Collaboration of the Health IT Policy and Standards Committees

Policy and Standards Federal Advisory Committees on Health Information Technology to the National Coordinator

Public Health Task Force

Anne Fine, co-chair
Larry Wolf, co-chair

March 30, 2017

Public Health Task Force Membership

Member	Organization	Role
Larry Wolf	**Strategic Health Network**	**Co-Chair**
Anne Fine	**New York City Department of Health and Mental Hygiene**	**Co-Chair**
Andrew Wiesenthal	Deloitte Consulting, LLP	Member
Floyd Eisenberg	iParsimony, LLC	Member
J. Marc Overhage	Cerner Health Servcies	Member
Noam Arzt	HLN Consulting, LLC	Member
Susan Mcbride	Texas Tech University Health Sciences Center	Member
Richard Loomis	Practice Fusion	Member
Anjum Khurshid	Dell Medical School, University of Texas at Austin	Member
Janet Hamilton	Florida Department of Health	Member
Julia Gunn	Boston Public Health Commission	Member
Steve Hasley	American College of Obstetricians and Gynecologists	Member
Brian Anderson	athenahealth	Member
Riki Merrick	Association of Public Health Laboratories	Member
Chesley Richards	*Centers for Disease Control and Prevention*	*Federal Ex Officio*
Margaret Lampe	*Centers for Disease Control and Prevention*	*Federal Ex Officio*
James Daniel	*ONC/HHS*	*ONC Lead*

Agenda

- Welcome
- Membership and charge
- Review principles
- Overview of recommendations
- Process for developing recommendations
- Deliberations related to each charge
- Summary of recommendations
- Public comment
- Adjourn

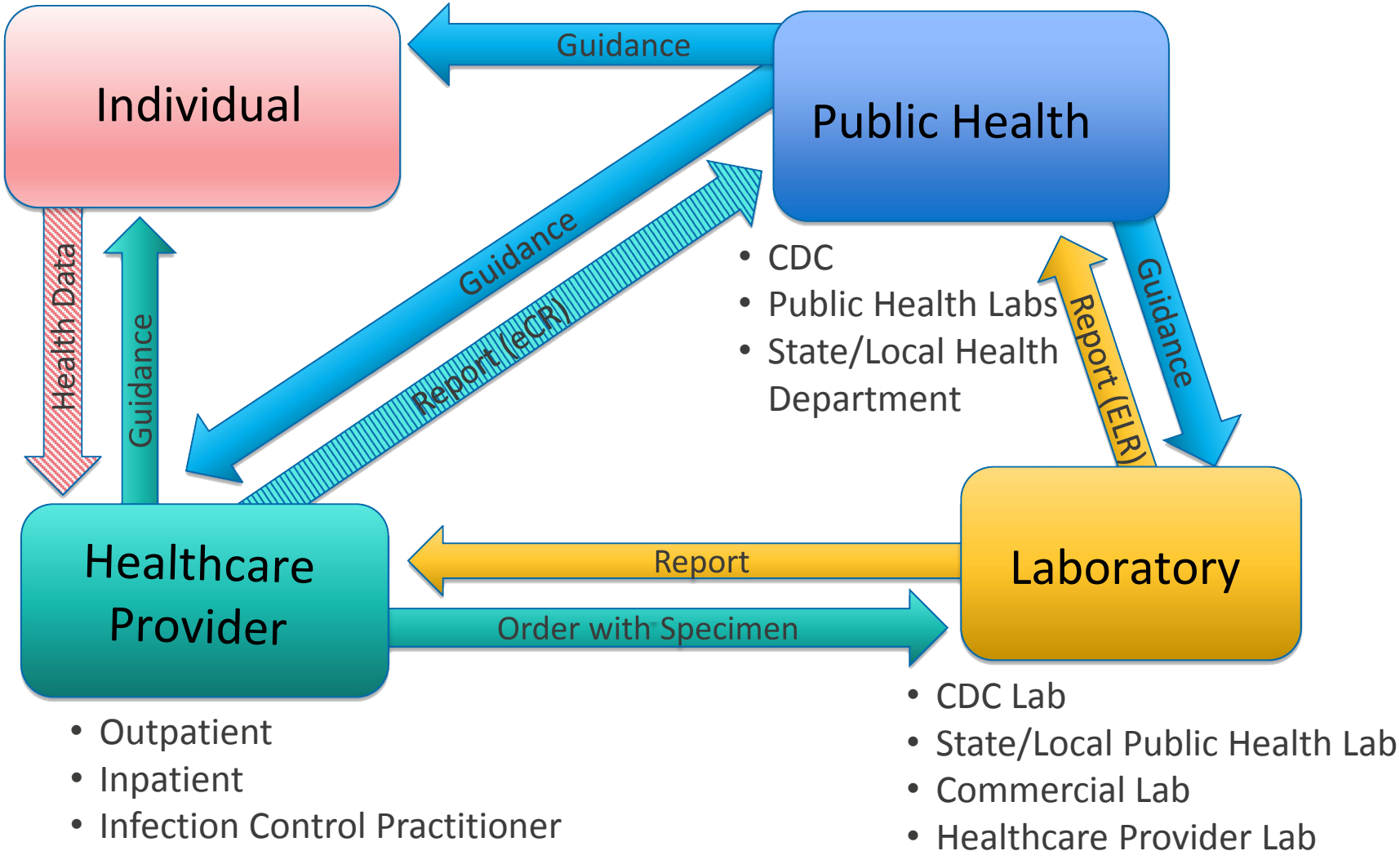
Public Health Task Force Charge

- **Overarching charge:** The Public Health Task Force will make recommendations to help inform public health issues and challenges related to health IT.
- **Detailed charge:** Make specific recommendations to better assist in the standardization of pregnancy status data, clinical decision support in health IT systems, and case management in public health settings—which are important components to addressing many public health challenges. Zika will be used as the use case for these recommendations.
    1. **Capture Pregnancy Status:** Identify the current challenges associated with the collection of pregnancy status when a Zika test is ordered. How could standardization help to resolve these challenges?
    2. **Send and Share Pregnancy Status:** Identify best practices for sharing pregnancy status from the provider to both commercial labs and public health entities.
    3. **Use of Clinical Decision Support:** Is there a need to automate the clinical decision support (CDS) process in order to identify risk and report timely information to public health? If so, what existing standards-based approaches for automating the CDS process are available as part of Zika response (i.e., Structure Data Capture (SDC), Clinical Quality Framework (CQF)) be used?)
    4. **The Electronic Initial Case Report (eICR)** Identify mechanisms for how to move electronic case reporting forward.

