



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.

- 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

- 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.

- 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)



Alerts or
Reminders

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



Clinical
Guidelines and
Reference
Information

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



Diagnostic Support Tools

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



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.

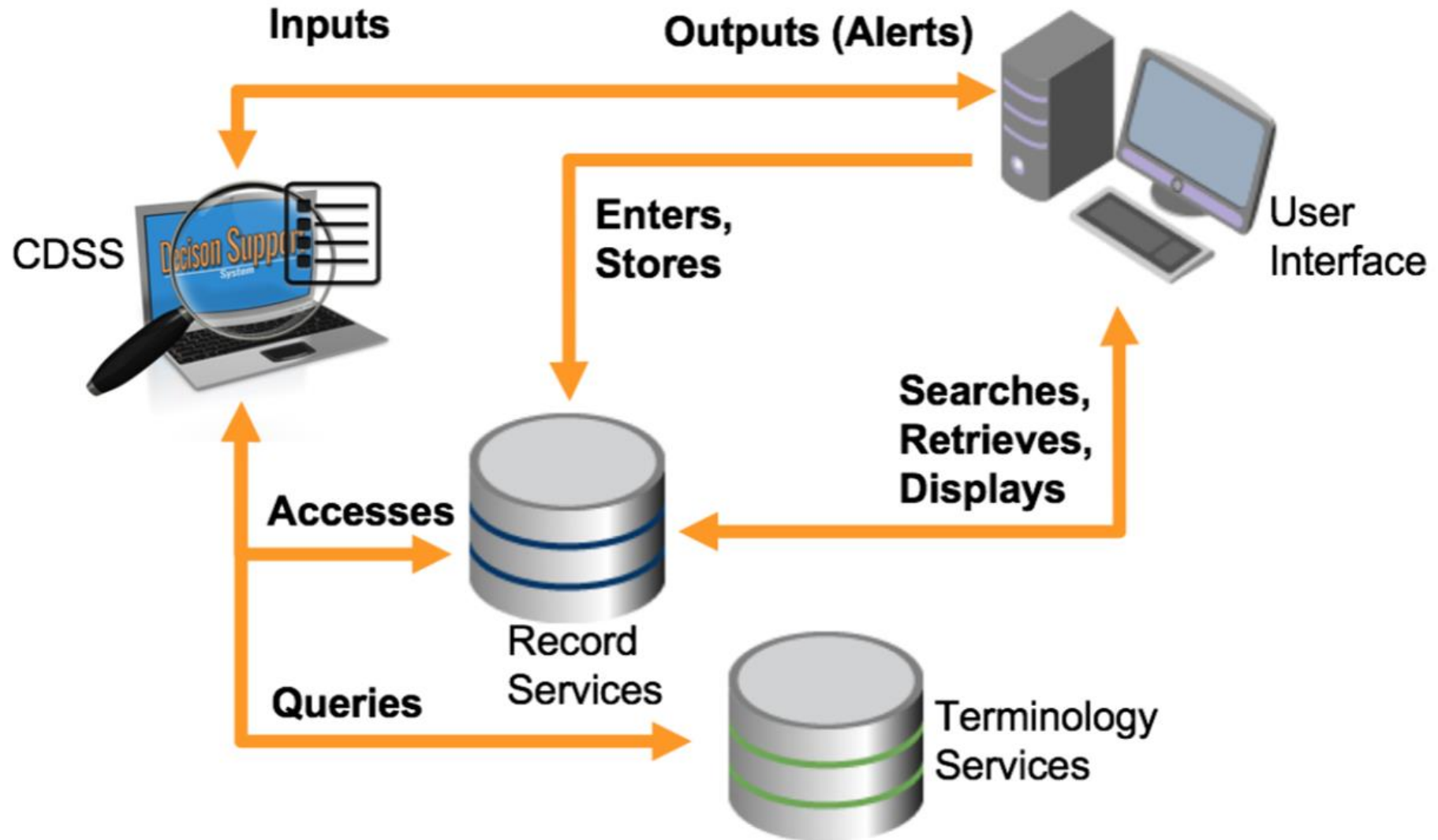


Conditional Order Sets and Pathway Support

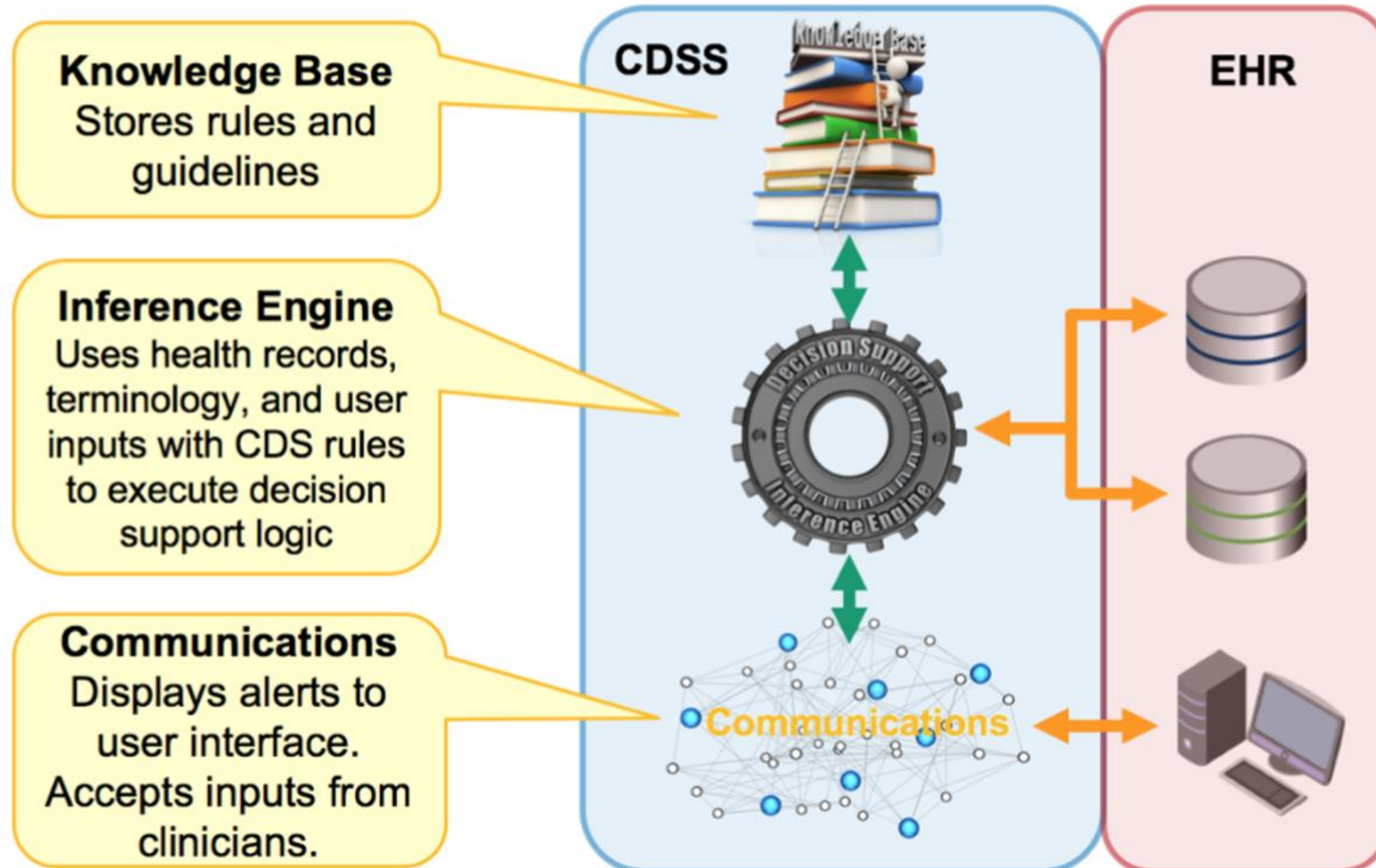
- Typically designed for complex ordering scenarios.
- They may be comprised of a proposed set of orders or a treatment regimen which is based on an explicit situation or medical condition.



