
The Healthy Weight Surveillance Initiative

Overview and Implementation Guidance

AUGUST 2014

Acknowledgements

This report was made possible through cooperative agreement no. # 1U38OT000216-01 from the Centers for Disease Control and Prevention (CDC). This document has not been subjected to agency review and approval for publication as a CDC report. The content of this document should not be interpreted as official CDC approval, endorsement, or recommendation.

Table of Contents

Introduction	2
Planning Phase: Clarifying Value Case, Partnerships and Regulatory Authority	3
Value Case	3
Resources for the Value Case	5
Partnerships.....	5
Table 1: Findings from Stakeholder Interviews.....	6
Resources for Partnerships.....	7
Regulatory Authority	7
Resources for Regulatory Authority	8
Design Phase	9
Table 2: Technical Design Issues for EHR-based Obesity Surveillance.....	9
Figure 1: Healthy Weight Surveillance Task Flow.....	12
Resources for Design Phase.....	13
Implementation Phase.....	14
Table 3: Summarized Findings from Key Informant Interviews	14
Resources for Implementation Phase	17

Introduction

The purpose of this report is to provide guidance to public health agencies seeking to implement obesity surveillance and introduce new electronic health record (EHR) interoperability standards designed to support this activity. As public health responds to new surveillance opportunities emerging with increased EHR adoption, a series of considerations and tasks must be addressed. For this report, these issues are organized and presented in the context of three phases: 1) Planning, 2) Design, and 3) Implementation.

Planning phase: This phase includes clarifying the value case, partnerships, and regulatory authority required for EHR-based obesity surveillance. This provides the justification for the technical work to follow.

Design phase: There are a number of emerging approaches for EHR-based obesity surveillance. To determine which approach is most feasible for a given jurisdiction, agencies will need to consider their data requirements, clinical and public health workflows, and technical infrastructure (theirs and their partners').

Implementation phase: Once a technical design has been selected, it can then be piloted with select health care entities, expanded to improve jurisdictional representativeness, and utilized to inform obesity interventions.

The following report describes these phases and provides references to useful resources. Those resources include new EHR interoperability standards designed to facilitate reporting of body mass index (BMI) observations to public health agencies. This document is intended to introduce considerations for EHR-based public health surveillance of obesity and inform subsequent, more thorough reviews of techniques and resources.

Planning Phase: Clarifying Value Case, Partnerships and Regulatory Authority

Before resources are invested in the technical work of EHR-based obesity surveillance, the work building social, political, and economic justification must be completed. This includes making a value case for the surveillance initiative, forming the necessary partnerships required for obtaining and using the data, and establishing a regulatory authority based on law and policy.

Value Case

Implementing new public health surveillance data requires resources, both on the part of the public health agency receiving the data and of any clinical entities supplying the data. Without a compelling value case, scarce public health resources will be applied to other projects and clinical data sources will not be motivated to supply high-quality information. Formulating the value case that establishes the programmatic and cost justification for EHR-based obesity surveillance requires describing the public health problem, the information needed to address the problem, and how the agency's stakeholders will benefit. Since some of these stakeholders will incur costs for participating, these benefits must speak to their specific interests as well as the broader public good that comes with improved health.

Fortunately with respect to making a value case, obesity is recognized as a major health issue that has galvanized policy makers and public health advocates nationwide. A recent Institute of Medicine (IOM, 2012) report describes the magnitude of the problem. Over one-third of adults are now obese, with minorities often suffering even higher obesity prevalence. Obesity among children is also troubling with an increase in prevalence from 5 percent to 17 percent over a recent 30 year period. Obesity is an important risk factor for many debilitating conditions including type 2 diabetes, high blood pressure, cardiovascular disease, stroke, and some cancers. This helps explain how the estimated annual cost of obesity-related illness is \$190.2 billion (in 2005 dollars), or nearly 21 percent of annual U.S. medical spending. As our nation wrestles with the growth of Medicare spending and transitions to a pay-for-performance health care system, new approaches for helping people reach a healthier weight must be explored.

