



The Office of the National Coordinator for
Health Information Technology

Consumer Health Data Aggregator Challenge & Provider User Experience Challenge

March 20, 2017





Provider User Experience Challenge Winners

Phase 1

- Duke Health System / Intermountain Healthcare / University of Utah Health Care
- Herald Health Technologies
- PHRASE Health
- WellSheet

Phase 2

- First Prize: Herald Health Technologies
- Second Prize and Connector Award: Duke Health System / Intermountain Healthcare / University of Utah Health Care
- Honorable Mention: PHRASE Health

Herald Health
Slides Not Provided

Multi-Institutional, Multi-EHR Collaboration to Enhance a Neonatal Bilirubin SMART on FHIR Application with Clinical Decision Support

ONC Interoperability in Action Day

March 20, 2017

Kensaku Kawamoto, MD, PhD, MHS
Associate Chief Medical Information Officer, Univ. of Utah

On behalf of the project team from:
University of Utah Health Care
Intermountain Healthcare
Duke Health



Disclosures

- In the past year, I have been a consultant or sponsored researcher on clinical decision support for:
 - Office of the National Coordinator for Health IT*
 - McKesson InterQual
 - Hitachi

*via ESAC, SRS, A+ Government Solutions, and Hausam Consulting



Multi-Institutional Collaboration



UNIVERSITY OF UTAH
HEALTH CARE

Kensaku Kawamoto, MD, PhD, MHS
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Steering Member, IAPPS

Carole Stipelman, MD, MPH
Medical Director, University Pediatric Clinic



Intermountain®
Healthcare

Scott Narus, PhD, MS
Chief Clinical Systems Architect

Ricky Bloomfield, MD
Director of Mobile Technology Strategy



DukeHealth

Robert Lenfestey, MD
Neonatologist and Clinical Faculty



Multiple EHR Platforms

- Epic
 - Univ. of Utah
 - Duke
- Cerner
 - Intermountain
- CareWeb
 - Healthcare Services Platform Consortium (HSPC)
- Others TBD

