Healthcare Outcome Measures Database

Operations on patients will always impact on them, hopefully for the better, sometimes for the worse. There is variability in outcomes, which can depend on patient factors but can also depend upon the surgical teams that perform the surgery. Outcome Measures are often patient completed questionnaires to formally score patients pain and function before and after surgery – so that any variability in outcomes in groups of patients can be studied and improvements in care made. Patient Reported Outcome measures are known as PROMs.

Some trusts now routinely collect questionnaires to compare patients' pre-operative and post-operative scores to inform clinical practice and drive improvement. The questionnaires are normally specific to the operation that has been performed (e.g knee replacement scores, or hernia scores) and most operations will also have a more general health status score applied as well (known as the Eq-5D). The EQ5D can be applied across all aspects of healthcare and is a good way to work out how much impact an operation may have on health compared to say treatment for diabetes. This helps healthcare providers direct money to the interventions that have the most patient benefit. Trusts currently collect the data in paper format and this needs to be inputted into an electronic format for storage and analysis purposes. There are commercial options available but these routinely cost each NHS trust around £50000 PA and given the financial crisis in the NHS these budgets are being cut.

The aim of this open source project would be to make the software (which would sit within NHS servers for governance purposes) available so any healthcare organisation could use it free of charge. The first module has already been written: https://gitlab.com/bansley/dcodr

Ultimately we need a database with a clean-looking, user-friendly interface into which we can enter thousands of patients' worth of data including:
- patient demographics (name, D.O.B, NHS number (unique to the patient), Hospital number (unique to the patient) , Address etc)
- date of surgery
- hospital site
- surgeon
- intervention or operation type (this will attract a certain set of questionnaires at set times)
- Side of operation if appropriate
- PROMs scores (questionnaire responses) on various dates – at varying time points from the surgery/intervention. There is a large variety of potential questionnaires – many of them specific for specific operations/interventions.

For each operation/intervention we will aim to collect specific information. Different operations/interventions would have different questionnaires collected at different times.

For example for knee surgery we would collect the following:
- Pre-op knee score questionnaire
- Pre-op EQ5D questionnaire
- Knee score at 6 months post op questionnaire
- Knee score at 12 months post op questionnaire
- EQ5D at 12 months post op questionnaire

Thus we need the ability to define which operation/intervention attracts which scores and when, so they are automatically "asked" at the right time in the patients journey through healthcare.

The current module we have allows us to enter patients and separately to define specific questionnaires (like knee scores). We can add these questionnaire responses manually to a patients record but as questionnaires are not linked to a particular operation type the workflow to enter scores for a particular patient's operation is clunky.

We would very much like to not only enter the responses to the questions within the various questionnaires but to have the programme generate the correct set of questions according to the surgical procedure and to calculate the score based on the responses. When we have pre and post op/intervention scores, the difference in scores will be crucial information to determine success (or failure) of the intervention.

Once the initial package above is working there are many potential extras that we would like to have going forward, including:

Additional methods to input outcomes
- Tablets or PC browser entry by the patients in clinic within the hospitals intranet
- Web and smartphone / tablet entry via the internet
- Text responses
- The ability for the software to generate bar coded questionnaires so they can be automatically posted out to patients and automatically read when returned, and ascribed to the correct patient and operation/intervention.

Additional functionality

Automatic prompts when post-operative responses are due
Prompts when questionnaires have not been received

Reporting module

Ability to analyse data and view charts, graphs, and tables with a variety of queries possible. This will allow real time data to be available to clinicians and teams within hospitals.

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