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# Developing the First Generally-Available openEHR Archetypes and Templates for Physiotherapy: An Example of Building Clinical Models and Modelling Capacity via Student-Led Academic–Industrial Collaboration

# Jamila Chihab<sup>a</sup>, Hildegard Franke<sup>b</sup>, Ian McNicoll<sup>a,b</sup>, Matthew W. Darlison<sup>a</sup>

<sup>a</sup> Institute of Health Informatics, University College London (UCL), London, UK <sup>b</sup> freshEHR Clinical Informatics Ltd, Kettering, Northamptonshire, UK

#### Abstract

We present the first public openEHR archetypes and templates for physiotherapy, and the context of multidisciplinary academic-industry partnership that has enabled their production by a team led by a clinically trained student on the UCL health informatics MSc programme.

#### Keywords:

Electronic Health Records, Physical Therapy Specialty, Computer Simulation

### Introduction

Given the clear assertions in published literature that physiotherapy needs, and will benefit from, electronic health records, it was surprising that the international repository for clinical models for the openEHR record architecture (the *Clinical Knowledge Manager* or *CKM* at openehr.org/ckm) made no reference to physiotherapy, and that other published modelling work had not used formalisms that provided for easy re-use. We set out to explore what would be involved in changing this.

# Methods

With advice from another domain expert, a guideline for the assessment of ankle sprain by a physiotherapist [2] was selected. The guideline was chosen to be both generic (i.e. not from a specific hospital) and informed by established principles of structured record keeping (the *International Classification of Functioning, Disability and Health*).

Close reading of the guideline text enabled identification, extraction and enumeration of all data items mentioned or implied, and their datatypes. This included the tracing of recording requirements included in the guideline by reference (*e.g.* to particular tests or scoring systems).

The resulting document informed a "pair modelling" (*cf. pair programming*) process in which the student and an industry expert modeller worked side by side to organise the guideline content and build a corresponding openEHR template for ankle sprain assessment backed by existing and, where necessary, new openEHR archetypes.

The template and archetypes were then published on the UK national CKM (clinicalmodels.org.uk) for review, thus also making them available internationally for scrutiny and possible adoption by others.

# Results

The Ankle Sprain - Assessment UCL.v0 template uses 41 archetypes, 25 of which were drawn from the international CKM. The CKM review was largely positive, raising some technical modelling questions and identifying some flaws in the original guideline.

### Discussion

Imperfections notwithstanding, the real-world utility of the artefacts produced supports the hypothesis that clinical modelling is a field in which a student domain expert can – with appropriate support – develop sufficient expertise to make credible contributions to a public-facing knowledge resource.

# Conclusions

Guideline authors should consider (and perhaps even specify) the consequences of their editorial decisions in relation to the record-keeping required in a multiprofessional, multi-agency service context. Taking a guideline, which already has some degree of clinical consensus, as a starting point significantly eases the process.

This kind of academic-industry partnership is rewarding for participants and aligns well with research-based education, for example as articulated in UCL's Connected Curriculum [1].

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#### Address for correspondence

Dr Matthew W. Darlison (<u>m.darlison@ucl.ac.uk</u>) Institute of Health Informatics, University College London, Gower Street, London WC1E 6BT, UK