Report:
Closing Gaps in Care through Health Data Exchange

GE Healthcare

Louis W. Sullivan Institute for Healthcare Innovation

wedi™
Technology Today For A Healthy Tomorrow

Table of Contents

EXECUTIVE SUMMARY

Automated data exchange is critical to the successful coordination, delivery and payment of value-based healthcare. Interoperability remains a significant barrier to fully leveraging information technology to assist team-based care coordination across the continuum. Many providers are unable to seamlessly access or share patient health information electronically with other organizations. As a result, they are unable to efficiently identify patients in need of healthcare services or deliver services according to evidence-based guidelines in a timely manner. Not closing these gaps in care significantly affects the quality and cost of care by contributing to adverse patient outcomes and inappropriate care.

As delivery system transformation, consumerization and digitalization converge together, the healthcare industry is at the crossroads to address gaps in care as a national priority. With this in mind the Louis W. Sullivan Institute for Healthcare Innovation , in close collaboration with GE Healthcare, conducted mixed methods qualitative research to enable a better understanding of data exchange challenges and to identify effective strategies for workflow automation and optimization. This report provides an overview of current approaches, best practices, emerging opportunities and barriers to identifying, preventing and closing gaps in care through data exchange via health information technologies.

Key findings from the report include:

1. **Greater education and communication are needed to raise awareness among stakeholders, particularly providers, about the value of identifying and closing gaps in care.** Providers appear to lag behind health plans in implementing gaps in care programs. Challenges include the lack of sufficient resources or education about how to maximize workflow changes and effectively close gaps in care.

2. **Gaps in care can threaten the performance of healthcare organizations.** Stakeholders agree gaps in care is a critical issue the industry at large must tackle in striving to improve the health and care of populations. Surveyed providers are significantly more concerned than health plans that gaps in care pose a threat to their organization by affecting clinical performance, financial performance and the ability to retain patients.

3. **Gaps in care programs have had a positive impact and seem to produce a high return on investment.** While it may be premature for organizations to conclusively evaluate the impact of gaps in care services, improvements were observed in quality outcomes such as access to behavioral healthcare, pediatric and adolescent check-ups and medication adherence. Reductions in utilization of ambulatory care, hospital admission and hospital readmission were also observed. Compared with providers, health plans reported that gaps in care services had a more positive

impact on domains such as patient compliance/adherence, patient satisfaction, care coordination and efficiency. While gaps in care programs may incur high costs up front, they also yield high return on investment – particularly for health plans.

4. **Consensus is needed to develop and standardize quality measures and methodologies for information exchange among health plans, providers and patients in an actionable manner.** The terminology, standardization and scope of gaps in care measures need more clear definition and alignment between health plans and providers before actionable data harmonization can occur. Best practices need to be disseminated that illustrate stakeholder roles, automation of workflow and quality improvement.

   Additional key technical barriers to exchanging gaps in care information include the provenance, quality, completeness, timeliness, transparency and accuracy of data. Efforts enabling the advancement of open-API and element-based exchange, allowing more seamless exchange of data, are needed to address current systems and organizational infrastructure designs.

5. **Addressing gaps in care is a critical issue for stakeholders that grows in importance as value-based care efforts mature and health insurance coverage access and care increase.** As newly eligible consumers continue to enter the health insurance marketplace and access healthcare, it will be essential for stakeholders to develop effective healthcare communication, prevention, and education and intervention strategies to improve the quality of patient-centered care.

   "As we increasingly grow fee-for-value arrangements in our nation, it is critical that we look to methods to not only automate gaps-in-care – to not only ensure that data moves seamlessly between clinical systems and payment systems but that the information is useful and actionable for clinicians and patients," commented the Honorable Louis W. Sullivan, MD, Board Chair of the Sullivan Institute. The Sullivan Institute is a sister organization to the Workgroup for Electronic Data Interchange (WEDI).

I. INTRODUCTION

This report provides an overview of current trends, practices, opportunities and challenges related to the implementation of gaps in care programs and using health information technology to automate the identification and closing of gaps in care. For the purposes of this report, **gaps in care are defined as the discrepancy between evidence-based recommendations or best practices and the care that is actually delivered.**

The document is the result of multi-stakeholder efforts that began with the publication of the 2013 WEDI Report. One key recommendation contained within the 2013 WEDI Report[1] called for the harmonization of clinical and administrative information. To date, the seamless exchange and blending of data remain immensely difficult for stakeholders to achieve without a more sophisticated, standardized technology infrastructure, as well as the standards for clinical practice that should drive the design for that technology. Efforts to close gaps in care reflect the challenges of leveraging clinical and administrative data to identify at-risk patients and deliver all appropriate and coordinated care in a timely manner. A variety of industry-led groups have formed coalitions and workgroups to address specific use cases that would facilitate interoperable data exchange at all levels of care but will take considerable time to mature. More importantly, data interoperability is only part of the solution. Integrating that data into day-to-day care processes in a way that provides insight and education at the point of maximum effect should be the focus of all investments in closing the gap between what should and does happen in healthcare.

By focusing specifically on the opportunities for health plans and providers to collaborate in an effort to optimize the care delivered to a shared customer, the patient, it is the intent of this report to inform the healthcare community and have an immediate impact on the quality of data exchange, care coordination and population health. With this in mind, the Louis W. Sullivan Institute for Healthcare Innovation (Sullivan Institute) launched this project to examine how data must be leveraged to improve workflow and close gaps in care.

QUALITATIVE RESEARCH METHODOLOGY

The Sullivan Institute conducted mixed method qualitative research, evaluating how healthcare stakeholders are approaching gaps in care across the country. Methods included qualitative interviews, case studies, a quantitative national survey and one focus group. Key findings are synthesized in the report.

After completing an environmental scan, a literature review was performed on the technology and data exchange infrastructure to support gaps in care programs and care coordination. The Sullivan Institute conducted a series of interviews with

---

[1] www.wedi.org/topics/2013-wedi-report

health plan and provider organizations between June and August 2015. Semi-structured interviews were conducted by phone for 30 to 60 minutes to learn how stakeholders were addressing gaps in care, identifying use cases and case studies, and to ascertain some common challenges and strategies.

The Sullivan Institute launched a national survey online between August and September 2015. One hundred twenty-two out of 261 respondents completed the survey. Selected survey results are included throughout the report, and complete survey results are provided in the Appendix.

In addition, the Institute convened 24 representatives from 21 stakeholder organizations to attend an executive roundtable in Washington, D.C., on Sept. 22, 2015. The one-day roundtable explored key issues identified in the research and in the qualitative interviews with the goal of gathering further details to support the findings.

BACKGROUND

The US healthcare system is transitioning to a value-based paradigm of care delivery and payment. Health information technology is a critical dependency if we are to support ever more specialized and complex care activities across the continuum of delivery services and settings. The effective coordination of relevant information with human activity is the foundation for aligning best practices with the patient experience. Integrating data with the care process, and integrating processes across the boundaries of specialties, settings and organizations, is a challenge that faces significant roadblocks. "Interoperability" has become the catchphrase for describing the limits imposed by various technical, cultural, financial and organizational realities upon our ability to make best practices synonymous with the community standard of care.

At a patient population level, effectively identifying cohorts that would benefit from programmatic interventions is difficult. At an individual patient level, care is experienced as a disconnected and unmanaged journey through a complex constellation of disparate settings that appear in sharp contrast to the rest of their wired and digital lives.

When many providers are unable to seamlessly access or share patient health information -- and in particular a care plan – electronically with other health plan and provider organizations, many patients fall through the gaps in care and fail to receive best practice care in a timely manner. If those gaps are not closed at a population level, they can significantly affect the quality, safety, efficiency and cost of care by contributing to adverse patient outcomes.

Table 1: Impact of Open Gaps in Care on Healthcare Stakeholders

	Intermediate Outcomes	Impact
Patients	Low levels of adherence with medication and disease management regimens, engagement, satisfaction and healthy behaviors. Poor patient-provider-relationship	Poor care experience, adverse health outcomes, higher costs, increased disparities in care
Providers	Poor access to information, inappropriate or redundant procedures and tests, medication errors, poor patient-provider relationship	Inefficient workflows, unnecessary care, lower quality, lost revenue and high variation in performance relative to best practices in care
Health Plans	Poor access to high value member information, inaccurate measurement of clinical and financial performance of providers, inaccurate risk assessment of members, poor plan-member relationship	Lower quality performance by the provider network, adverse health outcomes of covered members, increased utilization and incurred expenses, over reliance on billing information and process measures as proxies for quality and value, lower member retention and poorer accreditation rating of health plans by public and private quality assessment organizations

Recently, momentum has grown across the industry to close gaps in care, given the degree to which such gaps affect the measurement of value as a function of both quality and cost. High-profile evidence of this trend can be seen as industry benchmarking programs like Healthcare Effectiveness Data and Information Set (HEDIS), Consumer Assessment of Healthcare Providers and Systems (CAHPS), Health Outcomes Survey (HOS), National Committee for Quality Assurance (NCQA) Accreditation, Physician Quality Reporting System (PQRS) and Medicare Star Ratings begin to include the demonstration of gaps in care initiatives as a core metric for assessing performance, granting accreditation, mandated reporting, maintaining credible quality assurance functions and evaluating eligibility for pay-for-performance incentive payouts. Absent a set of industry standardized definitions, each of these programs measures gaps in care through a different lens. For example, health plans might use HEDIS process measures to evaluate provider adherence to best practices in support of NCQA accreditation, while providers might prioritize PQRS definitions of quality to ensure they meet CMS standards.

The Center for Medicare & Medicaid's (CMS) Star Ratings are specifically designed to target the closure of gaps in care as the primary way to achieve better health and financial outcomes. Star Ratings are calculated and published to not only help consumers compare Medicare Advantage and Prescription Drug plans, but also help

CMS determine how performance-based payments are made for Medicare Advantage plans, prescription drug plans and Program of All-Inclusive Care for the Elderly (PACE) organizations. Compliance regulations require that health plans request and access medical records from provider practices to determine precisely when gaps in care have been opened and closed. Typically, plans gather audit information by mail, fax, onsite data extraction or electronic data exchange. Once submitted to CMS, plan payments are determined by calculating a Risk Adjustment Factor (RAF) score for each patient. The scores are based on a Hierarchical Condition Categories (HCC) model. The model includes factors such as health status, demographic information and disease burden associated with 70 diagnostic categories. If patient health history is inaccurate, providers and health plans will not receive appropriate payments for closing gaps in care among high-risk populations. By requiring the recording and reporting of gaps in care data, CMS is creating a strong incentive for health plans and providers to collaborate on delivering appropriate interventions that improve the overall health and welfare of Medicare patients. Today, it is estimated that there is more than $26 billion in revenue uncollected by plans and providers because they fail to address and report the closure of gaps in care. The Star Ratings program represents a practical and effective challenge to the industry to establish the appropriate HIT infrastructure to support accurate reporting on a broad range of gaps in care measures. Such programs will proliferate and mature quickly as reporting and payment requirements are harmonized around managing risk, measuring outcomes and demonstrating value.

Causes of Gaps in Care

"As a patient ages and journeys in and out of a health system, it takes a village to care for him or her as their needs, fears, disabilities and health change. Gaps are really about relationships between and among patients, providers and payers. They occur because of a weak or tenuous relationship that deters people from making proactive care decisions. Once patients fall through the cracks, they can just as well disappear or be invisible until it's too late; it's far harder for a provider to bring patients back in from the cold and improve health outcome, than it is to actively engage, manage and monitor patients. However, many gaps in care can be identified and eradicated through building strong relationships, engagement and trust with patients," observed Sharon Anderson, Senior Vice President, Quality and Patient Safety; Chief Population Health Officer and the Director for the Center for Quality and Safety of the Value Institute at Christiana Care Health System (CCHS).

Gaps in care are often caused by the particular needs of a subpopulation of patients, the environment in which they seek health services and the capabilities of an organization to address their needs. Summarized below are some of the key issues that may lead to gaps in care, most of which are ultimately related to an organization's ability and commitment to access, communicate or act upon information.

Access to Information

Health is a dynamic but ongoing state. Over the course of their lifetimes, Americans often move from one geographic area to another, develop different health conditions, seek care from disparate providers, specialists, facilities and organizations and receive coverage under different insurance plans. As patients journey in and out of the healthcare system, it is essential for providers and health plans to be able to rapidly access, exchange and review patient information such as health status, allergies, problems, medications, psychosocial needs and health history. Complete, accurate and actionable data helps identify patients who may need care and inform decisions so coordinated interventions can be delivered efficiently to achieve optimal outcomes. Patients may otherwise fall through the cracks if providers do not have access to information and/or are unaware of existing gaps in care. Finally, stakeholders are equally dependent upon the documentation and submission of accurate data to ensure that payments are appropriately adjusted for services performed or not delivered.

Access to Care

It is critical for healthcare organizations to understand their patient population, identify their needs and preferences and align person-centered services accordingly. If services are not timely, affordable and convenient, patients are less likely to consume them – and in turn, more likely to experience gaps in care that result in adverse health outcomes and higher costs. For example, patients may seek basic primary care in the emergency room for diabetes. The high cost of treating diabetes in an emergency room setting could have been avoided had an intervention taken place that guided the patient at early onset to a setting that provided health education and supported behavior change and appropriate treatment. By expanding health insurance coverage to previously excluded populations and increasing the number of options available for those currently covered, the Affordable Care Act has substantially increased access to care through health insurance marketplaces (HIX). However, gaps in care are challenging to mitigate among HIX enrollees given that health plans have limited to no access to prior claims history and providers have no record of these patient's previous interactions with the healthcare system. Moreover, many new enrollees have struggled with longstanding barriers to accessing care that include socio-economic and demographic factors like culture, education, occupation and geography. These are known determinants of health status.

