

Overarching HL7 Interpolation For Asian Interoperability

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Abstract-This paper takes a sneak-peek at the state healthcare sector in Sri Lanka. It looks at the number, type, and location in Sri Lanka, of the over 1600 state-run medical institutions, ranging from the small rural clinics, to the large city hospitals, the currently used healthcare-related IT technology in these institutions, the issues and shortcomings, the desired IT technology and service levels in healthcare, and the applicability of the Health Level 7(HL7) healthcare standard to elevate the IT services and its usage in healthcare in Sri Lanka, both vertically down the different healthcare-service-provider tiers, and laterally in terms of increasing demographic spread, related improvement in the relevant system performance indicators, and finally an *extrapolation* of these findings to the global context. The study employed valued, timely, and relevant data collected about the healthcare sector in Sri Lanka in the analysis and solution phases, but the findings are ubiquitous and overarching, seamlessly extrapolatable to the Asian and greater universal contexts as well.

Index Terms: Health Information System, HL7, Semantic Interoperability.

I. INTRODUCTION

The mission of Sri Lanka's Ministry of Health's (MOH's) healthcare endeavour (including eHealth), as defined in [2] is "to provide quality and timely health information for evidence-based decision making through the establishment of a ubiquitous, integrated, dynamic, resilient, cost-effective, and sustainable Health Information System (HIS)".

Many state hospitals and medical facilities around the island have installed bespoke, turn-key healthcare-related IT solutions. These automated Hospital Healthcare Information Management Systems (HHIMS) which have supplanted their legacy, antiquated, manual counterparts, are networked, web-based solutions with native backend database management systems (DBMS). For instance, healthcare facilities in Tsunami affected

areas (the Tsunami hit the Sri Lankan southern coastline in December 2004) received IT-related funding expeditiously from many foreign aid agencies. The participating *implementation* software vendors have been wide and varied depending upon the nature of the aid, its source, the price, after sales service, and individual preference of the aid giving organization and/or the recipient healthcare institution.

The standards if any with regard to the developed and implemented HHIMSs are inherent to the particular turnkey application or the *software-house* developed solution. The non-adherence to universal healthcare standards such as Health Level 7(HL7) lead to totally arbitrary, inconsistent, often incongruous and non-uniform solutions; a death knell for our sacrosanct mission of achieving comprehensive and efficient *semantic interoperability* in application. The use of *sympiotic* standards such as HL7 serve to formalize, regulate, and homogenize application specifications development. Health Level 7 [1] is a global, non-profit body which introduced the HL7 healthcare standard in 1987.

The prudent HL7 standard interpolation would promote the broadbased, cost-economic use of the universal healthcare standard in order to achieve *multi-phase* interoperability, efficacious and efficient data and information exchange amongst stakeholders, and a resulting *exponential* improvement in healthcare levels nationwide. Implementation-wise, a cloud-based, distributed solution would be optimal for our needs.

II. PRESSING REQUIREMENTS OF IT-ORIENTED HEALTHCARE AT PRESENT

The main goals as enunciated by the Ministry of Health in regard to any new healthcare-related, standard-driven IT system are as follows: