Guide to clinical software requirements

There are many reasons why requirements can change over time, so don't lose sleep by striving for a list of absolute perfection. This is why one of your priority requirements is that there is some degree of flexibility (e.g. customisation, configurability and workarounds).

However, do try and consider all your practice needs. It will help if you ensure that:

- You are very familiar with your clinic's processes and workflows (see below).
- The requirements align with the goals and benefits you identified in the first stage.
- Everyone who will be using the system is involved in the identification of requirements.

Workflow

Workflow is the most critical factor. No matter how good the software is, if it doesn't align with your workflow you're better off without it.

Identify current processes and workflows that might be sources of inefficiency, delay, duplication of effort, or wasted time in the practice, that you hope a new clinical system can help alleviate. Also consider what these workflow issues may be costing you in time and money. Some examples of workflows that might be impacted upon include:

- Recording of a new patient
- Coding of diagnoses
- Recalls and reminders
- Chronic disease care for new and follow-up patients
- Routine visits such as annual checks or childhood immunisations
- Delays due to trouble finding records
- Locating and integrating laboratory results
- High costs associated with transcription of medical notes and other documents via a transcription service

Clinical software can help improve the efficiency of all of the above because it can, for example:

- Make information easier (and faster) to find.
- Provide templates that auto-populate data to save time and ensure that important information is not left out.
- Improve patient flow.

However, in their report into the impact of an EHR on workflow, the USA's Agency for Healthcare Research and Quality found that, while an electronic medical record is more beneficial than detrimental overall, it does have drawbacks, for example:

- In most cases, a computer terminal in the examination room was distracting, shifting attention away from the patient.
    - To compensate, some clinicians reviewed patient records ahead of time, allowed patients to see the computer screen, printed out the records or waited until the patient left to document findings in the computer.
- Data entry usually takes up more time.

Usability

This is one of the most important aspects of a computer system. Poor usability is highly likely to incur unexpected costs, both financial and temporal (particularly in terms of training). Usability includes:

- How intuitive it is.
- How well it integrates with existing processes.
- How responsive (fast) it is.
- How accessible it is.

Bear in mind that no system is likely to be immediately and intuitively usable for all staff from the moment they are first confronted with the new system. It takes time to get familiar enough with a new system that you don't need to think too hard about it.

Vendor Support

The product's upfront cost is probably not the only cost you will incur. Most vendors charge for services and upgrades. Ensure you are familiar with the full possible pricing list and consider insisting on a Service Level Agreement (SLA) in the contract.

Standards

There are few published standards that apply to clinical software, however be on the lookout for how well a product aligns with standards, or the national direction.

Examples of existing (or future) standards are:

- RACGP health summary
- Secure messaging integration
- Standards for interoperability (technically: HL7, CDA, etc)
- Identification of Aboriginal and Torres Strait Islander people
- Uploading of data to national disease registers

The RACGP Guidelines (4th edition) that related to clinical software include:

- 1.1.2 Telephone and electronic communications
- 1.3.1 Health promotion and preventive care
- 1.4.1 Consistent evidence based practice
- 1.5.2 Clinical handover
- 1.5.3 System for follow up of tests and results
- 1.6.2 Referral documents
- 1.7.1 Patient health records
- 1.7.2 Health summaries
- 1.7.3 Consultation notes
- 3.1.1 Quality improvement activities
- 3.1.2 Clinical risk management systems
- 3.1.3 Clinical governance
- 3.1.4 Patient identification
- 4.2.1 Confidentiality and privacy of health information
- 4.2.2 Information security
- 5.3.1 Safe and quality use of medicines

Electronic prescribing

A system for drug interaction checking and decision support for prescribing is one of the most important functions of clinical software. Software should provide real-time interactive warnings for potential interactions or contra-indications for:

- drug-drug
- drug-disease
- drug-pregnancy
- drug-lactation
- drug-elite sports
- drug-allergy
- to a specific product
- to a generic compound
- to a drug class
- drug-food eg drug-gluten

Auditing/Reporting

The ability of software to produce reports to analyse and track data recorded by clinicians about their patients is an important function. It can help with accreditation and in identifying disease trends and ways to improve clinic procedures. Different products do this in different ways. Consider your reporting needs carefully and take time to ensure the products you assess meet these needs sufficiently.

Further reading

This brief paper, while written from a North American perspective, provides a useful overview and examples of practice workflow: *A Physician's Perspective: Deploying the EMR*, by David Smith, and Lucy Mancini Newell.

For more detailed information on how a computer system can help clinics, and for general tips and advice, see: Peter Schattner, *Computing and information management in general practice (McGraw-Hill) (North Ryde, N.S.W. :: McGraw-Hill Australia, 2007).*

For detailed safety requirements, see Anthony J.[1] Avery et al., Identifying and establishing consensus on the most important safety features of GP computer systems: e-Delphi study, Informatics in Primary Care 13 (February 2005): 3-12.