Patient Engagement

Gaps in care also occur because patients are not engaged with their providers nor empowered to make informed decisions. Many patients struggle to understand or communicate basic health information and are unprepared to navigate the complex path to access the most basic of services. Further, even when consumers are provided with information to assist in decision-making, they often lack the confidence or health literacy to follow instructions or adhere to a treatment regimen. People have complex beliefs, expectations and perceptions that significantly affect how they engage with, experience, consume and manage their

interactions with the healthcare system. Services that are not perceived to be optimal or person-centered deter patients from seeking care and may cause them to frequently change their practice affiliations. The inability of patients to objectively assess the quality of their care experience undermines the patient-provider relationship. The seemingly random movement of patients in and out of networks and the increasing trend to choose care providers based upon social media interactions and brand reputation result in situations that rely increasingly on informal and inconsistent methods for the transfer of patient information. Once a patient chooses to engage with multiple providers and facilities for reasons not related to a planned care referral, the probability for gaps in care to emerge increases significantly. Gaps are almost certain to occur if providers are unaware of medical diagnoses, procedures, services or prescriptions delivered at facilities whose EMR technology is not tightly integrated. Alternatively, when a patient has a high level of engagement with an identified network of primary caregivers, there exists a significant opportunity for tightly coordinating care – even when patients are referred outside their network for a specific episode of care.

Care Coordination

Without the proper incentives, resources and levers in place, traditional fee-for-service (FFS) models have been unable to align care delivery teams to coordinate patient-centered care across the continuum. For example, patients discharged from a hospital fail to receive recommended care approximately 46% of the time and are subject to otherwise preventable complications and/or death. Even if patients receive prescriptions, medication adherence remains an obstacle; only 57% of adults comply with prescriptions acquired post-discharge. While gaps in care vary across populations, they tend to occur most frequently among "super-utilizers" that require extensive support, treatment and management. The group typically includes underserved populations, elderly and disabled dual-eligibles (covered by Medicare and Medicaid), and people diagnosed with, or at risk of developing, high-cost HCCs and chronic conditions. Patients with diabetes, heart disease, cancer, chronic obstructive pulmonary disorder and chronic pain engage frequently with multiple caregivers in a diverse range of settings. Due to the complexity of their health conditions and the size of their care team (e.g. urgent, primary, specialty and long-term care), a high degree of coordination is often required in delivering services appropriately to the super-utilizers. The challenges of coordination are not limited, however, to super-utilizers. Gaps in care also manifest among healthy people who need preventive services (e.g. immunizations, vaccinations or screening tests) or sick patients who require intermittent medication management or disease management. Organizations successfully managing gaps across the patient care continuum generally have a comprehensive strategy to monitor and deliver preventive, chronic, acute, post-acute, and behavioral and wellness care.

Gaps in Care Services and Programs

> *"Healthcare is complex. The older we get, the more care we as patients often want and need – and it can be confusing for everybody involved. It's a hard road to go alone. It's hard for patients to remember when to take appropriate*

dosages of medication, get screened for a condition that carries a lot of stigma, or just show up for a basic annual check-up. But it's also hard for a provider to care for a panel of patients, monitor their progress over time and follow up with them individually. Adverse outcomes and unnecessary care are occurring because of fragmentation, overutilization and a general lack of continuity, coordination, integration and management of care. Managing and closing gaps in care require a whole new approach and way of team-based thinking," observed Joe Cunningham, Managing Director at Santé Ventures.

Gaps in care represent an opportunity for providers and health plans to work together on behalf of patients to collectively benefit from improvements in the quality, continuity and value of healthcare services, such as those listed in the table below.

Table 2: Impact of Gaps in Care Services on Healthcare Consumers

By consuming services focused on…	… Patients and members are…
Diabetes management	Preventing complications and comorbidities
Medication management after heart attack	Complying with an appropriate medication regimen
Controlling high blood pressure	Lowering their risk of heart disease and stroke
Managing anti-depressant medication	Protecting their mental health and wellbeing
Diagnostic screening for diabetes	Taking advantage of early intervention opportunities
Expedited resolution of complaints and appeals	Providing valuable feedback on the quality and efficiency of care
Excellent call center customer service	Availing themselves of an opportunity to become a better educated patient and consumer

Although evidence-based programs and guidelines exist, there is no industry standard, or even consensus, on how, when or where they are best implemented. How the implementation or enforcement of best practices is prioritized as gaps in care services offered by a particular health plan or provider organization differs depending upon the patient population served, institutional capabilities, contractual arrangements between commercial and Medicare Advantage health plans and providers, as well as line of business requirements for reimbursement and quality reporting (e.g. HEDIS and PQRS). When services are implemented, providers and health plans are critically dependent upon timely access to and exchange of accurate data to identify, communicate, prevent, manage and close gaps in care on an ongoing basis. Patient health must be continually assessed, adherence to treatment plan tracked, and preferences, needs and behavior must be considered. Information must be analyzed and trends identified. Similarly, organizational resources, capabilities, objectives, performance and workflow must be monitored in order to continuously evaluate the efficiency and quality of services delivered. While programs may target

common service domains (e.g. hospital admissions and readmissions, patient access to care, medication management and reconciliation, preventive care and patient engagement), the cost, efficacy, value, impact and feasibility of services offered varies depending upon the degree to which an organization successfully integrates information into workflow and practice.

The ability to provide information and insight at the point of care, however, is not the sole criteria for success. Gaps in care services create additional roles and responsibilities for primary care practitioners, and to a lesser degree their specialist colleagues. Most primary care providers report being overburdened and would find it difficult to allocate time or resources required to identify and close gaps. *"As a primary care doctor, the problem is not that you don't have enough patients to see – it is trying to fit all your patients into workflow,"* noted Cunningham. It is commonly estimated that a primary care physician would have to work at least 18 hours a day to deliver all of the care needed by the patient population. Given the way primary care is delivered today, the capacity to engage every patient and close every gap in care would be rare indeed. Without fundamental changes in the delivery of care and the accompanying technology, effective gaps in care programs will rely on providers to efficiently prioritize the most valuable interventions and target the available resources to align their practice with widely accepted evidence-based guidelines.

Rather than simply adding to the burden of physicians by placing full responsibility on them for addressing observable gaps in care, effective programs seek to provide staff support, promote administrative process redesign and capitalize technology infrastructure that can streamline performance and automate adherence to best practices. *"The most effective gap in care programs are those that allow each staff member to operate at the top of their license to provide a seamless experience for the*

patient. If a patient calls to schedule an appointment, a trained nurse should be able to complete additional steps on a checklist so that a physician can spend as much quality time with a patient as possible," observed Cunningham.

Redesigning workflow often relieves physicians by offloading tasks and delegating responsibilities to a multi-disciplined care team. These teams are comprised of members such as administrative staff, analysts, medical assistances, nurse practitioners, nurses, care coordinators, case managers, dietitians, health coaches, physical therapists and/or psychologists. Care teams can provide patient-centered services across the continuum (e.g. health education, promotion, prevention, wellness, disease management, medication management and case/care management)

to allow providers to spend more time directly with patients. By engaging and empowering patients (and their caregivers and family members) with information and tools, providers enable them in building knowledge, skills, ability, willingness and health literacy to manage their healthcare. A collaborative patient-provider relationship addresses patient priorities, fears, concerns, preferences, beliefs and needs. Such personalized intervention strategies are ultimately more likely to yield better patient-centered outcomes.

As one anonymous physician surmised, "We as providers need to accept that no matter how hard we try, not every gap in care can or should be closed through clinical intervention with each patient – and that's okay. We can't force

Case Study
In addition to workflow adjustments, gaps in care can also be prevented and closed through structural adjustments to an organization.

Background:
A health system noticed that older male smokers were not adhering to the recommended guideline that they receive a low-dose computerized tomography (CT) scan as a preventive intervention to identify early stages of lung cancer or other abnormalities. At first glance, initial assumptions might conclude that patients simply needed to be more educated about how their smoking behavior may put them at higher risk for cancer and the value of early screening. However, after conducting root-cause analysis to pinpoint factors leading to low levels of adherence among the smokers, the organization found that cost was the primary prohibitive deterrent – and was just as strong as other commonly encountered barriers such as patient beliefs, stigma, health literacy, or accessibility.

Pilot Intervention:
Rather than redesign workflow around a nurse that would conduct more outreach and education with current and previous smokers, the health system conducted a pilot with a health plan that would test whether renegotiated pricing for CT scans at a lower out-of-pocket cost or deductible for high-risk patients would lead to higher rates of screening.

Impact:
While results have been slower to prove than might be seen when immediate results can be measured resulting from interventions that are designed to automate manual processes, the pilot nonetheless has attracted interest from additional health plans that are now arranging similar contractual arrangements with the health system to lower the cost of CT scans for high-risk members.

Next Steps:
After working upstream to remove cost as a barrier to care, the health system is now focusing on how to better identify current or previous smokers and automate processes to ensure that high-risk patients are screened in a timely manner. Staff are also working in collaboration with appropriate specialty departments (e.g. hematology and oncology) to follow up with patients regarding screening results and help them navigate through next steps to provide a seamless transition of care, rather than run the risk of patients subsequently falling through the cracks.

compliance. With all the focus around quality benchmarks, it's important to remember at the end of the day this is about the patient, their health and the delivery of care in alignment with their needs and preferences. It's about shifting from a 'what's the matter' to 'what matters' mindset."

Table 3: Common Activities Delegated and/or Automated

Communication and outreach	Administration and documentation	Patient management	Patient care and follow-up
Reminders and notifications	Schedule appointments	Fill (or refill) prescriptions	Assess patient health status or risk
Correspondence by mail, phone, email or secure text message	Update and complete patient information	Disease management	Monitor progress
General health and wellness education	Complete medical and medication history	Health education and coaching	Coordinate transitions

The more tasks that a team can automate, such as those listed in the table above, the more easily gaps can be identified, and subsequently, a well-defined course of action can be communicated to the appropriate provider(s) who can then intervene on a more personal level. A well-structured and supported gap in care program can significantly improve the efficacy of care without bottlenecking workflow. Data used to support better care for individual patients also provides the basis for implementing continuous quality improvement (CQI) feedback loops that measure outcomes at a system-wide level, evaluate overall clinical performance and methodically tweak care strategies at a highly granular level. By identifying pain points in operational workflow, processes can be tuned and integrated with best clinical practices to yield the most optimal resource allocation to support excellence in care. Successes in one part of the delivery system can be gradually scaled to other departments or facilities through an iterative CQI process. The table below illustrates some of the steps that an organization might take to address gaps in care through common process improvement methodologies.

Table 4: Managing Gaps in Care through Process Improvement

PDSA	Plan			Do	Study	Act
Lean Six Sigma	Define	Measure	Analyze	Improve		Control
Role of data analytics	Identify and target a specific patient population and develop an intervention plan in alignment	Define quality measures Establish benchmarks	Measure current clinical performance to identify observable gaps in care	Develop and benchmark best practices Pilot the intervention and evaluate the results	Scale the pilot to establish a new community standard for clinical practice	Monitor ongoing performance Inform how or where to scale and improve Replicate the method with a

					Incorporate the intervention into automated clinical decision support systems Measure performance	new intervention
with mission objectives						

"It's difficult to suddenly implement culture change overnight and convince people how important it is to continuously monitor and act upon data. But it's just as difficult to build a rigorous culture around the collection of data and make sure everybody is fully committed to ensuring information is as accurate, complete and up-to-date as possible at all times," cautioned Daniel Frank, Senior Vice President and Medical Director of Clinical Documentation and Quality Improvement at OptumCare.

To support the emerging reforms predicated on value-based payments, organizations must foster a data-driven culture, training and educating staff as to the importance of identifying, documenting and closing gaps in care in anticipation of managing clinical accountability and the allocation of performance-based incentives. Expanding programs in scope horizontally along the continuum of care – typically from primary care to other vertical siloes (e.g. long-term or specialty care) – offers a practical approach to steadily improve the quality of care, efficiently coordinate transitions and reduce potential patient leakage by actively managing the coordination of services with other departments and facilities within an aligned care delivery network. Programs designed to identify patients who consistently go out-of-network for specific procedures provide gaps in care teams with an opportunity to establish informal care management relationships with non-affiliated specialists. Such approaches to addressing gaps in care promotes the open exchange of patient health information, provides better management of clinical referrals and establishes dependable processes for patient engagement and follow-up communication.

"Access to healthcare is a core objective for a lot of different entities. If you can establish an open dialogue with other organizations and identify opportunities for synergy, you may be able to save significant time and money by delegating out services to partners that have stronger community ties, services or experience with certain aspects of access to care. It's a win-win situation," observed Michael Kleinmann, Director of Health Services at PwC.

Partnerships with non-affiliated organizations are an important component of any program to foster active patient engagement, encourage patient compliance with their care plan and nurture the patient/provider relationship. Health plan services that facilitate open access to care within an informal network and provide incentives for information sharing can create value for patients and providers and fortify brand loyalty.

In some cases, public health agencies and human and social services organizations may be better equipped and funded to work with an at-risk community or population. Given their longstanding role in addressing root causes and social determinants of health through education, promotion and prevention, these entities provide an alternative to a medical approach to improving health and wellness. Moreover, for some populations, they present a more cost-effective solution and may hold a more trusted, recognized role in addressing important community needs (e.g. pre-natal and infant care services, substance abuse treatment, healthcare education, clinic based preventive care and screening). These entities also mitigate common barriers to access to care (e.g. facilitate transportation). In other cases, organizations such as retail clinics may offer a more convenient, accessible and familiar environment for consumers to seek care. Regardless of whether partnerships are internal or external, the more facilities that are included in a gaps in care program, the more dependent they will be upon technology to enable and streamline the documentation, exchange and analysis of health data.