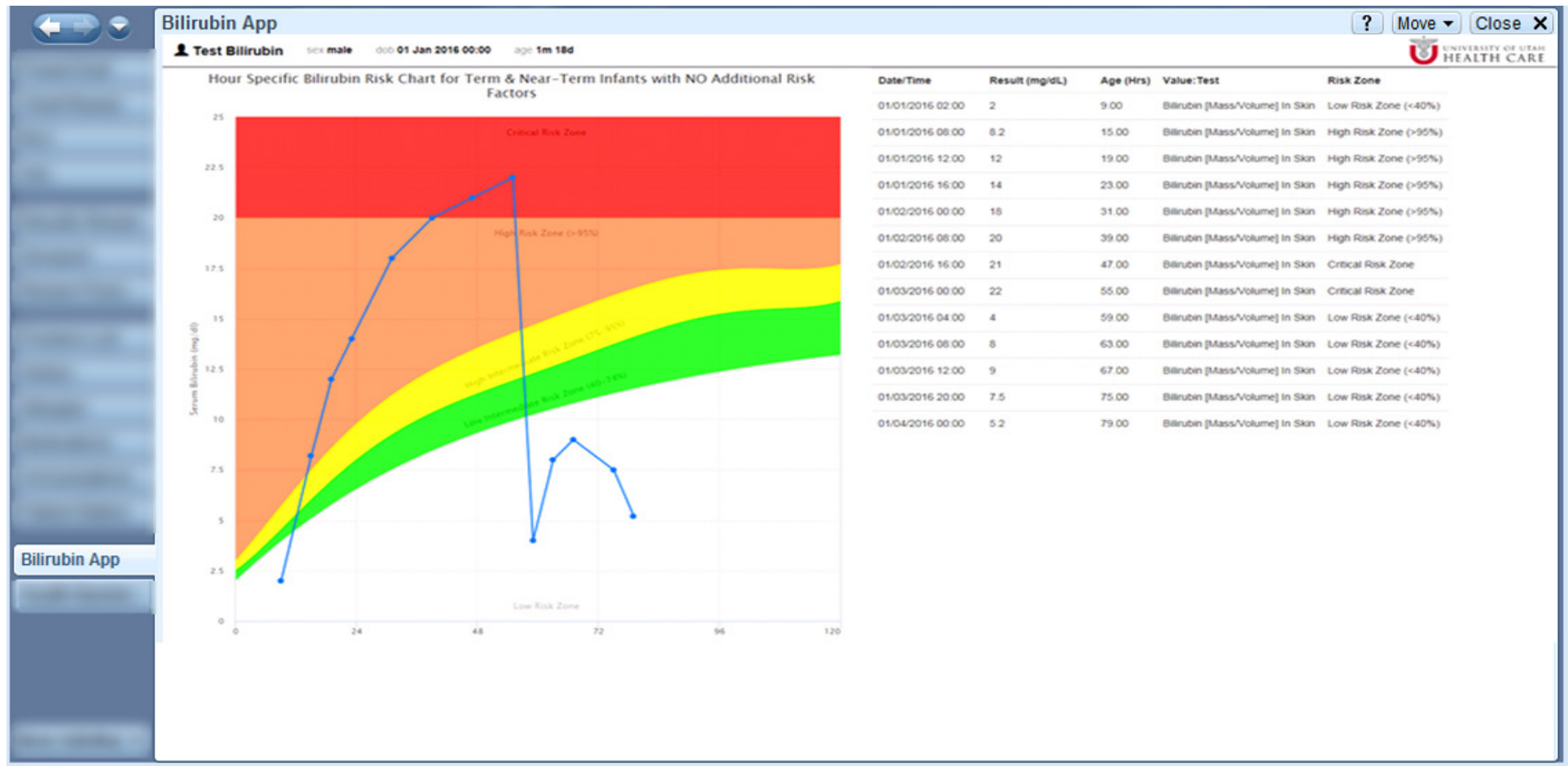


Project Background/Motivation

- EHR vendors are increasingly supporting SMART on FHIR to extend the EHR through interoperable “Apps”
- Healthcare organizations across various EHR platforms could mutually benefit through collaborative development of SMART on FHIR Apps
- Univ. of Utah, Intermountain, and Duke are collaborating to extend an existing bilirubin App with decision support as requested by our physicians
- We welcome collaborators and will make all content available free and open source



Baseline Bilirubin App, Integrated with Epic (developed by Intermountain)



