

# SNOMED CT and Clinical Decision Support

National Resource Centre for EHR Standards(NRCeS) Team  
C-DAC Pune

# What is Clinical Decision Support?

- Clinical Decision Support (CDS) is a service that enables healthcare providers to make well-informed decisions by
  - supplying guidance,
  - knowledge, and patient-specific information at relevant points in the patient journey, such as diagnosis, treatment, and follow-up.

# Mechanisms used by CDS

- CDS uses a range of mechanisms to assist users in this process
  - Automated alerts or reminders
  - Clinical guidelines
  - Contextually relevant reference information
  - Conditional Order Sets
  - Diagnostic Report
  - Patient-focused reports, forms or templates

# CDSS

- A Clinical Decision Support System(CDSS)is defined as a computer system or software application designed to support clinicians, other health clinical decision support system professionals, carers or patients making decisions related to the health and treatment of a patient.

# CDS Five Rights

- Supply the right information (evidence-based guidance, address the clinical need)
- To the right people (entire care team, including the patient)
- Using the right channels (e.g. EHR, mobile devices, patient portals)
- In the right intervention formats (e.g. order sets, flow-sheets, dashboards, patient lists)
- At the right points in the workflow (for decision making or action)

# CDS: Functional Areas



Alerts or  
Reminders

- Triggered by rules and designed to interrupt clinicians or patients at the appropriate time.

# CDS: Functional Areas



Clinical  
Guidelines and  
Reference  
Information

- Implemented as links to external references which are published by third party, knowledge experts.

# CDS: Functional Areas



Diagnostic  
Support Tools

- A combination of patient data, context-based suggestions and clinical knowledge links to aid the clinician in making a diagnosis.



# CDS: Functional Areas



Automatically  
Triggered Smart  
Forms

- Include reports and summaries, that are aimed at high quality records, reduction of errors, and more complete information.
- These tools can be triggered when a specific patient condition is detected or when a finding is deemed reportable to a jurisdictional health body.

# CDS: Functional Areas



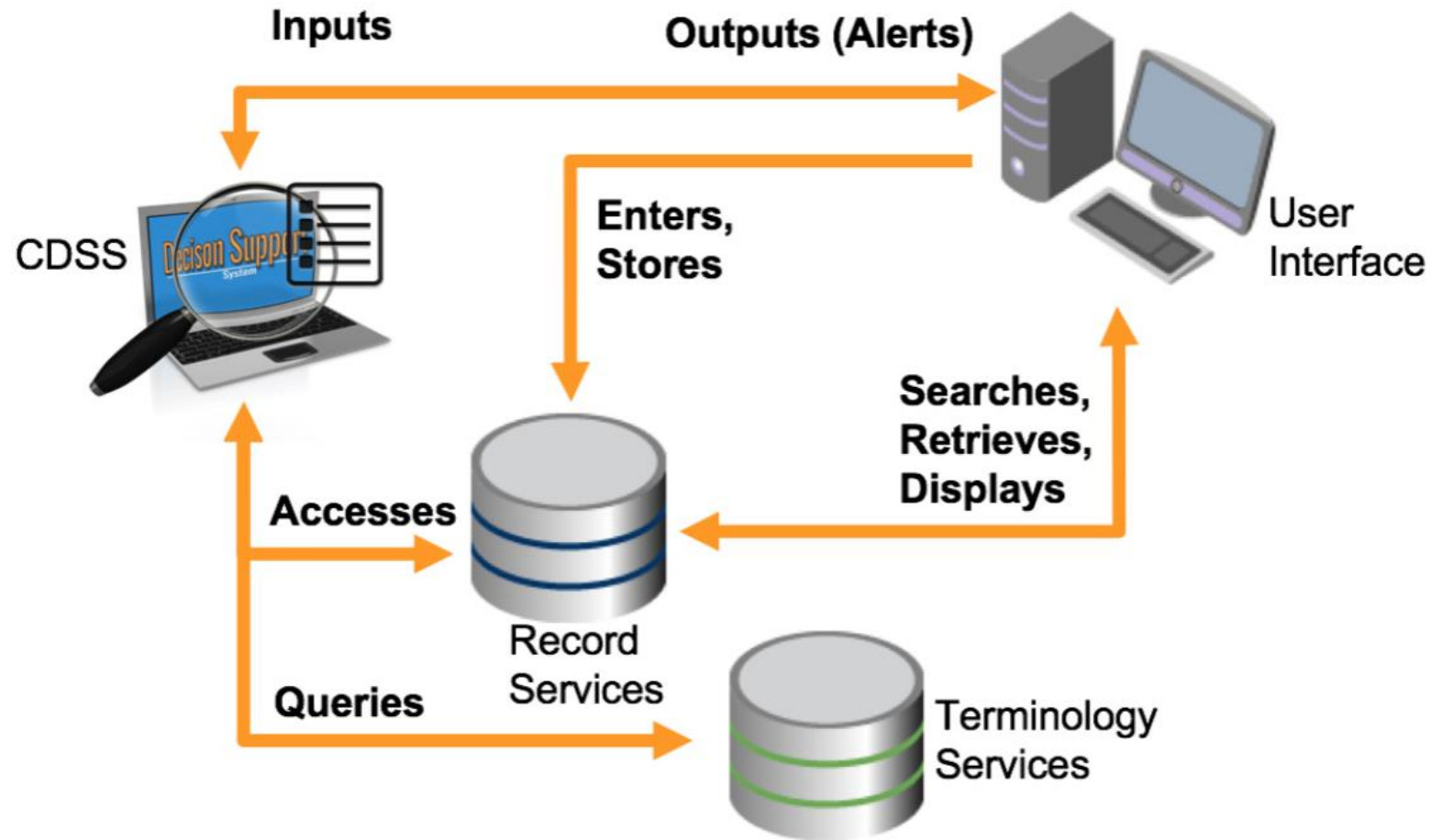
Conditional Order  
Sets and Pathway  
Support

- Typically designed for complex ordering scenarios.
- They may be comprised of a proposed set of orders or a treatment regimen which is based on an explicit situation or medical condition.

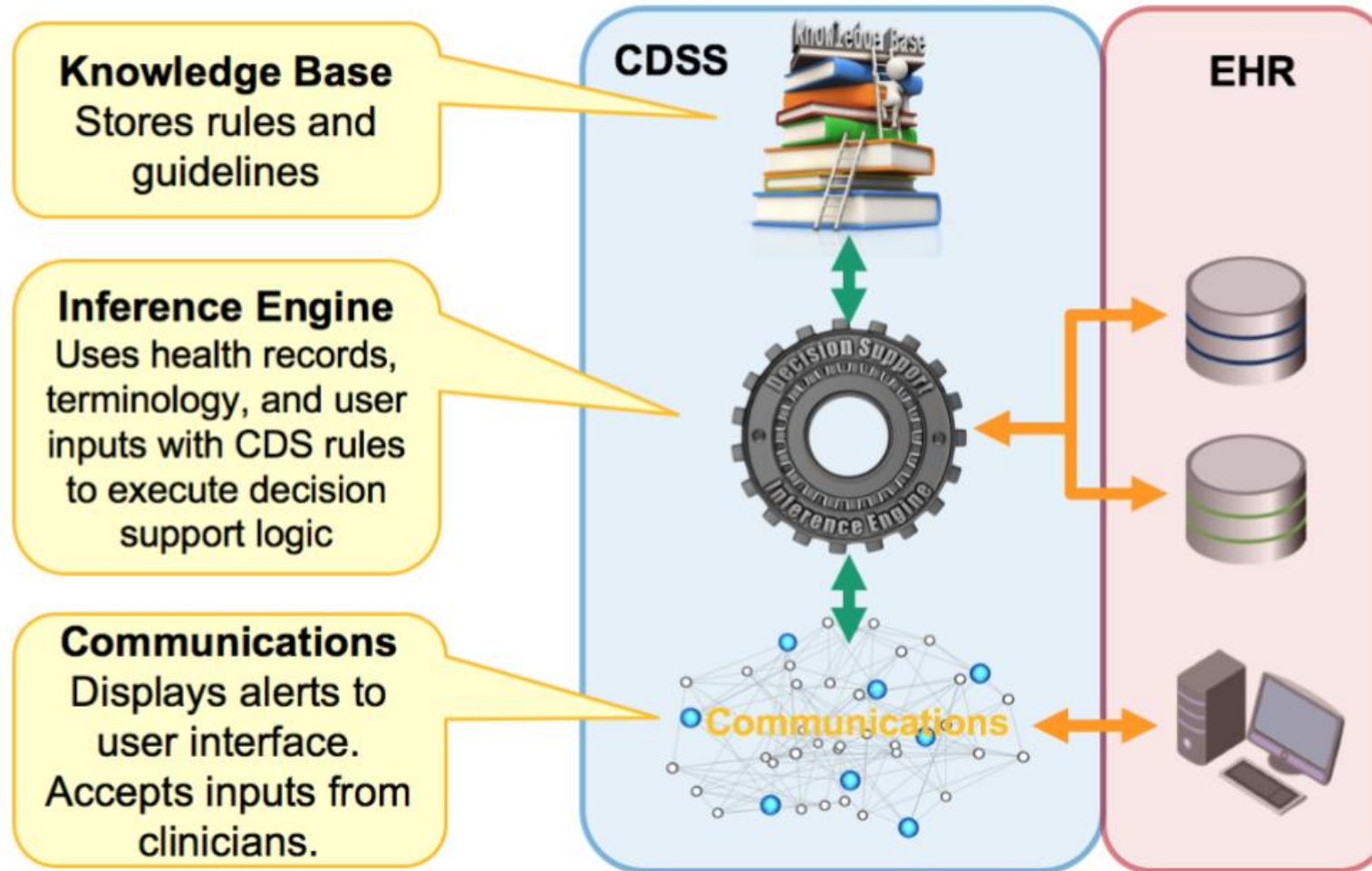
# CDS: Clinical Areas



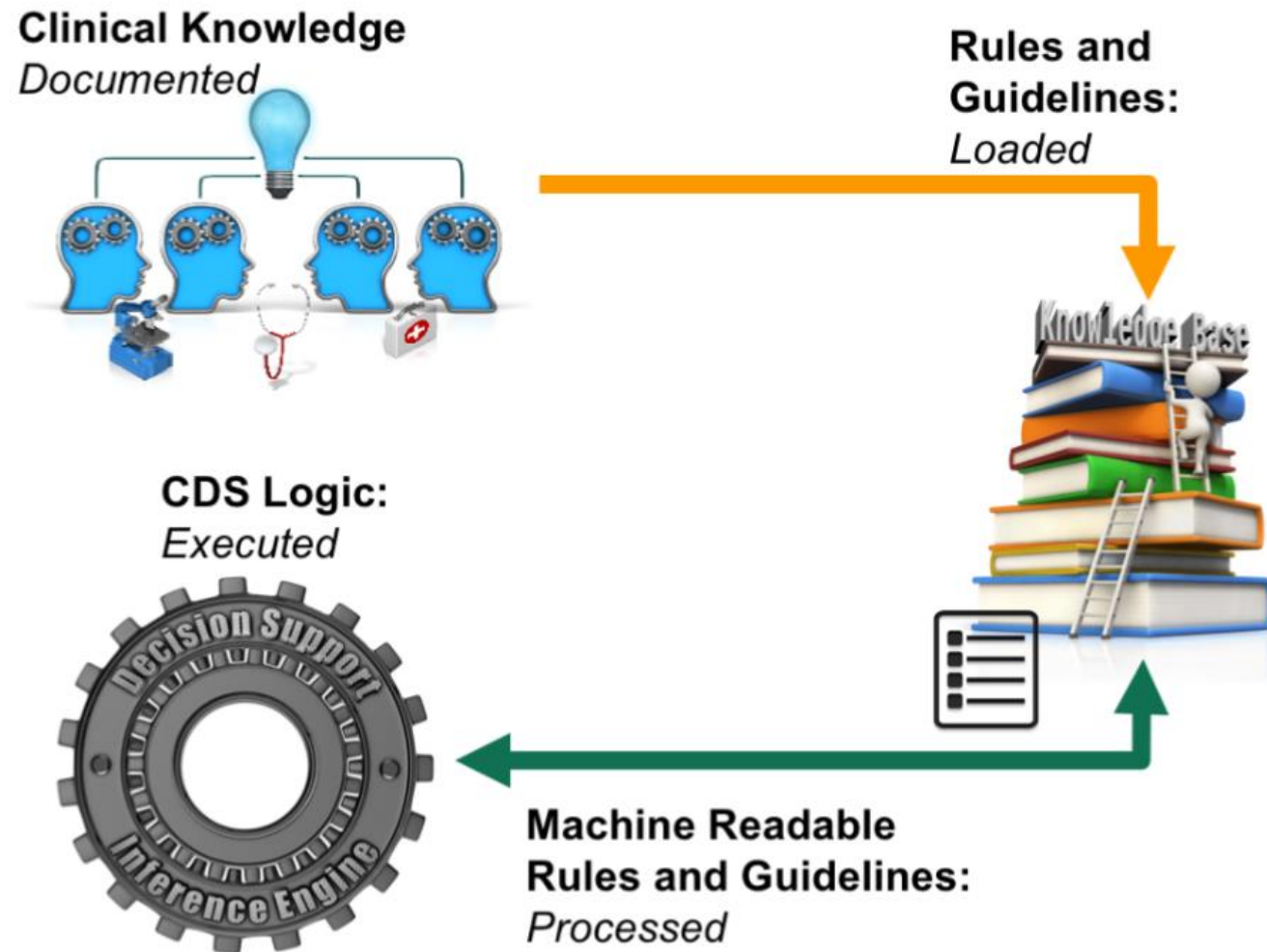
# EHR Components and Key Interactions



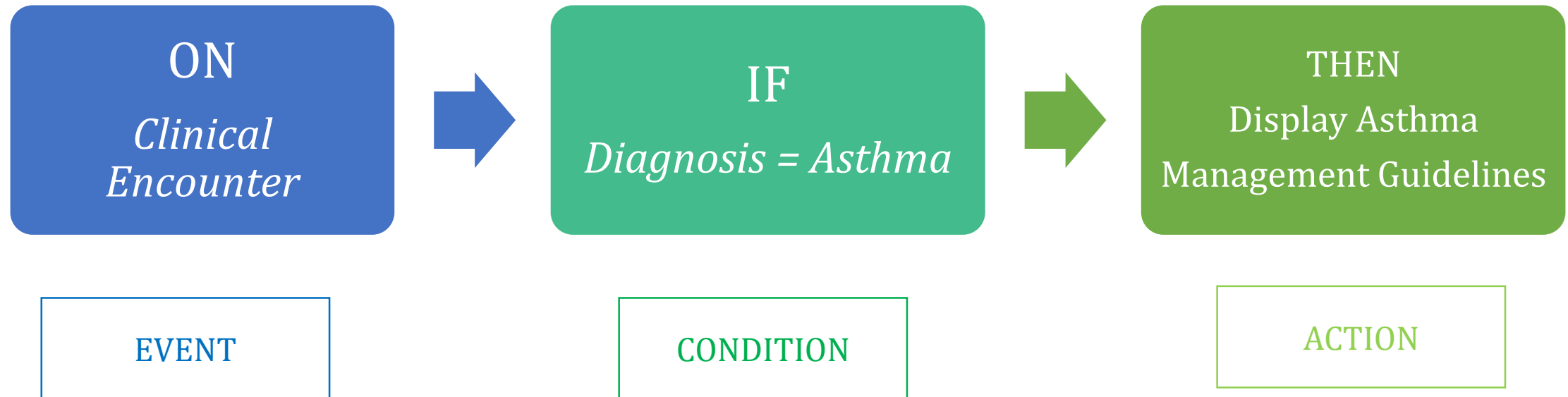
