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CLICSIG report

Bringing SNOMED-CT into use within primary care

Report of the meeting of the Clinical Computing Special Interest Group (CLICSIG) of the Primary Health Care Specialist Group of the British Computer Society, 26–27 November 2004

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These are the conclusions of a weekend CLICSIG meeting held, as usual, under Chatham House rules. The group recognised the need to use SNOMED-CT (shortened to SCT – see Glossary below for underlined terms), but has concerns about its implementation, and about SCT itself. These concerns are fuelled by a dearth of information from NPfIT, and heightened by deep fears for the integrity of information held on the relatively sophisticated and mission-critical primary care computer-based patient record systems that will ultimately use SCT. While it seems that SCT can do all that the Read coding systems currently used can, the migration to it will require significant work by practices introducing it, and their system suppliers. We foresee more serious problems with the bolder plans for its use. Figure 1 shows a diagram of our conclusions.

SCT is the first compositional terminology to be used throughout primary care. It has no track record anywhere in real-time use during clinical encounters. For real-time use, response times to the commoner term searches must be sub-second. Interface design will require modification to enter post-coordinated terms, and there are decisions to be made about how to represent context. It will be difficult to differentiate between concepts with similar names in small display fields, particularly on hand-held devices. Users and their system suppliers will have to prepare subsets of SCT codes for each input choice field.

GP patient records contain the largest body of structured, coded data in the NHS today, most of it in Read 4- or 5-byte codes. Every Read code maps to an SCT concept, but a small percentage are incompletely mapped; additionally, some Read codes, such as diabetic ketoacidosis, are themselves unsatisfactory. At present, domains such as nursing and professions allied to medicine are poorly covered by SCT, and the problem is exacerbated by data that will enter GP systems from external sources, such as social services and healthcare providers abroad. These data are likely to arrive as text or using coding systems not mapped to SCT. GP systems will also receive data in SCT from new NPfIT systems in secondary and community care. Is it intended to convert all historic GP data into SCT, or are GP systems to convert data going to PSIS into SCT before transmission? Ideally, new concepts, for instance for pharmaceutical products and clinical topics, should be added and integrated with the existing SCT content before they need to be used.

Patient record searches must retrieve all examples of the target concept, whether it is expressed in Read or the various ways possible in SCT. So a standard equivalence detection mechanism is vital to reliably aggregate patient data, and to provide automated decision support safely. Putting to one side the complication that some contextual aspects may be represented by a GP system directly rather than as SCT concepts, equivalence detection requires specialised concepts in SCT that it currently seems to lack. The mechanism has yet to be fully specified and, more importantly, shown to work across the entire terminology. Ensuring these properties is a very labour-intensive task, requiring input from informaticians and clinicians of every specialty. This will be difficult to do when so many staff are due to leave the NHSIA and NPfIT within the next year.

For implementation to be effective, SCT, NPfIT, software suppliers and users all have to be at an