One promising avenue for this kind of exploration is leveraging EHRs for better public health surveillance. Historically, obesity surveillance has been primarily conducted through surveys such as the Behavioral Risk Factor Surveillance System (BRFSS) or the National Health and Nutrition Examination Survey (NHANES). Such approaches have been successful in generating high-quality data and obesity estimates for some national sub-populations (Longjohn, 2010). EHR-based obesity surveillance offers the potential for improved information gathering for prevalence estimates that are more

representative, more geographically specific, and supportive of interventions designed for social and behavioral factors like employment and physical activity. More specifics related to data collection and use are provided in later sections of the report covering subsequent phases of adoption.

Changes in the health care environment have the potential to help make the value case for EHR-based obesity surveillance. With the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009, health care providers have been offered financial incentives to adopt EHR systems and demonstrate the “meaningful use” of those systems. To qualify for incentive payments, providers attest that they have used their EHRs to achieve a series of objectives outlined by the U.S. Centers for Medicare & Medicaid Services (CMS). Most of the objectives relate to the capture of patient data and making it available to improve care coordination. Other objectives are intended to facilitate reporting to public health. An objective for capturing patients’ vital signs encourages providers to record height and weight values. A separate objective for specialized public health registries encourages providers to share data on conditions and events that fall outside the scope of more traditional public health reporting activities like immunizations, infectious disease, and cancer. Justifying the extension of infectious disease surveillance and control methods to chronic conditions requires articulating enough value to overcome privacy concerns. New York City was able to portray sharp increases in diabetes prevalence as an epidemic and implement mandatory reporting of blood sugar levels to a new A1C registry. Critics charged the surveillance effort was a form of governmental intrusion into the clinical practices of providers and the personal liberty of individual citizens. Overcoming that resistance required demonstrating value to the city, to providers, and to patients through improved quality of life and better patient care. More tangibly, these benefits included practice-level surveillance reports informing clinical practice, patient-level health promotion materials to at-risk individuals, and evidence for interventions designed to increase healthy food and physical activity options in neighborhoods (Chamany, 2009).

Reforms to health care payment models are emerging with Accountable Care Organizations (ACOs) and CMS’s State Innovation Models (SIM) initiative. Such efforts are designed to incentivize disease prevention and reduce health care costs, and they should help motivate health care providers to address chronic conditions in their patient populations. These dynamics are giving rise to the term “population health” as an expression of health care providers taking a more holistic look at health indicators across the spectrum of the patients they serve.

To achieve reductions in health care costs for patient populations, providers will need to carefully track chronic conditions like obesity. This process means using technology to guide clinical practice and capturing accurate height and weight data at the patient level. As noted in subsequent sections of the report, however, public health agencies exploring EHR data for obesity surveillance often find height values that are erroneous,

resulting in meaningless BMI values. These inaccuracies could be due to clinicians discounting the clinical value of accurate height information in the EHR and simply entering any convenient value to satisfy an EHR system's requirement that a value be supplied. This is offered as an example of the issues a public health agency might need to address as it makes an obesity surveillance value proposition to health care stakeholders.

Resources for the Value Case

ASTHO (Association of State and Territorial Health Officials). (2013). *Accountable care organizations and public health*. Retrieved from http://www.astho.org/Programs/Access/Primary-Care/_Materials/ACO-and-Public-Health-Fact-Sheet/

Auerbach, J., et al. (2013). *Opportunity knocks: Population health in State Innovation Models*. Discussion Paper, Institute of Medicine, Washington, DC.

Chamany, S., et al. (2009). *Tracking diabetes: New York City's A1C registry*. *The Milbank Quarterly*, 87 (3), 547-570.

IOM (Institute of Medicine). (2012). *Accelerating progress in obesity prevention: Solving the weight of the nation*. Washington, DC: National Academies Press.