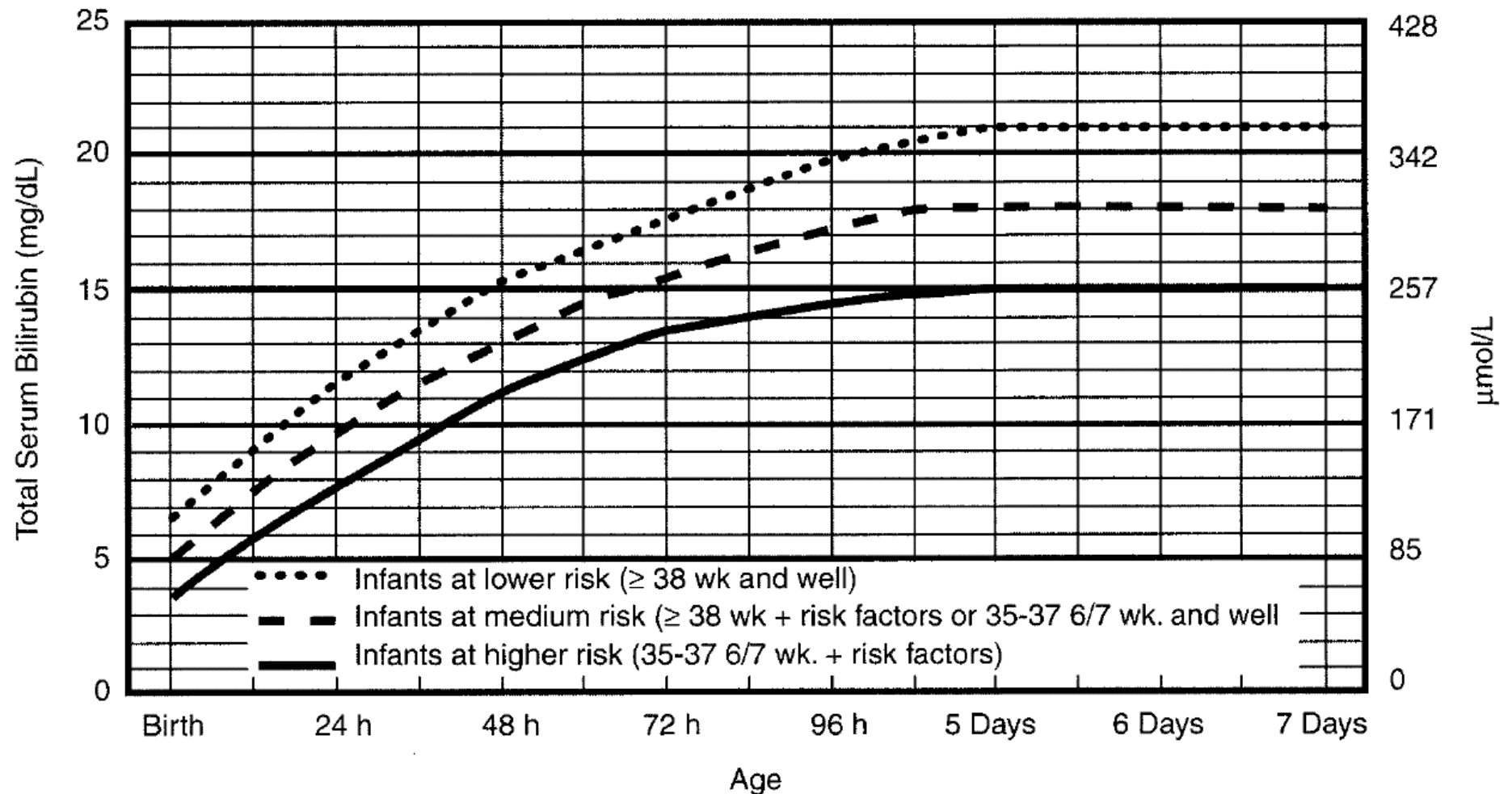
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