

9. How do you provide feedback to IHIE on incorrect data you find in reports you receive from IHIE? Is the incorrect data changed by IHIE to make it accurate?

10. In what ways have your office practices or processes been modified due to your participation in IHIE's Quality Health First program? In what ways do you anticipate they may be modified in the future?

11. Have the reports from IHIE changed the way you treat patients?

<u>**Medicare-Related Questions**</u>

12. What portion of your patients are Medicare beneficiaries?

13. What do you see as the benefits of the new reports that Quality Health First has provided in recent months with Medicare data included?

14. How do you think the benefits of the Quality Health First reports have changed since the new Medicare data has been included in recent months?

15. How could those new reports be made more beneficial to your practice in the future?

16. How well do IHIE's Quality Health First's rules for assigning patients to physicians fit Medicare beneficiaries?

17. How well do IHIE's Quality Health First's quality measures fit with the care provided for Medicare beneficiaries?

18. What is your understanding of IHIE's role in the Medicare Health Care Quality demonstration?

19. Do you think the Medicare demonstration has resulted in an improvement in the quality of care for Medicare beneficiaries thus far? If yes, please provide specifics. If no, what improvements do you anticipate in the future?

20. What "big picture" comments would you have for the Medicare program?

General Questions

21. Are you aware of any ways in which IHIE may change its data reports and other types of feedback in the future?

22. What could IHIE do to improve physician participation?

23. In your opinion, what benefits has IHIE provided to patients and to health care providers in the Indianapolis community?

24. In your opinion, could the IHIE health information exchange model be generalized to other communities?