II. HEALTH DATA AND IT REQUIRED FOR GAPS IN CARE SERVICES

"There's a potentially huge advantage to using electronic tools to collect, mine and analyze data, coordinate care and communicate between actors. There's a lot of room for improvement, but technology provides stakeholders with a toolkit of different capabilities and approaches to use in different scenarios. Today, technology is starting to open the door to an immense amount of data that can be potentially harvested," commented Betsy Clough, Vice President for Quality and Patient Safety at UW Health.

Behind every healthcare encounter are shared decisions made by a provider and a patient. These decisions rely upon health information presented in a consumable format that is as complete, accurate and current as possible. Following an initial consultation, a patient may undergo additional tests, consult a specialist, receive a diagnosis, begin a treatment plan, fill a prescription or work with a care coordinator to navigate their care experience. Each encounter involves the participation of different stakeholders who are frequently sharing a patient but operating with an isolated and siloed medical record system, sometimes still utilizing hand-written paper charts. Adding to the complexity is that they are acting with a shared interest in a positive patient outcome but vary under different economic incentives that drive their decision process. As a patient visits multiple providers, both in and out-of network, transitioning between different care settings, it becomes more difficult for organizations to access complete patient information at the right time in the

right place. Changes over time in the patient's responsible health insurance plan add significantly to care process complexity.

> *"Electronic tools and data exchange are starting to empower providers with actionable knowledge (not just information), and data transparency is starting to improve quality. But we must be cognizant of costs and mindful that IT solutions are not too resource-intensive for stakeholders to use," observed Ruth Galyon, Senior Director of Clinical Program Transformation at Health Care Service Corporation.*

The more fragmented and incomplete the patient medical record, the more difficult it becomes to identify gaps in care or document their closure effectively. In a manual or paper-based environment, these tasks would be all but impossible at a population level. Many health plans and providers leverage sophisticated health information technology (health IT) solutions, streamlining and automating the electronic documentation, exchange and analysis of data. By rapidly extracting and integrating actionable patient health information from disparate settings, health IT can provide a more composite, nuanced understanding of patient health and care. Within the context of addressing gaps in care, health IT can support activities such as tracking care processes and disease management activities, analyzing provider orders and test results, coordinating transitions of care, communicating with care team members, or updating patient health records with new medical encounters, reported allergies, test results and prescribed medications. The table illustrates how health IT can achieve optimal outcomes at an individual and population level.

Table 5: Impact of Health IT on Care at an Individual and Population Level

Activity	Impact at Individual Patient Level	Impact at Population Level
Patient engagement	Empower patients with knowledge of open or potential gaps in care	Identify cohorts of patients in need of health education and coaching
Care coordination	Facilitate communication among providers and between the patient and providers	Notify providers of gaps and areas of concern that should be addressed
Care delivery	Support and guide medical decision-making	Enhance coordination of care to support effective transitions
Management of gaps in care	Identify, prevent and close gaps in care	Prioritize the allocation of resources and program development initiatives to align most effectively with a specific population to close gaps in care among high-risk patients

TYPES AND SOURCES OF DATA USED

"More data isn't always better data. It's not so much about how much you have but rather having data that's useful and organized in an effective way to be accessed at

the right time and place needed to drive decision-making," remarked Rishi Saurabh, Global Product Marketing Manager of Integrated Care at GE Healthcare IT.

Organizations use different types and sources of data to build a composite 360-degree portrait of an individual's health and utilization of care and to assess the risk for adverse health outcomes. Multi-sourcing data to develop a profile of patient preferences and behavior and analyze the clinical performance the various care teams and individual providers inform medical decisions and measure overall quality. Data aggregation allows open gaps in care to be identified more accurately and closed with more personalized and targeted prevention, treatment and care management strategies.

> *"Data specificity can be a double-edged sword. Granularity can provide better insight at the cost of greater burden on workflow. There's a natural inclination to want as much data as possible. But that's not always the best approach. When choosing what to measure, we need to take a step back and ask ourselves what matters to the patient." noted Luis Taveras, Senior Vice President and Chief Information Officer at Barnabas Health.*

Gaps in care programs are more likely to succeed when stakeholders spend time during preliminary planning stages assessing available data sources and IT capabilities, mapping data exchange pathways and establishing how the data will be effectively integrated into care workflows. The data type, the source and the form in which data is collected and evaluated depends very specifically on the targeted gap in care. *"There is a natural tension between balancing the desire for value, quantity, granularity and accessibility of information. Providers, vendors and payers each need to be very careful with how they're moving forward. Right now, too much data is lost in translation because of poor alignment and planning," commented Tammy Banks, Vice President of Relationship Management at Optum Cloud Operations.*

Although health data can be documented using different formats and mediums (e.g. text narrative, numeric, standard and proprietary nomenclature, image, paper, digital and multimedia), data is ultimately categorized as either structured or unstructured. **Structured data** is generally the easiest to aggregate and analyze because of its semantic consistency and the use of defined, computer-readable, standardized nomenclature and structure (e.g. numeric values blood pressures, lab values, diagnosis and procedure codes and birthdates). The rapid adoption of structured data is somewhat constrained by the need to align the structure with a user interface that is at least tolerable to clinicians and staff with regard to ease of use and the time it takes to document a patient encounter. While the maturity of the user interfaces provided by the major EMR vendors has advanced significantly in the past decade, many providers still consider the EMR as good for patient care but not for productivity. Drop-down boxes, point-and-click coding, selection menus, check boxes, templates and keyboards are still considered to be a barrier to efficient workflow but undeniably provide data that is easy to search and correlate. **Unstructured data**, on the other hand, is unorganized and irregular. Free text can

be ambiguous (e.g. physician notes, voice dictation, transcriptions or email correspondence), and important information can be buried among superfluous narrative. Unstructured data does allow a high degree of flexibility in documenting patient narratives and observations that may be critical to understanding a gap in care, patient behavior, diagnoses or medical history. In some settings it also promotes more complete documentation due to the unbounded nature of the mediums of paper and dictation. To address the limited availability of important structured clinical information, effective programs often use a mix of **clinical records** and **claims data** to identify and manage gaps in care. Health plans have for many years built effective quality of care initiatives solely from claims data. They have attained a high level of proficiency in mining provider billing information that can be shared with provider organizations seeking to optimize the utility of all available data sets. As illustrated in the table below, each source has different strengths and weaknesses.

Table 6: Comparison of Data Used to Identify and Manage Gaps in Care

	Clinical Data	Claims data
Information described	Document ongoing patient health and care at a medical facility, clinic, practice or hospital Data may include patient demographics, vital signs, past encounters, medical history, prescriptions, lab results and lists of problems and allergies	Describe billable procedures and services performed by provider (e.g. inpatient/outpatient care, pharmacy services or enrollment) Data may include patient demographics, billable charges, dates of service, diagnostic codes, procedure codes and insurance eligibility
Type of information	Mostly unstructured (60-80%); standards exist, but there is variation in the data documented[2]	Highly structured and standardized using primarily coded data (e.g. CPT and ICD) Highly optimized to support payment and benefits adjudication.
Granularity of data	Granular; provides a more complete picture of patient health and condition(s)	Granular but highly specialized to support payment and actuarial activity; can be used as a proxy for clinical data in specific contexts[3]
Timeliness of information	More timely and actionable; data can be accessed more quickly (sometimes as quick as near real-time) during or after an encounter	Less timely and more retrospective; the time lag in claims submission, adjudication limit its value relative to individual patient interventions but can be effective in identifying

---

[2] There are also ongoing industry efforts to standardize the use of structured files such as continuity of care documents (commonly referred to as CCD).

[3] Standard claims can be supplemented with file attachments containing additional information (e.g. discharge summaries and operative reports) that can be transmitted through electronic data interchange (EDI) transactions between the provider and health plan. EDI transactions can reduce the need for retrospective audit requests for information to support HEDIS reporting requirements and Medicare Advantage Star requirements.

		care trends in a population of patients or a network of providers
Frequency of review	Usually reviewed on a daily or weekly basis to prompt appropriate actions or intervention from a care team based on changes in health status	Usually reviewed on a monthly or quarterly basis given that feedback loops may not require as much immediacy
Limitations	May not reflect patient care or activity out-of-network	May not reflect care for patients who pay for services with cash without a claim being filed. May not include sufficient information to identify gaps in care or improve workflow

"Relying solely upon claims can make payers myopic if they don't see things through the day-to-day lens of providers. If all you have is a claim, you're really just reacting inefficiently and incompletely to a member's pattern of engagement with a provider or utilization of the healthcare system. Claims data is a limited reflection of one side of the equation; it doesn't drill down to the underlying factors or complete picture of an individual's health. But if you can harness administrative and clinical data together in tandem, it can be a really powerful tool," observed Shalama Brooks, Director of Clinical Quality at Delaware Community Plan.

Advancements in big data technology are making it easier to correlate and store patient clinical data in real-time with claims and payment data in a common repository. The ability to aggregate a comprehensive longitudinal journal of patient data provides a very accurate source of truth that addresses a broad spectrum of use cases, and in particular a highly effective tool to address gaps in care program requirements for both individuals and populations. Access to big data technology is, however, capital intensive, and the ability integrate multiple sources of data in the service of care process optimization remains out of reach for many stakeholders, providers and plans alike.

"If you look out at the landscape today, we already have all the information we need to identify and close gaps in care. Latent data is sitting out there on different systems but nobody can effectively access or efficiently use it," commented Cunningham.

Currently, most organizations are collecting sufficient data to effectively implement programs to manage gaps in care and improve the health status of a specific population. They also lack the technology infrastructure and analytics capabilities necessary to derive information and insight from their available data.

Regardless of how much or little is collected, the discipline to ensure data integrity is another critical component of any data-driven plan to improve quality and efficiency. When patient data is inaccurate, incomplete or out of date, providers and

health plans may make bad decisions. These decisions can harm individual patients and the lower overall value of the services and benefits delivered.

Data integrity remains a key challenge for organizations, particularly as they leverage additional sources of information from different environments. For example, the socio-economic determinants of health status could be better understood when provider data is augmented with data from departments of public health and social services agencies. This data supports a robust analysis of underlying trends in population health. However, these departments and agencies may not utilize standard protocols for data collection or gather data with the same degree of precision as a health plan or provider organization (e.g. use of ZIP codes versus specific geo-mapped address).

With this in mind, as organizations establish minimum requirements for data documentation and choose the measures they will use to assess care and manage gaps, it is also important to balance the desire for "best in class" data with the workflow and process limitations of the care setting, as well as the capabilities and available bandwidth of staff. "*The measurement and review of data should become as natural an instinct and priority for providers as washing hands has become for hygiene and patient safety. There is a very real danger when patient care is poorly documented.*" noted Sandy Chung, Chief Executive Officer at Health Connect.

HEALTH IT FRAMEWORK

The majority of provider and hospital organizations have adopted health IT systems that can capture, access, store, share and analyze patient records. Common among most gaps in care programs is a foundation set of basic health IT components and capabilities that can support the core activities illustrated in the figure below.

Figure 1: Framework of Activities Supported by Health IT
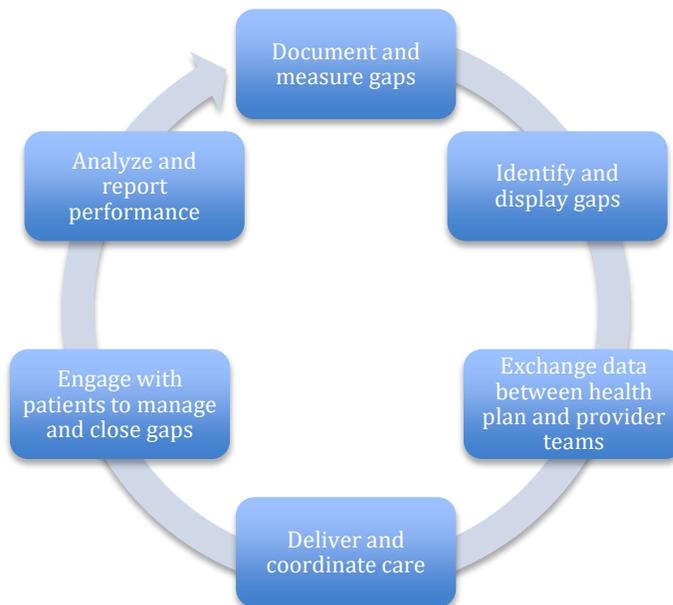
Documenting and Identifying Gaps in Care

As the common adage goes, you can't manage what you don't measure. Typically, an **electronic health record (EHR)** system is the primary hub used by a provider to enter and collect patient care data. As distinguished from Hospital Information Systems (HIS) and Practice Management Systems (PMS) which were developed to supporting coding, billing and accounts receivable activities, EHR systems are designed to offer feature functions and capabilities to document a patient encounter. Designed to address the inefficiencies and shortcomings associated with traditional paper-based charting, EHR developers strive to store all patient data in a structured format but recognize the need to give providers and other clinical staff. Ultimately, the ability to maximally leverage available patient data to address gaps in care directly correlates with the degree to which that data is organized within a structured data model and conforms to an industry standard. Advanced EHRs are that broadly support the delivery, management and financial functions associated with care delivery are being rapidly implemented across the industry. Consolidation among provider organizations frequently fuels these implementations. There remain, however, a significant percentage of providers and other stakeholders that have remained dependent on very basic systems or continue to rely on paper. As a result, patient data continues to be trapped in silos across disparate systems that lack fundamental capabilities to share information electronically across organizational boundaries. It is commonly estimated that as much as 40 percent of patient information is missing from records when needed by a medical professional.

