Avoiding the ‘dataset mentality’

Ewan Davis
Vice-chairman, British Computer Society Primary Health Care Specialist Group, Worcestershire, UK

The Primary Health Care Specialist Group (PHCSG) has long held a view that the ‘dataset mentality’ apparent in some parts of the National Health Service (NHS) represents a barrier to the proper use of information systems directly to support clinicians and other frontline staff at the point of care.\(^1\)\(^-\)\(^3\) However, the Group has been remiss in failing to explain properly why we take this position and the role that we see for datasets in the future development of NHS information systems. This editorial seeks to explain the problems that we see with the current approach to datasets and how this might be modified to avoid these difficulties.

Support at the point of care?

At the heart of our concern is a strongly held conviction that healthcare information systems should be designed primarily to support clinicians and frontline staff at the point of care. Information systems should be an integral part of the care process and must improve the experience for both care-giver and care-receiver, with system involvement being appropriate in the specific context of individual encounters.

The specifications published so far for the NHS’s proposed Integrated Care Records Service (ICRS) appear to show significant influence from the dataset development community and less input from the clinical community.\(^4\) We are concerned that this approach is likely to encourage the development of systems that will fail to focus appropriately on supporting the care process. It is important that we do not fall into the trap of building systems whose purpose is, or appears to be, to populate specific datasets. If clinicians and other frontline staff find that new ICRS systems stretch or constrain their information recording in ways that interfere with the flow of the care process then they are likely not to use these more than they can avoid – and clinicians in particular are very good at avoiding management pressure to use systems.

There is good evidence that frontline staff want to see the more effective use of information systems in the NHS and many would support the vision of the ICRS. In order to capture this enthusiasm it is necessary to deliver an ICRS that provides:

- secure, appropriate and timely access to all those concerned with the delivery of care to an individual to relevant parts of that individual’s care records where and when needed to ensure the delivery of good quality and efficient care
- workflow management and decision support tools to guide the seamless journey of the patient along the most appropriate clinical pathway within and across organisational boundaries in a way that delivers quality care and convenient service for patients and carers, and makes the best use of NHS resources.

Secondary uses of data

The ICRS also has a secondary role: as a by-product of its primary functions it should gather management information that, subject to the protection of privacy, can be used to improve the overall quality of care delivered by the NHS. This role can support service planning, commissioning, clinical governance, performance improvement, performance management, development of the evidence base, clinical research, public health, epidemiology and pharmacoepidemiology. Nevertheless, while we recognise the value of collecting data for a range of management information purposes, it is essential that such activity is both subservient to the system’s prime function and broadly transparent to frontline users.

What are the clinical constraints?

Tools that support structured data entry, prompt users intelligently for relevant data, and draw attention to missing data are useful and will be an important part of future systems. That said, in many circumstances such tools can get in the way of the
delivery of care in a manner that meets the demands of the moment; the user must be allowed to bypass such tools and enter data essential to current activity in an incomplete and unstructured way when the particular circumstances demand. In general, the more expert and experienced the user, the more likely they are to find that structured data entry tools fail to add value. While there are circumstances in which it is reasonable to expect limited mandatory items to be recorded, such restrictions need to be approached with caution, and systems need to be able to apply such rules in a manner that takes account of the role, expertise and experience of an individual user.

Another risk with dataset-driven systems is that they can lead to the false assumption that the use of a carefully developed dataset can ensure that data collected are either necessary or sufficient. Clinicians need to be able to record the information that they consider relevant in a particular context at a level of precision that reflects their current understanding. Systems driven by datasets can make this difficult, forcing the collection and recording of data that are not relevant and making the recording of additional items problematic. Where systems do not allow information to be recorded in a way that accurately reflects what the user wants to record, clinicians will either not use them or force the data to fit the system – thus reducing data quality, sometimes with serious risk to patient safety.