Longjohn, M., et al. (2010). *Learning from state surveillance of childhood obesity*. *Health Affairs*, 29 (3), 463-472.

ONC (Office of the National Coordinator for Health Information Technology). (2014). *Issue brief: Health IT for public health reporting and information systems*. Retrieved from <http://www.healthit.gov/sites/default/files/phissuebrief04-24-14.pdf>

Partnerships

In many public health jurisdictions, obesity prevention is recognized as a priority. However, securing the level of effort necessary to implement EHR-based surveillance will require justification to agency leadership and community partners. This justification will need to be based on meeting the information needs of these stakeholders and articulating how the surveillance data will inform interventions the stakeholders support.

Earlier work by PHII described important stakeholder groups for childhood obesity prevention and their priority information needs (see Table 1 below). Engaging these groups early in the planning phase will help ensure they derive value from the surveillance activity.

Table 1

Excerpted from *Assessment of Childhood Obesity Information Needs: Findings from Stakeholder Interviews*, PHII (2006).

Stakeholder	Priority Information Needs
Federal government	Connecting national obesity trends to state, local levels; Effect on long-term health outcomes;
State and local government	Neighborhood-level obesity prevalence data; Assessing population disparities; Intervention effectiveness and sustainability; Role of obesity in economic development;
Schools/education	Effect on fitness and academic outcomes; Costs of obesity-related illnesses; Issues related to school lunches;
Parents and families	Engaging and accessible information presentation formats; Guidance and support for physical activity and nutrition;
Health care	Patient population obesity prevalence; Clinical practice guidelines, decision support;
Community groups and nonprofits	Effect on employment, absenteeism, and workforce; Effective communications and marketing;

Partnership formation entails reaching agreement on the purpose, scope and governance of the surveillance activity among partners. The organizational relationships emerging from the effort to build support around the value of the surveillance initiative will need to become more formalized through instruments like memoranda of understanding and data sharing and use agreements. These formal agreements might require artifacts like a technical project plan and a list of issues and requirements related to data exchange. Such topics are discussed in subsequent sections of the report dealing with later phases of adoption.

Resources for Partnerships

CCLHO (California Conference of Local Health Officials). (2013). *Chronic Disease Prevention Framework*. Retrieved from <http://www.cdph.ca.gov/programs/cclho/Documents/ChronicDiseaseReportFINAL.pdf>

IOM (Institute of Medicine). (2012). *Primary care and public health: Exploring integration to improve population health*. Washington, DC: The National Academies Press.

PHII (Public Health Informatics Institute). (2006). *Assessment of childhood obesity information needs: Findings from stakeholder interviews*. Retrieved from <http://phii.org/resources/view/4375/Assessment%20of%20Childhood%20Obesity%20Information%20Needs>

Regulatory Authority

Collection of chronic disease information by public health is in its infancy compared to the collection of communicable disease data. Legal and policy clarification authorizing BMI data collection and use must be analyzed in terms of acceptability and appropriateness from the perspectives of policy makers, health care providers, and the general public.

Of course, policy considerations for health information sharing and public health surveillance revolve around the Health Information Portability and Accountability Act (HIPAA) and the public health exemption. This exemption permits health care providers to report personally identifiable health information to public health agencies so they can perform public health functions. The extent to which those functions call for patient-level reporting of non-infectious conditions and BMI values will depend on policy decisions made at state and local levels. Some jurisdictions opt for a school-based BMI surveillance model to combat childhood obesity. Public health agencies wishing to avail themselves of data from these efforts must resolve issues related to the Family Educational Rights and Privacy Act (FERPA). Unlike HIPAA, FERPA does not provide a public health exemption, so data sharing requires public health to negotiate with school and education entities for the BMI data they collect. With respect to providers sharing clinical information, agencies might consider entering into data use agreements or business associate agreements for data not exchanged as part of traditional public health surveillance activities.

