Monthly EHR Vendor and Public Health Webinar: 2019-Novel Coronavirus (COVID-19) and Health Information Technology Sharing Session

February 18, 2020

Office of the National Coordinator for Health IT (ONC)

HHS Office of the Chief Technology Officer (OCTO)
Disclaimer

These calls are for discussion and outreach to the health information technology community only and should not be treated as attempts to disseminate scientific or health IT knowledge. The findings and conclusions in this presentation are those of the presenters and do not necessarily represent an official position of the US Department of Health and Human Services.

Please be aware that this webinar is being recorded.
Questions During the Presentation

Welcome
Feel free to ask the host and panelists questions

Type your question here...
Agenda

• Overview of Health IT for Zika and Ebola
  • James Daniel, HHS Office of the Chief Technology Officer
  • Daniel Chaput, Office of the National Coordinator for Health IT

• Electronic Health Records: Clinical Decision Support Lessons Learned with Ebola and Zika for Covid-19 (SARS-CoV-2)
  • Stephanie H. Hoelscher DNP, RN-BC, CPHIMS, CHISP, FHIMSS, Associate Professor, Graduate Informatics, Texas Tech University Health Sciences Center School of Nursing
  • Susan McBride, PhD, RN-BC, CPHIMS, FAAN, Professor, Texas Tech University Health Sciences Center School of Nursing
  • Dwayne Hoelscher, DNP, RN-BC, CPHIMS, Professional Clinical Systems Analyst, Core Services UMC Health System

• Q&A/Discussion
Activities from Past Response Efforts

• Building upon lessons learned from previous disasters (e.g., Zika, Ebola, hurricanes)

• Vendor Outreach (i.e., EHR vendor/public health webinars)

• Algorithm Development

• Static Websites

• Vocabulary Sets

• Order Sets
FIGURE. Updated interim guidance: testing and interpretation recommendations* for a pregnant woman with possible exposure to Zika virus** — United States (including U.S. territories)

Pregnant woman:
- Assess for possible Zika virus exposure
- Evaluate for signs and symptoms of Zika virus disease

A
- Symptomatic: ≤2 weeks after symptom onset, or
- Asymptomatic and NOT living in an area with active Zika virus transmission: ≤2 weeks after possible exposure

Zika virus rRT-PCR (serum and urine)
- Positive Zika virus rRT-PCR (serum or urine): Recent Zika virus infection
- Negative Zika virus rRT-PCR (serum and urine):
  - Symptomatic: Zika virus IgM and dengue virus IgM
  - Asymptomatic and NOT living in an area with active Zika virus transmission: Zika virus IgM and dengue virus IgM negative: No recent Zika virus infection

B
- 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 IgM and dengue virus IgM (serum)
- 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 negative: No recent Zika virus infection

Print
- Zika virus print ≥10 and dengue virus PRINT <10: Recent Zika virus infection
- Zika virus print ≥10 and dengue virus PRINT ≥10: Recent flavivirus infection, specific virus cannot be identified
- Zika virus print <10: No recent evidence of Zika virus infection

https://www.cdc.gov/mmwr/volumes/65/wr/mm6529e1.htm?s_cid=mm6529e1_e
Algorithms for Developers
**Algorithms for Developers (Information)**

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<td>b. Advice for patients about which mosquito repellents are effective and safe to use in pregnancy. [DEET, IF3535 and Picardin are safe during] <a href="https://www.epa.gov/insect-repellents/find-insect-repellent-right-you">https://www.epa.gov/insect-repellents/find-insect-repellent-right-you</a></td>
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<td>5. Possible microcephaly association</td>
<td>Known information about association between Zika virus infection and microcephaly and other known complications. <a href="http://www.cdc.gov/ncbddd/birthdefects/microcephaly.html">http://www.cdc.gov/ncbddd/birthdefects/microcephaly.html</a></td>
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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.
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# COVID-19 (Information)

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<td>LOINC (Prerelease Terms)</td>
<td><a href="https://loinc.org/prerelease/">https://loinc.org/prerelease/</a></td>
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<td>SNOMED CT</td>
<td><a href="http://www.snomed.org/news-and-events/articles/changes-coronavirus-descriptions">http://www.snomed.org/news-and-events/articles/changes-coronavirus-descriptions</a></td>
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Electronic Health Records:
Clinical Decision Support Lessons Learned with Ebola and Zika for Covid-19 (SARS-CoV-2)
Electronic Health Records can help us with identification and treatment protocols/guidelines

To work effectively these features need to work in tandem, and be well designed to support patient-centered care and accurate, efficient diagnoses and treatment.

