Accelerating the Learning Health System with Process Interoperability

InterOp.Community

What

Power of Community

InterOp.Community is an emerging collaboration to advance the healthcare interoperability agenda via the use of open platforms and open-source software.

Who

Professional societies, vendors, healthcare and government orgs

Promote open standards to share, adopt and allow patient centric pathways to operate across traditional health IT boundaries.

Why

It takes 17 years for best practices to move into clinical workflows

As a patient, provider or payer, is that fast enough for you? If not then join our community and help accelerate our shared velocity towards the learning health.

IHE USA CONNECTING THE WORLD.

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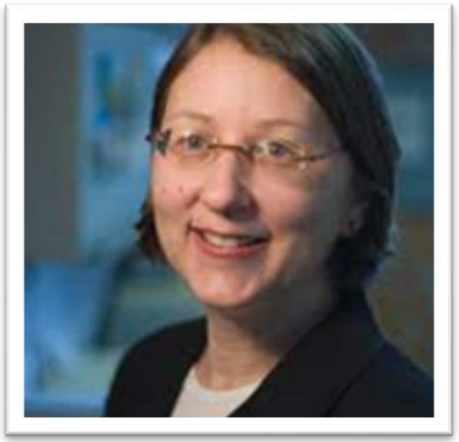
Red Hat

An OMG Managed Community BPM+ Health

The Experts

Ben Cushing

Federal Health & Science Lead
Red Hat



Mary Kratz

Executive Vice President
Interoperability Institute

Amit Trivedi

Director, Informatics & HIT Standards
HIMSS

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Learning Health Systems

> Healthcare systems in which knowledge generation processes are embedded in daily practice to produce *continual improvement* in care.

US Institute of Medicine

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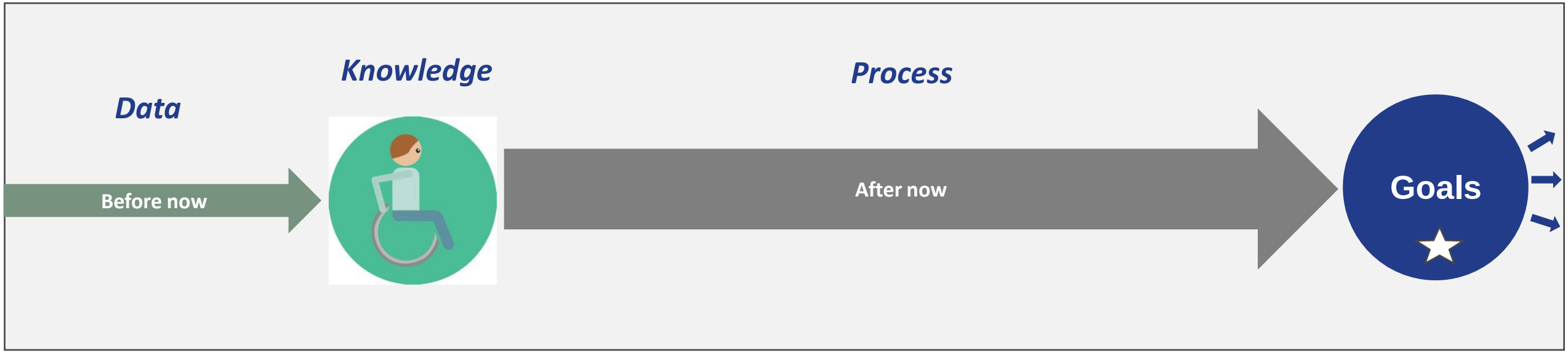
Healthcare Interoperability is much more than data…



