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Oral e-Health: Definition of Essential Attributes of Oral Health for the Information Record in Primary Care

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Abstract

Standardization is essential for information sharing among different health care institutions. Our objective was to identify the essential oral health attributes to include in an electronic health record for primary care. This action research study utilized a Definer Group, which selected attributes as a mind map, into four main pillars: Data Collection, Diagnosis, Care Plan and Evaluation. This research applied the practice of knowledge leveling, favoring the interaction of dental specialties and identification of attributes.

Keywords:

Oral Health; Primary Health Care; Dental Records.

Introduction

There is no health care without information. "The collapse of comprehensive health care and the inadequate use of financial resources are directly associated with a lack of access to readily available and reliable information, as well as rework and lack of support for clinical decision-making" [1].

Clinical decision-making based on fragmented and impaired information has a direct impact on the prognosis and outcome of health care treatment. Longitudinal monitoring and multiprofessional health care are also compromised and even impossible to perform [2].

Primary health care is the main gateway for the individual in the Brazilian Unified Health System (SUS). This reinforces the importance of a ready and trustable information access system, since this level of health care aims to develop comprehensive care that impacts the general health status, the autonomy of people, and the determinants and health conditions of the collectivities [3].

Standardization is essential for information sharing among different health care institutions and health professionals. This requires a national effort in e-health, with large investments, participation of various segments and health actors, which several countries have carried out [3]. The e-health is defined as "the combined use of electronic information and communication technology in the health sector for clinical, educational, research, and administrative purposes, both at the local site and across wide geographic regions" [4]. In Brazil, guidelines and actions established in the e-health vision [5] already reveal the prioritization of the subject by Brazilian government. However, what data should be recorded?

Despite the advance of e-health in the SUS [5], most of the information provided by its various systems relates to

administrative management, to feed health indicators that provide partial or skewed information by registry instruments. Clinical information focusing on the individual, sufficient for clinical decision-making, is not yet available in an integrated and longitudinal format.

The development of the interoperable Electronic Health Record (EHR), in particular for primary care, will require a great effort. It must involve different health care professionals working to define the information model, aiming to ensure the completeness and interdisciplinary that primary health care needs [6].

In 2016, the researchers' group of this study proposed an informational model that meets the principle of integrality in health care, with a comprehensive approach [6]. This model intends to be the starting point for the different primary care professions to define, with greater granularity of details, the set of essential information to be registered. Dentistry makes up a set of health professions that work in primary care, and based on the information model mentioned, the objective of this study was to identify the essential attributes on oral health to be contemplated in a multiprofessional electronic health record for primary care.

Methods

This observational, exploratory, cross-sectional and action research study was approved by the Ethical Committee at Universidade Federal of Goiás, Brazil (protocol 2,206,915).

It included five steps: a) Selection of the experts' panel in dentistry (Definer Group - DG); b) Action research - knowledge leveling workshop; c) Individual activity by specialty (comparison of the health record used by the dental specialties with the defined semiological tree); d) collective activity (proposal of Oral e-health as a mind map format); e) selection of attributes for validation and modeling.

The DG was composed of five dental specialties, representing the areas of Stomatology, Periodontics, Collective Health, Pediatric Dentistry, and Endodontics. These specialists fulfilled the inclusion criteria and agreed to participate in the study, comprised of three males and three females [7].

Of the eight invitations sent, two professionals did not accept for the unavailability of time. In terms of professional training, all participants were masters, with publications and dissertations defended in one of the following areas: Semiology, Stomatology, Endodontics, Periodontics, Public Health, or Pediatric Dentistry. Of these, 83% completed their doctorate degree, 17% had their doctorate in progress, and 66% had at least one specialization.

¹ Panel of Specialists in Health - Definer Group, see the Appendix A.

All participants have been teaching, performing research, or other extension and oral health care activities.

The DG performed action research, by means of knowledge leveling workshops on health information collection, mediated by professors from the area of Semiology in Dentistry [8].

The result of the collective workshops, face-to-face, and distance meetings allowed building a mind map, using the FreeMind tool. This strategy resulted in a model, the Oral e-Health, integrated to the multiprofessional information model.

Results and Discussion

The mind map, a product of more than 50 hours of meetings, contained four pillars: Data Collection, Diagnosis, Care Plan and Evaluation. A total of fifteen face-to-face workshops were held with the DG, in addition to approximately twenty hours of individual meetings.

In this first step of defining Oral e-health, the DG focused its work on the data collection pillar of the multiprofessional information model [6], a priority for the continued development of the integration of dental health attributes to the general health of the individual in the other pillars (Diagnosis, Care Plan and Evaluation).

The mind map, a product of the workshops performed with the DG, resulted in the modification, detailing, and inclusion of several items related to Data Collection. The complete mind map version is available in FreeMind format at <u>https://github.com/professorarenatabraga/Oral-e-Health</u>.

The mapping of this set of attributes to the construction of an electronic health record is an important activity; perhaps, it is one of the highest priorities, which requires the involvement and collaboration between professional with different areas of knowledge [3].

This action research was interdisciplinary, since the DG performed the investigation of the essential attributes of each dental specialty simultaneously with the collective knowledge leveling of semiological concepts; this has contributed to each professional understanding the importance of attributes of the other specialty, their overlaps, the need for exclusion or inclusion of terms, and how to present and organize the information used in their routine clinical practice.

The profile of the professionals that composed the DG, determined by the criteria adopted in the selection, ensured the scope of primary care, without losing the detail and flexibility necessary for evidence-based clinical decision-making in a multiprofessional context [1,8].

The use of the mind map allowed the DG an easy navigation, as well as an extended and at the same time detailed view of the set of attributes that was being delineated [9]. The mind map included the essential attributes for oral health in the scope of primary care, integrated with those of general health, and will be the basis for the elaboration of an informational model, taking into account the guidelines and actions proposed by the Ministry of Health [5].

The attributes presented in the mind map, besides serving as a basis for the elaboration of the information model, also constitute the basis for the construction of archetypes, an independent approach of technology. The use of archetypes and terminology standards is decisive for the promotion of the desired level of interoperability of health information record systems and their consequences: search and sharing of health information with quality, and improvements in health care, like in Norway, Germany, New Zealand and Australia [3].

Conclusions

The main contribution of this study was to increase the level of detail, completeness and pertinence of the essential attributes for oral health primary care, presenting a methodological approach to do it. The intervention of the action research was crucial to leveling semiological knowledge, favoring the interaction of different dental specialties on establishing essential information for an oral health register. The workshops allowed a reflection on the essentiality of the information that each specialty required individually and how they could be rearranged collectively to the individuals' general health register.

Specialists interaction as a Definer Group was fundamental for identification of Dentistry's concepts, in the primary health care context, that will require a formal clinical modeling using the standards adopted by the Brazilian Ministry of Health.

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