EHR Components and Key Interactions



CDSS Components and Key Interactions



Knowledge Base Interactions

Clinical Knowledge
Documented



Rules and Guidelines:
Loaded



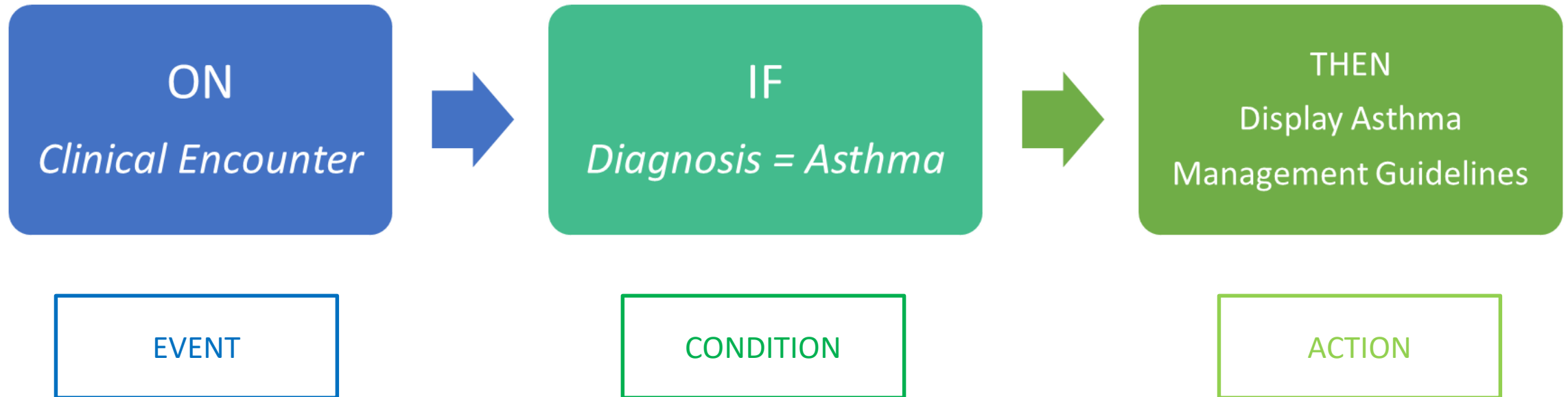
CDS Logic:
Executed



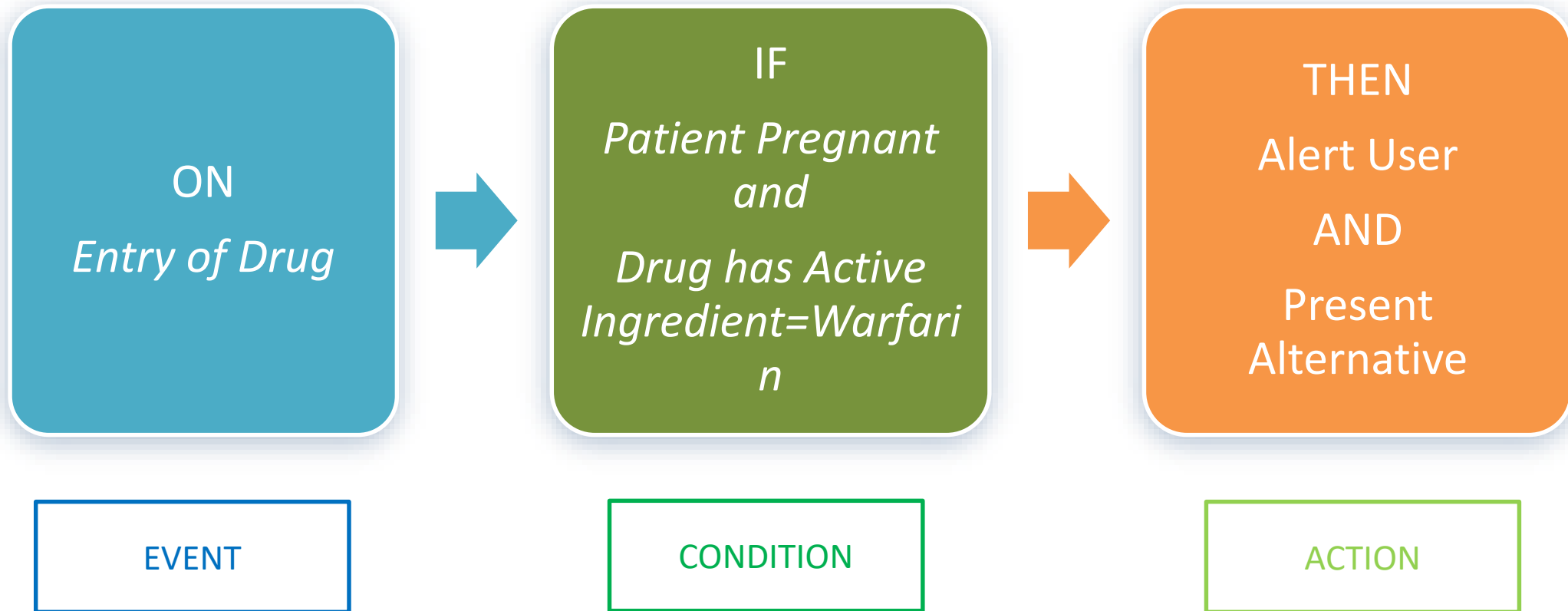
**Machine Readable
Rules and Guidelines:**
Processed