The patient journey is a goal directed activity

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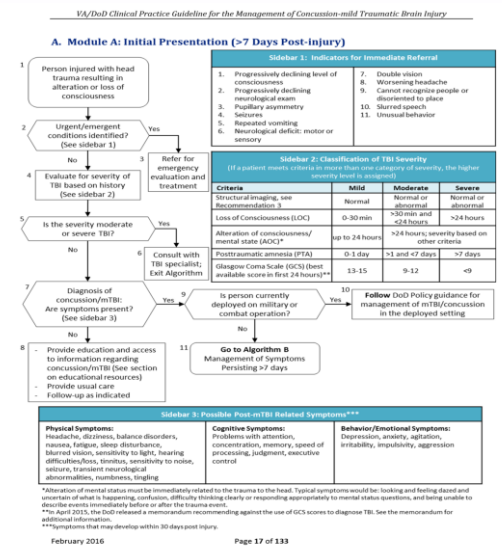
Enabling the Learning Health System

Care **with** Boundaries

Clinical Practice Guidelines are stuck on paper



VA/DoD Clinical Practice Guideline for the Management of Concussion-mild Traumatic Brain Injury

A. Module A: Initial Presentation (>7 Days Post-injury)

1 Person injured with head trauma resulting in alteration or loss of consciousness

2 Urgent/emergent conditions identified? (See sidebar 1)
- Yes → 3 Refer for emergency evaluation and treatment
- No → 4 Evaluate for severity of TBI based on history (See sidebar 2)

5 Is the severity moderate or severe TBI?
- Yes → 6 Consult with TBI specialist; Exit Algorithm
- No → 7 Diagnosis of concussion/mTBI: Are symptoms present? (See sidebar 3)
  - Yes → 9 Is person currently deployed on military or combat operation?
    - Yes → 10 **Follow** DoD Policy guidance for management of mTBI/concussion in the deployed setting
    - No → 11 **Go to Algorithm B** Management of Symptoms Persisting >7 days
  - No → 8 - Provide education and access to information regarding concussion/mTBI (See section on educational resources) - Provide usual care - Follow-up as indicated

Sidebar 1: Indicators for Immediate Referral

1. Progressively declining level of consciousness
2. Progressively declining neurological exam
3. Pupillary asymmetry
4. Seizures
5. Repeated vomiting
6. Neurological deficit: motor or sensory
7. Double vision
8. Worsening headache
9. Cannot recognize people or disoriented to place
10. Slurred speech
11. Unusual behavior

Sidebar 2: Classification of TBI Severity
(If a patient meets criteria in more than one category of severity, the higher severity level is assigned)

Criteria	Mild	Moderate	Severe
Structural imaging, see Recommendation 3	Normal	Normal or abnormal	Normal or abnormal
Loss of Consciousness (LOC)	0-30 min	>30 min and <24 hours	>24 hours
Alteration of consciousness/ mental state (AOC)*	up to 24 hours	>24 hours; severity based on other criteria	
Posttraumatic amnesia (PTA)	0-1 day	>1 and <7 days	>7 days
Glasgow Coma Scale (GCS) (best available score in first 24 hours)**	13-15	9-12	<9

Sidebar 3: Possible Post-mTBI Related Symptoms***

Physical Symptoms:	Cognitive Symptoms:	Behavior/Emotional Symptoms:
Headache, dizziness, balance disorders, nausea, fatigue, sleep disturbance, blurred vision, sensitivity to light, hearing difficulties/loss, tinnitus, sensitivity to noise, seizure, transient neurological abnormalities, numbness, tingling	Problems with attention, concentration, memory, speed of processing, judgment, executive control	Depression, anxiety, agitation, irritability, impulsivity, aggression

*Alteration of mental status must be immediately related to the trauma to the head. Typical symptoms would be: looking and feeling dazed and uncertain of what is happening, confusion, difficulty thinking clearly or responding appropriately to mental status questions, and being unable to describe events immediately before or after the trauma event.
**In April 2015, the DoD released a memorandum recommending against the use of GCS scores to diagnose TBI. See the memorandum for additional information.
***Symptoms that may develop within 30 days post injury.

