SCATA
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uk society for computing and technology in anaesthesia

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Dr Fiona Donald
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Dear Dr Donald

Re: Structured Digital Records for Perioperative Care

The HL7 Devices Work Group has begun the development of an implementation guide for the digital anaesthetic record ('FHIR IG for Intra-Procedural Anesthesia Records'). This is based on the HL7 Fast Healthcare Interoperability Resources standard (FHIR). The endeavour has broad support nationally and internationally and represents not only the opportunity to raise the standard of individual patient care but to evolve research and quality improvement activities within anaesthesia and perioperative care.

HL7 is an International Standards Development Organisation that provides a framework (and related standards) for the exchange, integration, sharing, and retrieval of electronic health information. HL7 standards support clinical practice and the management, delivery, and evaluation of health services, and are recognized as the most commonly used in the world.

We are writing to invite the College to become an External Collaborator on this project. This association would allow the College to comment on the project and to suggest content, thus having some influence on its final form. We are fortunate to have the American Society of Anesthesiologists (ASA) as an External Collaborator and hope that other national professional bodies will also become involved.

Since the early 2000s, SCATA has supported and encouraged efforts to develop a standard model for care records in the perioperative period. Recently, we've authored a review paper, enclosed for your information, that includes details of the initiative in the UK to develop a national anaesthesia record: a project that was led by Professor Richard Griffiths.

Although the UK market has a number of commercial Anaesthesia Information Management System (AIMS) products in active service, there is a commonly expressed view that none of the available systems are meeting the needs of a 21st century healthcare system.

In particular, there is poor integration with Electronic Health Record (EHR) systems, limited adoption of controlled terminologies such as SNOMED-CT and limited use of device integration standards such as ISO/IEEE 11073 (Point of Care Medical Device Communications). Above all, there is almost no scope within current AIMS in the UK for exchange of data, aggregation and "big data" analytics.

Assuming that a comprehensive, standards-based record were available, what benefits would we expect to see? Firstly, having an international standard would allow developers to focus on usability and improving the user experience. It would also open the market to smaller, more agile companies, rather than the monolithic "megasuite" supplier market that dominates today.

Secondly, the collection of structured data that is linked to a terminology allows aggregation and analysis for clinical audit, safety and research. National registries for rare conditions need not be restricted to a small number of specialist centres. With appropriately aggregated and anonymised data, researchers can trawl and data-mine for conditions of interest.

Finally, the creation of a standard record will solve a number of medico-legal problems. Legibility is greatly improved, but also the automated capture and storage of data from point-of-care monitors and devices allows a more detailed care record to be created, with the advantage that the practitioner is freed up to spend more time interacting with the patient and the surgical team.

One may ask why, given all the benefits, is it taking so long for a record standard to be defined, accepted and implemented? We believe there are two important reasons. Firstly, perioperative care is innately complex, with a myriad of different actors, procedures, assessments and reliance on a team of specialists. Secondly, the care process relies heavily on technology in the form of monitoring and devices, all of which have the potential to create large amounts of data that has to be recorded and stored. In spite of all these challenges, we believe that there is a way forward, not just for the UK but for the market more generally. Two groups within the international anaesthetic community have been very active in the clinical modelling sphere in recent years.

The HL7 Anesthesia Working Group, co-chaired by Martin Hurrell, has published a comprehensive Domain Analysis Model (DAM) for the intraoperative part of the care episode. The SNOMED CT Anesthesia Clinical Reference Group (CRG) have defined a large subset of terms relevant for anaesthesia. There is an opportunity to bring these two pieces of work together in a Fast Healthcare Interoperability Resources (FHIR) Implementation Guide (IG). This is a narrative document that describes how the DAM can be implemented using the HL7-FHIR framework, with built-in links to terminology (for example, SNOMED-CT concept IDs) and ultimately, a set of resources that anyone can use as their information model in an application.

To deliver the IG as quickly as possible, a decision was taken to merge the HL7 Anesthesia group with the Devices group, so that the expertise and knowledge of the latter would be available to the former. The joint aim is to bring together use cases, structural and behavioural models, terminology and an implementation platform that is supported by most international organisations that are involved in the domain, including NHS Digital in the UK.

An External Project Collaborator is normally an organisation, external to HL7 that wishes not only to register interest in a project but also to have some involvement, with the possibility of influencing it. This does not mean that all suggestions will be implemented but they will be given careful consideration. The relationship implies a generally supportive attitude on the part of the collaborator but does not imply endorsement of the finished project. If the collaborator wished to give such endorsement, it would, of course, be free to do so.

There is absolutely no obligation for an external collaborator to provide any financial support although modest contributions towards costs of hosting and attending meetings are always welcome as the core team are unpaid volunteers.

We hope the College will lend their support to these efforts in becoming an external collaborator to the project to lend expertise, authority and credibility to the outputs which we believe are an important step forward in the digitisation of perioperative care records. Representatives from the College are welcome to input directly or SCATA is willing to act as a link between the College and the project, reporting back finalised documents for approval by your Council.

We look forward to your response.

Yours sincerely

JP Lomas
SCATA Chairman

Grant Forrest
SCATA President

Martin Hurrell
Co-chair, HL7 Devices Working Group

Enclosure: SCATA “Structured Record Keeping in Perioperative Care” paper