Year in Review:

An Update on the 2013 WEDI Report & Roadmap for the Future of Healthcare Exchange

Louis W. Sullivan Institute
for Healthcare Innovation

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Executive Summary

As the healthcare industry drove improvements through technology and data exchange in 2014, the Louis W. Sullivan Institute for Healthcare Innovation monitored stakeholder efforts and evaluated how actions align with the vision laid forth in the 2013 WEDI Report. In follow-up to the first roadmap for healthcare information exchange produced by WEDI in 1993, the 2013 report provided a framework for the next generation of healthcare information exchange that would lower healthcare costs, improve healthcare delivery, and achieve better healthcare outcomes. The 2013 report identified four key areas of focus (patient engagement, payment models, data harmonization and exchange, and innovative encounter models) and 10 related recommendations that would advance healthcare information exchange.

In reviewing action and developments in 2014, it is clear that advancements have been made in some focus areas while industry has lagged behind in others. Summarized below are assessments of how industry has performed in each of the core focus areas:

1. Patient Engagement
Health information technology (health IT) literacy initiatives have lagged, but the industry has continued momentum in patient information capture and identification. Coupled with the new federal vision for health IT, efforts are on pace with meeting WEDI recommendations and receive a progress rating of "green."

2. Payment Models
As new payment models mature, questions around their success and sustainability remain. Until an evaluation framework of core attributes and technological functionalities is developed that meets WEDI recommendations, progress is rated as "yellow."

3. Data Harmonization and Exchange
Further efforts are required to standardize and harmonize data. Given the nascent nature of interoperability efforts and ongoing challenges of meeting WEDI recommendations, progress is rated as "yellow."

4. Innovative Encounter Models
Driven by venture capital, federal pilot programs, and industry initiatives, healthcare stakeholders are actively exploring and implementing innovative encounter models that leverage technology and provide

patient-centered care. Efforts are on pace with WEDI recommendations and receive a rating of "green."

The healthcare industry continues to progress towards the system envisioned by WEDI more than 20 years ago that would leverage technology to improve care and lower costs. In 2014, advancements were made in the adoption and use of new technologies, the implementation of innovative models of care and reimbursement, and harmonization of data standards for information exchange. Nonetheless, significant work remains to be completed. Looking ahead to 2015, new regulations and legislation are expected to further guide stakeholders towards a sustainable health IT infrastructure. Innovative technologies will continue to be developed, implemented, and scaled across the public and private sectors that reshape the healthcare landscape. Consumers will play a greater role in their care, and stakeholders will continue to harmonize data and standards to permit better access to electronic information. As the health IT ecosystem becomes more complex, the Louis W. Sullivan Institute for Healthcare Innovation will continue to monitor industry progress and chart a course of action to efficiently get the right data, to the right place, at the right time.

Introduction

This document provides an update on the progress achieved towards the goals outlined in the 2013 WEDI Report and undertaken by the healthcare industry in 2014. In 1993, under the leadership of The Honorable Louis W. Sullivan, M.D., the original WEDI Report was produced to lay forth the first industry roadmap for healthcare information exchange. Subsequently, on the 20th anniversary of the original report, the Louis W. Sullivan Institute for Healthcare Innovation commissioned the development of an updated framework and report in 2013 for the next generation of healthcare information exchange.

The 2013 WEDI Report provided a roadmap for leveraging technology to enhance the nation's Health IT infrastructure in order to lower healthcare costs, improve healthcare delivery, and achieve better healthcare outcomes through more efficient exchange of healthcare information between consumers, healthcare providers, and health plans.

The 2013 WEDI Report identified four key areas of focus:

- **Patient Engagement:** Identify ways to enable consumer (patient) engagement through improved access to pertinent healthcare information.

- **Payment Models:** Identify requisite business, information, and data exchange requirements that will help enable payment models as they emerge.

- **Data Harmonization and Exchange:** Identify ways to better align administrative and clinical information capture, linkage, and exchange.

- **Innovative Encounter Models:** Identify business cases for innovative encounter models that use existing and emerging technologies.

The 2013 WEDI Report was comprised of 10 recommendations that provide a broad framework for facilitating improvement in electronic exchange of healthcare information. These recommendations included the following:

1. Patient Engagement Recommendations
- Standardize the patient identification process across the healthcare system.
- Expand Health IT education and literacy programs for consumers to encourage greater use of Health IT, with a goal of achieving better care management and overall wellness

- Identify and promote effective and actionable electronic approaches to patient information capture, maintenance and dissemination that leverage mobile devices and "smart" technologies and applications.

