



SHORT COMMUNICATION

AUTHORS

Bruno Calisto Del Mario¹, Alysson
Henrique Neves Ramos², Alfredo
Alderete Llamosa²

Corresponding Author : Bruno
Calisto Del Mario
Email: calistoinfodel@bol.com.br

DOI (CROSSREF)

[https://doi.org/10.36557/2674-
8169.2019v1n6p147](https://doi.org/10.36557/2674-8169.2019v1n6p147)

AFFILIATED INSTITUTION

1-Departamento de ciências da
informação – Universidade Federal do
Amapá – Macapá – Amapá – Brasil

2- Departamento de ciências
odontológicas – Faculdade São
Leopoldo Mandic

KEY WORDS

Interoperability; Public Health;
Information Systems

INTEROPERABILITY OF PUBLIC HEALTH INFORMATION SYSTEMS IN THE STATE OF AMAPÁ

Interoperability in public health has major advantages over agility gains throughout the state bureaucratic logistics system. This agility is fundamental to help relieve the highest demand in all areas of health sciences in the Brazilian public service. This short communication aims to inform the population of Amapá and the academic community about the implementation of interoperability of public health services in the state of Amapá. The service is already in its implementation phase and is expected to end and be fully used by early 2020.

INTEROPERABILIDADE DE SISTEMAS DE INFORMAÇÃO EM SAÚDE PÚBLICA NO ESTADO DA AMAPÁ

INTEROPERABILIDAD DE LOS SISTEMAS DE INFORMACIÓN DE SALUD PÚBLICA EN EL ESTADO DE AMAPÁ

RESUMO

A interoperabilidade em saúde pública tem grandes vantagens sobre os ganhos de agilidade em todo o sistema de logística burocrática do estado. Essa agilidade é fundamental para ajudar a aliviar a maior demanda em todas as áreas das ciências da saúde no serviço público brasileiro. Esta breve comunicação visa informar a população do Amapá e a comunidade acadêmica sobre a implementação da interoperabilidade dos serviços públicos de saúde no estado do Amapá. O serviço já está em sua fase de implementação e deve terminar e ser totalmente utilizado no início de 2020.

Palavras chave: Interoperabilidade; Saúde pública; Sistemas de informação

RESUMEN

La interoperabilidad en la salud pública tiene grandes ventajas sobre las ganancias de agilidad en todo el sistema logístico burocrático del estado. Esta agilidad es fundamental para ayudar a aliviar la mayor demanda en todas las áreas de las ciencias de la salud en el servicio público brasileño. Esta breve comunicación tiene como objetivo informar a la población de Amapá y a la comunidad académica sobre la implementación de la interoperabilidad de los servicios de salud pública en el estado de Amapá. El servicio ya está en su fase de implementación y debería completarse y utilizarse plenamente a principios de 2020.

Palabras clave: interoperabilidad; Salud pública; Sistemas de información

Bruno Calisto Del Mario: Mestre e Doutor em Ciências da informação

Alysson Henrique Neves Ramos: Mestre em Implantodontia

Alfredo Alderete Llamosa: Mestre em Implantodontia

CITATION THIS ARTICLE

DEL MARIO, Bruno Calisto, RAMOS, Alysson Henrique Neves, LLAMOSA, Alfredo Aldrete. Interoperability of public health information systems in the state of amapá. **Brazilian Journal of Implantology and Health Sciences**. v.1, n.6, p. 147-151, 2019.

INTRODUCTION

Interoperability is defined by IEEE as “the ability of two or more systems or components to exchange information and to be able to use the exchanged information” [1]. This definition implies syntactic and semantic interoperability: the first refers to message-level interoperability (for example, PDF files via FTP) and the second refers to semantic level interoperability (eg being able to identify diagnostics within the exchanged document). In the latter, the data can be processed automatically by the computer, since there is agreement on the semantics of the data exchanged between the systems (ie, the original meaning of the information remains). Interoperability is essential if it is to: (i) provide the healthcare professional and the patient with a holistic view of the patient's entire medical history; (ii) assist the health professional by automating computational procedures and; (iii) allow the use of the entire computational arsenal developed over the years to process patient data, generating alerts, notifications and reminders [4].

Despite the importance of health interoperability, it has not yet been possible to achieve the desired level of integration between systems. What are the reasons for this?

Justification

There are several factors that act against the development of broad health interoperability. First, there is the problem of how to represent information for its computational manipulation. Semantic interoperability implies the standardization of vocabularies (performed through standards such as ICD-10, LOINC, UMLS, SNOMED-CT and others), standardization of structures for data representation (such as HL7, CDA, openEHR, etc.) and cross-system messaging standardization (such as DICOM, XDS, IHE, and HL7). The development of these standards is slow and their adoption even slower. As the domain of health is very complex, the computational representation of its concepts ends up being also complex, which makes the adoption of standards in the area difficult, since it is necessary to train the professionals involved in the development of systems and also those who use them (physicians), nurses, physiotherapists, among others). Moreover, it is crucial to convince managers and

decision makers to invest in these technologies. Another factor that hampers more general adoption is the large amount of existing standards. Many of them overlap, making it difficult to know which one to adopt. There is currently a global effort to 'harmonize' standards so that they can be interconnected and unified in the overlapping parts. In Brazil, the government established, through Ordinance 2.073 / 2.011 [2], a series of standards to be adopted within the scope of the SUS, which may encourage their adoption in the country.

Another important condition for adopting interoperability is to ensure the security and confidentiality of patient data. By exposing patient data for exchange, their security becomes more susceptible and there is a risk, in the event of any breach, that the hospital / provider will suffer legal proceedings and lose the trust of the population. The HIPAA Journal, for example, cites violations of an additional 11 million health records in June 2016 [3] in the United States, justifying the fear of making its patient data available.

METHODOLOGY

With Amapá's adhesion to the national electricity system through the "Tucuruí Linhão", it was possible to reach broadband internet in the state. The Amapá state government immediately implemented high-speed internet in all sectors of its responsibility, thereby integrating the Amapá health system with neighboring states through interoperability. All patients are having their records registered and indexed in the Amapá state government portal. This portal shares these entries with similar indexing portals in other states through a simple operation of protocols on open OAI-PMH files via Dspace.

OTHER CONSIDERATIONS

Exposure of patient data can be interpreted as harmful by health care providers as it facilitates patient migration to other providers [5]. But on the other hand, it simplifies system integration by allowing companies to invest in standards-based solutions (such as radiology reporting systems that integrate via DICOM and HL7), lowering investment costs and increasing the market.

Challenges for the universal use of interoperability standards are still large and address issues technological, legal and economic-administrative. Thus, there are still many

opportunities for the development and research of Health Informatics solutions for the theme. However, as technology issues represent only part of the solution, a concerted effort by health professionals, providers, institutions, users, and government is needed to establish an environment in which Health data interoperability can be achieved.

REFERENCES

1. IEEE. IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries. IEEE Std 610 [Internet]. 1991;1–217. Available from: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=182763&isnumber=4683>
2. Brasil. Ministério da Saúde. Portaria No2.073, de 31 de agosto de 2011. Regulamenta o uso de padrões de interoperabilidade e informação em saúde para sistemas de informação em saúde no âmbito do Sistema Único de Saúde, nos níveis Municipal, Distrital, Estadual e Federal, e para os sistemas privados e do setor de saúde suplementar. [Internet]. 2011 [citado 2016 Aug 10]. Disponível em: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2011/prt2073_31_08_2011.html
3. HIPAA Journal. Major 2016 Healthcare data breaches: mid year summary [Internet]. 2016 [cited 2016 Aug 8] Jul 11. Available from: <http://www.hipaajournal.com/major-2016-healthcare-data-breaches-mid-year-summary-3499/>
4. ARADA, Juan Marques Garcia. Innovation of the chemical-sanitary industry and biotechnology in health: in search of a sustainable practice. Periódicos Brasil – Pesquisa Científica. v.1, n.1, p. 01-08, 2019. Available from: <http://www.periodicosbrasil.com.br/pbpc-v1-n-1-innovation-of-the-chemical-sanitary-industry-and-biotechnology-in-health-in-search-of-a-sustainable-practice>
5. PARAGUASSU, Éber Coelho; LACERDA, Jamille dos Passos. Oral health of the elderly in Brazil: Systematic review. Brazilian Journal of Implantology and Health Sciences, v.1, n.2, p. 25-33, 2019. [Crosref](#)