> *"We might be in the era of big data, but what we really need is smart data. Physicians just won't be able to keep up at the current rate until we're able to improve how we collect and measure healthcare data," warned Faisal Mushtaq, President of Payer/Life Science Business at Allscripts.*

Prior to HITECH (The Health Information Technology for Economic and Clinical Health Act) and ARRA (American Recovery and Reinvestment Act), enacted in 2009, gaps in care were typically identified by health plans based upon claims data. The incentives provided by the government under HITECH produced the intended result of putting advanced EHR technology on the desktops of a critical mass of provider organizations. Most of those providers now have the capability to populate their own **electronic registries** and implement gaps in care programs. Depending on the level of sophistication of the EHR they implemented and the degree to which they were effective in training providers to conform with minimum documentation standards, their EHR registries should be able to indicate individuals with an open gap of care. Beyond that, many now have the ability to identify populations at risk of experiencing future gaps in care. This based on their documented health status, profile and behavior. As the market evolves, providers operating under value-based care contracts will require their health IT infrastructure to support the combining of clinical and claims history and to incorporate **risk stratification** and/or population health **software** to segment subgroups of a designated patient population into categories for different types of intervention. The table below illustrates how

organizations might stratify patients to receive care based on their level of risk, condition and/or severity of health needs.

Table 7: Example of an Approach to Risk Stratification

	Target Patient Population	Level of Risk	Corresponding Intervention
Health prevention, promotion and wellness	Individuals who are generally healthy but may not have recently received a check-up, or may be at risk of a chronic/complex condition	Low	Upstream preventive services such as health education, promotion and wellness strategies that modify key lifestyle behaviors (e.g. diet, physical activity, smoking cessation, etc.)
Disease management	Individuals who are already chronically ill or have been recently discharged and require ongoing monitoring or limited intervention	Medium	Disease and medication therapy management programs, training that provides assistance with patient self-management tasks
Case management	Individuals who are critically ill, have complex chronic conditions and/or are unable to make care decisions or adhere to a plan independently	High	Intensive case management that can provide hands-on, customized services and coordinated psychosocial care, coaching and support

"Defining metrics is tough in terms of how care should be tracked and monitored, what should be the benchmarks or triggers for certain actions. Everybody – from an individual provider, to organization, to provider association, to payer, to federal quality programs – is in different agreement when it comes to the need for disease management and quality measurement. There's no universal definition, for example, of high-risk diabetes patients versus low-risk diabetes patients. Once you start talking about levels of risk, you immediately get into very specific conversations around the measures selected (such as hbA1c, blood pressure and weight) and the appropriate ranges that distinguish between low, medium and high risk. That all gets negotiated at the contract level with the payer and can trickle down to impact clinical decisions made at the point of care – oftentimes without the patient even being aware. We need to standardize our agreement and understanding of risk and continually revise those definitions as new evidence emerges," commented *Sarah Lucas, Administrator of Enterprise Revenue Cycle Operations & Management at UW Medicine.*

Case Study

Gap in care programs often tend to segment and stratify populations for specific interventions – but sometimes it may be helpful to integrate efforts to improve efficiency and reduce potential redundancies.

Background:
After successfully piloting a program with several staff to manually review spreadsheets, identify open gaps in care associated with adult prevention (e.g. screenings, vaccines and check-ups) and reach out to patients to bring them in for care, Geisinger Health System began to expand and tackle multiple chronic conditions. However, they soon ran into problems of scale. Providers were overburdened with alert notifications and bottlenecked with too many tasks. "When we looked at the data, we realized we could be a lot more efficient if we bundled our datasets together from our warehouse to be more patient-centric rather than list- or disease-specific. If a diabetic patient hadn't come in for care, they probably had other prevention needs and comorbid conditions that should be addressed at the same time. We needed to shift our approach so that every time a patient interfaced with us, we considered it an opportunity to be a one-stop shop to close multiple gaps," remarked Elizabeth Price, Senior Director of Care Gaps and Best Practices.

Pilot Intervention:
Recognizing that the core of their program was built around analytics, the organization spent two years to bundle their datasets together from both billable and non-billable services. By integrating clinical decision support for multiple quality targets across the continuum, the program enabled trained nurses to pull up patient records and see all open gaps. If a patient had 10 open gaps, staff could work to close all of them at once when reaching out to a patient, rather than calling them ten separate times to address each gap one by one. Additionally, nurses were able to optimize workflow by tackling all gaps that did not require physician oversight prior to patient intake.

Impact:
The team was able to dramatically improve the efficiency of their team in managing and closing gaps, as well as overall health outcomes for patients.

Next Steps:
The team is further streamlining performance by automating analytic activities with natural language processing, and delegating greater management of day-to-day clinical operations to nurses. They are also expanding with a holistic model to other systems of care (e.g. mental health).

Variation in how risk is defined can affect the identification and stratification of patients being prioritized to receive care, the decision-making process used to define a treatment plan and the calculation of quality-based payments for services delivered. Providers and health plans may have different definitions, thresholds or combinations of measures that indicate when a patient is at significant risk, when they are unable to effectively self-manage their condition or how to determine an appropriate treatment plan. Inconsistent standards can lead to a single encounter being evaluated and reported multiple times in the attempt to accurately determine a patient's clinical status. Ultimately, these inconsistencies can contribute to poorer health outcomes, higher costs and inappropriate care. At-risk patients may fall through the cracks if measures are too basic or one-dimensional. Providers may also miss underlying causes or comorbidities that should be addressed. On the other hand, if the measures are too complex and require extensive data entry or analysis, providers may quickly become overburdened with documentation. If a population is too broadly defined (e.g. diabetics who are due for their hemoglobin A1c level to be screened), organizations may not have the resources to intervene with each individual or ensure that interventions are being delivered consistently and to those most in need. However, resources can be allocated more efficiently if the definitions of risk are granular and specific (e.g. diabetics over the age of 45 who have not had their hbA1c screened in more than three to six months).

Case Study
Gap in care programs are critically dependent on effective measurement of quality performance.

Background:
The Wisconsin Collaborative for Healthcare Quality (WCHQ) is an example of a state initiative that was able to drive consensus among major providers and health plans in Wisconsin and agree upon the quality measures that would be used. Established in 2003, WCHQ has grown to allow member organizations to voluntarily collect and submit data relevant to the services that they provide. Unlike other reporting efforts that rely exclusively on claims data from commercial health plans to create performance measures, WCHQ also incorporates reports from Medicare, Medicaid and self-pay patients.

By integrating clinical, claims and patient data, WCHQ offers a comprehensive set of validated evidence-based measures to evaluate clinical processes and intermediate outcomes. The publication of annual performance data has, in turn, driven quality improvements at many of the participating organizations. "Once providers were able to develop and agree on the same measures to be used, WCHQ was able to drive agreement among state health plans to use those same measures – which, in turn, got the attention of plans at the national level as well," surmised Clough.

Impact:
From an efficiency standpoint, providers such as UW Health have benefitted enormously from using a single set of metrics "rather than asking providers to slice, dice, measure and re-measure data 17 different ways for the same condition or procedure. We've been able to develop a lot of our IT components around those measures and target populations, such as diabetes, hypertension and chronic kidney disease," observed Clough.

Next Steps:
At the same time, UW Health still struggles with data storage and analytics. As Clough concluded, "There are still too many cooks in the kitchen with a lot of disparate teams doing similar work at our organization, and it's difficult to coordinate activities or reduce redundancies until data analytics activities are more centralized."

Case Study

Gaps in care programs are particularly effective when they're able to combine and correlate data from different sources.

Background:
Based in Wilmington, DE, Christiana Care Health System (CCHS) includes two hospitals with more than 1,100 beds and a range of services. "We spent a lot of time trying to identify our sickest patients or those at highest risk, and then figure out what interventions, workflows or actions make the most impact or difference in each patient's life in a timely manner to make a difference in their health status. But for a long time, we didn't have enough information to make those decisions," noted Anderson.

Solution:
CCHS was awarded a grant from the Center for Medicare and Medicaid Innovation (CMMI) to develop a data system that uses real-time patient data aggregated from non-integrated clinical sites to actively enable longitudinal, evidence-based care management. The technology platform leverages machine-learning artificial intelligence to sift through clinical and claims data, analyze records and identify at-risk populations and gaps in care. "Claims data gives us a good snapshot of care, while real-time EHR data gives us more granular specifics on patient health status." CCHS also accesses external clinical data (lab and pathology), reports (radiology and transcribed) and fact sheets (hospital ADT) in a regional health information organization. Using accredited evidence-based care management software, care teams access real-time data and care plans and optimize processes so that an interdisciplinary team can work with patients on a longitudinal basis to provide care management services and support providers in care delivery.

Next Steps:
CCHS launched several risk contracts on Jan. 1, 2016. The care management model that has been built will be folded into risk-based arrangements to support providers in achieving cost and quality goals and improve the health of their patients. "Today, we're grappling with interoperability of disparate IT systems, but tomorrow there's going to be a whole new set of technical challenges as healthcare moves into retail settings and consumerism expands. Healthcare is changing at an incredible pace and achieving improved clinical outcomes, exceptional patient experience and reduction in costs is now more than possible and up to us to get it done. These are exciting times," concluded Anderson.

> *"Something as simple as height and weight is incredibly important in the context of gaps in care. If a medical assistant forgets to have patients remove their shoes or accessories before measurement, their BMI will be incorrectly calculated. In turn, that miscalculation could, for example, change the way a pulmonary function test machine determines appropriate lung size, alter a patient's risk profile, impact medical decisions, lower the quality of care, exacerbate health outcomes and ultimately impact our HEDIS score. It all comes back to continuous process improvement. One little change upstream can have a butterfly effect on how gaps are identified, prevented or closed across a population,"* observed Nancy Yu, Medical Director of SMA.

Standardizing the definition of low, medium and high levels of risk will facilitate the harmonization of disparate and sometimes conflicting models and protocols used to operationalize effective management of disease and the promotion of health and wellness. **Clinical decision support (CDS)** provides care teams with decision guides, prompts, recommendations and guidelines based upon evidence grounded in research and clinical experience.

> *"We need a 21st-century framework and approach to measuring quality with outcomes-based measures focusing not just on clinical excellence but also on population health improvements to align with the transformative changes in care delivery and payment reform under way,"* noted Walter Suarez, Executive Director of Health IT Strategy & Policy at Kaiser Permanente.

The industry has long pursued real, outcome-based measures that better reflect the quality and value of delivered care. That pursuit has been primarily aspirational because a sufficient body of accurate, structured clinical information gathered strictly within the context of delivering and managing patient care has never been available. In the next 18-24 months, petabytes of structured clinical data will begin to come online as the majority of newly implemented EHRs roll into full production mode and networked health information exchange becomes a reality. As health plans and providers become more highly aligned under shared risk and value-based contracts, direct bi-directional interfaces between providers and health plans will become a critical success factor if payer/provider collaborations and partnerships are to succeed. Health plans have the ability to scale and capitalize big data infrastructure, while the responsibility to reform the delivery of care in the face of consumerization and unsustainable cost trends falls squarely on providers. The work of creating meaningful measures for outcome analysis will depend on the ability of Health Plans and providers to establish productive relationships based upon sophisticated information trading that mirrors the complexity and importance of financial and banking systems. Fully automating the identification and management of gaps in care should be a fundamental goal driving the efforts of health plans and providers to collaborate.

Identifying and Displaying Gaps in Care

The proliferation of health IT will significantly increase our ability to identify an ever-increasing number of gaps in care opportunities. The dominant process today whereby providers and health plans address gaps in care with downloadable spreadsheets will not scale. Typically, once patient populations have been stratified into different categories of risk, aggregate information is summarized in a downloadable report. This report is then manually reviewed by providers. The next generation of gaps in care programs will rely heavily on the ability to integrate gaps in care management directly into clinical workflows and support gaps in care resolution within the native user interface of a provider's EHR. Electronic **dashboards** must rapidly filter business and clinical intelligence into a user-friendly digital scorecard with high-level information on patients in need of services. While most large delivery systems will fully integrate their gaps in care programs with their network-wide EHRs, health plans will need to support provider partnerships across the spectrum from high-tech to low-tech and in some cases no-tech. Some providers may require a **portal** to access online records or securely communicate with patients to deliver reminders, alerts, test results or education regarding their condition or treatment. Health plans are well-positioned to provide hosted services to enable low- and no-tech providers in order that they may participate in gaps in care programs that benefit all stakeholders, most importantly, the health plan's members.

When gaps in care are identified by a provider or health plan, actionable information is sometimes communicated via an **alert notification.** Members of a care team can trigger a subsequent chain of processes, decisions and/or actions to be taken according to the workflow, workload and preferences of users. In the event that a gap in care requires immediate action or decision to be taken, alerts may be pushed and sent directly to a provider via email or automated voice message or to an organization through integrated EHR messaging. Alternatively, updates regarding ongoing health maintenance issues may be communicated more passively via a less-intrusive channel, such as a message embedded in a patient health record or portal. Increasingly, notifications are electronically integrated directly into systems so that information can be pushed automatically into appropriate user accounts. Staff is not then required to take the extra step of manually querying databases, forwarding messages to appropriate members of a care team and/or requesting permission or guidance from a physician to communicate information.