Public Health Task Force Principles

- Clarity of purpose – Understand the charge and ensure that it is addressed. Use the clinical and public health guidelines and processes to inform technology recommendations.
- Bright spots - Learn from examples of success. Build on existing capabilities.
- Engage Stakeholders – Ensure input and interaction with a wide range of stakeholders.
- Parsimony – Recommend the minimum necessary and sufficient to accomplish the goals.
- Generality – Recommendations should support the specific issue being addressed, in this case Zika, and should more broadly be applicable to a range of issues, including related information needs and preparing for future emerging public health needs.
- Pragmatic – Recommendations should be actionable and efficient, especially in the use of clinician time and effort.
- Balance Priorities – Stakeholders have many competing priorities and regulatory requirements. As much as possible, we should align and coordinate our efforts with other requirements.
- National Scale – Address the complexities of a nation-wide implementation.

Overview of Information Flow



- CDC
- Public Health Labs
- State/Local Health Department

- Outpatient
- Inpatient
- Infection Control Practitioner

- CDC Lab
- State/Local Public Health Lab
- Commercial Lab
- Healthcare Provider Lab

Summary of Recommendations for Capturing Pregnancy Status

- **Charge 1: Capturing Pregnancy Status**
  - Challenges:
    - There is no standard to capture pregnancy status and associated data in an EHR
    - There is no existing consensus on the minimum Public Heath data elements for pregnancy. Our goal was to identify those priority elements.
  - Recommendations:
    - Disseminate the prioritized data elements identified by the Task Force related to pregnancy status
    - Promote "Ask on Order Entry" for transmission via ELR to capture pregnancy status for tests for reportable diseases where pregnancy status is relevant
    - Publish pregnancy data standards in ONC's Interoperability Standards Advisory (ISA)
    - Explore ways for the patient (individual) to electronically self-report pregnancy status and other related data and electronically share that data with the provider's EHR.

Summary of Recommendations for Sending and Sharing Pregnancy Status

- **Charge 2: Sending and Sharing Pregnancy Status**
  - Challenges:
    - Public Health does not consistently obtain pregnancy status electronically
      - Electronic Laboratory Reporting (ELR) - Inconsistently provides pregnancy status information and, at times, only for certain diseases
      - Electronic Case Reporting from EHRs is not currently in place
    - Pregnancy status is needed not only for follow-up, but also is needed at the time a test is ordered for prioritization and to ensure pregnant women are being tested appropriately
  - Recommendations:
    - Promote that pregnancy status be transmitted for Zika and other reportable conditions (including chronic reportable conditions) where pregnancy status is relevant
    - In the short term, expand the use of ELR to transmit pregnancy status to public health for Zika and other reportable conditions; while Ask on Order Entry is the preferred method to capture pregnancy status, promote the use of specific prenatal Zika test to indicate pregnancy status
    - Publish the pregnancy data standards for transmission in the ONC Interoperability Standards Advisory (being vetted through public health and EHR vendors)
    - Encourage state and local jurisdictions to leverage existing public health authority to require transmission of pregnancy status
    - Promote the use of ONC's Interoperability Proving Ground (IPG) as a mechanism to share information on public health interoperability projects

Summary of Recommendations for Clinical Decision Support

- **Charge 3: Clinical Decision Support**
  - Challenges:
    - Guidelines for identification of patients at risk for emerging infectious disease can be complex and often change
    - State and local agencies may have variations on the guidelines
    - Guidelines for choosing the appropriate laboratory tests are complex (e.g., as noted in the hearing, over 300 of the wrong Zika lab tests were ordered in Texas) leading to missed or erroneous diagnoses
    - Guidelines for follow up and case management change during the course of an epidemic
    - CDS implementation in the EHR happens at the provider level
  - Recommendations:
    - Follow demonstration projects that have shown how CDS from Public Health can be incorporated into EHRs (e.g., RCKMS) to identify best practices for future recommendations
    - Explore sharing of CDS implementations across provider locations by promoting the use of Agency for Healthcare Research and Quality (AHRQ)'s CDS Connect, a web-based repository, as a mechanism to share information on public health interoperability projects related to CDS
    - In the short term, encourage the use of CDS to improve access to human readable guidance and to identify patients at risk
    - Explore mechanisms to enable consumers to identify and document their own risks including travel, pregnancy status and pregnancy intention and to share this data with their providers (e.g., myhealthfinder APIs)
    - Explore the use of open APIs for CDS (e.g., CDS Hooks to deliver CDS to EHRs)

Summary of Recommendations for the Electronic Initial Case Report

- **Charge 4: The Electronic Initial Case Report (eICR)**
  - Challenges:
    - Public health does not currently collect electronic case reporting information from EHRs
    - Digital Bridge and other eCR projects are in their infancy
  - Recommendations:
    - Incorporate Charge 1 recommendations for collection and sharing of pregnancy status into the eICR
    - Leverage current work from existing eCR projects (e.g. Digital Bridge) to promote best practices and standards for reporting pregnancy status with the initial case report as well as follow up and case management
    - Explore the use of new or maturing standards such as Structured Data Capture and SMART on FHIR as methods for eCR
    - Promote the use of ONC's Interoperability Proving Ground (IPG) as a mechanism to share information on public health interoperability projects related to eCR

Process for Developing Recommendations

Process for Developing Recommendations

- In-person hearing on February 8
  - Panel 1: Public Health departments
  - Panel 2: Laboratory organizations
  - Panel 3: Clinical Decision Support (CDS) & Electronic Health Records (EHRs)
  - Panel 4: Clinical workflow
- Additional Task Force deliberations and follow-up
  - Case Reporting - Digital Bridge
  - U.S. Zika Pregnancy Registry
  - Data elements for capturing pregnancy status
  - Clinical Decision Support
  - Electronic Laboratory Reporting (ELR)of pregnancy related data
  - Feedback from draft recommendations

Deliberations Related to Each Charge: Capturing and Sharing Pregnancy Status (Charge 1 and 2)

Charge 1 - Capturing Pregnancy Status
Background from Hearing

- Pregnancy status is critical for multiple infectious diseases of Public Health importance (e.g., Zika, Perinatal Hep B, Syphilis, HIV, Varicella, Listeria)
- Lab-diagnosed cases for investigation should be prioritized (especially necessary for higher volume diseases or diseases where timely intervention is needed)
- Testing of vulnerable pregnant women is critical
- Follow-up on potentially exposed or infected infants is critical
- Appropriate guidance to providers regarding test interpretation and case management is needed

- Developed key priority data element specifications for Public Health (i.e., standards for collecting this information)
- Vetted recommendations concurrently through:
  - **Health IT developers (e.g., EHRA and appropriate HL7 working groups)**
  - **Public Health**
  - **Health care providers (e.g., OB/GYNs, Pediatricians, health care systems)**
- Recommended that the list of pregnancy data elements should be included in ONC's Interoperability Standards Advisory

