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Assignment 7: Intervention/Content Specification



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The assignment considers the content specifications for intervention to capture performance measurement from an EMR for Pneumonia in conjunction with a CDSS to evaluate outcomes.

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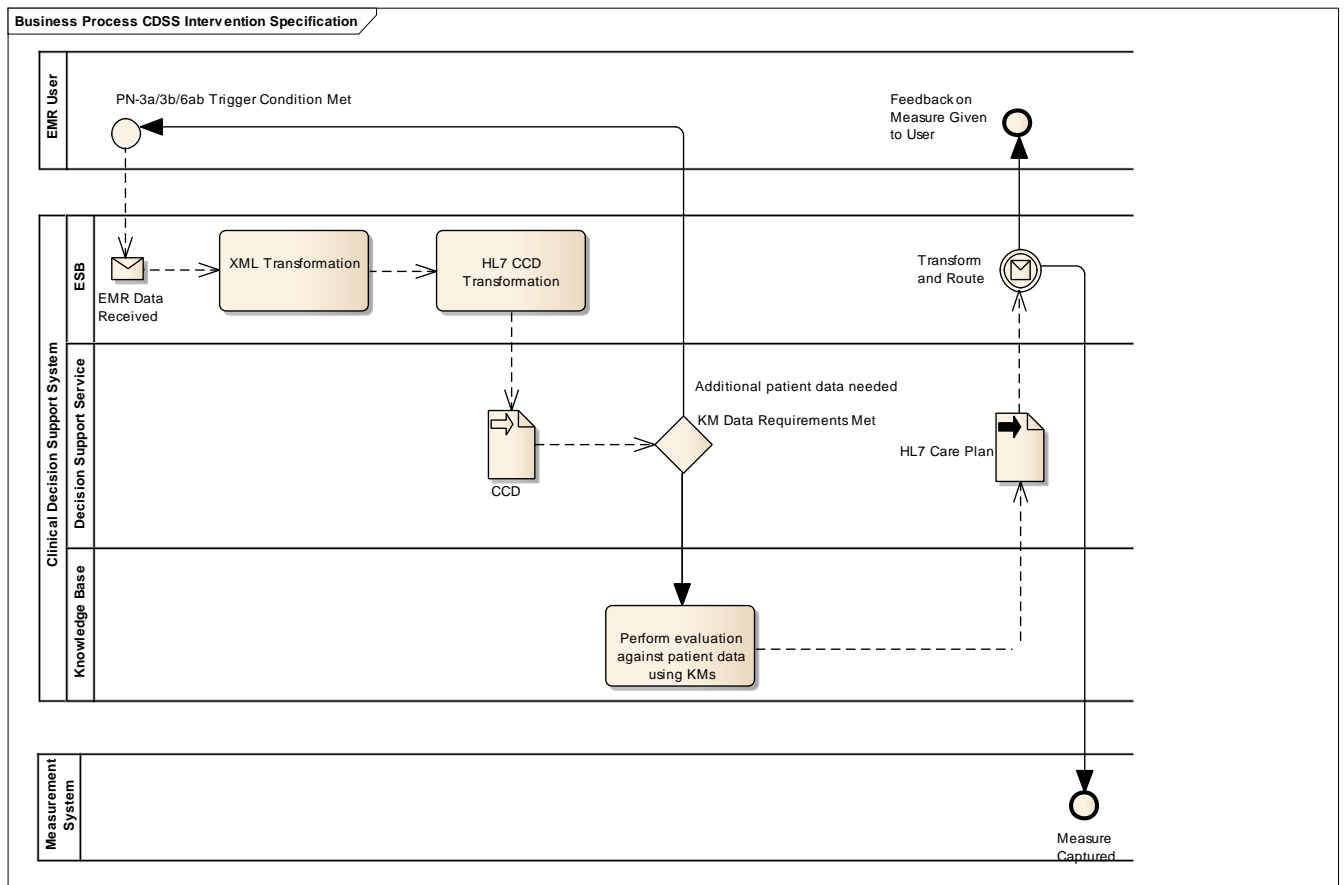
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PN Intervention (or content) Specification

Informational content that drives decisional determinations is sourced from the EMR and from the CDSS knowledge database. The former contributes patient-specific information such as the results of a chest X-ray upon admittance to an ED. In conjunction with data from the EMR, the latter contributes codified clinical knowledge that drives a rules engine to issue triggers for certain actions, such as ordering of a blood culture test. To ensure interoperability, standards based informational payloads will be leveraged across the HCO and will be passed to the CDSS for inference. Standard formats are an essential requirement in order to maintain semantic interoperability. The adopted standards inherent to the CDSS architecture are based on HL7 CDA architecture or an emerging alternative known as the Virtual Medical Record (vMR). Both are capable of capturing a robust collection of patient data and medical histories complete with standard ontologies such as CPT, ICD9, ICD10, SNOMED CT, LOINC, RXNORM, and OpenEHR archetypes, amongst others. In keeping with good design practices, communications between the EMR and CDSS is transparent to the user interacting with the EMR. As trigger conditions are met, control is passed from the EMR user interface to the Clinical Decision Service (CDS), which provides decisional outcomes. An example of this process is illustrated in the flow diagram below (PN-triggers illustrated).



The entire process is driven on suggested workflow decision trees supplied by the performance measure for each core set within the PN core measure. At decisional points within the workflow, the EMR and CDS interact cohesively to evaluate and designate preferred outcomes. Notably, since performance measures center on improving procedures, patient preferences (or utility values) are not taken into account. The goal is attainment of a higher level of compliance for the core performance measure (in this example, PN).

The proposed implementation achieves the following usability and design aspects:

- Subject Matter Experts (SMEs): knowledge is directly captured through electronic means and centrally stored in the knowledge modules. Direct ownership over logical rules will instill confidence in DSS knowledge source, contributing to increased levels of adoption and acceptance. Knowledge modules can be regressively tested to ensure positive expected outcomes;
- Knowledge-retention strategy is native to the solution and protects the HCO from loss of CDSS maintenance expertise arising from clinician turnover;
- SME knowledge is reusable and can be shared with both internal/external entities;
- By using DSL, the CDSS will provide intuitive capture of clinical rule input(s). Assertions or determinations will be decipherable by clinically-focused end users, and;
- Training is minimized as EMR workflow interaction is not materially impacted. Direct CDSS interactions are minimized through alert mechanisms that can be built into the EMR, avoiding unnecessary training.

The proposed model has great potential, and when implemented using a layered approach, it represents a disruptive innovation that challenges conventional norms for core measure across the healthcare industry.