# CDSS Components and Key Interactions



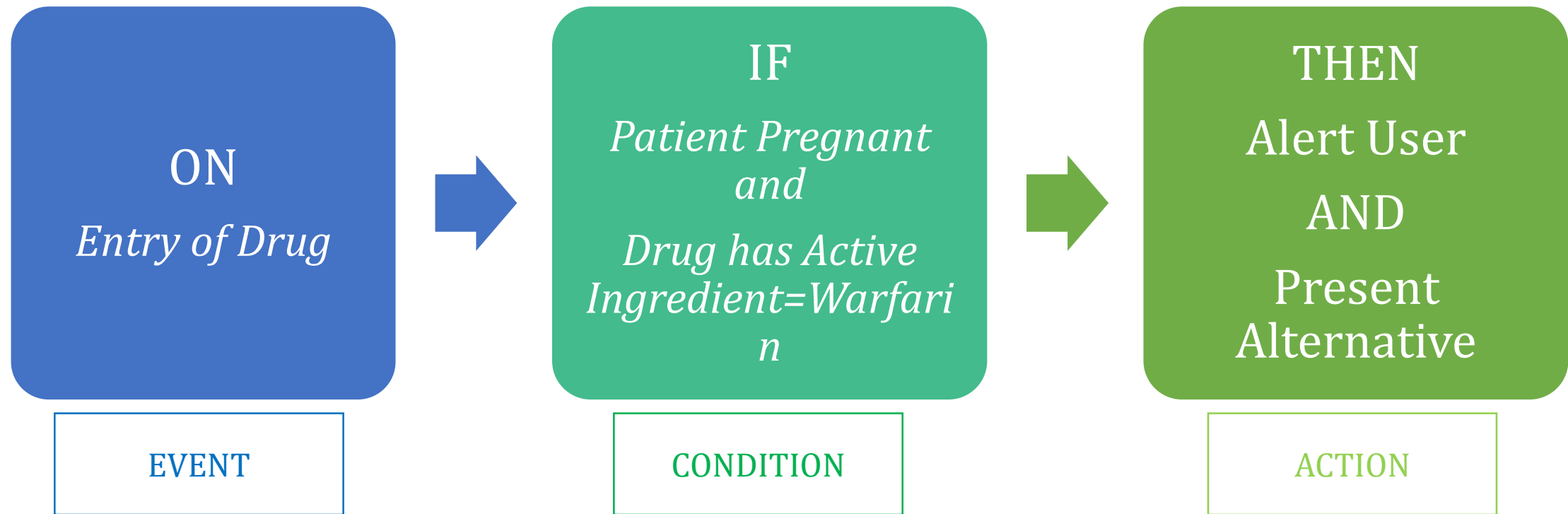
# Knowledge Base Interactions



# CDS Example: Asthma Diagnosis

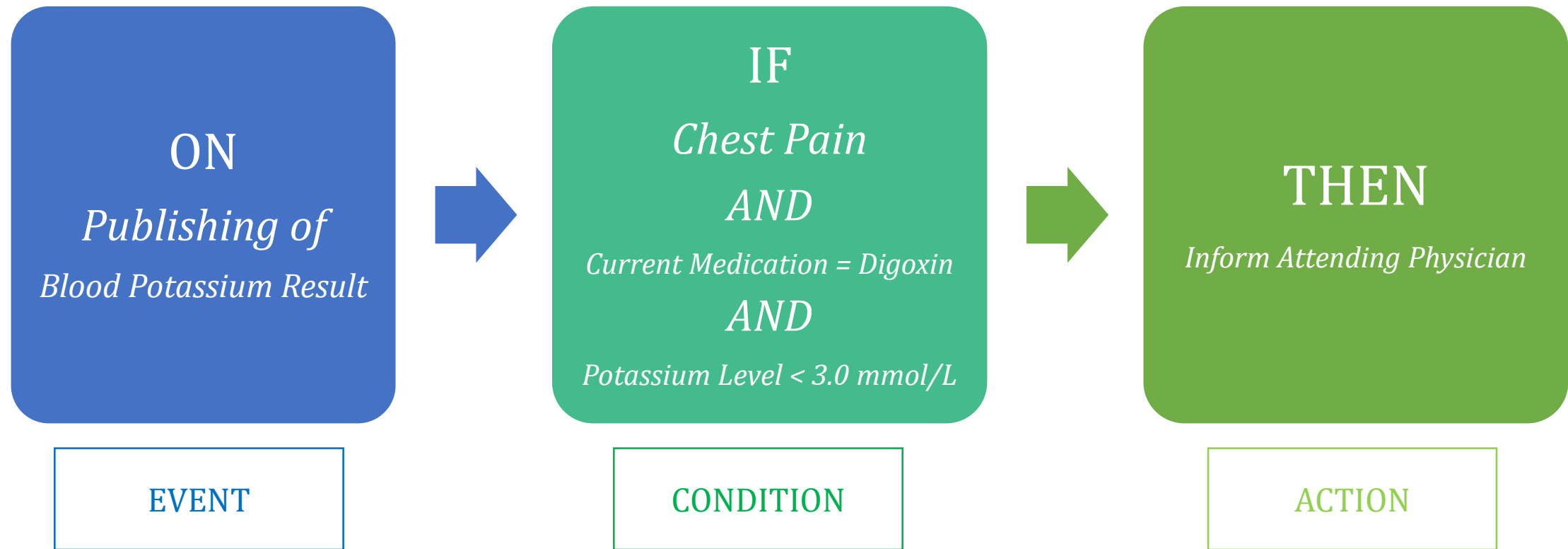


# CDS Example: Alert





# CDS Example: Emergency Department



# Reasoning with SNOMED CT

- Features of SNOMED CT can be used in a range of techniques which may then be applied to clinical decision support.
- For example, these techniques can help to execute decision support logic by assisting the inference engine in evaluating the trigger conditions defined in CDS rules.
- SNOMED CT Techniques used by CDS Inference Engine:
  - Reasoning with Subsets
  - Reasoning using Subsumption
  - Reasoning using Defining Relationships
  - Reasoning with Description Logic

# References

- Decision Support with SNOMED CT (by SNOMED International)
  - Latest web browsable version: <http://snomed.org/cds>
  - SNOMED CT Document Library: <http://snomed.org/doc>

# Thank You

[nrc-help@cdac.in](mailto:nrc-help@cdac.in)