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| **Sujet** | **Health data quality: towards an approach for improving existing databases** |
| Doctoral thesis supervisors | Professor Jérémie RIOU (CHU d’Angers), (HDR) UMR INSERM 1066 | UMR CNRS 6021Saber ALOUI (CHU d’Angers) PhDDocteur Bénédicte LELIEVRE (CHU d’Angers) MD Docteur Antony ESCUDIE (CHU d’Angers) PhD |
| Candidate profile | 1. Data Science
2. Computer Science
3. Operations ResearchMaster's degree (Engineering or Master's, BAC+5)
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| Place | Angers |
| Duration | 3 years |
| Start date | Septembre 2024 |
| Financial compensation | CIFRE grant programme |
| Synopsis | **Introduction*** **Context:** The crucial importance of health data quality for clinical research, medical decision-making, continuous quality improvement in healthcare, and the production of PMSI (French hospital information system programme).
* **Problem Statement:** Despite their importance, health data collected in hospitals often present challenges related to quality, including accuracy, completeness, relevance, and timeliness. The multiplicity of tools (EHRs, RIS, PACS, LIS, specialty software, etc.), varying formats, and their evolution over time increase the complexity of understanding hospital data.
* **Justification:** A better understanding and improvement of the quality of these data are essential to maximise their usefulness in clinical research and contribute to advancing medical knowledge. In fact, the development of AI models requires high-quality data and allows for relevant comparisons between data-producing sites.
* **Green IT Aspect:** Establish a score before integrating the documents.

**Objectives*** Assess the current state of health data quality at two levels: intra-site (comparison between different departments) and inter-hospital (across multiple hospital centres), by identifying the main challenges related to data accuracy, completeness, accessibility, and relevance. This includes creating a scoring system to evaluate the data quality.
* Identify the factors influencing health data quality, including hospital information systems, clinical documentation practices, and coding standards.
* Develop and test interventions aimed at improving health data quality, such as targeted training for staff, the implementation of assisted data entry systems, or the adoption of international documentation standards.
* Evaluate the impact of these interventions on data quality and their usefulness for clinical research, using specific performance indicators.

**Expected Contribution**1. Provide a detailed analysis of the current state of health data quality in hospital centres by proposing a tool to "score" documentary corpora, taking into account the specificities of medical specialities, while considering European (AI Act) or international recommendations.
2. Identify key levers for improving data quality.
3. Offer practical recommendations for healthcare professionals and hospital administrators to enhance the management of health data.
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| References |  **Evaluation of Applications in the Field of Mobile Health (mHealth)** - State of the art and quality criteria of medical content for the referencing of digital services in the digital health space and the service bouquet for professionals. Haute Autorité de Santé (HAS), 21 June 2021. **Kahn, M. G., Callahan, T. J., Barnard, J., Bauck, A. E., Brown, J., Davidson, B. N., ... & Weng, C.** (2016). A harmonized data quality assessment terminology and framework for the secondary use of electronic health record data. eGEMs (Generating Evidence & Methods to Improve Patient Outcomes), 4(1). **Weiskopf, N. G., & Weng, C.** (2013). Methods and dimensions of electronic health record data quality assessment: enabling reuse for clinical research. Journal of the American Medical Informatics Association, 20(1), 144-151. |
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