Priority Data Elements

1. **Pregnancy status*** (yes, no, possible, unknown)
2. Certainty status of pregnancy (i.e., ultrasound, lab test evidence)
3. **Pregnancy status date recorded***
4. **Estimated Delivery Date***
5. EDD determination method
6. ***Gestational Age (alternate to EDD)****
7. ***Date Gestational Age determined (alternate to EDD)****
8. *Method of Gestational Age determination (alternate to EDD)*
9. *LMP (alternate to EDD)*
10. **Pregnancy Outcome***
11. **Pregnancy Outcome date***
12. **Postpartum status***

***Green items – Identified as critical at hearing**

Charge 1 - Capturing Pregnancy Status
Consumer Engagement Recommendation from Joint Committee

- Explored myhealthfinder
  - » Created by the U.S. Department of Health and Human Services (https://healthfinder.gov/myhealthfinder/)
  - » Tailors preventative services based on individual… age, sex, pregnancy status, etc.
    - – Provides list of recommendations for the individual
    - – Does not retain
    - – Uses API, can be rebranded MyHealthFinder https://myhealthfinder.gov/FreeContent/ (i.e., CVS Health/Minute Clinic)
- Explore ways for the patient (individual) to electronically self-report pregnancy status and other related data and electronically share that data with the provider's EHR.

Public Health Authority for Receipt of Pregnancy Data

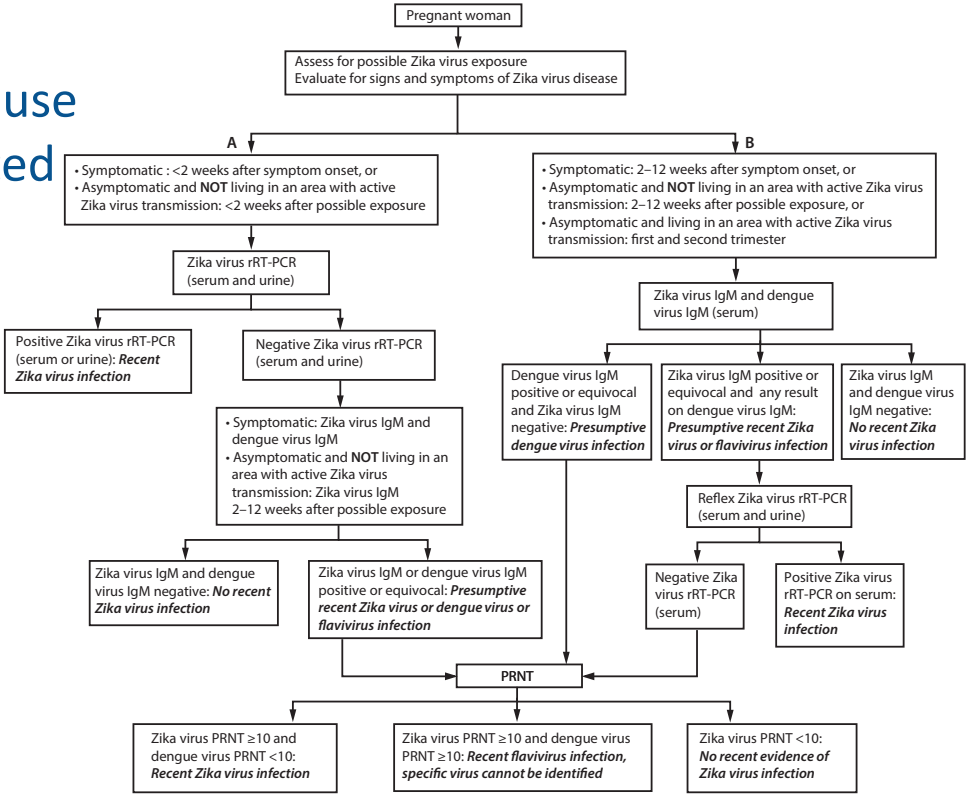
- Health and Sanitary Codes authorize receipt and investigation of reportable disease data
  - » Electronic Laboratory Reporting
  - » Case reporting
  - » Case and contact investigation and management
  - » Outbreaks and “Unusual Manifestations of Disease”
- HIPAA allows for PHI disclosure
- Pregnancy status may be required to be submitted when relevant
- See ONC’s new fact sheet: Permitted Uses and Disclosures: Exchange for Public Health Activities

- Recommended Short Term Approach
  - Promote Ask on Order Entry for Zika and other reportable conditions
    - ELR enables Ask on Order Entry data elements to flow to Public Health through existing infrastructure
    - ONC's 2015 Edition supports Ask on Order Entry
    - Public Health labs require additional infrastructure to support Ask on Order Entry
    - Commercial labs require resources to reconfigure systems to support Ask on Order Entry
  - In the interim, promote the use of specific prenatal test name to indicate pregnancy status while Ask on Order Entry infrastructure is developed
- Recommended Long Term Approach
  - Promote the Electronic Case Report to enable Public Health to receive pregnancy status