Public health agencies seeking to establish obesity surveillance will need to frame the activity in the context of public health practice as distinct from human subjects research activities. This distinction requires demonstrating that the value of the obesity surveillance system will accrue to the agency's jurisdiction. The public health practice of

surveillance typically requires the participation of individuals that do not specifically consent to having their information shared with the public health authority. Individual jurisdictions will need to weigh the advantages and disadvantages of “opt in” and “opt out” approaches for obesity surveillance. Either way, to overcome potential resistance over privacy concerns, the public health agency and its partners need to demonstrate how the surveillance activity’s benefits justify the data collection.

Resources for Regulatory Authority

ASTHO (Association of State and Territorial Health Officials). (2012). Public health access to student health data: Authorities and limitations in sharing information between schools and public health agencies. Retrieved from <http://www.astho.org/Programs/Preparedness/Public-Health-Emergency-Law/Public-Health-and-Schools-Toolkit/Public-Health-Access-to-Student-Health-Data/>

ASTHO (Association of State and Territorial Health Officials). (2012). Comparison of FERPA and HIPAA Privacy Rule for accessing student health data. Retrieved from <http://www.astho.org/Programs/Preparedness/Public-Health-Emergency-Law/Public-Health-and-Schools-Toolkit/Comparison-of-FERPA-and-HIPAA-Privacy-Rule/>

ASTHO (Association of State and Territorial Health Officials). (2012). Public health legal authorities to collect, use, share, and protect information. Retrieved from <http://www.astho.org/Programs/Preparedness/Public-Health-Emergency-Law/Public-Health-and-Information-Sharing-Toolkit/Legal-Authorities/>

HHS (Department of Health and Human Services). (2005). Health information privacy frequently asked questions. Retrieved from http://www.hhs.gov/ocr/privacy/hipaa/faq/business_associates/468.html

Hodge, J., Gostin, L. (2004). Public health practice vs. research. Retrieved from <http://www.cste2.org/webpdfs/CSTEPHResRptHodgeFinal.5.24.04.pdf>

Design Phase

As a value case, partnerships, and regulatory authority are established for EHR-based obesity surveillance, more technical design considerations can begin in earnest. These considerations must address the technical feasibility of meeting expectations established during the system's planning phase. Table 2 outlines some potential issues.

Table 2: Technical Design Issues for EHR-based Obesity Surveillance

Design Issue	Considerations and Approaches
Require longitudinal patient-level tracking?	<p>If needed: Consider disease registry model. Will need tools for patient identity management and deduplication. Consider extending existing registry (e.g., Immunization Information System or IIS). Patients' ability to opt-in or opt-out of obesity surveillance may differ from other registries.</p> <p>If not needed: Consider de-identified individual reports or reports aggregated at clinical practice level by BMI ranges.</p>
Characterization of disparities and risk factors in surveillance analyses?	<p>Consider how aggregated reports will limit analyses characterizing obesity prevalence by demographic categories. Consider burden of data collection on clinician. Consider use of vocabulary/coding and message standards (see below).</p>
Frequency of BMI observations? Real-time? Near real-time (e.g., daily batch)? Periodic (e.g., monthly or annual batch)?	<p>Real-time or near real-time transmission of clinical data might be accommodated with IIS or syndromic surveillance infrastructure. Querying clinical data repositories (e.g. Health Information Exchanges, integrated health care delivery systems) or leveraging clinical quality measurements might meet requirements for infrequent reporting.</p>
Expectation public health provides clinical decision support?	<p>Consider what public health might provide a clinician during a patient encounter; practice guidance in the form of standardized data collection, information supporting referrals to community-based resources for weight loss, nutrition, and exercise.</p>

The design phase includes developing a technical project plan and cost estimates that guide implementing necessary system interfaces. Once public health and their health care partners agree upon which obesity-related data elements are to be the focus of the surveillance system, the partners will need to:

- Assess the technical capabilities of the agency and its health care partners to engage in EHR-based data exchange.
- Characterize and document the clinical workflows and processes that lead to EHR data.
- Assess how the health care partners' EHRs and clinical workflows influence data quality and reliability.
- Determine agency business rules regarding patient identification methods and patient consent/exemption.