> *"In the beginning, we gave providers way too much data. But based on their feedback and our experiences, we went back and revamped and enhanced what we were providing so that the information was specific to what they're looking for and allowed them to execute changes immediately," remarked Jeramie Harris, Director of Business IT Research & Development at PrimeWest Health.*

The integration of alert notifications into workflow can be an obstacle for many providers. If an alert is sent to staff members who do not understand what is being conveyed or cannot act upon the information received, they are less likely to make the appropriate decision required for a gap to be closed efficiently or may choose to simply ignore the alert altogether. Rather than sending alerts to notify providers of every open gap in care for all patients, it is far more effective to limit alerts to when they can be most effective, generally at a point of care (visit, phone, email or electronic communication between the provider and the patient). Alerts should be highly actionable not just in terms of information but also in terms of timing and role. Intrusive alerts should be limited to use cases where they are sure not to cause confusion and alert fatigue on the part of staff members. By mapping out data exchange and workflow pathways during early-stage planning, teams can minimize the effort required by a care gap intervention program and ensure that staff are adequately trained to act upon receipt of an appropriately directed notification of a gap in care. For example, task-driven care management alerts for nurses, health education alerts for care coordinators and notifications that require complex medical decision-making for physicians can ensure that each care team member is operating at the top of their license.

Exchanging Information and Coordinating Care

> *"Data exchange is fundamental, but it is getting harder to collectively gather information electronically without an infrastructure that can efficiently track patient movement between entities. On the surface we might be building a wider spectrum of services, but technology under the hood isn't nimble enough to operate in multiple ACO constructs with different mixes of payers and providers in disparate settings. It's difficult to build actionable notifications and alerts that can be pushed within and outside our network. Historically, a lot of organizations invested a lot of time, energy and effort into consolidating and deploying one single EHR. But that's changing now that we're moving into this integrated, value-based care environment in which services must be delivered and coordinated in disparate settings. Rather than that gold-standard EHR, we need the flexibility to frequently and easily cross lines to share data with very different systems so that we can better manage and monitor patient outcomes. That's a hard pill for some to swallow," commented Lucas.*

Gaps in care programs must be able to indicate and communicate when gaps are open, closed or in need of additional monitoring or follow-up. It remains difficult to seamlessly send or receive electronic information in near real-time among disparate providers, settings and organizations. A recent survey revealed that most stakeholders are unable to integrate electronic data efficiently into a workflow that makes it easily accessible and actionable. Building effective and robust linkages between clinical data systems and administrative billing systems is another critical and necessary component of an automated care gap management system. Our survey findings indicate that health plans have a disproportionately higher level of

technology sophistication when compared to provider organizations. Broad-based data access and interoperability are currently concentrated among a limited number of stakeholders and care delivery networks. System-wide reform doesn't necessarily require system-wide access to data, but it does require that broad-based data access and interoperability be available universally within local and regional markets. As pointed out earlier in this report, patients move between health plans and providers. If gaps in care are to be avoided, their data must move with them. The problems associated with patient data silos can only get worse. The delivery of healthcare is rapidly decentralizing as patients take full advantage of new consumer-centered settings (e.g. retail locations such as Walmart and Minute Clinic) and modalities (e.g. telemedicine and mobile health). The decentralization of care will require the DE compartmentalizing of data. Data silos are the single biggest obstacles to closing gaps in care.

To date, there are a variety of possible methods that organizations can use to electronically exchange data depending on their needs, capabilities, geographic area covered and patient population served. **Point-to-point sharing** allows authorized users to "push" (send) or "pull" (request) patient health records. Typically, data is packaged in a standard continuity of care record or document (CCR or CCD) and shared with different degrees of security and encryption without the intermediary keeping copies of the contents. Point-to-point sharing is constrained by nature of its orientation around a complete document, rather than allowing individual items from a patient record to be sent. **Health Information Exchange** (HIE) networks have had mediocre success as centralized clinical data repositories except in the case of closed network HIEs operated by an integrated care delivery system. Public HIEs have had better success operating as a switch or hub linking data federated across a region and providing a scalable trust framework for identity management, authorization, authentication and encryption. Utah Health Information Network has successfully demonstrated how it can contribute to improvements in population health and quality outcomes. *"We've been able to build connectivity among all our major healthcare providers in Utah to provide a complete panorama of patient activity. By building interfaces between organizations, we've established a common highway for structured and unstructured patient data to be exchanged,"* noted Doreen Espinoza, Vice President of Regulatory Affairs and Privacy Officer at the Utah Health Information Network. Nonetheless, the value of HIEs have so far been limited by document-based exchange, low participation and various sustainability and business model issues related to the cost of membership, transaction-based fee models and privacy and confidentiality concerns. In the future, it is expected that **element-based exchange** will provide more multi-directional fluidity of information. Open application program interface (API) approaches such as Fast Health Interoperability Resources (FHIR) will allow granular data elements to be exchanged without the overhead some associate with use of the Consolidated Clinical Document Architecture (C-CDA).

"We need an interactive conduit for exchange between different entities that are collecting different data streams. If we had more robust exchange of data,

we'd be able to better control and coordinate care, as well as monitor the health of our member populations. Right now it's too limited in one channel. We need to get to the point where data can be exchanged more fluidly between payers, providers, labs, pharmacies and other stakeholders," observed Brooks.

Today, most data being exchanged is bi-directional between providers and health plans and pharmacies and PBMs (pharmacy benefit managers). These transactions are generally limited to revenue cycle transactions. There is also an increasing volume of uni-directional transactions associated with provider-to-provider exchange. Based upon the research underlying this report, progress in healthcare information exchange will necessarily include a tri-directional highway of free-flowing information among patients, providers and health plans. As stakeholders accelerate the adoption of emerging interoperability standards and universal models for healthcare data connectivity, health IT will ultimately mirror IT in other industries that adopted Internet-based communication models decades ago – a seamless exchange of near real-time data that moves with and ahead of patients to ensure a logical and efficient continuum of care.

> *"We need to continue building rails to and from EHR systems directly connecting appropriate stakeholders to support all relevant workflows with complete, accurate medical information,"* envisioned Banks.

Analyzing Trends and Performance

> *"Every data transaction between stakeholders provides the opportunity to mine value out of the information exchanged. The challenge is separating the signal from the noise,"* commented Mushtaq.

An immense amount of electronic data is stored in, and transported from, various sources to support gaps in care programs. Without any improvement in current capabilities, stakeholders can leverage the available data to derive new insights and expand their base of knowledge. Depending on the manner in which the data was aggregated and integrated, providers and health plans can utilize several common analytic approaches to score patient and population risk, identify gaps in care and calculate performance and quality outcomes. **Retrospective analytics** take a longitudinal view of historical patient data to identify trends that can be correlated with risk in order to project general cost and utilization patterns of care, or alternatively, more specific predictions like the incidence of heart disease in women over 50. By using tools to analyze historical data, retrospective analytics can identify when gaps in care have occurred and help organizations decide what should be prioritized and targeted for intervention by a gap in care program. **Prospective analytics** can be used to forecast gaps in care that are likely to and help departments anticipate the need for resources, structure a campaign for deployment and implement a program for health prevention that promotes targeted interventions. Finally, **predictive analytics** can be used by organizations with more advanced IT capabilities to identify and propose courses of action to implement that

can prevent potential gaps in care from occurring. While the use of analytics has rapidly grown across the industry over the past several years, organizations have often been limited by their health IT and staff capabilities. Given the relatively nascent nature of big data in healthcare, most providers have yet to invest in the analytic horsepower that is required to support predictive analytics. Given the actuarial nature of a health plan's business, payers have long possessed very robust data warehouses and analytic software solutions. They are currently far better able to analyze electronic data to identify actionable interventions that close gaps in care. While providers catch up and until analytics software vendors can price SaaS-based solutions to be affordable to small and midsize provider groups, health plans can advance the state of the industry in a significant way by contributing analytic services to their provider network partnerships.

Engaging Patients

Gaps in care programs often target objectives that require active health coaching and/or a nuanced understanding of patient beliefs and needs. Regular patient-provider communication is essential if providers and care teams are to develop a strong and lasting relationships with patients. Regular communication is the basis for building a personal view of factors in a patient's circumstances that may present as a barrier when a gap in care is identified and an intervention is indicated that would necessitates action on the part of the patient to access to healthcare services or adopt a more healthy lifestyle. **Customer relationship management (CRM)** software can help organize patient-focused activities and services to 1) find, attract, nurture and win new patients, 2) nurture and retain current patients and 3) entice former patients back into network. When care was less fragmented, building a close relationship with patients was a natural outcome of the care process. Due to a steady trend toward the specialization of medicine combined with radical changes in patient mobility and lifestyle, the natural formation of close patient relationships is no longer practical. If relationships are perceived to be an important factor in a successful gaps in care program strategy, then provider organizations need to start thinking of patients as customers and leverage the tools used by service industries to foster and manage customer relationships. As an example, many patients do not have a high health literacy level and may need additional health education and coaching. It is therefore useful for staff to follow-up with patients, ensuring they understand their diagnosis and care plan and that they are complying with their recommended medication regimen or disease management protocol. Service industries use CRM systems to create knowledge bases and scripting to automate tasks and allow customer service staff to expand their role and perform at a higher level. By building targeted campaigns in a CRM system, providers could effectively address targeted health education initiatives, care plan compliance follow-up programs and medication regimen adherence checks.

> *"A lot of the times when we talk about patient engagement or communication, we're thinking about once the patient has already presented at a healthcare facility or even after they've been diagnosed and treated. But from the*

perspective of gaps in care, we need to think more upstream to identify the best ways to communicate with populations so that we can get them in the door in the first place. It's important for health plans and providers to establish communication and build a relationship with newly enrolled populations from Day One. Otherwise, HIX has made it incredibly easy for patients to simply change carriers or providers," commented Anshuman Choudhri, Director of Legislative and Regulatory Policy at Blue Cross and Blue Shield Association.

CRM systems also are effective ways to leverage multiple contact channels for patient engagement. Provider organizations generally have no formal call center function and are not usually staffed to individually reach out to all patients regarding an open gap of care. Outsourcing is one option, but an alternative is to automate and streamline communication. Rather than relying upon one channel or technology to communicate with patients, provider organizations can explore diverse outreach strategies. Approaches such as automated interactive voice response (IVR), email or secure text messages to mobile phones (SMS) and smart portals can accommodate individual preferences for when and how information is communicated. CRM systems can be a valuable asset to an organization committed to building a strong bond between patients and their providers.

"Everybody's different. Younger adults might only want to communicate via text messaging or mobile app unless otherwise necessary, while parents might want to bypass mobile channels for something more direct by phone. On the other hand, underserved populations may not necessarily have regular access to computers or Internet connectivity, while older populations may not have an email account," commented Keith Aiello, Vice President of Quality and National Programs at United HealthCare.

III. CONCLUSION

CURRENT BARRIERS AND CHALLENGES

Our research indicates that common barriers exist across all healthcare stakeholders. These barriers impede the development and implementation of gaps in care programs. Common structural barriers include current payment incentive structures, required culture change, the difficulty associated with the integration of patient-centered processes into legacy clinical workflows, the lack of sufficient coordination of information exchange between providers and health plans, staffing capacity and the lack of standardized risk and quality measures.

Given the variation in program requirements and strategies required to address these challenges, much work needs to be done to ascertain the right fit between an extensive body of research defining best practices and the particular health status characteristics associated with a specific population of patients. The promotion of best practice and evidence-based medicine strategies among rank-and-file

providers will help raise awareness and educate stakeholders about successful and sustainable approaches to closing gaps in care in the current environment.

Common technical barriers include the limited ability to accurately correlate data aggregated from multiple data sources, a lack of standardized integration capabilities and interoperability standards and significant variation in the timeliness, actionability, accuracy and reliability of data. Stakeholders often grapple with how to deliver information in consumable formats that can easily integrate with the clinical workflow. It is expected that the challenges associated with the degrees of data liquidity and granularity will only continue to grow as IT infrastructures expand.

The integration of new data (e.g. genomic and patient-generated health data) into practice and new emerging consumer-driven models of care change how services are delivered, coordinated, monitored and communicated. These challenges suggest there is a compelling need for data standards and quality measures to be further harmonized in order to allow for optimal exchange and analysis of actionable data, all with the goal of identifying and closing gaps in care.

> *"When you're taking care of somebody, it's really just about a couple of people in the same room together: the patient, doctor and maybe a few members of the supporting care team or patient's family. That's what healthcare is all about – the conversation, decisions and care that happen in that room – independent of whatever benchmarks and guidelines are established in an ivory tower. We can't forget that. No matter how large, advanced, fast or interoperable the IT system, healthcare is always going to be about people,"* concluded Mona Reimers, Director of Revenue Services at Ortho NorthEast.

KEY FINDINGS
Listed below is a summary of the key findings in the report:

1. **Greater education and communication are needed to raise awareness among stakeholders, particularly providers, about the value of identifying and closing gaps in care.** Providers appear to lag behind health plans in implementing gaps in care programs due to challenges such as a lack of sufficient resources or education to optimize the value of workflow changes and effectively close gaps in care.

2. **Gaps in care can threaten the performance of healthcare organizations.** Stakeholders agree that gaps in care are a critical issue that the industry at large must tackle to improve the health and care of populations. Surveyed providers are significantly more concerned than health plans about the threat that gaps in care pose to their organization in terms of their effect on clinical performance, financial performance and ability to retain patients.

3. **Gaps in care programs have had a positive impact and seem to produce a high return on investment.** While it may be premature for organizations to conclusively evaluate the impact of gaps in care services, improvements were observed in quality outcomes such as access to behavioral healthcare, pediatric and adolescent check-ups and medication adherence, as well as reductions in the utilization of ambulatory care, hospital admission and hospital readmission. Compared with providers, health plans reported that gaps in care services had a more positive impact on domains such as patient compliance/adherence, patient satisfaction, care coordination and efficiency. While gaps in care programs may incur high costs up front, they also yield high return on investment – particularly for health plans.