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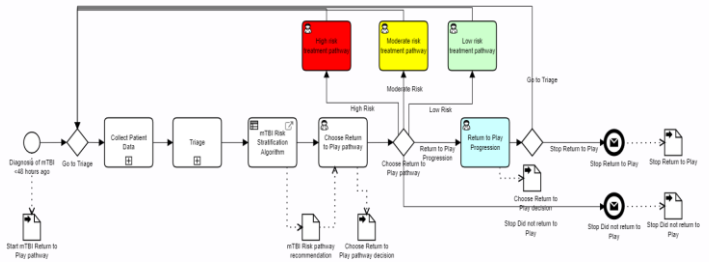
Care **without** Boundaries

CPGs are automated across clinical workflows



BPM+ Health

HL7 FHIR

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Barriers to the LHS

MELD.Interop.Community

- Open-source healthcare sandbox called ‘MELD’
- Free sandbox open to the world based on MELD Source Code
- Populated with synthetic FHIR® data
- Used for:
  - Research solutions
  - Educate & Training venues
  - Test tools & Standards Development
  - Collaborate on Use Case Demonstration
  - Create a Reference Implementation

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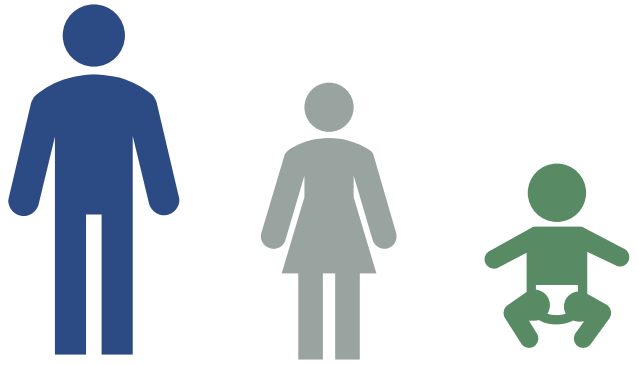
MELD

Another key part of what Communities of Practice do is sponsor the creation of personas and synthetic data called “DATA PACKS”



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Meet Alani

Alani Lee MSW

1

Stage 4 Breast Cancer

Alani is post-op for a partial mastectomy. Her metastatic brain lesions require high dose steroids to manage the cerebral swelling. She has been given a 22% chance of living past 5 years.

2

High Sepsis Risk

Due to the recent surgery, high dose steroids and history of Staphylococcus infections, she is has a high baseline risk for developing life threatening sepsis. A hospital during the Covid 19 pandemic is not a safe environment for her recovery.

3

Rural Native Hawaiian

Strong community support but 153 miles from her surgical team.

Alanie's Goal

Get home as fast as possible to be with her community.

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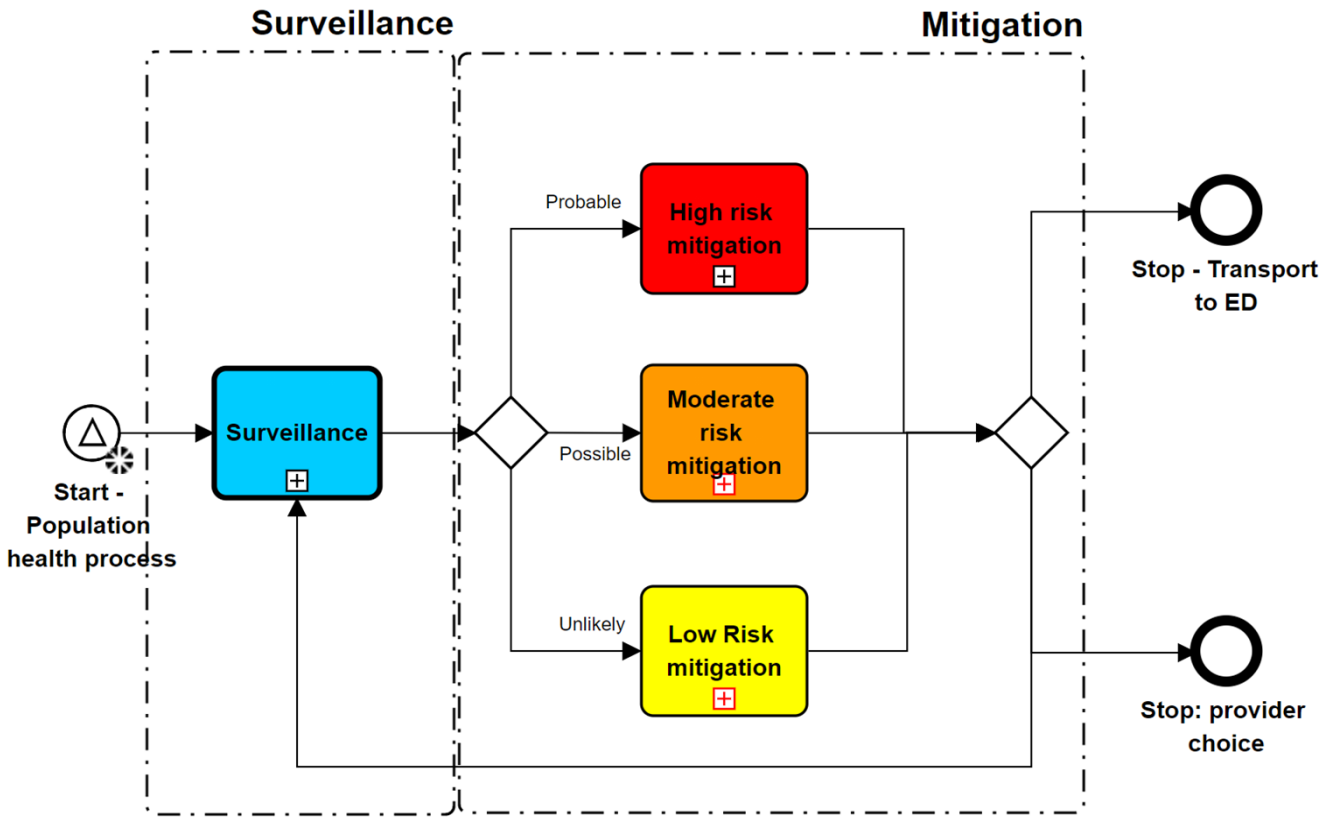
Population health risk surveillance & mitigation



- Open Standards
- Best practices & process
- Patient centric across all boundaries
- Modular
- Scalable
- Secure

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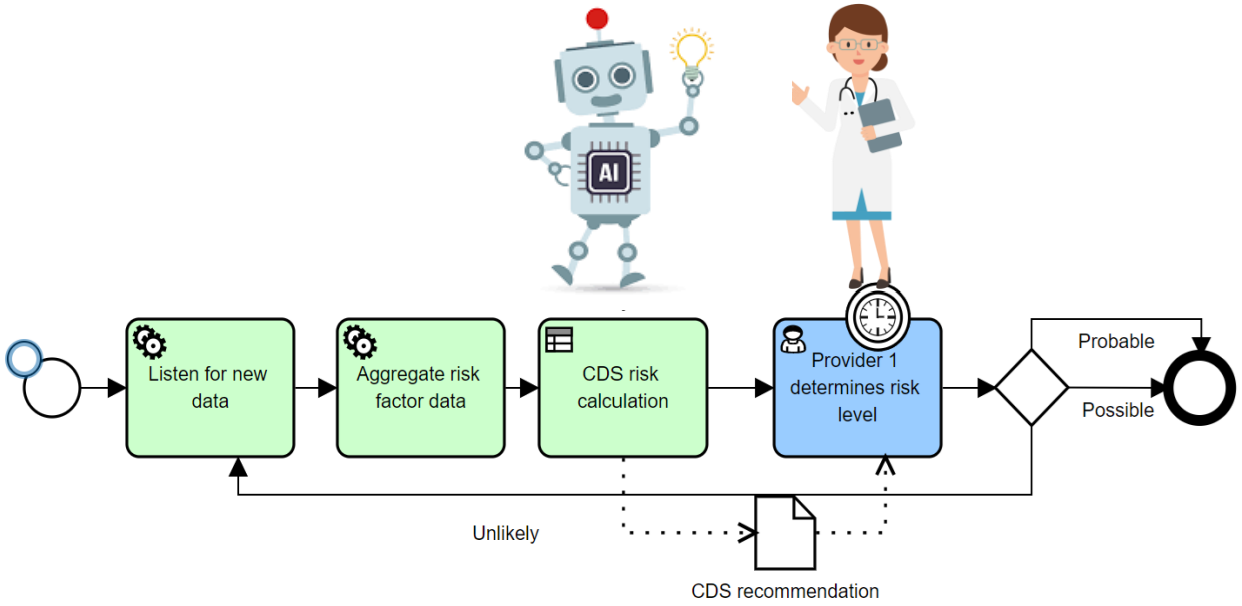
AI as Clinical Decision Support in provider workflows