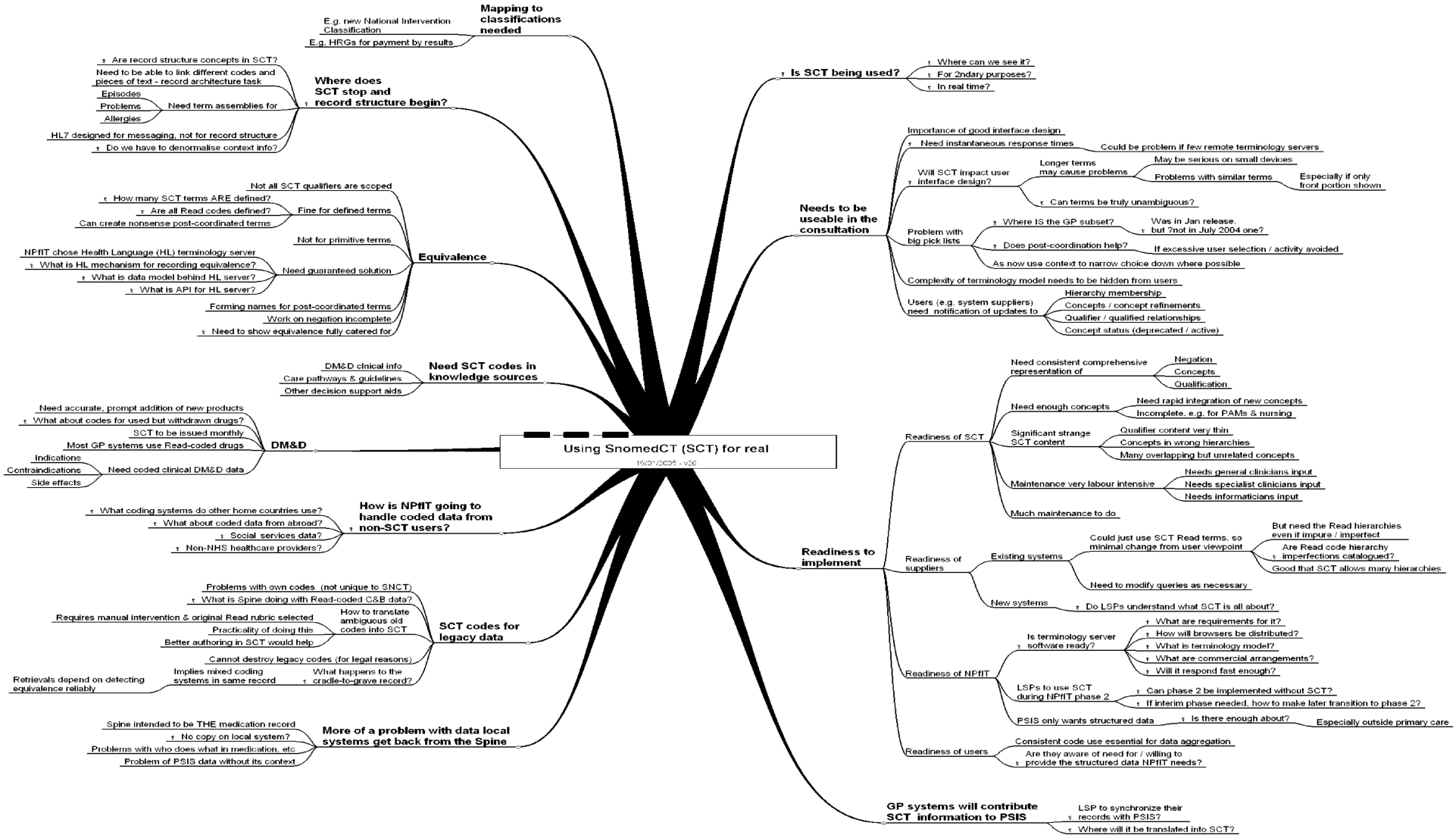

Figure 1 MindMap of the meeting

appropriate state of readiness. When will the standard NHS terminology server be ready? How should clinical systems interface to it? Will it answer queries fast enough? Users need to be aware of the volume and kind of structured and coded data that NPfIT (especially PSIS) requires, and as experience with PRIMIS and elsewhere tells us, to use codes and terms consistently. Are sufficient resources and protected training time available to ensure this outside general practice? And who within NPfIT and the clusters is managing and co-ordinating this?

Most of the issues raised are not specific to primary care, and NPfIT relies on the successful nationwide implementation of SCT. The issues need to be addressed openly and urgently.

Glossary

Term	Explanation
code	A string of characters that uniquely identifies a concept or term. The string does not have to carry any information, but sometimes does.
compositional terminology	A terminology that allows post-coordinated concepts (and usually pre-coordinated concepts as well).
equivalence	Equivalence is concerned with detecting different representations of the same concept (including a fully pre-coordinated one where it exists). As part of this task it also has to 'understand' the differences between concepts such as *asthma present*, *asthma excluded*, *patient thinks he has asthma* and *family history of asthma*.
NHSIA	The NHS Information Authority, which closes on 31 March 2005.
NPfIT	The NHS National Programme for Information Technology.
post-coordinated concept	A concept that is built up from other concepts (and their codes). In such a case the *total gastrectomy* example below would include the concepts for: • *procedure,* and kind of procedure – *gastrectomy* • *procedure site,* and the kind of procedure site – *entire stomach* or, in a more detailed breakdown which further decomposes the concept *gastrectomy*: • *procedure* • *procedure method,* and the kind of method – *excision* • *procedure site*, and the kind of procedure site – *entire stomach.* As can be seen, it is possible for a single concept to have several representations, each with a different degree of pre-coordination.
pre-coordinated concept	A concept that precombines several other concepts. For example, the concept described by the term *total gastrectomy* combines several concepts (see above) in a single concept (and code).
PRIMIS	Primary Care Information Services, a programme concerned with helping GP practices to assess and improve the quality and completeness of coded data within their patient record systems.
PSIS	The Personal Spine Information Service, the national messaging system proposed as the heart of NPfIT.
Read codes	The Read codes – 'code' is somewhat misleading as they comprise terms plus codes for them – come in several versions: • Read 4-byte codes: these are all codes for pre-coordinated concepts • Read 5-byte codes: these are a more comprehensive set than Read 4-byte, but again are all pre-coordinated concepts • Clinical Terms version 3: this is a compositional terminology that includes (among other things) all the (pre-coordinated) Read 4- and 5-byte terms.

Term	Explanation
SCT	SNOMED–Clinical Terms, a compositional terminology that includes (among other things) all the concepts in (Read) Clinical Terms version 3. It has been developed jointly by the NHS and the College of American Pathologists (CAP).
term	A human-intelligible description of a concept, such as total *gastrectomy*. A single concept may be described by several terms, which are then known as synonyms. A term may describe more than one concept; e.g. *fit* describes both a state of good health and a seizure, unless it is qualified by additional information, e.g. *fit (state of good health)*.

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