2. Payment Models Recommendation

- Develop a framework for assessing critical, core attributes of alternative payment models – such as connectivity, eligibility/enrollment reconciliation, payment reconciliation, quality reporting and care coordination data exchange, and education – and the technology solutions that can mitigate barriers to implementation.

3. Data Harmonization & Exchange Recommendations

- Identify and promote consistent and efficient methods for electronic reporting of quality and health status measures across all stakeholders, including public health, with initial focus on recipients of quality measure information.
- Identify and promote methods and standards for healthcare information exchange that would enhance care coordination.
- Identify methods and standards for harmonizing clinical and administrative information reporting that reduce data collection burden, support clinical quality improvement, contribute to public and population health, and accommodate new payment models.

4. Innovative Encounter Models Recommendations

- Identify use cases, conventions, and operating standards for promoting consumer health and exchange of telehealth information in a mobile environment.
- Facilitate adoption and implementation of "best-in-class" approaches that promote growth and diffusion of innovative encounters across the marketplace and that demonstrate value for patients, providers, and payers.
- Identify existing or proposed federal or state-based laws or regulations that create barriers to the implementation of innovative encounters (including licensure).

Industry Progress

In reviewing industry action and developments since the launch of the 2013 WEDI Report, it is clear that advancements have been made in some focus areas while industry has lagged behind in others. The purpose of this update is to evaluate each focus area of the 2013 WEDI Report and to provide a rating for how industry is doing in terms of progress towards meeting the recommendations thus far.

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Patient Engagement

Patient engagement, for the purposes of the 2013 WEDI Report, was defined as dialogue between patients and key healthcare stakeholders (e.g. physicians, health plans, care coordinators, and public health). As healthcare continues to evolve in the wake of new payment models and telemedicine, it is becomingly increasingly critical for both policymakers and industry stakeholders to not only understand the growing role of patients and caregivers across the continuum of care, but also to identify how access to information and technology can improve processes. As defined by the 2013 Report, patient engagement spans several key areas of focus, including patient identification and matching, patient access to information, and how to leverage existing technology to facilitate consumer access to tools.

The following section will evaluate key industry activities that have occurred since 2013 in meeting WEDI recommendations regarding patient engagement:

CURRENT EFFORTS

1. STANDARDIZE THE PATIENT IDENTIFICATION PROCESS ACROSS THE HEALTHCARE SYSTEM.

Without a standardized patient identifier, it can be difficult to link and match patient records within and between organizations, oftentimes resulting in incomplete, redundant, and/or out-of-date records stored in different databases for the same individual as they journey across the continuum. These inconsistencies can lead to a higher number of errors and inefficiencies due to the accuracy and quality of information. While healthcare and health information exchange organizations may assign unique patient identifiers for each member within their system, no such identification system has been seriously considered at a national level since 1998. However, the Louis W. Sullivan Institute for Healthcare Innovation has identified several national efforts of note that have begun to coalesce over the past year. While these initiatives do not appear to solve the problem in the short term, there is promise that industry movement continues forward. The following industry initiatives were identified as advancing this recommendation:

- The National Institute for Science & Technology (NIST) has overseen the National Strategy for Trusted Identities in Cyberspace (NSTIC) initiative to develop an 'identity ecosystem" that is controlled by the user and provides a trusted identity in online environments. In 2013 and 2014, NIST funded six healthcare pilots that illustrate how identity can be quickly validated through

different cost-effective, secure, and multi-factor authentication frameworks that enable health information to only be safely exchanged in web-, mobile- and cloud-based environments with certain users.

- The Office of National Coordinator (ONC) released a report on Patient Identification and Matching in early 2014 that provided a landscape analysis of key challenges and activities within the patient matching environment, and also identified key data elements in order to accurately match patients. However, the report authors noted that a national patient identifier was "off the table."

- Significant industry effort has continued to grow around the use of identity authentication and authorization online. OAuth2 (and its predecessor OAuth) is an open standard that provides secure delegated access to server resources, essentially allowing tokens (in lieu of a username/password) to be issued to approved third-party stakeholders requesting access to a user's private data, along with the ability to modify their read/write permissions and duration of access. Rather than provide an authorization protocol, OpenID offers authentication via a trusted third party (e.g. Google, Facebook) to share a user's identity or data. Together, OAuth2 and OpenID are being evaluated by organizations as a model trust framework through which information can be exchanged.

2. EXPAND HEALTH IT EDUCATION AND LITERACY PROGRAMS FOR CONSUMERS TO ENCOURAGE GREATER USE OF HEALTH IT, WITH A GOAL OF ACHIEVING BETTER CARE MANAGEMENT AND OVERALL WELLNESS.