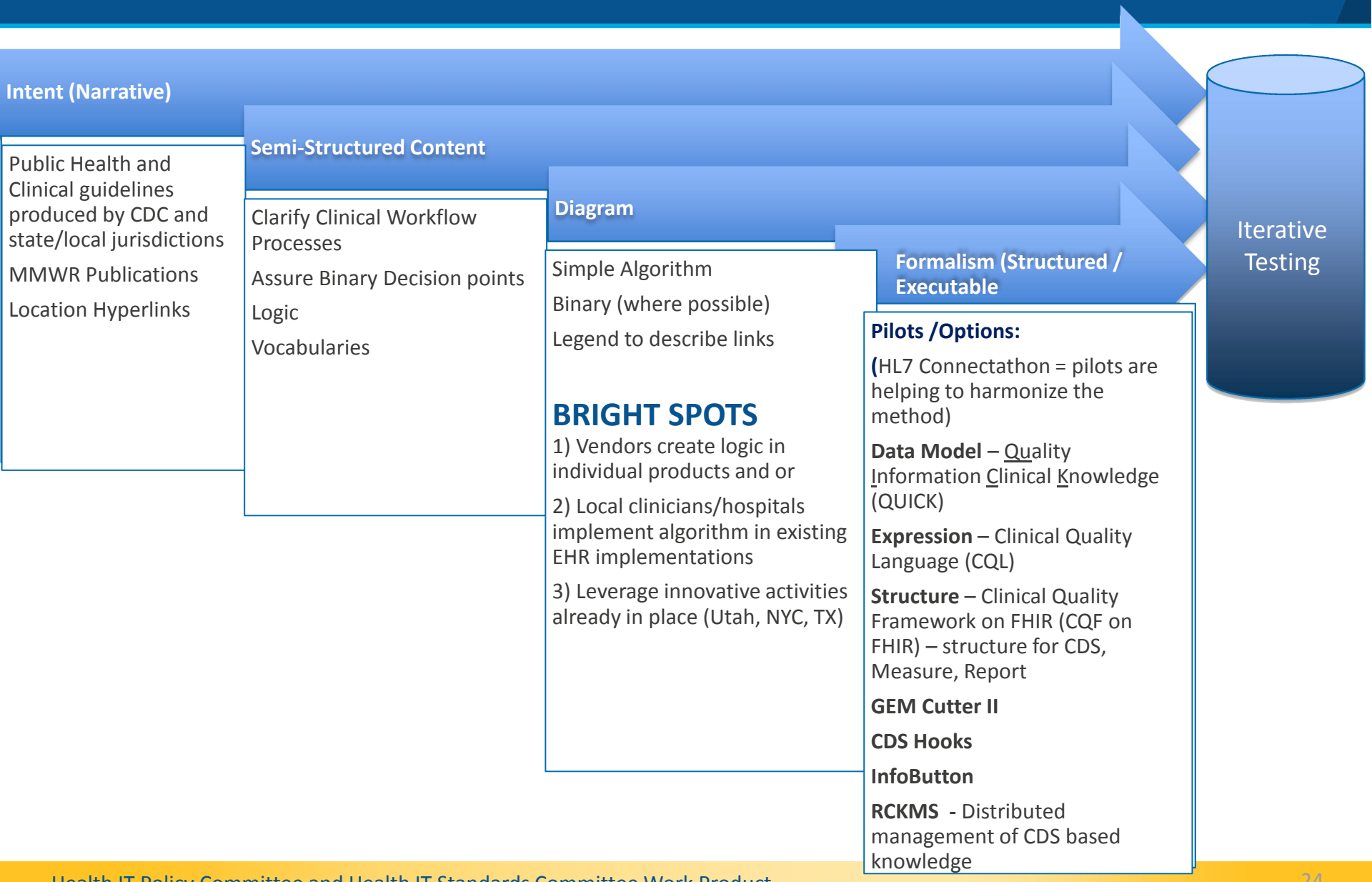
Deliberations Related to Each Charge:

Charge 3: Clinical Decision Support (CDS)

CDS provides value because guidelines are complicated



Charge – 3
CDS Background Continued



Charge 3 – CDS
Background Continued

- CDS for Public Health and emerging risks should:
  - Identify at risk individuals
  - Ensure appropriate tests are ordered: for example, trigger points for particular actions (tests ordered for infant at time of delivery)
  - Provide clinical management and patient education
  - Provide guidelines for when to report to Public Health
  - Provide stable URLs that can be embedded in an EHR which allows access to guidance from CDC and other public health sites (currently “pull”)
- CDS 5 Rights
  - Right channel/Right Information/Right intervention format/Right person/Right time = Where/What /How/Whom/When (Osheroff, 2012)

- Discussion with CDS Hook Experts
  - CDS Hooks is an open source project and is a model for describing how an EHR can use a remote decision support service. CDS Hooks uses FHIR and SMART.
    - Prototype implementations—4 EHR vendors and 30 CDS organizations and anticipated production by 2017
  - Argonaut Project has chosen CDS as a focus for 2017
- Recommendations for CDS charge
  - Explore the use of open APIs for CDS, such as CDS Hooks
  - Explore use of CDS for consumers to self-identify risks

- Recommendations:
  - Follow demonstration projects that have shown how CDS from Public Health can be incorporated into EHRs (e.g., RCKMS) to identify best practices for future recommendations
  - Explore sharing of CDS implementations across provider locations by promoting the use of Agency for Healthcare Research and Quality (AHRQ)'s CDS Connect, a web-based repository, as a mechanism to share information on public health interoperability projects related to CDS
  - In the short term, encourage the use of CDS to improve access to human readable guidance and to identify patients at risk
  - Explore mechanisms to enable consumers to identify and document their own risks including travel, pregnancy status and pregnancy intention and to share this data with their providers (e.g., myhealthfinder APIs)
  - Explore the use of open APIs for CDS (e.g., CDS Hooks to deliver CDS to EHRs)

Deliberations Related to Each Charge:
Charge 4: The Electronic Initial Case Report (eICR)

Charge 4 – eICR
Background from Hearing - Value of the eICR

- More complete, critical and accurate clinical and demographic data beyond ELR in real time for action
- Directly links health care to population health
- Early detection of cases and the detection of pregnancy in existing cases allows earlier intervention and diminished transmission of disease
- Improves detection of outbreaks
- Responds directly to local and state partner needs
- Diminishes burden on healthcare provider to report

Charge 4 – eICR
Clarification—Definitions

- Define the difference between the eICR and eCR*
  - » eCR (electronic case reporting)—the fully or semi-automated generation and electronic transmission of reports of potential cases of reportable diseases and conditions from an electronic health record (EHR) or health information technology (IT) system to appropriate public health authorities, replacing the historically paper-based process.
  - » eICR (the electronic initial case report)—The electronic initial case report (eICR) is a first step in implementation of eCR. The eICR will convey a standard set of data elements, vocabularies and value sets to Public Health Agencies (PHAs) for all reportable conditions in all jurisdictions. It is termed, initial as the report may be the first report made to public health from the clinical provider, containing just enough pertinent data for PHAs to initiate investigation or other appropriate public health activities as necessary.

*As defined by Council of State and Territorial Epidemiologists (CSTE) and Mac Kenzie, W.R., Davidson, A.J., Wiesenthal, A., et al. (2016). The Promise of Electronic Case Reporting. *Public Health Reports,* 131 (6), 742-746. Retrieved from http://journals.sagepub.com/doi/full/10.1177/0033354916670871

- **Recommend Short Term Approach**
  - » Incorporate Charge 1 recommendations for collection of pregnancy status into the eICR
- **Recommended Mid Term Approach:** Follow Digital Bridge using RCKMS * and other eCR projects for Zika case reporting
  - » Leverage work from pubic health on the development of standards and best practices for the eICR through eCR projects (e.g., Digital Bridge)
- **Recommended Long Term Approach:** Move towards bi-directional data exchange with eCR , case management, and integrated CDS
  - » Leverage eCR projects for the purpose of receiving follow up and case management information required for public health investigation (e.g., Digital Bridge)
  - » Explore the use of Structured Data Capture and SMART on FHIR as methods for eCR

***Reportable Condition Knowledge Management System (RCKMS)**

Summary of Recommendations

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  - Promote the use of ONC's Interoperability Proving Ground (IPG) as a mechanism to share information on public health interoperability projects related to eCR