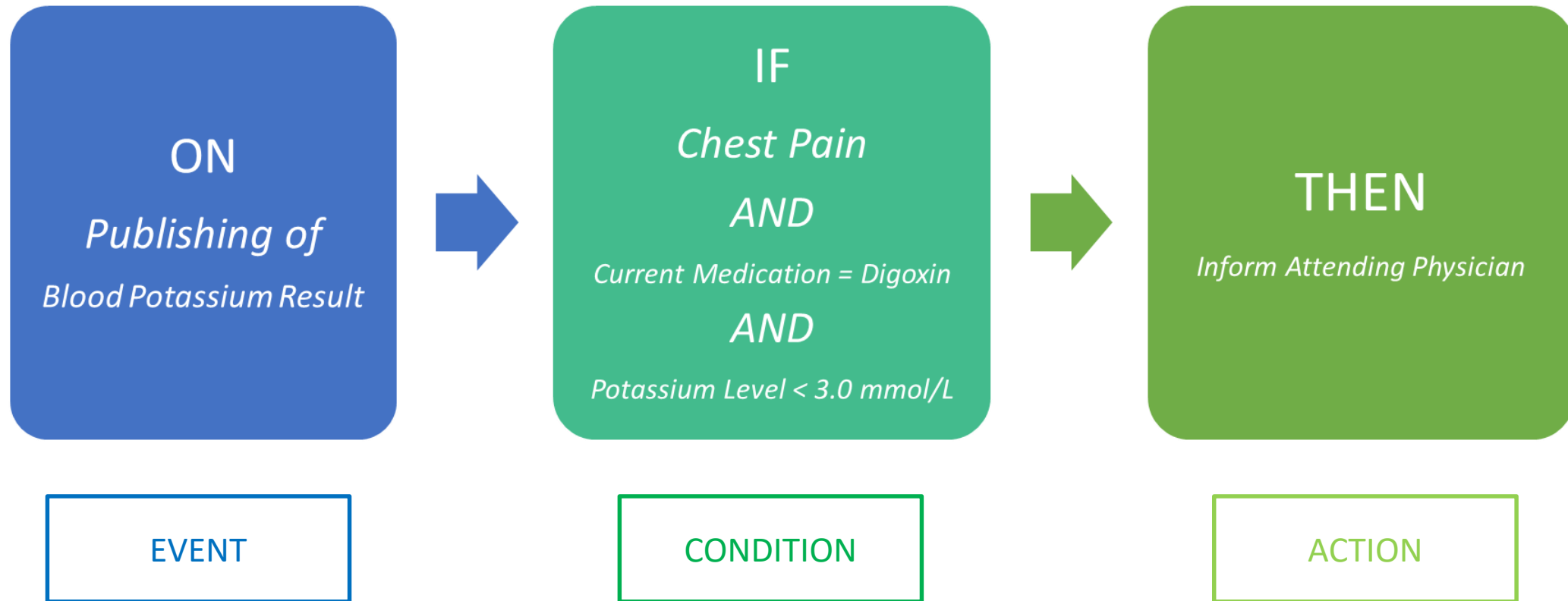
CDS Example: Asthma Diagnosis



CDS Example: Alert



CDS Example: Emergency Department



- Reasoning with SubFeatures 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

- 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

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