The digital divide may be narrowing among consumer populations, but there is a growing concern that underserved individuals who both lack access to technology and an understanding of how to utilize electronic health information are being left behind. While there are a number of efforts by institutions to engage in health IT education and literacy within their own systems, we were not able to identify a nationwide effort that is currently working across the nation to solve for this recommendation. The Louis W. Sullivan Institute for Healthcare Innovation has identified this as a priority area of focus and will be working in 2015 to develop capacities in order to launch an effort in support of this recommendation.

3. IDENTIFY AND PROMOTE EFFECTIVE AND ACTIONABLE ELECTRONIC APPROACHES TO PATIENT INFORMATION CAPTURE, MAINTENANCE AND DISSEMINATION THAT LEVERAGE MOBILE DEVICES AND "SMART" TECHNOLOGIES

As smartphones and mobile health (mHealth) devices are further adopted by the general population, it is becoming increasingly important for healthcare organizations to move beyond the brick and mortar space to enter the mobile arena. While health IT efforts have historically been focused on enterprise infrastructure, industry has begun to gain momentum in the development and use of provider- and patient-facing mobile tools. However, further progress can be achieved in the integration and application of mobile technology to better streamline the access and exchange of information.

- In 2010, the Veterans Health Administration (VHA) launched the Blue Button on their patient portal, providing individuals with universal secure access to view, download, and share their electronic health information. Since then, it has been adopted across the industry by more than 500 organizations; capabilities were upgraded with BlueButton+ to expand file formats and provide Open Application Program Interface (API). Today, more than 150 million Americans have access to Blue Button downloads through the patient portals and websites of health plans, doctors, hospitals, Medicare, VHA, or Tricare. However, wide scale adoption and industry understanding of Blue Button has lagged. WEDI conducted a survey in 2013 and a follow-up survey in 2014 to determine awareness and usage of Blue Button. In 2014, WEDI found that one third of the survey participants were familiar with the details of this initiative; one third had heard of the initiative but were unsure of the details; and the final third of respondents were not familiar with the initiative at all.

- In December of 2014, the Louis W. Sullivan Institute for Healthcare Innovation launched a new initiative with WEDI, Medical Group Management Association (MGMA) and Healthcare Information and Management Systems Society (HIMSS) to evaluate how to automate the in-take process with a virtual clipboard that will streamline patient registration, insurance eligibility verification, and access to health information. Convening over 40 stakeholder organizations – including payers, providers, vendors and government – the initiative has established workgroups to create a functional framework of features and requirements that will be leveraged by private industry as pilots by the end of 2015.

- In 2014, the Louis W. Sullivan Institute for Healthcare Innovation announced the launch of the Patient Experience Council. This council is evaluating how the future of healthcare information exchange will affect process flow from the

perspective of the patient. The Council has begun to map information flows across transitions between care settings. It is expected that these maps will begin to be released in 2015.

CHALLENGES & BARRIERS

Significant challenges and barriers exist towards achieving the recommendations identified within the 2013 WEDI Report regarding patient engagement. These challenges include:

- At the federal level, there has been little effort to revisit the study or use of a national patient identifier. While gains have been made in developing sophisticated patient matching technologies, the industry will continue to face challenges of fraud, security, safety, and efficiency until identification can be better addressed.

- Concerns around regulation, privacy, and confidentiality have slowed the potential diffusion and use of mobile devices and applications in healthcare. To date, the final regulatory framework and guidance of the Food and Drug Administration Safety and Innovation Act have not been issued yet, creating hesitation and uncertainty among stakeholders interested in discretionary mHealth projects or initiatives.

- Demonstrating the value and sustainable return-on-investment (ROI) of patient-facing technology continues to be a challenge for some organizations. While there is significant investment into mobile tools, current research has yet to consistently demonstrate their cost effectiveness or associated health outcomes. As the mHealth market matures, it is becoming critical for research to determine a stronger evidence base and set of best practices to illustrate how technology can help to improve the health of the American population.

INDUSTRY PROGRESS ASSESSMENT

In evaluating the patient engagement focus area as a whole, 2014 saw a continued momentum in patient information capture and identification, while lagging behind in health IT literacy. Based on several strong initiatives to improve the patient experience, the vision set forth by ONC and the JASON reports to better harness mobile data and technologies over the next several years, and private industry efforts to jumpstart pilots

for automating patient in-take processes, we have assigned an industry progress rating of "green", or on track to meet recommendations identified in the 2013 WEDI Report.

Payment Models

The healthcare system is undergoing an unprecedented level of innovation and transformation as stakeholders seek to reform and optimize how care is reimbursed and delivered. Over the past several years, federal programs and private sector initiatives have introduced hundreds of new payment models that seek to improve the value and quality of care while reducing costs at both an individual and population level. Many of these value-based purchasing programs are aggressively taking on the burden of chronic disease to better improve prevention and care coordination among some of the sickest and costliest populations. Because these programs seek to stratify high-risk populations and care processes across the continuum, they are critically dependent on the effective use and integration of both clinical and financial data to inform decisions.