4. **Consensus is needed to develop and standardize quality measures and measurement methodologies in order that actionable information can be easily exchanged among health plans, providers and patients.** The terminology to describe gaps and interventions needs to be standardized. The scope of gaps in care measures needs to be more clearly defined and aligned between health plans and providers so that exchanged data can be harmonized and rendered actionable. Best practices guidelines need to be disseminated to illustrate stakeholder roles, the possible automation of workflows and stated goals for quality improvement.

5. **In addition to interoperability, key technical barriers to exchanging gaps in care information include the provenance, quality, completeness, timeliness, transparency and accuracy of the data.** With so many systems and organizations designed around file-based exchange and feature functions of technology systems, greater efforts are needed to advance open APIs and element-based exchange that would allow more seamless transmission of data.

6. **Gaps in care are a critical issue for stakeholders to address. The issue will grow in importance as value-based care efforts mature and access to health insurance coverage and care increases.** As newly eligible consumers continue to enter the health insurance marketplace and access healthcare, it will be essential for stakeholders to develop effective healthcare communication, prevention, education and intervention strategies to improve the quality of patient-centered care.

LOOKING AHEAD: KEY RECOMMENDATIONS

As value-based care, consumerization and population health management strategies continue to transform the healthcare industry, the implementation of gaps in care programs will be critical to improving quality and reducing costs. Healthcare stakeholders must continue to work together to develop a health IT infrastructure that can seamlessly exchange health data, automate the identification of gaps in care and streamline the coordination of services. Our research suggests that greater education and communication are needed to raise awareness among stakeholders. The report represents a first step toward educating the industry on the importance of data exchange in identifying and closing gaps in care.

Research participants articulated a common vision for a future state in which electronic data exchange could be more automated, seamless and tri-directional, connecting providers, health plans and patients. Once the definition of risk and quality is further standardized and harmonized, stakeholders agree that they will be able to more easily and accurately identify gaps in care. As documentation becomes less disjointed and the exchange of data less labor-intensive, technology solutions will be leveraged to streamline care processes and automate end-to-end workflows. Greater automation will also yield more robust predictive analytic capabilities that can in turn produce more targeted intelligence for providers, health plans and patients. This evolution in capability provides the necessary foundation to identify, prevent, manage and close gaps in care. To help achieve this vision, the Sullivan Institute proposes the following collective action steps for the industry:

1. **Develop a standard data dictionary for gaps in care.** In collaboration with the Workgroup for Electronic Data Interchange (WEDI) and its multi-stakeholder base of member organizations, the Sullivan Institute will convene a workgroup to leverage existing efforts and activities from the field and provide a blueprint of the data elements required to identify, communicate and close gaps in care.

2. **Identify best practices for patients to leverage their own data and use technology to close gaps in care.** As organizations pilot use cases for element-based exchange, it will be critical to explore how more seamless data exchange can impact the patient experience of care across the continuum. The Sullivan Institute will convene the Patient Experience Council to examine how tri-directional data exchange will impact patients and, in addition, identify the structural and technical capabilities that providers, health plans and vendors must develop in order to adapt to the radical increase in structured clinical data that will come online.

3. **Develop and align alternative payment models to support data measurement.** The Sullivan Institute will convene stakeholders to identify how quality measurement initiatives can be better harmonized and how payment incentives can be delivered at a more granular level to encourage the data documentation and analytic activities required to launch successful gaps in care programs.

APPENDIX

RESULTS FROM THE 2015 SULLIVAN INSTITUTE SURVEY ON GAPS IN CARE

The Sullivan Institute launched a national survey online between August and September. Of the 261 participants that responded, 122 completed the survey. The survey consisted of three stakeholder tracks based on how survey respondents self-identified their organization (provider, health plan or "other"). Analysis of survey results is limited to those respondents who completed the survey and is not necessarily a representative sample. The table below illustrates the demographics of survey respondents.

Table 8: Breakdown Of Participating Provider And Health Plan Organizations

Type of Organization	Total % of Responses	Size of Entity		
		Small	Medium	Large
Health providers	**36%**	**47%**	**36%**	**16%**
Provider groups	14%	56%	28%	17%
Ambulatory practices	11%			
IPAs	3%			
Health systems	21%	42%	42%	15%
Hospital	18%			
IDNs	3%			
Health plans	**10%**	**58%**	**8%**	**33%**
Commercial plans	3%			
Medicare Advantage plans	2%			
Medicaid plans	5%			
Other	**54%**			

Key findings from the survey include:

The majority of surveyed stakeholders have implemented or are developing gaps in care programs. Of the organizations surveyed, 57% of providers and 83% of health plans indicated that they currently have services or programs that aim to reduce gaps in care. An additional 20% of providers and 8% of health plans have plans to implement such programs in the future. Most providers believe that hospital admissions and readmissions, patient access to care, medication management and reconciliation, preventive care, chronic disease and care management and patient engagement were important domains to be targeted.

Surveyed stakeholders do not fully understand the potential impact of gaps in care on their organizational performance, suggesting that greater awareness may be needed to educate organizations about the value of services that can streamline the identification and closure of gaps. Providers are significantly

more concerned than health plans about the threat that gaps in care pose to their organization in terms of clinical performance, financial performance and their ability to retain patients (or members).

Disparities in IT infrastructure may be limiting the effectiveness with which programs can identify, communicate and analyze gaps in care. More health plans rate their health IT capabilities to be effective in supporting gaps in care services, while more providers rate their health IT capabilities to be ineffective. More health plans than providers reported that data could be electronically collected and blended sufficiently to identify gaps in care. While a similar percentage of providers and health plans reported that data could be electronically exchanged sufficiently to support gaps in care services, more providers report that they are unable to electronically exchange data sufficiently. Nearly twice as many health plans than providers reported that data could be electronically analyzed sufficiently to deliver actionable interventions that close gaps in care.

Stakeholders continue to rely on manual, labor-intensive processes rather than automated electronic methods to communicate gaps in care. Most providers report an infrequent review of data to identify gaps in care, ranging from manual requests to a monthly basis or quarterly basis. While communication with patients is rapid in near real-time or regular basis, providers communicate gaps in care with health plans less frequently. The primary platform of communicating gaps from health plan to provider is via downloadable report, email, phone call or EDI file attachment. Nonetheless, findings suggest that health plans would prefer and value automated communication via EHR notification or EDI transaction more so than providers, who primarily prefer secure email and downloadable reports.

More providers than health plans encounter structural and technical barriers to closing gaps in care. More providers found financial cost, economic incentive structure, culture change, integration into process and workflow, payer-provider coordination and staffing to be challenging structural barriers. Similarly, more providers found data blending/integration, timeliness, actionability, accuracy and reliability to be challenging technical barriers to closing gaps in care.

There is a disconnect between how providers and health plans perceive the impact of gaps in care services on different domains of care. More health plans than providers perceive a positive impact on domains such as patient compliance and adherence, patient satisfaction, coordination of care and efficiency of care.

While gaps in care programs may incur high costs up front, they also yield high return on investment. Although the majority of surveyed providers reported that gap in care services were implemented at a medium to high cost, they also noted that services provided a medium to high return on investment in addition to medium to high bonus earnings received from health plans. Surveyed health plans report similar costs but a greater return on investment.

Provider Track

1A. If your organization is an ambulatory practice or independent practice association (IPA), please indicate the size of your organization according to the number of employed practitioners.

Size	Responses
Small (1-20)	56%
Medium (21-100)	28%
Large (more than 100)	17%

1B. If your organization is a hospital or integrated delivery system (IDS), please indicate the size of your organization according to the number of beds.

Size	Responses
Small (1-100)	42%
Medium (101-500)	42%
Large (more than 500)	15%

2. Please indicate if your organization participates in the initiatives below.

Value-based Care Initiative	Responses
Accountable care organization (ACO)	45%
Bundled payment program (PCMH)	29%
Patient-centered medical home	45%
Pay-for-performance program (P4P)	58%

Approximately half of the provider organizations surveyed report participation in ACO, PCMH, or P4P initiatives. However, less than one-third reported participation in a bundled payment program.

3A. Does your organization have services or programs that aim to reduce gaps in care?

The majority of providers have current services or programs that aim to reduce gaps in care (57%) or have plans to implement them in the future (20%). The remainder of providers (23%) report no services or plans to close gaps in care.

3B. If not, why doesn't your organization plan to focus on addressing gaps in care?
Reasons given by providers for not focusing on gaps in care included limitations of their practice due to specialty (e.g. behavioral healthcare) or size and bandwidth of practice (e.g. small physician's office).

4. Please indicate your agreement with the following statements.

Statement	Disagree	Neither Disagree or Agree	Agree	N/A
Gaps in care threaten my organization's clinical performance	9%	12%	79%	0%
Gaps in care threaten my organization's financial performance	9%	15%	76%	0%
Gaps in care threaten my organization's ability to retain patients	12%	33%	55%	0%

The majority of providers agree that gaps in care threaten clinical performance (79%) and financial performance (76%). However, only 55% of providers believe gaps threaten patient retention.

5. Please rate the importance of targeting the domains below to close gaps in care at your organization.

Domain	Not Important	Somewhat Important	Important	N/A
Preventive care (e.g. health risk assessment, annual wellness visit, screenings, vaccines, tests)	0%	15%	79%	6%
Chronic disease and/or care management	0%	15%	79%	6%
Medication management and reconciliation	0%	18%	82%	0%
Hospital admissions and readmissions	3%	6%	85%	6%
Patient access to care	3%	12%	82%	3%
Patient engagement (e.g. outreach, communication and follow-up)	3%	15%	79%	3%

All of the domains above are perceived by at least three-quarters of providers to be important to close gaps in care.

6. What is the estimated financial cost and return on investment (ROI) of gaps in care services?

	Low	Medium	High	N/A
Cost	3%	38%	53%	6%

Return on investment	27%	24%	42%	6%
Bonus earnings from health plan	30%	27%	24%	18%

The estimated cost of gaps in care services appears to be higher than return on investment. Nearly all of the surveyed providers report that gaps in care are resulting in medium (38%) to high (53%) costs. However, providers report a greater range of disparate answers for ROI, from low (27%), to medium (24%), to high (42%). There is also variation in the bonus earnings reportedly received from health plans.

7. Please indicate your agreement with the following statements about the <u>current</u> capabilities of your organization (or the third-party vendor that may provide assistance).

Statement	Disagree	Neither Disagree or Agree	Agree	N/A
Data can be electronically <u>collected and blended</u> sufficiently to identify gaps in care	30%	21%	49%	0%
Data can be electronically <u>exchanged</u> sufficiently to support gaps in care services	39%	24%	36%	0%
Data can be <u>analyzed</u> sufficiently to deliver actionable interventions to reduce gaps in care	39%	24%	36%	0%

Surveyed providers were relatively balanced in agreement about the current capabilities and limitations of their organizations to electronically collect, blend, exchange or analyze data to support gaps in care services. While half of providers reported being able to sufficiently collect electronic data, fewer were able to perform the more advanced activities of data exchange or analysis.

8. Please rate the <u>current</u> effectiveness of your organization's IT capabilities (if available) in supporting gaps in care services.

IT Capability	Ineffective	Somewhat Effective	Effective	N/A
Electronic health record (EHR) system	15%	52%	33%	0%

Care management software	24%	48%	9%	18%
Customer relationship management software	30%	30%	6%	33%
Population health management software	33%	30%	9%	27%
Patient registry, database or warehouse	18%	58%	21%	3%

Providers do not report high levels of effectiveness in their organization's IT components. Approximately half of providers deemed EHR systems (52%), care management software (48%) and patient registry, database or warehouse (58%) to only be somewhat effective. On the other hand, population health management software (60%) and customer relationship management (63%) were deemed to be either ineffective or not applicable.

9. Please rate the current effectiveness of the IT features below (if available at your organization) in supporting gaps in care services.

IT Feature	Ineffective	Somewhat Effective	Effective	N/A
Event alerts (e.g. ADT notifications, prescription filled, test completed, etc.)	27%	48%	13%	13%
Electronic Data Interchange (EDI) transactions (e.g. eligibility inquiries and responses containing relevant information or attachments)	41%	41%	18%	0%
Evidence-based clinical decision support	30%	45%	21%	4%
Retrospective analytics (to identify gaps in care that have occurred)	41%	38%	13%	9%
Prospective analytics (to forecast gaps in care that could occur)	46%	35%	7%	11%
Predictive analytics (to suggest steps to prevent potential gaps in care from occurring)	50%	29%	7%	14%
Payer reports on gaps in care stratified by patient	43%	39%	13%	5%

None of the IT features above were reported to be widely effective among providers; most were either deemed to be only somewhat effective or ineffective. Evidence-based clinical decision support was deemed to be the most effective (21%). Analytic-driven features are deemed to be the most ineffective.

10. What percentage of medical records, charts or claims are pulled and reviewed for gaps in care analysis beyond mandatory reporting requirements (e.g. HEDIS)?

The majority of providers report that records, charts and/or claims are manually reviewed onsite (100%), automatically onsite (95%) or offsite by a contractor, vendor or contact center (81%).

11. Please indicate how important it is to access the data below to support gaps in care services at your organization.

Data Type	Not Important	Somewhat Important	Important	N/A
Electronic health record (EHR)	3%	12%	85%	0%
Continuity of Care Document (CCD)	9%	15%	70%	6%
Care plan	6%	24%	67%	3%
Unstructured data (e.g. physician notes or documentation)	6%	27%	67%	0%
Medical history	0%	21%	79%	0%
Claims history	6%	24%	64%	6%
Medication or prescription history	3%	12%	85%	0%
Laboratory results	3%	18%	79%	0%
Health plan report on gaps	6%	33%	58%	3%

More than half of providers believe all of the data points above are important to access, particularly electronic health record (85%), medication/prescription history (85%), medical history (79%) and laboratory results (79%).