Patient priorities and sensitivities also need to be taken into account, as do the real-world pressures on frontline staff in busy services. While it may be theoretically appropriate to collect a given dataset in order to provide the best possible care to an individual patient, the patient’s circumstances, physical and mental state, or other pressures often require a more pragmatic approach. Systems must allow this.

When are datasets appropriate?

However, this is not to say that a dataset (or something that looks very much like a dataset) is not at the very least useful and probably essential when designing information systems. Our concern is that we should have a clear view of the problems and limitations of datasets.

Datasets are useful in the definition of:
• the range of information that a particular system might need to be able to handle, should operational or clinical requirements make it appropriate to record such data in particular circumstances
• how particular data items are recorded, although care needs to be taken that such definitions do not encourage data to be recorded at a level of granularity or precision at odds with frontline requirements or current understanding (for example, forcing the use of a diagnostic label when a diagnosis has not yet been made)
• information that might be extracted from a system to support a specific use, should such data be present in systems as a result of day-to-day operational or clinical requirements.

Datasets can also be useful in informing the development of structured data entry, reporting and audit tools. When used in this context it is important that dataset developers recognise the different ways in which similar concepts might be recorded by different users.

What are datasets for?

Key to the successful use of datasets is the clear definition of the purpose of an individual dataset, along with recognition that different purposes require very different datasets. Dataset developers have sometimes been poor at defining the intended purpose of their work and have often attempted to cover multiple requirements in a single dataset – this only results in a large superdataset unfit for any of its component purposes. Superdatasets have a place but only if they clearly identify their individual component subsets.

Datasets have a valuable role to play in the development of healthcare information systems. However, as implemented to date, datasets have tended to result in systems that are less useful to frontline staff than they need to be. In order to move forward there needs to be a broader discussion about the role and purpose of datasets and the ICRS will need to demonstrate to frontline users that the much-repeated commitment to the principle that management information requirements of the NHS and government should be met as a by-product of normal operational activity is real. To be successful in its implementation, ICRS systems must be designed to support frontline care of individual patients, and not designed to support population datasets. Both existing and new users, particularly clinicians, must be engaged to ensure this outcome.

REFERENCES

1 PHCSG. Briefing from the British Computer Society Primary Health Care Specialist Group for Professor Sir John Pattison, Director of Research, Analysis and Information at the Department of Health. Informatics in Primary Care 2002;10:179–81.
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ADDRESS FOR CORRESPONDENCE
Ewan Davis
Woodcote Consulting
Woodcote Manor
Kidderminster Road
Dodford
Bromsgrove
Worcestershire B61 9DY
UK
Tel: +44 (0)1527 875341
Fax: +44 (0)1527 871196
Email: ewan@woodcote-consulting.com
I have received the excellent news that PubMed, a service of the National Library of Medicine, has decided to index the Radcliffe Medical Press journal *Informatics in Primary Care* in Index Medicus and MEDLINE.

MEDLINE contains bibliographic references and author abstracts from nearly 5000 biomedical journals published across the globe. The database contains over 12 million references dating back to the mid-1960s. Coverage is worldwide, but most records are from English-language sources or have English abstracts.

The inclusion of *Informatics in Primary Care* within this service means that the journal will have a vastly increased exposure throughout the international biomedical community. The longevity of the research papers published in the journal will be ensured, as abstracts will be freely accessible to healthcare professionals in all countries via PubMed’s links to many academic abstracting and indexing sites, many of which provide full text articles and other related resources. We hope that this will encourage more and more authors to make submissions for publication in *Informatics in Primary Care*, thus continuing to enhance our reputation and circulation.

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**Informatics in Primary Care wins BCS Award**

I am delighted to be able to tell you that *Informatics in Primary Care* has been awarded the British Computer Society Award for Best Specialist Group Journal for 2002! Some of you were present when this award was made at the PHCSG conference in Cambridge, and will have heard me thank the Editorial Board, Radcliffe Medical Press and PHCSG members for all their help and support over the last 18 months; I reiterate those thanks here for those not able to be with us in Cambridge.

Sheila Teasdale

*Editor*