Given the complexity of the information, technology, and analytic algorithms required for population health management operations, it has proven challenging for many organizations - particularly payment models such as bundled payment programs - to move beyond basic excel spreadsheets to efficiently transmit large sets of data or apply more advanced analytics. With this in mind, the 2013 WEDI report identified the need to develop a framework to better understand the needs of new payment models and illustrate the core technology attributes and capabilities required.

CURRENT EFFORTS

1. DEVELOP A FRAMEWORK FOR ASSESSING CRITICAL, CORE ATTRIBUTES OF ALTERNATIVE PAYMENT MODELS – SUCH AS CONNECTIVITY, ELIGIBILITY/ENROLLMENT RECONCILIATION, PAYMENT RECONCILIATION, QUALITY REPORTING AND CARE COORDINATION DATA EXCHANGE, AND EDUCATION – AND THE TECHNOLOGY SOLUTIONS THAT CAN MITIGATE BARRIERS TO IMPLEMENTATION

Efforts to create a framework for assessing critical, core attributes of alternative payment models are still being developed. In 2014, surveys were independently

conducted by organizations such as the Brookings Institute, National Association of Accountable Care Organizations, Dartmouth Institute for Health Policy and Clinical Practice, eHealth Initiative and Premier Inc., Leavitt Partners and American Hospital Association, all of which paint a composite portrait of how organizations are approaching the development, implementation, operation, governance, and evolution of Accountable Care Organizations (ACOs). Among other findings, these surveys collectively illustrate the need, importance, and challenge of strategically adopting and deploying appropriate health IT to support ACO operations.

Now that value-based models such as ACOs have been underway for several years in the public and private sectors across the country, it is increasingly important to develop a more comprehensive taxonomy and framework of the health IT building blocks of different value-based models. In 2015, WEDI will spearhead multi-stakeholder efforts with its Bundled Payment and ACO project teams to evaluate the administrative and clinical data and processes that are needed to scale new payment model implementations, as well as the existing or new standards that may need to be applied to better support these new models.

CHALLENGES & BARRIERS

Significant challenges and barriers exist towards achieving the recommendations identified within the 2013 WEDI Report regarding payment models. These challenges include:

- Competing organizational demands, regulatory burden, and incentive program requirements have limited many stakeholders in their ability to participate in value-based programs.

- The success and performance of value-based programs thus far has been mixed (e.g. Pioneer Accountable Care Organizations in the Medicare and Medicaid Shared Savings Program) and it is unclear to what extent they will be effective over time. Furthermore, payment models are evolving rapidly, which makes their assessment a moving target.

- Given the recent emergence of new payment models, the field is a fragmented hotbed for innovation. With so many models that are being piloted, implemented, and evaluated, it is difficult for industry to develop appropriate technology solutions until specific models have been proven to more effective and needs are better understood.

INDUSTRY PROGRESS ASSESSMENT

Based on efforts to assess core attributes of new payment models and to develop a framework to address data needs and information exchange issues, industry progress is rated "yellow", or needing further directed effort in order to achieve the recommendations outlined in the 2013 WEDI Report.

Data Harmonization and Exchange

Harmonized data standards for reporting, coordination, administration, and research are critical to the effective operation of the healthcare industry. Despite the recent advancements and investments in health IT infrastructure, significant work lies ahead in order to reach the goal of ensuring that the right information arrives in the right format at the right place and time - and ultimately, that the data drive tangible improvements in care and value.

Significant progress has been made since the initial creation of the WEDI Report in 1993 and healthcare data today is no longer limited to the loosely classified categories of "administrative" or "clinical" datasets. Although our health IT ecosystem is vastly more complex and sophisticated, interoperability is ever more essential to ensuring the access to and exchange of electronic health information. As new payment models, population health management programs, and innovative encounters evolve, they are becoming increasingly dependent on the effective use of data in informed decision-making among patients, providers, care coordinators, and caregivers across disparate settings of care. Accordingly, standards and methods for information exchange must recognize and prioritize support for coordinated care that transcends traditional enterprise boundaries.

The 2013 WEDI Report highlighted the need for harmonized data standards for reporting, care coordination, quality improvement, and population health management among stakeholders. The following key initiatives were identified as advancing the recommendations contained within the Data Harmonization and Exchange section of the 2013 WEDI report.