12. How often does your organization review data to identify gaps in care?

Frequency	Response
Upon request of a health plan or third-party vendor	28%
Annually	6%

Quarterly	22%
Monthly	22%
Weekly	9%
Daily	9%
Near real-time	3%

Most providers report an infrequent review of data to identify gaps in care, ranging from only doing so upon request of a health plan or third-party vendor (28%), to reviewing data on a monthly basis (22%) or quarterly basis (22%). To date, few organizations report review of data on a daily (9%) or near real-time (3%) basis.

13. Once gaps in care have been identified, how quickly does your organization communicate with affiliated health plans and patients?

Frequency	To Health Plans	To Patients
Manual request	71%	63%
At time of next encounter	6%	94%
Quarterly	83%	17%
Monthly	50%	100%
Weekly	50%	75%
Daily	40%	60%
Near real-time	30%	80%

Once gaps are identified, the majority of providers report that they communicate them to health plans on a quarterly basis (83%), followed by manual request (71%), monthly basis (50%) or weekly basis (50%). Less than half do so on a daily basis (40%) or in real-time (30%). However, communication with patients is notably more rapid. The majority of providers report being able to communicate gaps to patients in near real-time (80%), weekly (75%) and daily basis (60%).

14. How are gaps in care communicated by health plans?

Platform of Communication	Response
Phone call	32%
Encrypted text message to mobile device or phone (SMS)	0%
Secure email	45%
EHR notification	16%
Eligibility and Benefit Response EDI transaction with attachment	26%
Downloadable report file (e.g. Excel spreadsheet)	55%

The primary form of communicating gaps between a health plan and provider is a downloadable report (55%), followed by an email, (45%), phone call (32%) or EDI attachment (26%). There does not appear to be significant mobile or EHR

integration to allow information to be communicated via other electronic means.

15. How would your organization <u>prefer to receive</u> information on gaps in care from health plans at the individual patient level? … at the aggregate or population level?

Platform of Communication	Patient Level	Population Level
Phone call	8%	3%
Encrypted SMS	0%	1%
Secure email	20%	13%
EHR notification	14%	7%
Downloadable report (e.g. Excel)	18%	24%
Eligibility and Benefit Response EDI transaction with attachment	9%	50%

Current communication capabilities with health plans do not necessarily match up with how providers would otherwise prefer to receive information on gaps in care from health plans. At an individual patient level, surveyed providers primarily would prefer to receive information via secure email (20%) and downloadable reports (18%). At a population level, preferences are more limited to EDI transaction attachments (50%) and downloadable reports (24%).

16. How would your organization <u>prefer to communicate</u> with the health plan that a gap in care has been closed at the individual patient level? … at the aggregate or population level?

Platform of Communication	Patient Level	Population Level
Phone call	6%	9%
Encrypted SMS	0%	0%
Secure email	44%	34%
Downloadable report file (e.g. Excel)	25%	41%
Push/pull exchange of data from EMR with appropriate permissions	44%	34%
Online capability to attach documentation and indicate closure	38%	31%
Electronic API or other electronic standard format	34%	41%

Surveyed providers primarily prefer to communicate gaps in care on an individual patient via email (44%) and EHR (44%) to a health plan. At the aggregate patient population level, providers prefer to send information via a downloadable report (41%) and API exchange (41%).

17. What is the impact of gaps in care services on the domains below at your organization?

Domain	Negative	No Impact	Positive	N/A
Coordination of care	55%	6%	36%	3%
Quality of care	49%	12%	36%	3%
Cost of care	45%	30%	21%	3%
Efficiency of care	55%	12%	30%	3%
Patient compliance and adherence	58%	12%	27%	3%
Patient satisfaction	55%	15%	27%	3%

Surveyed providers report that gaps in care services have more of a negative impact on patient compliance and adherence (58%), coordination of care (55%), efficiency of care (55%) and patient satisfaction (55%). Cost is reported to have a negative impact (45%) more than twice as much as positive impact (21%). This warrants more study to gain a better understanding of the reason for reported negative impact.

18. Please rate the structural barriers below to closing gaps in care at your organization.

Barriers	Not Challenging	Somewhat Challenging	Challenging	N/A
Financial cost	9%	27%	64%	0%
Economic incentive structure	9%	39%	55%	0%
Culture change	9%	30%	61%	0%
Integration into process and workflow	15%	27%	58%	0%
Payer-provider coordination	6%	39%	55%	0%
Staffing	12%	27%	60%	0%

More than half of providers found all of the above barriers to be challenging in closing gaps in care. Of these, financial cost (64%), culture change (61%) and staffing (60%) were rated as the most challenging.

19. Please rate the technical barriers below to closing gaps in care at your organization.

Barriers	Not Challenging	Somewhat Challenging	Challenging	N/A
Information fatigue or overload	6%	45%	48%	0%

Louis W. Sullivan Institute for Healthcare Innovation

Timeliness of information	6%	36%	58%	0%
Accuracy and reliability of information	12%	49%	39%	0%
Blending and integration of data	3%	27%	70%	0%
Actionability of information	3%	41%	56%	0%

More than half of providers reported that technical barriers such as the blending and integration of data (70%), timeliness of information (58%) and actionability of information (56%) were challenging. Accuracy and reliability of information was deemed to the least challenging, with providers believing it to be not challenging (12%) or only somewhat challenging (49%).

20. Would your organization invest in a solution that facilitates data exchange between payers and providers and integrates within provider workflow in near real-time?

Providers were almost evenly split on whether or not they would invest in a solution that would facilitate seamless data exchange with payers. Among those who would invest, they would only do so if the minimum ROI per dollar spent were a median of $2. Among those who would not, the primary reason given would be the cost of investment, followed by a need for more information.

21. How much time and resources would be saved if you had an automated solution to identify and communicate gaps in care between payers/providers?

Although some providers were unsure, most estimated that a significant amount of time and resources would be saved, ranging anywhere from five minutes per gap to 20 FTE hours each week. It's not clear from the responses whether this includes the amount of time devoted to implementing the services necessary to close the gaps.

Health Plan Track
1. If your organization is a health plan, please indicate the size of your organization according to the number of lives covered.

Size	Responses
Small (1-500,000)	58%
Medium (500,001 – 2 million)	8%
Large (more than 2 million)	33%

2. Please indicate if your organization participates in the initiatives below

Value-based Care Initiative	Responses

Accountable care organization (ACO)	50%
Bundled payment program	50%
Patient-centered medical home (PCMH)	80%
Pay-for-performance program (P4P)	70%

Health plans report participation primarily in patient-centered medical homes (80%) and pay-for-performance programs (70%), followed by bundled payments (50%) and ACOs (50%).

3. Does your organization have services or programs that aim to reduce gaps in care?

The majority of health plans (83%) report services or programs that aim to reduce gaps in care.

4. Please indicate your agreement with the following statements.

Statement	Disagree	Neither Disagree or Agree	Agree	N/A
Gaps in care threaten my organization's rating or accreditation (e.g. NCQA rating, Medicare Advantage stars)	18%	18%	55%	9%
Gaps in care threaten my organization's financial performance	27%	9%	55%	9%
Gaps in care threaten my organization's ability to retain members	27%	45%	18%	9%

Unlike providers (who reported a more direct impact on clinical and financial performance), health plans report mixed agreement on the impact of gaps in care on their financial performance, accreditation rating and ability to retain members.

5. Please rate the importance of targeting the domains below through your organization's initiatives to close gaps in care.

Domain	Not Important	Somewhat Important	Important	N/A
Preventive care (e.g. health risk assessment, annual wellness visit, screenings, vaccines, tests)	0%	0%	100%	0%

Chronic disease and/or care management	0%	0%	100%	0%
Medication management and reconciliation	0%	9%	91%	0%
Hospital admissions and readmissions	0%	18%	82%	0%
Patient access to care	0%	36%	64%	0%
Patient engagement (e.g. outreach, communication and follow-up)	0%	18%	82%	0%

All of the domains above are perceived by health plans to be important to close gaps in care, particularly preventive care (100%), chronic disease management (100%) and medication management and reconciliation (91%). While providers deemed that preventive and chronic care were less important, health plans in turn place lesser value on patient access to care.

6. What is the estimated financial cost and return on investment (ROI) of gaps in care services?

	Low	**Medium**	**High**	**N/A**
Cost	0%	36%	55%	9%
Return on investment	0%	27%	64%	9%
Bonus earnings from health plan	9%	64%	9%	18%

Unlike providers, gaps in care services are reported by health plans to provide a slightly higher return on investment than the costs incurred. Nearly all of the surveyed health plans report that gaps in care are resulting in medium (36%) to high (55%) costs. However, health plans also report a medium (27%) to high (64%) return on investment that would indicate a perceived positive return.

7. Please indicate your agreement with the following statements about the <u>current</u> capabilities of your organization (or the third-party vendor that may provide assistance).

Statement	**Disagree**	**Neither Disagree or Agree**	**Agree**	**N/A**
Data can be electronically <u>collected and blended</u> sufficiently to identify gaps in care	9%	27%	64%	0%
Data can be electronically <u>exchanged</u> sufficiently to support gaps in care services	27%	36%	36%	0%

Data can be <u>analyzed</u> sufficiently to deliver actionable interventions to reduce gaps in care	18%	18%	64%	0%

Unlike providers, health plans report stronger confidence in their ability to collect and blend data (64%), as well as analyze data (64%). Health plans share concerns on data exchange, with 27% unable to electronically exchange data sufficiently.

8. Please rate the <u>current</u> effectiveness of your organization's IT capabilities (if available) in supporting gaps in care services.

IT Capability	Ineffective	Somewhat Effective	Effective	N/A
Claims management system	0%	45%	55%	0%
Care management software	0%	64%	36%	0%
Customer relationship management software	0%	55%	36%	9%
Population health management software	0%	64%	36%	0%
Member registry, database or warehouse	0%	55%	45%	0%

IT capabilities are reported to be effective by more health plans than providers. Claims management is reported to be effective by more than half of health plans, while the remaining capabilities are largely deemed to be somewhat effective.

9. Please rate the <u>current</u> effectiveness of the IT features below (if available at your organization) in supporting gaps in care services.

IT Feature	Ineffective	Somewhat Effective	Effective	N/A
Event alerts (e.g. ADT notifications, prescription filled, test completed, etc.)	9%	64%	18%	9%
Electronic Data Interchange (EDI) transactions (e.g. eligibility inquiries and responses containing relevant information or attachments)	9%	45%	45%	0%
Evidence-based clinical decision support	0%	55%	27%	18%

Retrospective analytics (to identify gaps in care that have occurred)	0%	64%	36%	0%
Prospective analytics (to forecast gaps in care that could occur)	0%	82%	9%	9%
Predictive analytics (to suggest steps to prevent potential gaps in care from occurring)	0%	64%	27%	9%

Similar to providers, health plans report that most IT features are only somewhat effective at supporting gaps in care services. Notably, more health plans than providers indicate that analytic operations are somewhat effective, including retrospective (64%), prospective (82%) and predictive (64%).

10. What percentage of medical records, charts or claims are pulled and reviewed for gaps in care analysis beyond mandatory reporting requirements (e.g. HEDIS)?

The majority of health plans report that records, charts and/or claims are pushed manually from providers (100%), pushed automatically by provider EMRs (100%) or pulled manually at provider sites (75%). Health plans report a higher prevalence of data being manually or automatically pushed than providers.

11. Please indicate how important it is for your organization to access the data below to support gaps in care services.

Data Type	Not Important	Somewhat Important	Important	N/A
Electronic health record (EHR)	0%	0%	100%	0%
Continuity of Care Document (CCD)	0%	18%	73%	9%
Care plan	0%	36%	55%	9%
Unstructured data (e.g. physician notes or documentation)	0%	18%	82%	0%
Medical history	0%	27%	73%	0%
Claims history	9%	0%	91%	0%
Medication or prescription history	0%	27%	73%	0%
Laboratory results	0%	27%	73%	0%

Similar to providers, more than half of health plans report that it is important to access all of the above data points, particularly electronic health record (100%) and claims history (91%). However, health plans also place significantly more importance in unstructured data (82%) and claims history, perhaps due to their ability to better analyze information and a higher level of confidence in the value of claims information. In any case, the higher emphasis on EMR data and unstructured data demonstrates a belief on the part of plans that they need a more accurate source information about patient/provider interactions.

12. How often does your organization review data to identify gaps in care?

Frequency	Response
Annually	9%
Quarterly	27%
Monthly	27%
Weekly	18%
Daily	9%
Near real-time	9%

Health plans report reviewing data at different intervals to identify gaps in care, with the most common frequencies being either quarterly (27%) or monthly (27%).

13. Once gaps in care have been identified, how quickly are they communicated by participating providers to your organization? How quickly does your organization follow-up with covered members?

Frequency	To Health Plans	To Patients
Manual request	60%	40%
At time of next encounter	50%	20%
Quarterly	40%	10%
Monthly	30%	20%
Weekly	10%	0%
Daily	0%	0%
Near real-time	0%	20%

Surveyed health plans report that once providers identify gaps in care, they are typically communicated to a plan upon manual request (60%), at the time of next encounter (50%) or quarterly basis (40%) On the other hand, health plans report fewer interactions with covered members; gaps are primarily communicated to patients on manual request (40%), at the time of next encounter (20%) or near real-time (20%).