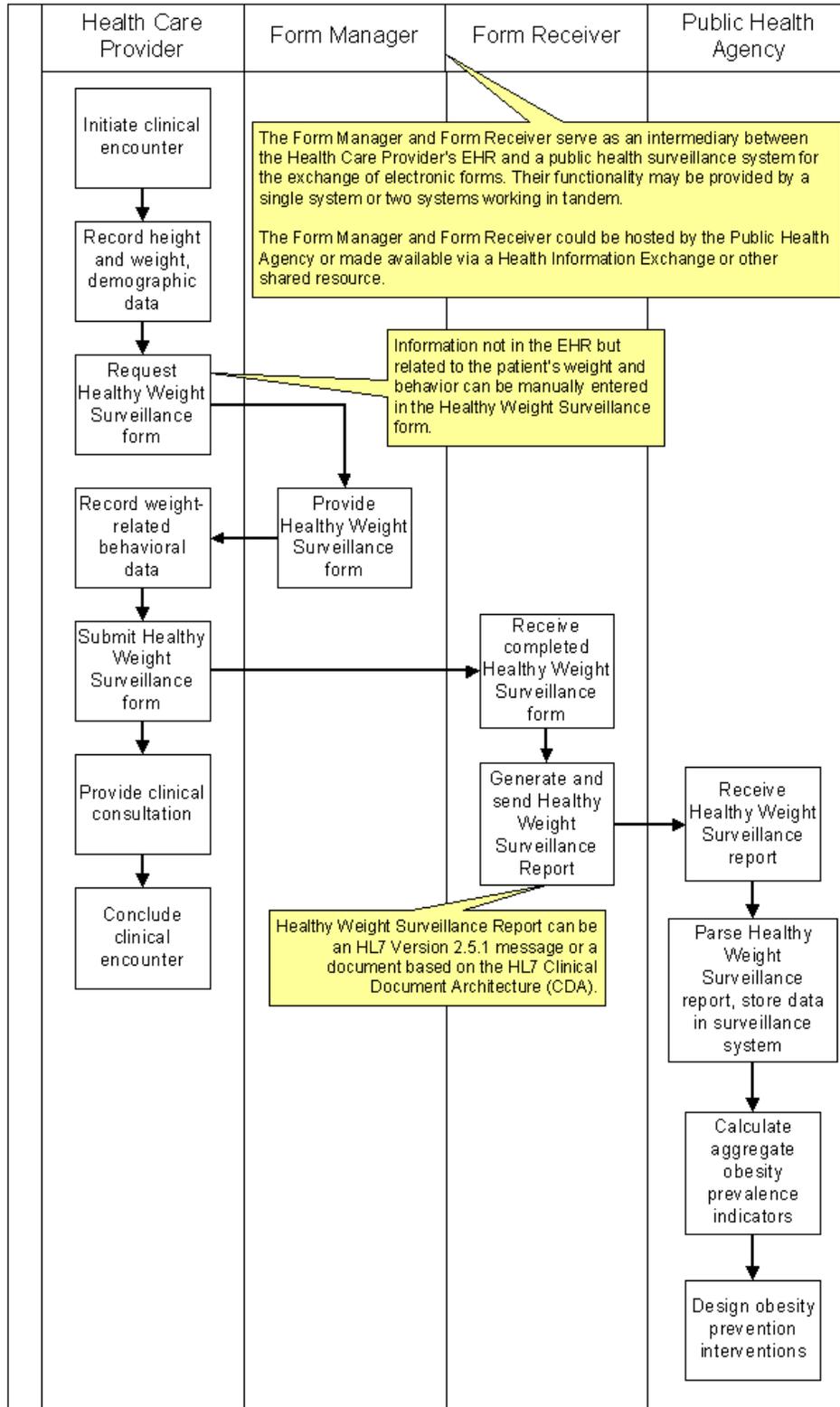
The U.S. Centers for Disease Control and Prevention (CDC) partnered with health information technology (HIT) experts, state and local public health agencies, and other stakeholders to advance the Healthy Weight Surveillance initiative. This project seeks to improve EHR-based obesity surveillance by providing guidance on a uniform approach to data collection, allowing for prevalence analyses by risk factors and comparisons between jurisdictions. CDC worked with the organizations Health Level 7 International (HL7) and Integrating the Healthcare Enterprise (IHE) to create standards for reporting patient-level clinical observations of body mass index (BMI) to a public health agency.