CURRENT EFFORTS

1. IDENTIFY AND PROMOTE CONSISTENT AND EFFICIENT METHODS FOR ELECTRONIC REPORTING OF QUALITY AND HEALTH STATUS MEASURES ACROSS ALL STAKEHOLDERS, INCLUDING PUBLIC HEALTH, WITH INITIAL FOCUS ON RECIPIENTS OF QUALITY MEASURE INFORMATION.

An efficient means of electronically reporting quality and health status measures remains a significant barrier in 2014. The combination of a wide range of reporting requirements for federal programs and private payers, along with diverse technical specifications and interfaces for public and private health information exchange, has created a difficult environment.

- The Centers for Medicare & Medicaid Services (CMS) has attempted to provide greater flexibility and incentives for stakeholders in an effort to encourage electronic clinical quality measure reporting. The deadline was extended for eligible hospitals to submit electronic clinical quality measures (eCQMs) from a certified electronic health record (EHR) system and meet requirements for Meaningful Use and the Hospital Inpatient Quality Reporting Program. Additionally, incentives were created for eligible providers and practices to participate in the Physician Quality Reporting System (PQRS).

2. IDENTIFY AND PROMOTE METHODS AND STANDARDS FOR HEALTHCARE INFORMATION EXCHANGE THAT WOULD ENHANCE CARE COORDINATION.

Although an immense amount of private and public funding has been invested recently into the development and adoption of health IT across the ecosystem, efforts have inadvertently contributed to a severe lack of interoperability. Coupled with mergers and acquisitions of organizations and the emergence of new networks (e.g. ACOs), it remains exceptionally difficult to efficiently exchange health information without universally embraced standards, protocols, or methods to send and receive data. As noted in the 2014 JASON report, little progress has been achieved in advancing an open software architecture approach to interoperability over the past year. Several approaches have emerged to standardize how data is exchanged in various use cases at the organizational and state level.

- In 2014, the State Health Policy Consortium concluded nine research and demonstration projects that tested solutions at a regional and national level. These projects included the exchange of integrated primary care and behavioral health information, connectivity between Health Information Services Providers (HISPs), open Health Information Exchange (HIE) interfaces, emergency and

disaster preparedness, cost-benefits analysis of Direct secure messaging, and common consent requirements for interstate data exchange

- The EHR/HIE Interoperability Workgroup, comprised of 19 states and 47 vendors, has begun working with HIMSS and IHE USA to streamline and strengthen how EHRs and HIEs exchange patient data across organizational and state boundaries. Similar collaborative efforts are being conducted by the Mid-States Consortium and National Association for Trusted Exchange to develop solutions to interstate health information exchange.

In follow-up to a [concept paper](#) and [Federal Health IT Strategic Plan](#), ONC released a [draft version](#) of a 10-year interoperability roadmap that assesses the current landscape and proposes short- and long-term goals to establish rules of the road, improve standards, enhance incentives, and create a governance framework. Articulating a scalable, modular vision - rather than a more top-down, one-size-fits-all approach - action steps aim to support a learning health system and enable a majority of individuals and providers across the continuum to send, receive, find, and use a common set of electronic clinical data at the nationwide level by the end of 2017. ONC is accepting feedback until early April on governance issues, privacy and security, core technical standards and functions, certification and testing, measurement, and supportive business, cultural, clinical, and regulatory requirements.

3. IDENTIFY METHODS AND STANDARDS FOR HARMONIZING CLINICAL AND ADMINISTRATIVE INFORMATION REPORTING THAT REDUCE DATA COLLECTION BURDEN, SUPPORT CLINICAL QUALITY IMPROVEMENT, CONTRIBUTE TO PUBLIC AND POPULATION HEALTH, AND ACCOMMODATE NEW PAYMENT MODELS.

There is currently a diverse range of initiatives that are aiming to standardize various aspects of health information exchange. While intended to support quality improvement, population health management, and new payment models, the timely collection and exchange of data remains a significant burden.

- The Direct Project gained popularity as a simple, secure, and scaleable way of transporting authenticated health information directly to trusted recipients over the Internet using open source standards. However, lingering challenges remain around its "push" nature and lack of a directory service to easily find other providers. Greater efforts are required to further foster industry adoption.

- Formerly known as the Nationwide Health Information Network, the eHealth Exchange is comprised of more than 80 participating organizations working to develop a common set of standards and specifications for secure, interoperable

exchange of health information. Managed by Healtheway, the eHealth Exchange focuses on standardizing how patient health information is matched, exchanged, and updated. Healtheway is also spearheading Carequality, an industry-driven effort to build consensus among existing heath data exchange programs.

- The CommonWell Health Alliance is a non-profit association primarily comprised of more than a dozen health IT vendors working to create universal access to healthcare data through four core service areas: patient identification and linking, record location and retrieval, patient access and consent management, and trusted data access. CommonWell has launched pilot services in selected sites across the country to tackle these challenges among EHR vendors and participating provider organizations.