14. How are gaps in care communicated to providers?

Platform of Communication	Response

Phone call	55%
Encrypted text message to mobile device or phone (SMS)	0%
Secure email	36%
EHR notification	27%
Downloadable report file (e.g. Excel spreadsheet)	91%
Eligibility and Benefit Response EDI transaction with attachment	55%

The majority of surveyed health plans report communication of gaps in care to providers via downloadable report (91%), followed by an EDI transaction (55%) or phone call (55%). There does not appear to be significant mobile/email communication or EHR integration that would allow information to be more rapidly transmitted electronically for direct action.

15. How would your organization <u>prefer to send</u> information on gaps in care to providers at the individual member level? … at the aggregate or population level?

Platform of Communication	Member Level	Population Level
Phone call	30%	10%
Encrypted SMS	0%	0%
Secure email	30%	40%
EHR notification	50%	30%
Downloadable report (e.g. Excel)	20%	50%
Eligibility and Benefit Response EDI transaction with attachment	50%	50%

At an individual member level, surveyed health plans primarily prefer to communicate information to providers through EDI transaction (50%), EHR notification (50%) email (30%) or phone call (30%). At a population level, preferences shift toward EDI transactions (50%), downloadable reports (50%) and email (40%). Similar to providers, no health plan would prefer to communicate information through SMS texts.

16. How are gaps in care communicated to covered members?

Platform of Communication	Response
Paper-based letter, postcard and/or other correspondence	91%
Phone call	73%
Encrypted SMS	9%
Secure email	18%

Health plans primarily rely on paper-based correspondence (91%) to communicate gaps in care to members, rather than a more rapid form of communication such as a phone call (73%), email (18%) or SMS (9%).

17. What is the impact of gaps in care services on the domains below within your organization's network?

Domain	Negative	No Impact	Positive	N/A
Coordination of care	27%	9%	64%	0%
Quality of care	27%	9%	64%	0%
Cost of care	36%	18%	45%	0%
Efficiency of care	27%	18%	55%	0%
Member compliance and adherence	36%	9%	55%	0%
Member satisfaction	36%	9%	55%	0%

Health plans report that gaps in care services have a more positive impact, primarily on coordination of care (64%) and quality of care (64%). Gaps in care services are deemed to have a more positive financial impact among health plans than providers.

18. Please rate the <u>structural</u> barriers below to closing gaps in care within your organization's network.

Barriers	Not Challenging	Somewhat Challenging	Challenging	N/A
Financial cost	0%	63%	37%	0%
Economic incentive structure	0%	53%	32%	16%
Culture change	11%	26%	53%	11%
Integration into process and workflow	0%	53%	37%	11%
Payer-provider coordination	11%	37%	53%	0%
Staffing	11%	42%	37%	11%

Compared with providers, health plans found the above barriers to be slightly less challenging. Slightly more than half of health plans reported that culture change (55%) and payer-provider coordination (53%) were the most challenging.

19. Please rate the <u>technical</u> barriers below to closing gaps in care within your organization's network.

Barriers	Not Challenging	Somewhat Challenging	Challenging	N/A

Information fatigue or overload	0%	36%	55%	9%
Timeliness of information	9%	45%	45%	0%
Accuracy and reliability of information	9%	55%	36%	0%
Blending and integration of data	9%	27%	55%	9%
Actionability of information	18%	55%	27%	0%

Compared with providers, health plans also found technical barriers to be slightly less challenging. Health plans reported challenges primarily with the blending and integration of data (55%), information fatigue and overload (55%) and accuracy and reliability of information (36%). Approximately half of health plans believe timeliness (45%) and actionability (55%) of information to be only somewhat challenging.

20. Would your organization invest in a solution that facilitates data exchange between payers and providers and integrates within provider workflow in near real-time?

Similar to providers, half of health plan respondents would invest in a solution that would facilitate seamless data exchange with payers.

Other Track

1. Please rate the importance of targeting the domains below to close gaps in care.

Domain	Not Important	Somewhat Important	Important
Preventive care (e.g. health risk assessment, annual wellness visit, screenings, vaccines, tests)	1%	8%	91%
Chronic disease and/or care management	0%	8%	92%
Medication management and reconciliation	1%	9%	90%
Hospital admissions and readmissions	6%	17%	77%
Patient access to care	3%	6%	91%
Patient engagement (e.g. outreach, communication and follow-up)	0%	13%	87%

"Other" stakeholders rested strong importance in targeting preventive care (91%), chronic disease/care management (92%) and medication management and reconciliation (90%). Unlike health plans and providers, stakeholders also rated patient access to care (91%) and patient engagement (87%) as important domains to also address.

2. Please indicate your agreement with the following statements about the <u>current</u> capabilities of health plan and providers.

Statement	Disagree	Neither Disagree or Agree	Agree	N/A
Health providers can electronically <u>collect and blend</u> data sufficiently to identify gaps in care	58%	20%	21%	1%
Health providers can electronically <u>access</u> data sufficiently to close gaps in care before they progress	49%	25%	26%	0%
Health plans can electronically <u>collect and blend</u> data sufficiently to identify gaps in care	29%	27%	42%	3%
Health plans can electronically <u>access</u> data sufficiently to close gaps in care before they progress	35%	26%	35%	4%
Health plans AND providers can electronically <u>exchange</u> data sufficiently to support gaps in care services	51%	25%	21%	4%
Data can be <u>analyzed</u> sufficiently to deliver actionable interventions to reduce gaps in care	33%	25%	38%	5%

"Other" stakeholders do not express confidence in the abilities of health plans or providers to electronically access, collect, blend, exchange or analyze data to support gaps in care services. Approximately half of these respondents believe that

health providers cannot collect or blend data sufficiently, and that data cannot be electronically exchanged sufficiently between health plans and providers.

3. Please rate the <u>current</u> effectiveness of the IT capabilities below in supporting services that target gaps in care.

IT Capability	Ineffective	Somewhat Effective	Effective	N/A
Claims management system	14%	49%	34%	3%
Electronic Health Record (EHR) system	12%	59%	26%	3%
Care management software	19%	48%	24%	9%
Customer relationship management software	33%	42%	11%	14%
Population health management software	29%	43%	12%	17%
Member or patient registry, database or warehouse	24%	55%	14%	8%

Similarly, "other" stakeholders do not express strong confidence in the effectiveness of IT capabilities in supporting gaps in care services. Approximately half responded that capabilities were only somewhat effective, including EHR systems (59%), claims management (49%), care management software (48%) and population health management software (43%).

4. Please rate the <u>current </u>effectiveness of the IT features below in supporting gaps in care services.

IT Feature	Ineffective	Somewhat Effective	Effective	N/A
Event alerts (e.g. ADT notifications, prescription filled, test completed, etc.)	15%	44%	36%	5%
Electronic Data Interchange (EDI) transactions (e.g. eligibility inquiries and responses containing relevant information or attachments)	19%	52%	24%	5%
Evidence-based clinical decision support	16%	43%	37%	4%

Louis W. Sullivan Institute for Healthcare Innovation

Retrospective analytics (to identify gaps in care that have occurred)	32%	37%	28%	4%
Prospective analytics (to forecast gaps in care that could occur)	35%	42%	18%	5%
Predictive analytics (to suggest steps to prevent potential gaps in care from occurring)	33%	41%	21%	5%

Similar to health plans and providers, most "other" stakeholders do not believe that health IT features are effective.

5. Please indicate how important it is for organizations to access the data below to support gaps in care services.

Data Type	Not Important	Somewhat Important	Important	N/A
Electronic health record (EHR)	0%	7%	93%	0%
Continuity of Care Document (CCD)	3%	21%	75%	1%
Care plan	1%	14%	84%	0%
Unstructured data (e.g. physician notes or documentation)	5%	18%	76%	
Medical history	0%	5%	95%	0%
Claims history	13%	32%	55%	0%
Medication or prescription history	0%	12%	88%	0%
Laboratory results	1%	5%	92%	1%

Similar to health plans and providers, "other" stakeholders indicated that it is important to access data from EHRs (92%), medical history (92%), laboratory results (90%) and medication/prescription history (85%). However, they also emphasized the importance of a care plan (81%) significantly more.

6. How often should providers review data to identify and close gaps in care?

Frequency	Response
Upon request of a health plan or third-party vendor	3%
Annually	5%
Quarterly	19%
Monthly	21%

Louis W. Sullivan Institute for Healthcare Innovation

wedi

58

Weekly	9%
Daily	5%
Near real-time	38%

There is significant variation in how often stakeholders believe providers should review data, ranging from near real-time (38%) to only monthly (21%) or quarterly (19%). Responses in the provider track of the survey suggest that their current activity is far less frequent in reality.

7. How often should health plans review data to identify and close gaps in care?

Frequency	Response
Annually	9%
Quarterly	23%
Monthly	27%
Weekly	8%
Daily	9%
Near real-time	23%

"Other" stakeholders believe that health plans do not need to review data as frequently as providers to identify or close gaps; nearly 60% indicated that plans should do so on a monthly to annual basis. Responses in the health plan track of the survey suggest that their current activity is more or less in line with what others expect.

8. Once gaps in care have been identified, how quickly should they be communicated between health plans and providers?

Frequency	To Patients
Manual request	2%
At time of next encounter	13%
Quarterly	10%
Monthly	10%
Weekly	4%
Daily	4%
Near real-time	55%

Approximately two-thirds of "other" stakeholders believe that health plans and providers should communicate gaps in care as close to real-time as possible.

9. How should gaps in care be communicated between health plans and providers?

Platform of Communication	Response

Phone call	21%
Encrypted text message to mobile device or phone (SMS)	21%
Secure email	72%
EHR notification	55%
Downloadable report file (e.g. Excel spreadsheet)	51%
Eligibility and Benefit Response EDI transaction with attachment	43%

"Other" stakeholders believe that gaps in care should primarily be communicated between health plans and providers via email (72%), EHR notification (55%), or downloadable report file (51%). Responses from the other tracks of the survey suggest that while providers would also prefer email, EHR notification, and EDI transactions, gaps in care are primarily communicated by phone and downloadable reports with health plans.

10. Please rate how challenging the <u>organizational</u> barriers below are to closing gaps in care.

Barriers	Not Challenging	Somewhat Challenging	Challenging	N/A
Financial cost	0%	18%	81%	1%
Economic incentive structure	1%	23%	70%	5%
Culture change	6%	18%	73%	3%
Integration into process and workflow	1%	26%	71%	1%
Payer-provider coordination	0%	26%	73%	1%
Staffing	5%	38%	55%	1%

The majority of "other" stakeholders are challenged by organizational barriers such as financial cost (81%), culture change (73%), payer-provider coordination (73%), integration into process and workflow (71%) and economic incentive structure (70%). Notably, staffing is perceived to be markedly less challenging among "other" stakeholders than among surveyed providers.

11. Please rate how challenging the <u>technical</u> barriers below are to closing gaps in care.

Barriers	Not Challenging	Somewhat Challenging	Challenging	N/A
Information fatigue or overload	3%	31%	64%	3%
Timeliness of information	5%	29%	65%	1%

Accuracy and reliability of information	3%	38%	58%	1%
Blending and integration of data	4%	26%	69%	1%
Actionability of information	4%	32%	63%	1%

The majority of "other" stakeholders are challenged by technical barriers such as blending and integration of data (69%), timeliness of information (65%), informative fatigue and overload (64%) and actionability of information (63%).

12. How can gaps in care services be further improved with technology and analytics?

Recommendations focused on aspects of near real-time data access, interoperable EHR systems, seamless standardized data exchange, cost, care coordination and appropriate financial incentives.

13. Would a solution that facilitates data exchange between payers and providers and integrates within provider workflow in near real-time be helpful for gaps in care services?

The majority of "other" stakeholders agree that an automated solution would be helpful (88%) or somewhat helpful (9%) for gaps in care services.

14. Would significant time and resources be saved with an automated solution to identify and communicate gaps in care between payers and providers?

The majority of "other" stakeholders agree that an automated solution would save significant (78%) or somewhat significant (14%) time and resources.

Jean Narcisi	WEDI Chair of the Board, Director of Dental Informatics, American Dental Association
Dr. Stephen L. Ondra	Senior Vice President and Chief Medical Officer of Health Care Service Corporation
Francis J. Rienzo	Vice President, NA Government Affairs, Sanofi
Dr. Susan Turney	CEO of Marshfield Clinic Health System
Jon Zimmerman	General Manager, Clinical Business Solutions, GE Healthcare
Charles Stellar	WEDI Interim President and CEO

ABOUT US

The Louis W. Sullivan Institute for Healthcare Innovation is the sister foundation of the Workgroup for Electronic Data Interchange (WEDI). Led by Former Secretary of HHS Dr. Louis W. Sullivan, the Institute is a network of private institutions, at the CEO level, that serve to quickly identify and spread innovative technologies across the US healthcare system with the goal of accelerating the pace of health IT adoption, to realize efficiencies in healthcare information exchange and to improve healthcare delivery and outcomes. More information on the Sullivan Institute can be found online at www.sullivaninstitute.org.

The Workgroup for Electronic Data Interchange (WEDI) is the leading authority on the use of health IT to improve healthcare information exchange in order to enhance the quality of care, improve efficiency, and reduce costs of our nation's healthcare system. WEDI was formed in 1991 by Dr. Louis W. Sullivan, the Secretary of Health and Human Services (HHS) and was designated in the 1996 HIPAA legislation as an advisor to HHS. WEDI's membership includes a broad coalition of organizations, including: hospitals, providers, health plans, vendors, government agencies, consumers, not-for-profit organizations, and standards development organizations. To learn more, visit www.wedi.org and connect with us on Twitter, Facebook and LinkedIn.