- AI supporting Providers in areas of cognitive weakness
  - Listening for new data
  - Harmonizing data
  - Near real time risk calculation
- Reduces Noise & Frees Providers to focus on Patient care

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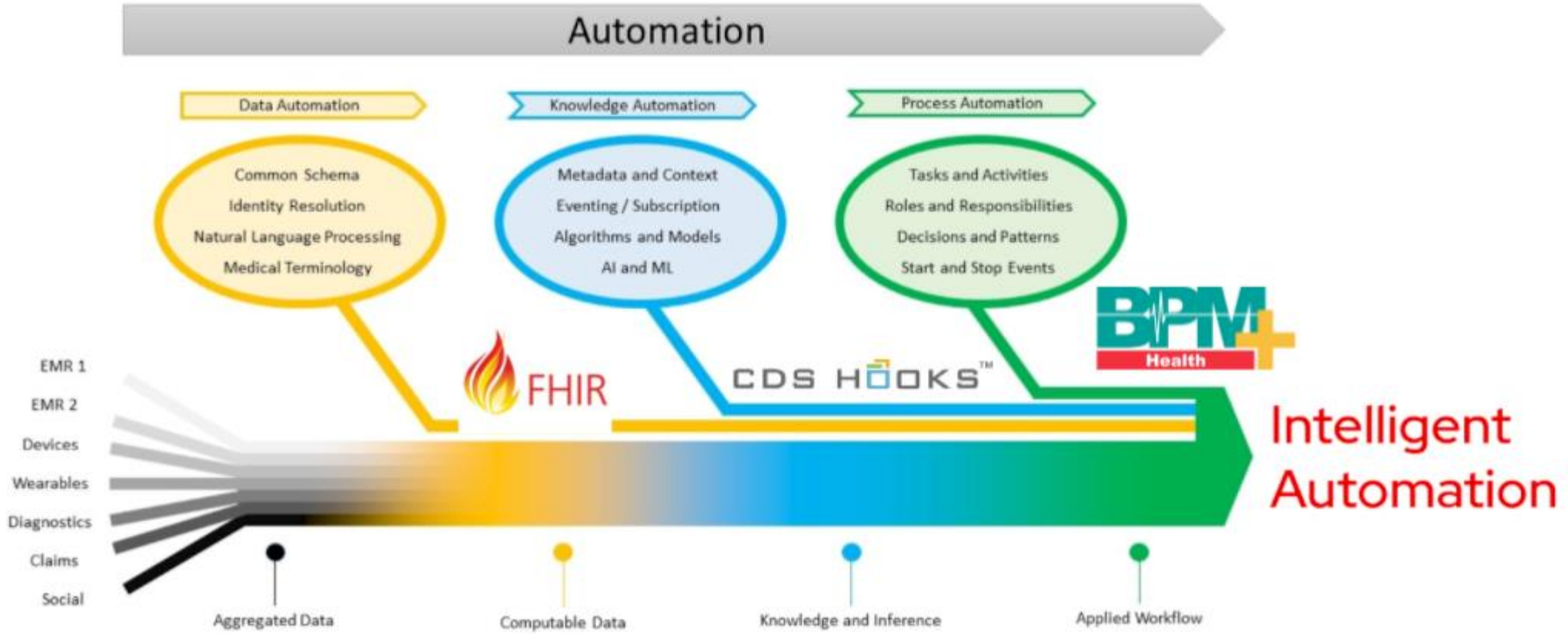

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Thank you!

Keyword: Grape