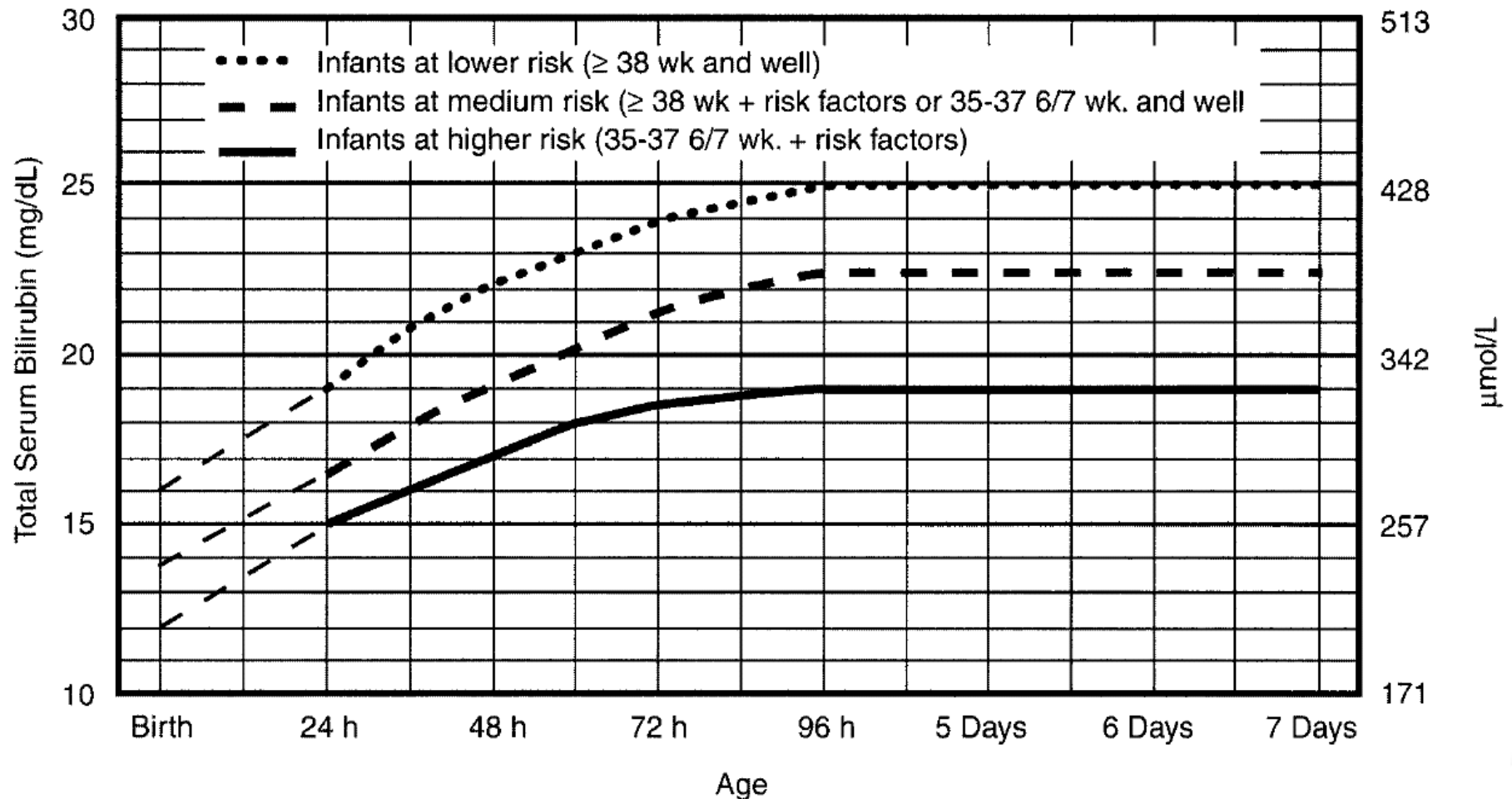
UNIVERSITY OF UTAH
HEALTH CARE

