NURSING INFORMATICS CORE COMPETENCIES FOR PORTUGAL

Introduction
The first steps in informatics for health professionals in Portugal started in the 1980s. During that period, we only saw little formative spaces targeted to the use of specific programmes that focus on processing text and, promptly, using health software for the management of administrative data.

We assisted to the beginning of nursing electronic records research (final of 90th years and begin of the century), which allowed the development of a new data model for Nursing Information Documentation, in terms of its structure and content. For this, debates about terminologies, standards and norms for Electronic Health Records have become essential. By the impact that these guidelines represent for Nursing documentation, the Portuguese Nurses Association has compiled a document about “Basic architectural principles and key technical and functional requirements” (2007) in which there are suggested guidelines for the development of Nursing Information Systems. These guidelines were subsequently accepted by the Ministry of Health, and included in contract documents for the development of Health Information Systems in Portugal. We can even say that the Nursing Informatics did result, over the past two decades, in a small revolution in healthcare, enhancing Electronic Health Records. In fact, Health Informatics is now receiving more attention in Portugal.

Characterization of the use EHR and nursing terminologies in Portugal
In Portugal we now have some public clusters hospitals (called Hospital Centre) and Hospitals. At this moment, we have 58 public HC/Hospitals. From these 74.1% (43 HC/H) use Electronic Nursing Information System from Health Ministry and use ICNP®. The others 25.9% (15 HC/H) use Electronic Information Systems from different vendors. From these other systems, 11 HC/H use ICNP®. Only 4 HC/Hospitals do not use ICNP® (6.9% of the total of Public Hospital Centre or Hospitals). So, we can say that 93.1% of Public Hospital Centre or Hospitals use ICNP® in their Electronic Health Records (EHR). Private hospitals we don’t have enough information however, some of them use ICNP® in their EHR (Hospital Cuf, Hospital of Luz, some Hospitals of Mercys, etc.).
From Primary Care settings, we have 348 Health Centers and 91% use Electronic Nursing Information System from Health Ministry and use ICNP®.

We don’t have the number of nurses that use EHR (as a proportion of the total number of working nurses). But taking into account previous data and with the knowledge that we have of private hospitals using ICNP® we would say, with some margin of safety, at least 90% of Portuguese nurses use EHR.

**Informatics Competencies for Every Practicing Nurse**

It’s necessary that all nurses have competencies for the use of Information and Communications Technology (ICT) in health. In fact, all Portuguese students on admission to the nursing program, already have a set of basic computer competencies developed during high school that overlap the “TIGER Informatics Competencies Recommendations - Basic Computer Competencies”.

However, during Nursing Graduation Program, they are prepared to develop key competencies in **Information Literacy Competencies and Information Management Competencies**.

In addition to the informatics aspects integrated in nursing graduation and continuing education that exist at the health institutions, investment in postgraduate education is a reality in Portugal. We have some formal programs and certifications in Health Informatics (Masters Programs in Health Information, Medical Informatics and Nursing Information Systems).

From the analysis of the different documents that we have access to, we have identified Nursing Informatics Core Competencies related to Portugal’ needs. So, we present this document that we think reports the competencies necessary and fundamental for EHR use for nurses in Portugal. As you can see, we support our decision on the “HIP® Competency Framework”.

**Information Literacy Competencies**

- Determine the nature and extent of the information needed
- Access needed information effectively and efficiently
- Evaluate information and its sources critically and incorporate selected information into his or her knowledge base and value system
- Individually or as a member of a group, use information effectively to accomplish a specific purpose
- Evaluate outcomes of information usage
Information Management Competencies

We argue that there are two levels of information management competencies.

For Nursing Graduate Level

- Understand the implications of ethical, legislative, and regulatory requirements related to the management of health information.
- Understand the key attributes of data and information (e.g., quality, integrity, accuracy, timeliness, appropriateness) and their limitations within the context of intended use (e.g., clinical and analytical uses).
- Understand the data interrelationships and dependencies among the various health information systems (e.g., decision support systems, electronic health records, order entry, registries, etc.).
- Apply accepted policies, principles and guidelines for the management of health information (e.g., Portuguese Nursing Association Health Information Management practices).
- Understand and apply relevant health information standards and their appropriate use (e.g., classifications, vocabularies, nomenclature, etc.).
- Integrate data quality principles into the identification, use and management of information (referential data integrity).
- Apply knowledge of basic clinical concepts in health information.
- Apply knowledge of nursing care processes in health information.
- Recognize commonly used formats, structures and methods for recording and communicating clinical data.
- Demonstrate knowledge of health and health systems in Portugal and appropriately applies this information to work products and services.
- Demonstrate knowledge of how people, resources and information flow through the health system.
- Promote the safe and appropriate use of health information technologies to ensure patient safety.

For Nursing Postgraduate Level (Masters Programs in Health Information, Medical Informatics and Nursing Information Systems):

- Engage relevant stakeholders at the appropriate stages of the system life cycle.
- Address information and technical requirements to meet the full range of stakeholders’ information needs.
- Contribute to the selection and utilization of appropriate information technologies to meet business requirements.
- Apply appropriate health informatics standards and enterprise models to enable system interoperability (e.g., terminology, data structure, system to system communication, privacy, security, safety).
- Apply knowledge of health data, information and workflow models to information technology solutions.
- Apply information technology best practices (e.g., quality management systems, testing, service level agreements, business continuity and incident management) throughout the system life cycle.
- Apply best practices and solutions required to manage the security of data, systems, devices and networks.
- Demonstrate an understanding of architectural relationships between key health information technology components and best practices in enterprise architecture frameworks/perspectives.
• Recognize commonly used formats, structures and methods for recording and communicating clinical data and how these are incorporated into system and application use.

• Foster the adoption and use of health information systems in clinical settings.

• Facilitate appropriate consumer use of health information and communication technologies.

• Assess and mitigate clinical safety risks associated with health information and systems throughout the system life cycle.

• Facilitate the use of electronic decision support tools in accessing evidence to support practice.

• Apply knowledge of the roles and relationships of health professionals along with the organizational and regulatory structure in which they work.

• Address the challenges related to the adoption and realization of clinical value of information systems in the health sector.

• Understand the need to balance the privacy of personal health information with improved care delivery and health system management.

• Contribute to organizational plans and strategies to ensure that information and systems enable business goals and strategy.

• Promote an information culture by facilitating appropriate uses of information and knowledge.

• Facilitate self, individual, team and organizational learning and development through the use of appropriate technologies, communication channels and organizational skills.

• Contribute to ongoing evaluation of the functionality of systems so that they can evolve to support best practice in clinical care.

• Perform documentation/records audit.

• Apply project management principles and best practices (e.g., project charter, scope, life cycle, budgets, resourcing, timelines, milestones, monitoring, and status reports).

• Work collaboratively and contribute to project planning, implementation, monitoring and evaluation.

• Anticipate issues and opportunities and mitigate risks associated with projects.

• Identify and frame information queries in collaboration with stakeholders in order to meet their needs for analysis and interpretation of data.

• Identify relevant sources of data and information in order to: assess the quality of information, and draw appropriate conclusions.

• Demonstrate an understanding of appropriate analytical and evaluation techniques and concepts (e.g., qualitative and quantitative methods, basic statistical and epidemiological techniques, indicators and evaluation measures).

• Contribute to quality analysis by organizing and transforming data into reliable and meaningful information for diverse audiences.

• Present data and information in a way that is effective for users.

• Demonstrate knowledge of indicators and metrics for healthcare delivery and systems management.

• Recognize commonly used formats, structures and methods for recording and communicating clinical data and how these are incorporated into system and application use.
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