These standards include an HL7 implementation guide for a Healthy Weight message and an IHE Healthy Weight profile. The IHE Healthy Weight profile articulates how clinical EHR systems can interoperate with public health surveillance systems by exchanging HL7 Version 2.5.1 Healthy Weight messages or Healthy Weight Summary documents based on the HL7 Clinical Document Architecture (CDA). The HL7 Version 2.5.1 Healthy Weight message is based on an HL7 unsolicited observation message (ORU^R01) with discrete Observation segments for the height value, weight value, weight-associated conditions, and an indicator for patient's clothing status when height and weight were measured. The CDA-based Healthy Weight Summary includes additional data elements including patient's occupation, education, household income, and nutritional and exercise histories.

The Healthy Weight Surveillance standards described above take advantage of an EHR interoperability technique known as Retrieve Form for Data Capture (RFD) or Structured Data Capture (SDC). While there are technical nuances that distinguish RFD from SDC, both techniques facilitate an EHR system's ability to capture data elements it was not designed to accommodate. To do this, the EHR system interfaces with an external repository of electronic data collection forms called a Form Manager. The Form Manager makes the appropriate electronic form available to the clinician without requiring the clinician to exit the EHR system. The form can be automatically populated

with data from the EHR or manually entered by the clinician. The form then goes to a Form Receiver that converts the form data to a standard HL7 message or document and routes it to its final destination. Both the Form Manager and Form Receiver are system components that can be hosted by an entity such as an HIE, health-related association or public health agency. Figure 1 below depicts the tasks and information flow supported by the Healthy Weight Surveillance standards and RFD/SDC.

Figure 1: Healthy Weight Surveillance Task Flow



Distributed queries are another emerging model for EHR-based obesity surveillance. Distributed queries differ from message- or document-based surveillance methods, in which a public health agency passively receives individual electronic case reports. Instead, a distributed query model allows a public health agency to send a database query to multiple clinical data repositories simultaneously and then integrate the results into a single data set. Of course, the agency will need to have established the necessary relationships and agreements with those individual clinical data repositories. To integrate the individual responses to one distributed query, the clinical data repositories being queried need to share an underlying data model or use emerging standards for distributed queries (Klann 2014).

Resources for Design Phase

HL7 (Health Level Seven International). (2013). *HL7 Version 2.5.1 Implementation Guide: Height and Weight Report, Release 1 (US Realm)*. Retrieved from http://www.hl7.org/implement/standards/product_brief.cfm?product_id=315

IHE (Integrating the Healthcare Enterprise). (2013). *IHE Quality, Research and Public Health Technical Framework Supplement Healthy Weight*. Retrieved from http://www.ihe.net/uploadedFiles/Documents/QRPH/IHE_QRPH_Suppl_HW.pdf

Klann, J., et al. (2014). *Query Health: Standards-based, cross-platform population health surveillance*. Journal of American Medical Informatics Association. Retrieved from <http://jamia.bmj.com/content/early/2014/04/03/amiajnl-2014-002707.full>

PHII (Public Health Informatics Institute). (2012). *Redesigning public health surveillance in an ehealth world*. Retrieved from <http://phii.org/resources/view/1186/Redesigning%20Public%20Health%20Surveillance%20in%20an%20eHealth%20World>

Structured Data Capture Initiative. (n.d.). Retrieved August 2, 2014 from the Standards & Interoperability Framework Wiki: <http://wiki.siframework.org/Structured+Data+Capture+Initiative>

Implementation Phase

After a technical design has been selected, it can then be piloted with select health care entities. As successful pilots and increasing clinical partnerships warrant, implementation can then be expanded to improve jurisdictional representativeness and better inform obesity interventions.

