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**Optimizing Infectious Disease Surveillance with Standardized Clinical Terminology**
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**Introduction**
In recent years, emphasis has been put on the improved use of existing biomedical data, for more economically advance research and better disease surveillance. Nevertheless, there are problems arising from the use of data collected from other systems, including the lack of semantic comparability of data. Hence, data could not be reused directly to answer clinical questions. For instance, the retrieval of Enterobacteriaceae organism is difficult, as laboratories are reporting a more detailed taxonomy level. As workaround, clinicians may have to manually draw up a list of selected target organisms for complete retrieval. To facilitate meaningful data retrieval, HA has adopted SNOMED CT (Systematized Nomenclature of Medicine - Clinical Terms), an international terminology standard for clinical documentation. SNOMED CT allows automatic processing of clinical concepts. Its hierarchical design is incorporated with expert clinical knowledge and international standards. This feature is potential for bridging the gap between clinical questions and data available, making infectious disease surveillance more intuitive.

**Objectives**
To enable laboratory organism result data interoperability, hierarchy navigation and query expansion in data retrieval systems. To allow more intuitive infectious disease surveillance and research by clinicians and researchers.

**Methodology**
The HA corporate organism list was retrieved from Information Architecture Management System (IAMS). The hierarchical information is provided by SNOMED CT relationship table (July 2017 international release format 2 package). Information from both sources is incorporated to construct an organism hierarchy tree. The tree was then made available to support ad hoc criteria frontend for navigation and query definition.

**Result**

As at September 2017, there were 3,152 corporate organism terms. In SNOMED CT (July 2017 international release format 2 package), there were 38,096 active organism terms with 102,946 descriptions and 43,640 relationships. Upon implementation of the hierarchical relationship information, corporate organism terms can be retrieved by synonyms in keyword search. The hierarchy tree also allows users to navigate among organism concepts on the ad hoc criteria frontend. It facilitates systematic selection and provides query expansion using the built-in hierarchy. Abstracted organism terms, which are not available in HA laboratory report, is now filled up by SNOMED CT. The search of abstract organism terms is capable of retrieving the descendants down the hierarchy. Hence, the manual selection effort is saved. Through this approach, the adopted terminology standard is able to enrich keyword search and achieve sematic ontology-based query expansion. It ensures completeness on patient records retrieval for analysis; and simplifies the query building process. The use of terminology standard serves as an integral part of the solution to address the requirements for effective electronic clinical records. There is a quote from SNOMED CT: 'A terminology on its own "does nothing". To benefit from a terminology, it must be implemented and used as part of an application.' The above example demonstrated how terminology standard is integrated in design of the software application to achieve meaning-based data retrieval. Through careful system design, the gap between clinical questions and data available can be bridged.