Public Health Task Force: Workplan

Meeting Dates	Task
~~**Tuesday, December 20th 9:30am-11:00am**~~	• Kickoff Meeting
~~Thursday, January 12th 11:00am-12:30pm~~	• Case Reporting, Workflow Issues and hearing overview
~~Wednesday, January 18th 11:00am-12:30pm~~	• Administrative call to discuss upcoming hearing
~~Wednesday, January 25th 11:00am-12:30pm~~	• Overview of the US Zika Pregnancy Registry
~~Wednesday, February 8th 9:30am-4:15pm~~	• In-Person Hearing
~~Thursday, February 9th 9:30am-12:30pm~~	• Hearing summary and recommendations strawman
~~Monday, February 13th 11:00am-12:30pm~~	• Formulate and review draft recommendations
~~Wednesday, March 1st 11:00am-12:30pm~~	• Prepare draft recommendations for review
~~***Wednesday, March 8th – Joint Committee Meeting***~~	• ***Draft Recommendations Presented***
~~Wednesday, March 15th 11:00am-12:30pm~~	• Integrate feedback and update recommendations
~~Wednesday, March 22nd 11:00am-12:30pm~~	• Update recommendations
~~Wednesday, March 29th 11:00am-12:30pm~~	• Finalize recommendations
Thursday, March 30th – Joint Committee Meeting	• ***Final Recommendations Presented***

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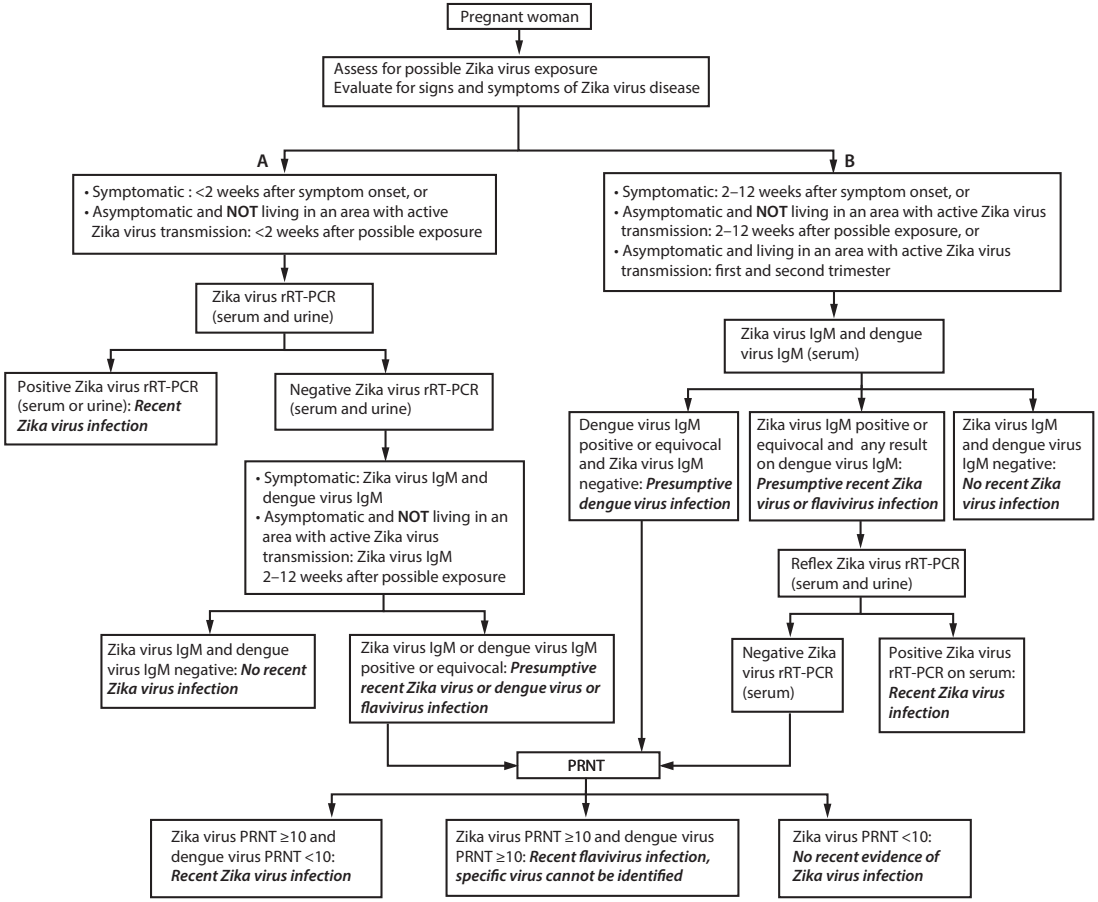
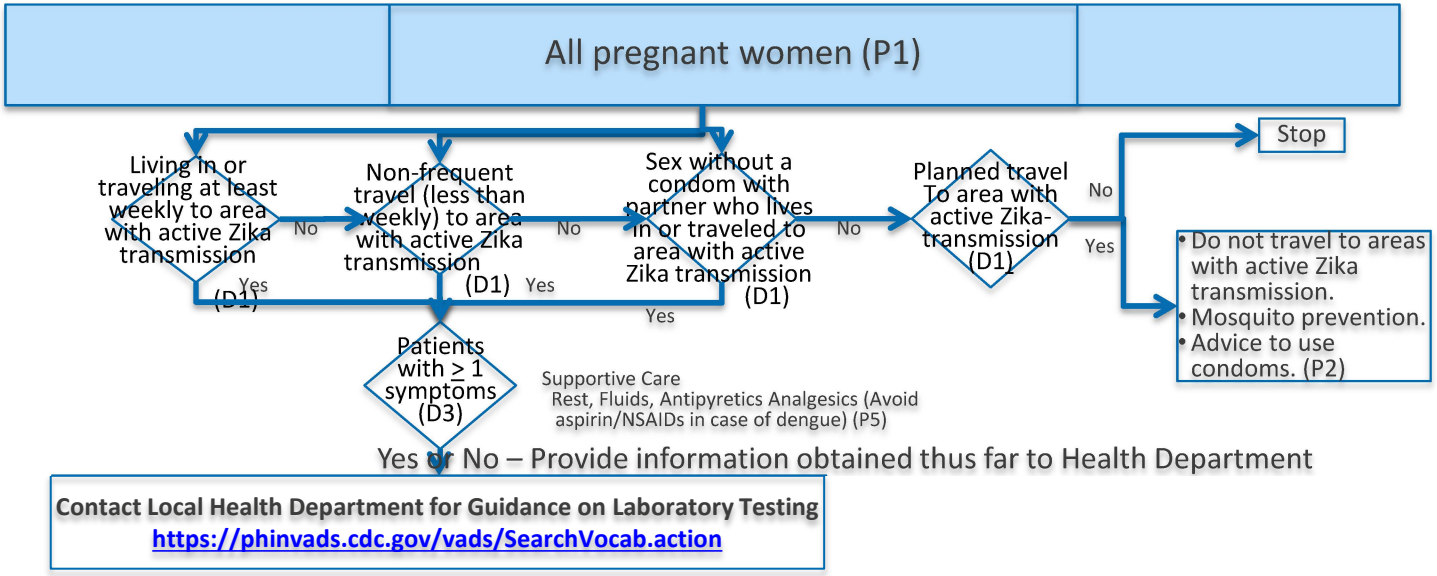
Appendix