- In an effort to further advance clinical information exchange and address some of the limitations mentioned above, HL7 is testing and developing Fast Healthcare Interoperability Resources (FHIR), a versatile and flexible standards framework intended to replace Consolidated Clinical Document Architecture (C-CDA). FHIR is expected to allow for greater interoperability and flexibility by providing an open, web-based API framework, user interface integration, and authorization. In accordance with the recommendations set forth the JASON reports in 2014, HL7 has begun work on the Argonaut Project with major EHR vendors and healthcare providers to further advance FHIR adoption and implementation.

- Reflecting general concern and discontent with the lack of interoperability, Congress included language in the continuing resolution bill in December 2014 for ONC to "certify only those products that clearly meet meaningful use program standards" and to decertify EHR products that "proactively block the sharing of health information."

- While there are a number of organizations dedicated to quality measurement and improvement (National Quality Forum, National Committee for Quality Assurance, or The Joint Commission), we are currently unaware of any industry-wide efforts to address the growing challenges of accessing and processing increasing amounts of data for reporting.

CHALLENGES AND BARRIERS

To date, wide scale interoperability has not been achieved given the fragmented nature of efforts at a local, state, and national level. In a recent report to Congress, ONC indicated that "practice patterns have not changed to the point that health care providers

share patient health information electronically across organizational, vendor, and geographic boundaries." As funding from the State HIE Cooperative Agreement program begins to sunset, many state HIE organizations are facing significant challenges to financial and operational sustainability. In the absence of nationwide interoperability solutions, many healthcare stakeholders are engaged in a variety of initiatives that seek to tackle specific exchange challenges. While CMS has indicated its desire to streamline quality reporting, there has not yet been a formal structure to do so.

INDUSTRY PROGRESS ASSESSMENT

Based on the nascent efforts on quality reporting standardization and continuing challenges in standardizing healthcare information exchange, industry progress is rated as "yellow", or needing further effort in order to achieve the recommendations outlined in the 2013 WEDI Report.

Innovative Encounter Models

The healthcare landscape is rapidly transforming away from the traditional business-to-business enterprise towards a business-to-consumer paradigm. Unlike the traditionally fragmented and volume-based fee-for-service system of the past, new models of patient-centered care are defined by integration, access, and value.

Fueled by widespread adoption of technologies such as smartphones or electronic clinical tools, healthcare is moving beyond brick and mortar settings and changing the ways in which consumers, providers, and payers interact across the continuum of care. For the purposes of the 2013 WEDI Report, these interactions are referred to as encounters, such as scheduling an appointment or visiting a doctor's office. Today, mHealth and telehealth are providing new means to bill, process claims, maintain records, report, schedule, diagnose, and seek care independent of barriers such as time or location.

Although nascent, these innovative encounters are already improving access, quality, and transparency of care while reducing costs. As they continue to evolve from both an innovation and regulatory perspective, several areas of focus were highlighted by the 2013 WEDI Report as key to their success: identify conventions and standards for

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telehealth in a mobile environment; facilitate the adoption and implementation of "best-in-class" approaches; and identify regulatory barriers to the implementation of innovative encounters.

The following key initiatives were identified as advancing the recommendations contained within the Innovative Encounters section of the 2013 WEDI report.

CURRENT EFFORTS

1. IDENTIFY USE CASES, CONVENTIONS, AND OPERATING STANDARDS FOR PROMOTING CONSUMER HEALTH AND EXCHANGE OF TELEHEALTH INFORMATION IN A MOBILE ENVIRONMENT.

The Louis W. Sullivan Institute for Healthcare Innovation has identified a number of efforts and programs in varying stages of maturity that are implementing and deploying advanced mobile telehealth solutions. While the industry has yet to embrace established best practices or develop standards for promoting consumer health, it is expected that telehealth practices will continue to flourish. A recent national survey indicates that the percent of employers expecting to offer telehealth services in the upcoming year has nearly doubled to 37 percent.

- Numerous private industry efforts are underway to pilot and deploy innovative encounter technology at a large scale (e.g. Kaiser Permanente, Cleveland Clinic, Walmart, CVS, Walgreens). Startups in both the payer and provider space have emerged to provide mobile and telehealth solutions for consumer-driven care around the clock that are rapidly scaling. For example, Teladoc is certified by the NCQA, has grown to become the largest telemedicine provider with 8 million patients from 4,000 clients, and currently partners with large insurers such as Aetna and Blue Shield of California and employers including Home Depot, T-Mobile, CALPERS. Similarly, American Well has expanded beyond payer partnerships such as Wellpoint, United, and several Blues plans, to move into the direct-to-consumer space by offering televideo consultations on mobile, Web, and kiosk platforms.
- The American Telemedicine Association (ATA) launched an accreditation program focused on synchronous phone- and video-based services provided online (consultations by email or store-and-forward operations not included). Standards were based on best practices, stakeholder input, and state and federal regulations. Currently limited to ATA members until the end of February 2015, the accreditation program focuses on operational policies and procedures, clinical practice areas, and consumer protection. In conjunction with the launch of

the program, the ATA also released [guidelines](#) for live, on-demand primary and urgent care.