American Academy of Pediatrics Guidelines for Phototherapy



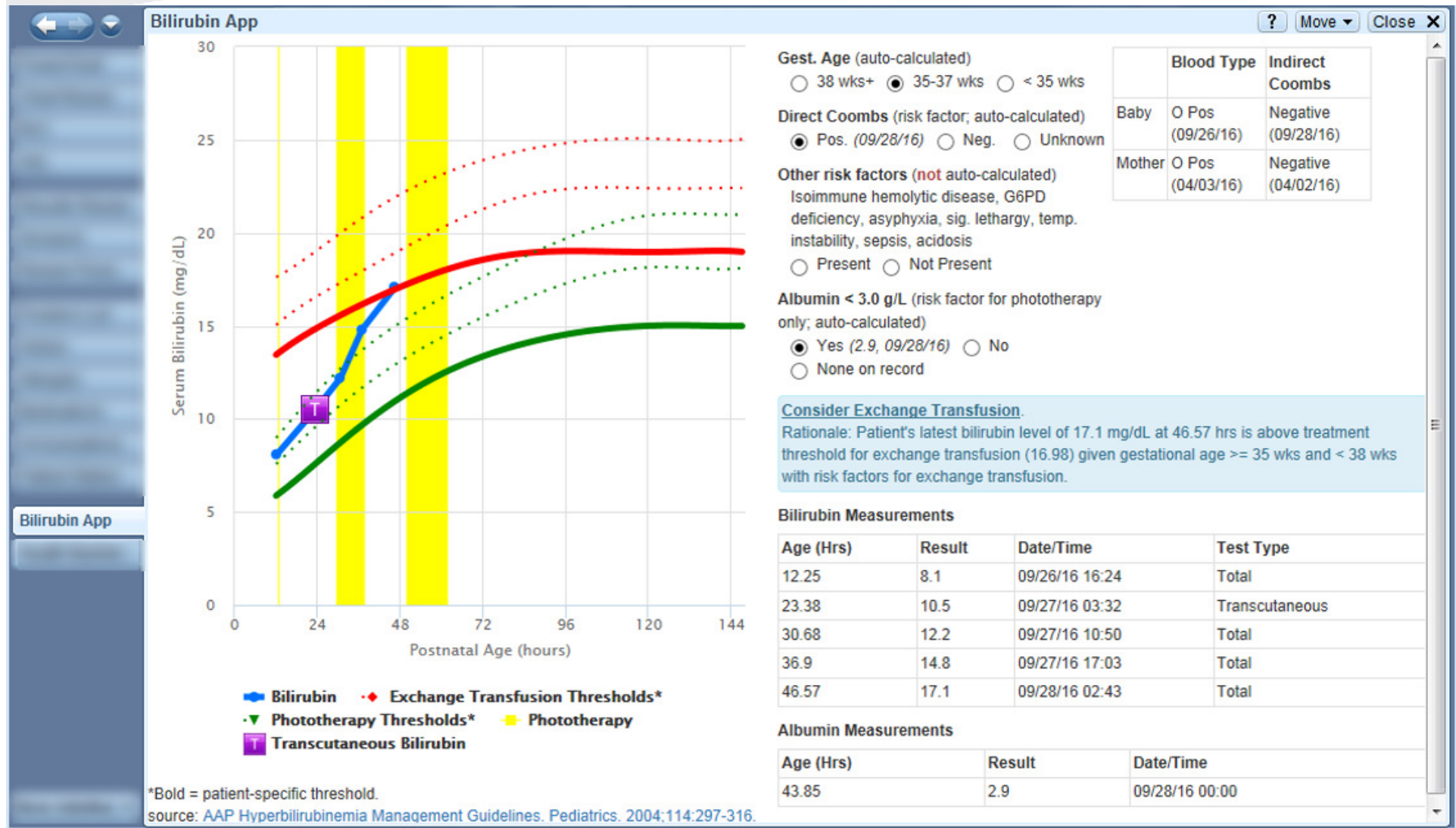
American Academy of Pediatrics. Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation. *Pediatrics*. 2004 Jul;114(1):297-316.