Pregnant woman
Assess for possible Zika virus exposure
Evaluate for signs and symptoms of Zika virus disease
A
B
• Symptomatic : <2 weeks after symptom onset, or
• Asymptomatic and NOT living in an area with active Zika virus transmission: <2 weeks after possible exposure
• Symptomatic: 2–12 weeks after symptom onset, or
• Asymptomatic and NOT living in an area with active Zika virus transmission: 2–12 weeks after possible exposure, or
• Asymptomatic and living in an area with active Zika virus transmission: first and second trimester
Zika virus rRT-PCR (serum and urine)
Zika virus IgM and dengue virus IgM (serum)
Positive Zika virus rRT-PCR (serum or urine): Recent Zika virus infection
Negative Zika virus rRT-PCR (serum and urine)
Dengue virus IgM positive or equivocal and Zika virus IgM negative: Presumptive dengue virus infection
Zika virus IgM positive or equivocal and any result on dengue virus IgM: Presumptive recent Zika virus or flavivirus infection
Zika virus IgM and dengue virus IgM negative: No recent Zika virus infection
• Symptomatic: Zika virus IgM and dengue virus IgM
• Asymptomatic and NOT living in an area with active Zika virus transmission: Zika virus IgM 2–12 weeks after possible exposure
Reflex Zika virus rRT-PCR (serum and urine)
Zika virus IgM and dengue virus IgM negative: No recent Zika virus infection
Zika virus IgM or dengue virus IgM positive or equivocal: Presumptive recent Zika virus or dengue virus or flavivirus infection
Negative Zika virus rRT-PCR (serum)
Positive Zika virus rRT-PCR on serum: Recent Zika virus infection
PRNT
Zika virus PRNT ≥10 and dengue virus PRNT <10: Recent Zika virus infection
Zika virus PRNT ≥10 and dengue virus PRNT ≥10: Recent flavivirus infection, specific virus cannot be identified
Zika virus PRNT <10: No recent evidence of Zika virus infection