- WEDI has created an innovative encounters workgroup to help identify use cases, conventions, and operating standards for promoting consumer health and exchange of telehealth information in a mobile environment.

2. FACILITATE ADOPTION AND IMPLEMENTATION OF "BEST-IN-CLASS" APPROACHES THAT PROMOTE GROWTH AND DIFFUSION OF INNOVATIVE ENCOUNTERS ACROSS THE MARKETPLACE AND THAT DEMONSTRATE VALUE FOR PATIENTS, PROVIDERS, AND PAYERS.

Given the nascent nature of innovative encounters and ephemeral regulatory policies of state and federal governments, the Louis W. Sullivan Institute for Healthcare Innovation was unable to identify best-in-class approaches at this time. However, efforts are underway to suggest that this may change in the years ahead.

- At the federal level, the Federal Communications Commission (FCC) and United States Department of Agriculture (USDA) are providing a variety of telehealth grants to develop infrastructure and support pilot programs in rural and underserved areas. The Department of Veteran Affairs has expanded its telehealth services through mobile veteran centers and medical units in rural and underserved areas.
- Some states have developed informed consent requirements for telehealth and mobile health services. As of September, 2014, the ATA reported that most states do not require patient informed consent before a telemedicine encounter (California is the only state to explicitly require verbal consent), while 12 states have other consent requirements. For example, Alabama, Indiana, Oklahoma, and Washington require written acknowledgement from the patient and Rhode Island requires consent when using emails or text-based communication.

3. IDENTIFY EXISTING OR PROPOSED FEDERAL OR STATE-BASED LAWS OR REGULATIONS THAT CREATE BARRIERS TO THE IMPLEMENTATION OF INNOVATIVE ENCOUNTERS (INCLUDING LICENSURE)

One of the primary barriers to the widespread adoption of innovative encounters such as telehealth services has been licensure portability and reimbursement policies. As of September, 2014, only 4 states (D.C., Maryland, New York, Virginia) allowed licensure reciprocity from bordering states, while only 10 states (Alabama, Louisiana, Minnesota, Montana, Nevada, New Mexico, Ohio, Oregon, Tennessee, Texas) extend conditional or telemedicine licenses to out-of-state physicians. Similarly, different state Medicare

and Medicaid programs have various standards by which telehealth services will be reimbursed. The following initiatives were identified as advancing this recommendation:

- In 2014, the Federation of State Medical Boards created an interstate compact to help set a common bar for medical licensure, which should help to accelerate telehealth initiatives
- CMS published proposed rules for the next phase of the Medicare Shared Savings Program (MSSP), including provisions that would encourage a wider use of telehealth services. CMS also published final rules that will allow doctors to be reimbursed for wellness, behavioral health, and chronic care management televisits in 2015.
- At the federal level, several bills were introduced to Congress that would facilitate the implementation of innovative encounters by broadening the reimbursement of telehealth and remote patient monitoring services (Telehealth Enhancement Act and Medicare Telehealth Parity Act), exempting low-risk medical software and mobile applications from Food and Drug Administration (FDA) oversight (MEDTECH Act), or developing categories with varying levels of federal oversight (SOFTWARE Act).
- At the state level, several states expanded draft legislation to also include the use of mobile health technologies; others are revising whether or not an in-person interaction must be established prior to a telehealth or mobile health service.

CHALLENGES AND BARRIERS

Although there is a growing demand for innovative encounters from consumers, payers, and providers alike to improve the quality, access, efficiency, coordination, and cost-effectiveness of care, significant barriers remain before mobile and telehealth services become more widespread. These challenges and obstacles include:

- Fragmented industry efforts towards integrating telehealth with mobile applications and devices at all levels, including implementation and development of interoperable systems.
- Lack of reimbursement incentives for mobile and telehealth services across the continuum of care to include not only primary care consultations, but also secondary and tertiary care
- Lack of unified regulatory approach at the state and federal level. Almost 30 states do not currently allow reimbursement for telemedicine, and current policies are potentially hindering the development and implementation of technology-driven innovative encounters.