- **WORKFLOW IS CRITICAL**
- **HUMAN FACTORS ARE EQUALLY AS IMPORTANT**

Many successful lessons learned from collaborative efforts for Ebola and Zika response that we can translate to nCoV.

History of Infectious Disease Clinical Decision Support

• Ebola
  ▫ Dallas/Fort Worth patient
  ▫ Poor rule maintenance (financial, automated orders, locations, etc.)
  ▫ Local design/build efforts

• Zika
  ▫ Vested ownership of infectious disease process developed; maintenance policy and schedule
  ▫ Development of a rapid deployment model; looking for “virus X”
  ▫ Partnership with CDC/ONC for testimony of best practice for Zika EHR design and build

• Coronavirus
  ▫ Real-world deployment of model; running within 2 hours with adherence to interim CDC guidelines
  ▫ Improved vendor timelines averaged days to two weeks
Governance

- **Focus Group**
  - ID Providers
  - Institutional Infection Prevention & Control
  - Clinician Informaticists

- **Emergency Governance**
  - ID Providers
  - Change Control Leadership
  - Often verbal, followed with written
  - Real-time approval process for emergencies

- **Traditional Governance**
  - Executive Buy-in; Directors/Managers
  - Physician/Nurse Leadership
  - Always written, followed by onsite meetings to discuss
START

Infectious Disease Nursing Intake Assessment

Required Exposure to Coronavirus

YES

Travel Vaccine for 2019-nCoV (Future State)

YES

STOP

NO

Required Symptoms

YES

Fever (>100.4) Cough Shortness of breath

YES

STOP

NO

Required Foreign Travel

YES

Timeframe: Within past two weeks?

YES

Travel Location: China Southeast Asia

NO

Proceed to Generic All-Travel Alert

NO

STOP

Intake assessment completed at all points of entry in health system (e.g., EC, L&D, Ambulatory)

LEGEND:
PROCESS BEGINS
PROCESS/DATA
PROCESS ENDS
REQUIRED FIELD
ITEMS TO NOTE
FUTURE STATE
Coronavirus EHR Workflow

• Algorithm feeds from data fields and conditional logic created with a nursing form
  ▫ Nursing form assessed at all points of entry
  ▫ Still risk of missing someone
    • Direct admit where form not completed until already in hospital
    • Outpatient radiology, laboratory, etc.
  ▫ If algorithm does not qualify for coronavirus, proceeds to generic algorithm

• Future state options mapped out for pending functionality
  ▫ Interactive maps
  ▫ Automated orders
    • Isolation carts, consult orders, diagnostics, etc.
Coronavirus EHR Workflow

- Modified MERS algorithm
  - Rapid deployment model
- CDC guidelines
  - Interim, but stable
- Rule prioritization
  - Which alert carries more weight?
    - e.g., Ebola > Zika
- Boolean logic
- Applicable/buildable across platforms
  - Can be made to fit YOUR workflow
Gaps in Current State

- CDC guidelines currently still in interim state, although stable
  - Finalizing any design or build not impossible; maintenance issues for custom and vendors
  - Guideline interpretation still manual by local clinical informaticist and providers

- Although CDC has started (2.6.2020) shipping test kits to laboratories around the nation...
  - Still a send out for local healthcare facilities = testing delays
  - Still a paper “send-out” order, or a generic send-out order in the EHR (if one already currently exists; would need new data fields specific to coronavirus)

- Financial risk with automation of orders
  - Automated orders such as chest x-rays or isolation carts pose financial risk to the institution due to potential inaccuracy of nursing documentation and/or low risk of ID occurrence in specific regions (e.g., rural)
  - Ebola alert and isolation cart example
Questions?

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