Some local and state public health agencies are in the early stages of implementing EHR-based obesity surveillance. During the months of May and June 2014, PHII conducted seven semi-structured telephone interviews with a purposefully selected group that included 6 state or local public health agencies and 1 not-for-profit health care system. The main objectives of the interviews were to:

1. Describe respondents' current activities related to EHR-based surveillance of body mass index (BMI) or obesity;
2. Describe the indicators and analyses needed to design effective obesity interventions for respondents' jurisdictions;
3. Identify challenges to EHR-based surveillance of BMI or obesity; and
4. Describe opportunities to implement or enhance EHR-based surveillance of BMI or obesity in state/local public health agencies.

With the respondents' consent, interviews lasted approximately one hour and were audio-recorded. Recordings were used to develop a thematic synthesis of findings (see Table 3).

Table 3: Summarized Findings from Key Informant Interviews

Current activities related to BMI or obesity surveillance
<ul style="list-style-type: none"> • Most interviewees are engaged in multiple activities related to BMI or obesity surveillance. • Use of the Behavioral Risk Factor Surveillance System (BRFSS) was cited as a BMI surveillance activity by nearly all interviewees. • Several public health organizations noted having some access to BMI data gathered in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) clinics. • Most interviewees reported having some access to aggregate-level BMI data collected by schools or school districts. • Some interviewees have been able to leverage their immunization information system (IIS) for BMI surveillance. • EHR-based obesity surveillance is not a widespread public health practice; one interviewee described school-based health clinics that used a "quasi-EHR" to

collect and store BMI data.

- The interviewees who seemed most satisfied with their obesity surveillance activities are currently using a distributed query approach to extract information from data sources such as EHRs or HIEs.

Indicators and analyses needed for effective obesity interventions

- Height, weight and demographic information were cited by nearly all interviewees as necessary indicators for effective obesity interventions.
- Other desired indicators and data elements included behavioral risk factors data related to physical activity and nutrition.
- Nearly all interviewees expressed a desire for more local-level BMI data (e.g., neighborhood or community level).
- Several interviewees noted a priority for aggregate-level obesity surveillance reports based on EHR-derived BMI data to evaluate the impact of prevention policies and programs.

Challenges to obesity surveillance

- Poor quality of data is frequently mentioned as a major challenge to BMI or obesity surveillance, especially when data are collected in schools and/or clinical settings. Data values representing patients' height were often singled out for poor quality.
- School-based BMI data collection is sometimes hampered when the Department of Education collects BMI data and the Department of Health's access to the data is limited.
- Lack of interoperability between data systems associated with BMI surveillance (e.g., WIC, IIS, EHRs).
- Lack of regulatory authority to collect and use BMI surveillance data in some jurisdictions.
- Insufficient resources (e.g., funding and staff).
- Several interviewees noted that public health has not sufficiently articulated the value of BMI surveillance and this has resulted in reluctance among providers, schools, and legislators to prioritize the collection and/or sharing of BMI data.
- WIC data systems are rarely interoperable with other public health data systems.
- IIS might be a good initial approach for the collection of BMI data but have limitations with respect to longer term (e.g., limited coverage for adult populations).

Opportunities to implement or enhance BMI or obesity surveillance

- Consider distributed query approach to retrieve BMI data from sources such as EHRs and HIEs.
- Encourage public health organizations to work with EHR vendors who already

have the infrastructure to support interoperability approaches like Structured Data Capture (SDC) and IHE Retrieve Form for Data Capture (RFD).