- Outdated approach towards consent and use of personal health data. Health Insurance Portability and Accountability Act (HIPAA) compliance guidelines are limiting the extent to which information can be leveraged effectively in the current environment.

INDUSTRY PROGRESS ASSESSMENT

As smartphone adoption continues to grow and the use of health IT expands well beyond EHR systems, industry efforts will drive the development, piloting, and implementation of new innovative encounters to meet the demand for consumer-driven healthcare. Stakeholders have already made great progress in deploying innovative solutions to administrative workflow barriers to efficiency (e.g. scheduling, exchanging lab results, etc.) and momentum is building healthcare stakeholders to develop more advanced innovative encounters that provide care. Although the industry has not been able to focus fully on developing use cases or normalizing efforts given competing demands, the success of new data-driven payment models will ultimately depend upon the adoption and use of information and communication technologies.

Based on current trends toward advanced mobile applications and telehealth services, consensus on universal licensure, risk-basked regulatory oversight, and revised federal reimbursement policies and for innovative encounters, industry progress is rated as "green", or on track to meet the recommendations identified in the 2013 WEDI Report.

Conclusion

This document provides a progress report on how the public and private sectors of healthcare have addressed the recommendations originally published in the 2013 WEDI Report as part of a national roadmap for the next generation of healthcare information exchange. The initial report identified four key areas of focus (patient engagement, payment models, data harmonization and exchange, and innovative encounter models) and 10 related recommendations across these areas that would facilitate improvement in healthcare information exchange. In the previous sections of this document, the Louis W. Sullivan Institute for Healthcare Innovation has outlined industry progress to date in achieving these recommendations. Summarized below are assessments of how industry has performed in each of the four core focus areas:

1. Patient Engagement
Although the industry has lagged in driving improvements in health IT literacy, there has been continued momentum in patient information capture and patient identification. Private sector efforts, combined with a new federal vision and roadmap for health IT, are deemed to be on pace with meeting WEDI recommendations, leading us to assign an industry progress rating of "green."

2. Payment Models
Over the past several years, new payment models have leveraged technological advancements to rapidly iterate, evolve, and scale across the country. However, models such as ACOs have yet to fully mature, and their success and sustainability remain uncertain – particularly in light of the mixed performance seen in 2014. Given that a framework of core attributes and technological functionalities has yet to be developed and that industry needs further directed efforts at achieving WEDI recommendations, progress is rated as "yellow."

3. Data Harmonization and Exchange
In 2014, the healthcare industry arrived at a crossroads in the adoption and use of health IT. While initial efforts implementing the building blocks of a national health IT infrastructure have largely succeeded, there is widespread consensus in the public and private sectors that there must be a renewed focus on further standardizing and harmonizing data to enable interoperable exchange. Given the early stage of these efforts and the

ongoing challenges of meeting WEDI recommendations to efficiently exchange and report data, industry progress is rated as "yellow."

4. Innovative Encounter Models
Healthcare consumerism has created a vibrant testing ground for venture capital, federal pilots, and industry initiatives to explore new ways of providing patient-centered care across the continuum. Given the explosive growth of diverse innovative encounters in 2014, it is expected that federal legislation, reimbursement policies, and consumer demand for services such as telehealth will further advance in 2015. Based on trends meeting WEDI recommendations, industry progress is rated as "green."

As initially envisioned more than twenty years ago, the healthcare industry continues to progress towards a healthcare system that leverages technology to improve care and lower costs. The focus areas and recommendations originally outlined in the 2013 report and reviewed in this document present an opportunity for stakeholders in the public and private sectors to further work together and advance our nation's health IT infrastructure. In 2014, advancements were made in the adoption and use of new technologies; the implementation of innovative models of care and reimbursement; and harmonization of data standards for information exchange. Nonetheless, significant work remains to be completed. Looking ahead to 2015, new regulations and legislation are expected to further guide stakeholders towards a sustainable health IT infrastructure. Innovative technologies will continue to be developed, implemented, and scaled across the public and private sectors that reshape the healthcare landscape. Consumers will play a greater role in their care, and stakeholders will continue to harmonize data and standards to permit better access to electronic information. As the health IT ecosystem becomes more complex, the Louis W. Sullivan Institute for Healthcare Innovation will continue to monitor industry progress and chart a course of action to efficiently get the right data, to the right place, at the right time.

About Us

The Louis W. Sullivan Institute for Healthcare Innovation is led by Former Secretary of HHS, Dr. Louis W. Sullivan and works with healthcare executives to quickly identify and spread innovative technologies across the US healthcare system with the goal of accelerating the pace of health IT adoption across the US healthcare system, to realize efficiencies in healthcare information exchange, and to improve healthcare delivery and outcomes.