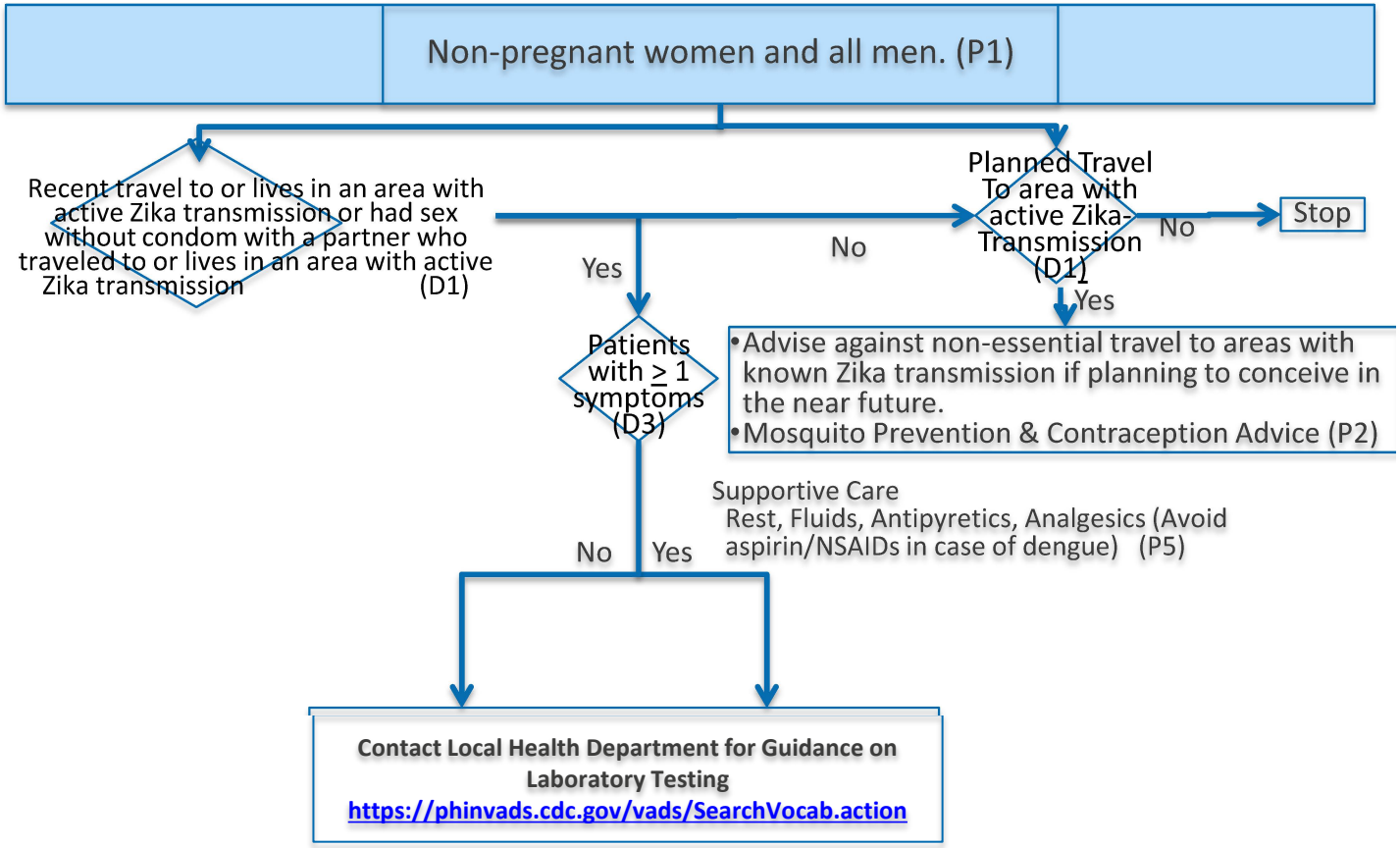
Algorithms for developers

Pregnancy status required for CDS as well as reporting to Public Health

CDS complicated and changes



Algorithms for developers



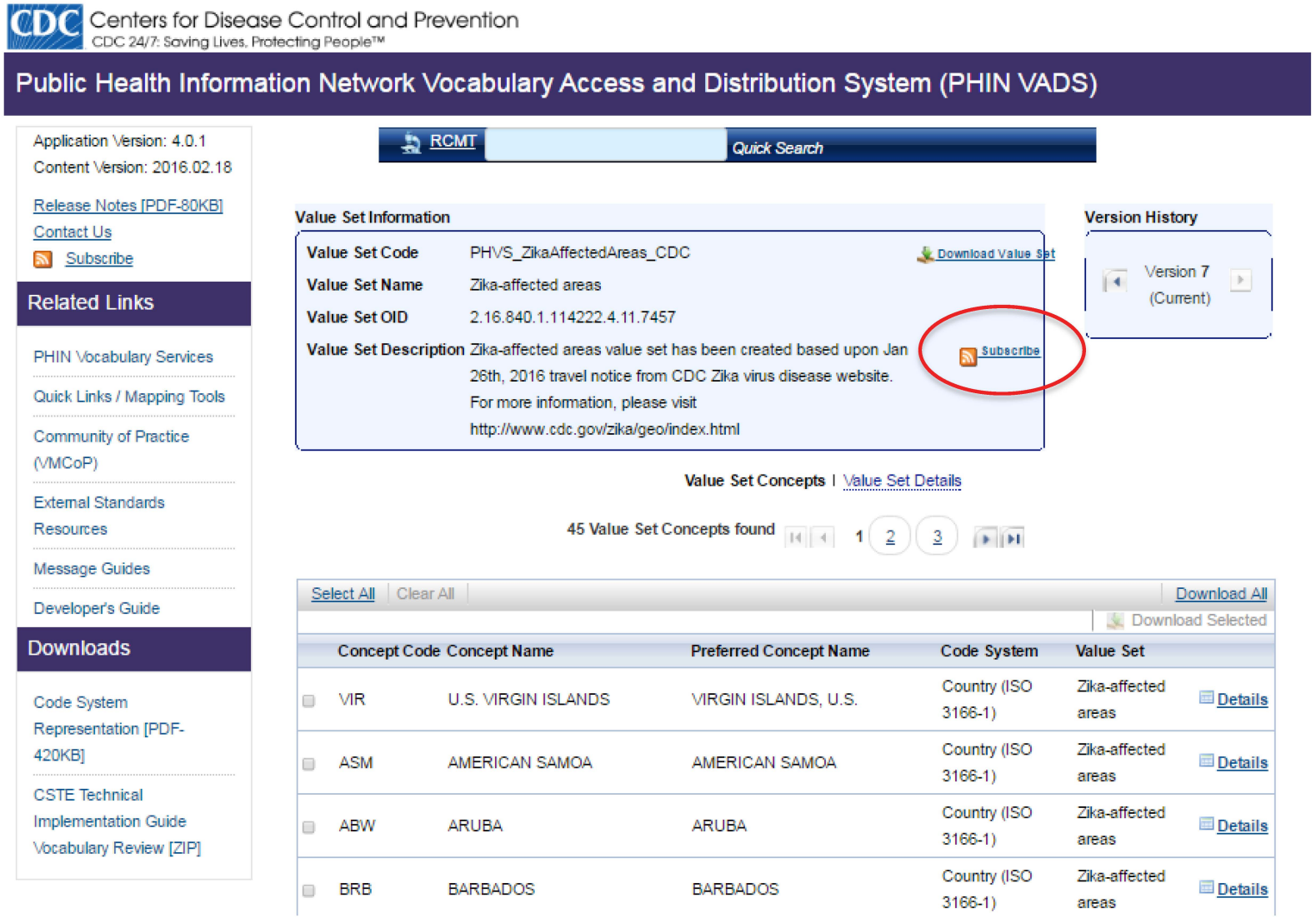
Algorithms for developers (Information)

1. Areas with active Zika transmission	Areas of known Zika virus transmission. http://www.cdc.gov/zika/geo/index.html
2. Travel and Mosquito Prevention Advice	a. Advice for patients about how to avoid Mosquito bites. http://www.cdc.gov/zika/prevention/index.html
	b. Advice for patients about which mosquito repellents are effective and safe to use in pregnancy. [DEET, IF3535 and Picardin are safe during] https://www.epa.gov/insect-repellents/find-insect-repellent-right-you
3. Prevention of Sexual Transmission	The most current interim guidelines for prevention of sexual transmission of Zika virus. http://www.cdc.gov/zika/transmission/index.html http://www.cdc.gov/mmwr/volumes/65/wr/mm6512e3.htm
4. Signs and Symptoms	Signs and Symptoms of Zika virus disease and information about how a clinician might differentiate Zika virus infection from other similar infections. http://www.cdc.gov/zika/symptoms/index.html
5. Possible microcephaly association	Known information about association between Zika virus infection and microcephaly and other known complications. http://www.cdc.gov/ncbddd/birthdefects/microcephaly.html
6. Zika Virus Diagnostic Testing	Explanation of diagnostic tests for Zika virus and which to use based on the patient's clinical and exposure history. http://www.cdc.gov/zika/hc-providers/diagnostic.html

Algorithms for developers (Value Sets)

- **Public Health Information Network Vocabulary Access Distribution System (PHIN-VADS)**
  - https://phinvads.cdc.gov/vads/SearchVocab.action
  - PHIN VADS Hot Topics
- **Zika virus disease associated Lab Vocabulary (ELR)** - Includes value sets associated with lab testing algorithm for Zika, Chikungunya and Dengue
  - FILE: Zika_Lab_Test_Information_20160517.pdf - Testing algorithm information for Epidemiologist and Lab experts using standard vocabulary
  - FILE: Zika_virus_codes_for_ELR_20160517.xlsx - Technical information for ELR IT staff - LOINC and SNOMED codes
  - LINK: Information for State Public Health labs from CDC
- **Zika vocabulary for EHR and Health IT vendors** - Includes value sets for implementing the CDC's interim guidelines which could be used by EHR community for decision support or pick list.
  - LINK: Zika affected areas
  - FILE: Zika Virus Vocabulary for EHR - 02_01_2016.pdf - Includes value sets associated with Zika, Dengue, Chikungunya, Arboviral diseases, Pregnancy, Newborn and Infant.
  - FILE: Zika related CPT procedure codes_04152016.pdf - CPT procedure codes associated with Zika lab tests and imaging.