- Leverage provider interest in Meaningful Use (MU) to increase participation in BMI surveillance activities.
- Leverage data repositories in patient-centered medical homes/ACOs to support BMI surveillance.
- Develop statewide BMI surveillance systems that are maintained and managed at the state level; it is unlikely that most local agencies will have the resources for BMI surveillance.
- Instead of developing a condition-specific surveillance approach to chronic conditions like obesity, look for broad solutions that address more than one condition and are scalable over time.

The Healthy Weight Surveillance standards were recently demonstrated in the Interoperability Showcase at the 2014 Healthcare Information and Management Systems Society (HIMSS) conference. The Interoperability Showcase is a forum for live demonstrations of EHR data exchange before audiences of health care system administrators and policy experts. Increasingly, public health agencies and systems developers are participating in these events to highlight how EHR systems can provide more timely and accurate surveillance data.

Public health systems developers Software Partners and the University of Washington attended the Interoperability Showcase and participated in scenarios demonstrating how health care and public health could partner to combat obesity. One scenario, based on an adult female's primary care physician (PCP) visit, began with the patient monitoring health issues related to her weight and pregnancy in a personal health record (PHR) system developed by Get Real Health. Information in the PHR was shared with GE Centricity, the EHR used by the patient's PCP. The Form Manager technique described above (see Figure 1) was demonstrated by OZ Systems. This showed how the PCP's EHR could retrieve an electronic form from an external form repository and transfer EHR data to a public health agency by converting the electronic form data to a Healthy Weight Summary. In this demonstration, University of Washington presented a prototype surveillance system that received the patient's Healthy Weight Summary and aggregated it with similar reports to display obesity prevalence by age, sex, ZIP code and occupation. Such information could, for example, allow a public health agency to better partner with local employers and develop worksite wellness programs that support and encourage exercise and a more nutritious diet.

Software Partners showed how Healthy Weight Surveillance could be used to both improve pediatric care during a well child visit and enhance a public health agency's ability to prevent childhood obesity. In this scenario, an EHR developed by Medical Informatics Engineering was used by a child's pediatrician to record height, weight,

immunization status and other pediatric health indicators. The EHR then sent the patient's Healthy Weight Summary to CareEvolution, an HIT vendor that provides tools for health information exchange (HIE). An HIE can serve as a central repository for a region's health information and ensure that stakeholders receive the reports and notifications they need. In this case, observations of the child's obesity and immunizations were sent from the HIE to a public health surveillance system developed by Software Partners. It demonstrated how a public health agency might use neighborhood-level child health surveillance reports to partner with schools and city planners and provide more opportunities for physical activity and healthier eating.

The Healthy Weight Initiative demonstration at the 2014 Interoperability Showcase provided a proof of concept to clinical healthcare representatives, who are becoming increasingly aware of public health and its charge to improve health at a population level. In some locations, private health care entities and public health agencies are exploring partnerships for community health assessment and improved population health outcomes. These explorations will likely lead public health to consider how the technologies described above might enable improved surveillance for obesity and other chronic conditions. At the same time, these new capabilities should encourage public health to assess how it partners with clinicians, patient advocates and other stakeholders to best monitor the diseases driving health care costs and impacting health outcomes.

Resources for Implementation Phase

AHRQ (Agency for Healthcare Research and Quality). *Clinical-community linkages*. Retrieved from <http://www.ahrq.gov/professionals/prevention-chronic-care/improve/community/index.html>

Foltz, J., Jellison, J. (2014). *Health weight surveillance: Exploring clinical and public health integration population health management*. Council for State and Territorial Epidemiologists webinar. Retrieved from <http://www.cste.org/?page=WebinarLibrary>

McVeigh, K., et al. (2013). *Developing an electronic health record-based population health surveillance system*. New York: New York City Department of Health and Mental Hygiene. Retrieved from <http://www.nyc.gov/html/doh/downloads/pdf/data/nyc-macro-report.pdf>