American Academy of Pediatrics Guidelines for Exchange Transfusion

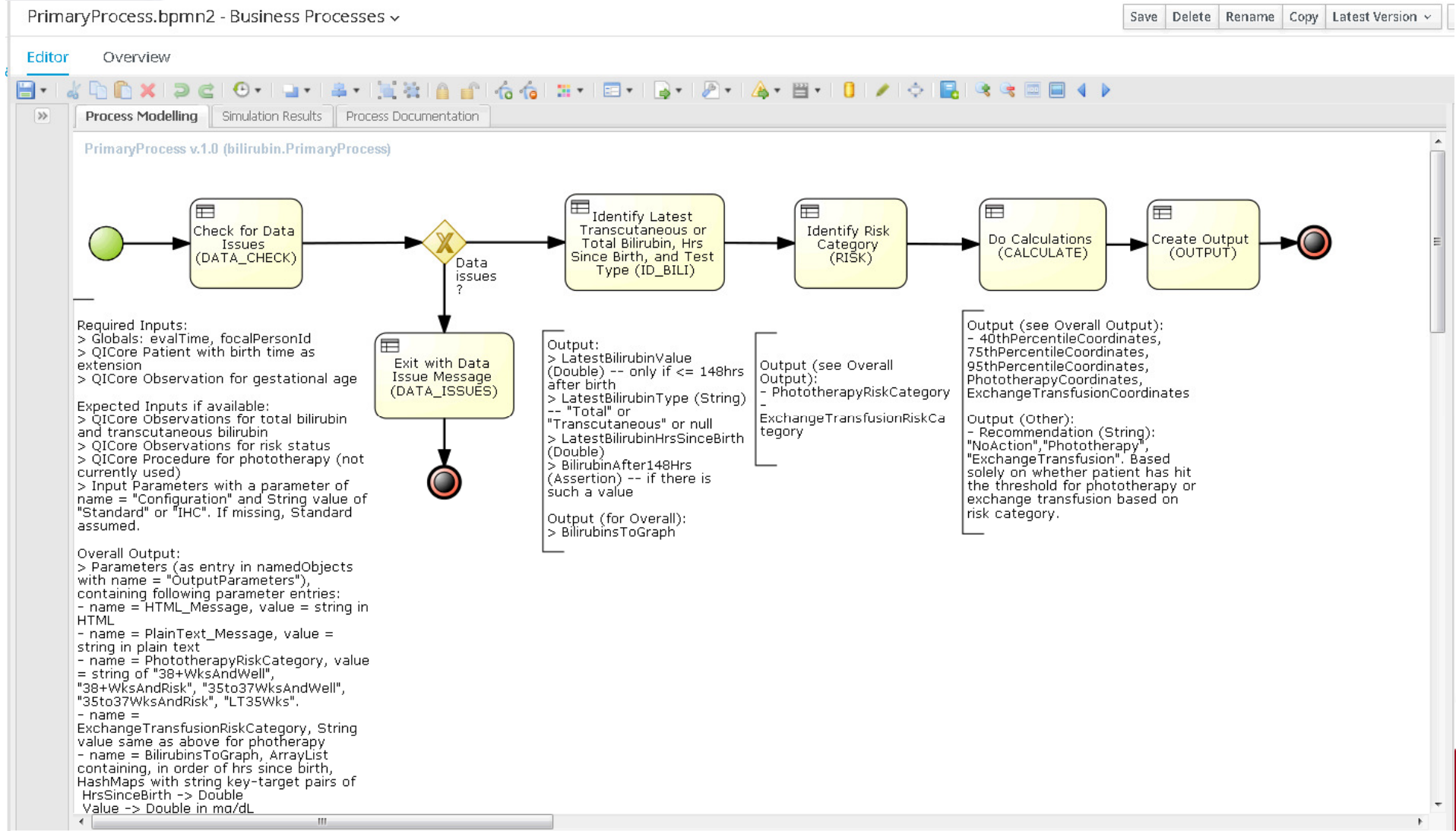


American Academy of Pediatrics. Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation. *Pediatrics*. 2004 Jul;114(1):297-316.

Current Bilirubin Application, in Production Use within Epic



Encapsulation of Decision Support Logic within OpenCDS (www.opencds.org)



Support of HL7 Decision Support Standards

- Quality Improvement Core (QICore) FHIR Profiles (<http://hl7.org/fhir/current/qicore/>)
- HL7 Decision Support Service (http://www.hl7.org/implement/standards/product_brief.cfm?product_id=12)
- FHIR Clinical Reasoning Module (<http://build.fhir.org/clinicalreasoning-module.html>)
 - Being unified with CDS Hooks specification (<http://cds-hooks.org/>)



Status

- 1.0 Release complete
- Full integration with Epic & CareWeb EHRs
- In production clinical use at University of Utah
- Positive provider feedback
- Enhancement requests being incorporated for v2.0
- Aiming for wide dissemination of 2.0 Release
- Awarded HHS Provider User Experience App Challenge Awards

<https://www.challenge.gov/challenge/provider-user-experience-challenge/>



Demo within HSPC CareWeb EHR Platform

<http://docker.bmi.utah.edu:8081/cwfdemo-webapp/>



Lessons Learned

- Initial learning curve fairly high
 - Hopefully will become easier as Interoperable Apps and Services become more “mainstream”
- Security is a critical consideration
- Standards (e.g., FHIR) are still evolving and require greater specificity for true plug-and-play interoperability
- Cross-institutional (and cross-platform) collaboration can significantly accelerate development



Thank You!

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