Vocabulary Sets



Innovative Clinical Decision Support Work for Zika

Morbidity and Mortality Weekly Report (MMWR): https://www.cdc.gov/mmwr/zika_reports.html

Guideline Elements Model: http://gem.med.yale.edu/default.htm

CDS Hooks: http://cds-hooks.org/

Clinical Quality Framework - ONC Tech Lab: https://www.healthit.gov/techlab/testing_and_utilities.html

Reportable Condition Knowledge Management System (RCKMS): http://www.cste.org/group/RCKMS

Bright Spots - Demos

- Utah: Automated Surveillance
- NYC: Structured Data Capture (Federal Health Architecture demo)
- Health Alert Network (HAN) - CDC's Health Alert Network (HAN) is CDC's primary method of sharing cleared information about urgent public health incidents with public information officers; federal, state, territorial, and local public health practitioners; clinicians; and public health laboratories.
- Clinical Outreach and Communication Activity (COCA)—COCA, via CDC, prepares clinicians to respond to emerging health threats and public health emergencies by communicating relevant, timely information related to disease outbreaks, disasters, terrorism events, and other health alerts.

Sample Potential Solution

Improving Outcomes with Clinical Decision Support: An Implementer's Guide

By Jerome A. Osheroff, MD, FACP, FACMI

This is an example of a tool we can leverage as a framework for Public Health. It provides expanded and updated guidance on using CDS interventions to improve care delivery and outcomes in diverse care settings.

Figure 6-2: Using Core Actions to Identify Suitable CDS Interventions to Achieve Objective

Objective: Provide prompt and full initial response to acute MI

Core Action Areas	Your Details	Likely Workflows	Likely CDS Types
RECOGNIZE PATTERNS: Is there need for help to recognize promptly that a particular situation, diagnosis, or presentation exists? What data are needed to recognize this?	*Yes – quickly recognize presentations that are managed differently* *Data: EKG, past medical history, symptoms (early); troponin markers (later)*	☐ A. Pre-encounter ☑ B. RN & MD History/assessment	☑ Data-triggered alerts *Troponin* ☑ Smart documentation forms, calculators, clinical scores *MI risk score* ☐ Relevant data summaries ☐ Predictive analytics ☐ Expert system
FORMULATE PLAN: Is there need for help in choosing the best therapies and/or diagnostic studies for this condition, symptom or diagnosis?	*Yes – advise re criteria for different primary treatment options (such as thrombolysis, percutaneous coronary intervention, glycoprotein IIb-IIIa inhibitors), and contraindications for each*	☐ B. RN & MD History/assessment ☑ C. Formulate plan of care	☑ Filtered reference *Tables as per col. 2* ☑ Reference info in order sets/care plans *Contain tabular info as in item directly above* ☐ Expert workup advisors
EXECUTE PLAN: Is there need for specific help: - to create orders or care plans correctly, completely and without errors? - in performing relevant procedures? - in carrying out orders or administering meds?	*Yes— dosing help for primary drug treatments; full therapy protocol induding IV nitroglycerin, beta-blocker, ACE/ARB-inhibitor options* *Drug dilution guidance*	☐ D. Documentation ☑ E. Orders/Rx ☐ F. Order handling/med dispensing ☐ G. Therapies/Procedures	☑ Order sets/care plans (suggested doses, protocols) *Anticoagulation and thrombolysis protocols* ☑ Parameter guidance *Dosing help for thrombolysis, renal doses* ☑ Critiques/warnings ("immediate alerts") *Maybe warfarin drug-drug* ☐ Smart documentation forms/checklists ☑ Filtered reference info *Drug dilution calculator*

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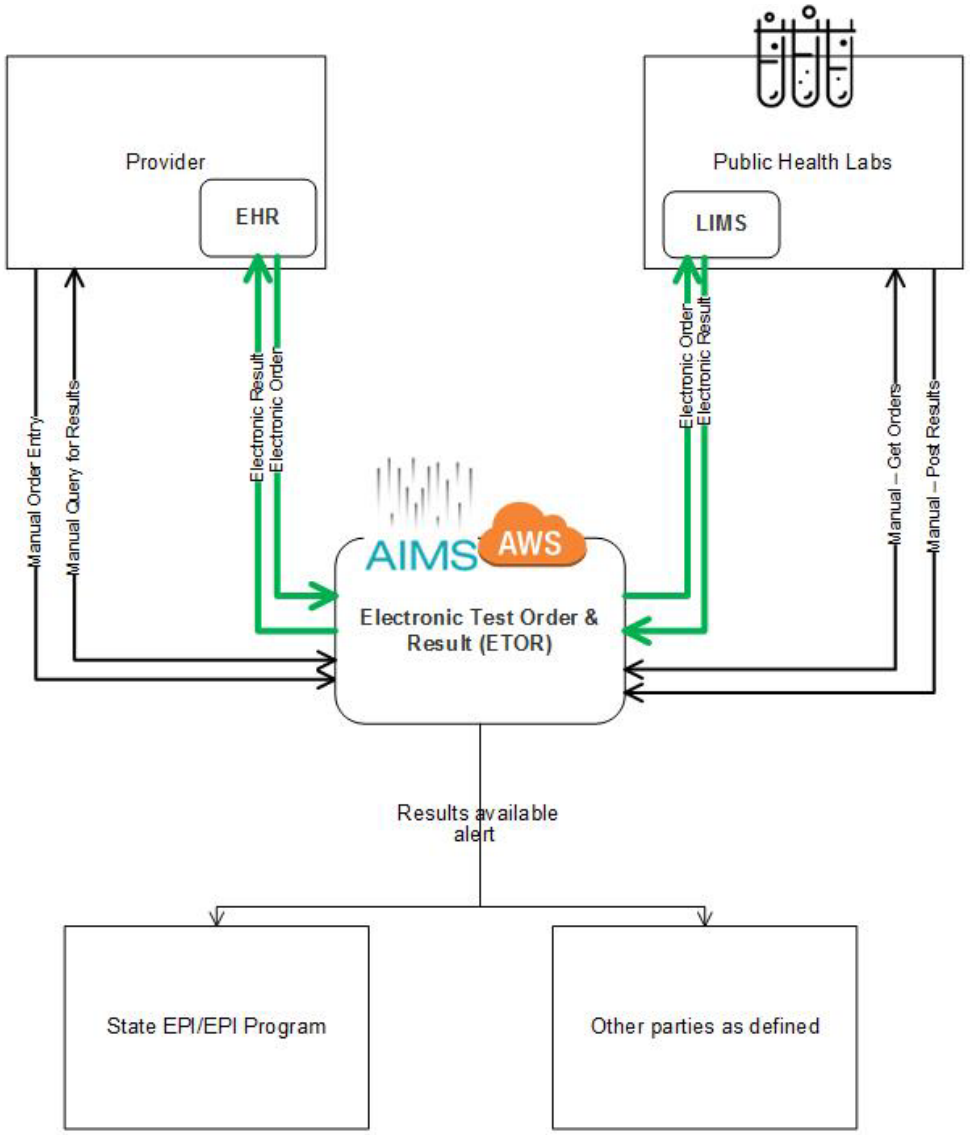
Potential Solution for Public Health Labs/Ask on Order Entry



eCR Digital Bridge High Level Architecture