Identification of items for a standardised resource-use measure: review of current instruments

Joanna C Thorn[1]*, Colin Ridyard[2], Ruth Riley[1], Sara Brookes[1], Dyfrig Hughes[2], Sarah Wordsworth[3], Sian M Noble[1] and William Hollingworth[1]

[1]ConDuCT-II Hub, University of Bristol [2]North West Hub, Bangor University [3]MRC Clinical Trial Service Unit Hub, University of Oxford UK
*joanna.thorn@bristol.ac.uk

Background

Resource-use measures designed to be completed by patients are typically created on a trial-by-trial basis, leading to duplication of research effort. However, there is a perceived lack of consistency in terms of the resources that are included and the level of detail requested across trials. Furthermore, instruments are rarely validated [1]. Methods of obtaining resource-use data without burdening patients are being established [2]; however, such sources do not always include all items of interest and may be costly to access. Patient-reported measures are, therefore, likely to be necessary in trial-based economic evaluation for the foreseeable future and it is important to optimise their use.

A fully validated standardised resource-use measure suitable for use in a wide variety of trials could potentially increase data quality, improve comparability between cost-effectiveness analyses and reduce research burden on health economists. In order to develop such an instrument, it is necessary to identify the core questions that should be asked. We start by reviewing recently available instruments, with a view to conducting a Delphi survey to identify the key items for a standardised resource-use measure from the perspective of the UK NHS.

[1] Ridyard C, Hughes D. Methods for the collection of resource use data within clinical trials: A systematic review of trials funded by the UK Health Technology Assessment programme. *Value in Health* 2010; **13**: 867-872.   [2] Thorn JC *et al*. Validation of the Hospital Episode Statistics Outpatient Dataset in England. *PharmacoEconomics* 2015; DOI 10.1007/s40273-015-0326-3.

Objectives

➤ To provide a descriptive summary review of resource-use measures employed in research studies in terms of content, presentation and wording

➤ To characterize the extent of overlap and discord amongst patient-reported resource-use measures used in the UK

➤ To derive a list of items with which to start a Delphi survey for identifying core items that should be included in any UK trial-based economic evaluation.

Methods

Data source: DIRUM, the Database of Instruments for Resource-Use Measurement (**www.dirum.org**), is an international repository of resource-use instruments (typically questionnaires and diaries) that health economists have used in research studies. DIRUM currently houses 72 instruments.

Instrument selection: A single version of each instrument designed for use in a UK-based randomised controlled trial was selected for review. Where multiple examples for the same trial were stored, first follow-ups were selected in preference to baseline instruments and questionnaires in preference to diaries.

Data extraction: Based on three diverse instruments, an extraction schema was developed covering section headings ('domains'), questions ('items') and details requested. Two researchers extracted data from ten instruments in parallel, and resolved differences through discussion; data from the remaining instruments were extracted by one researcher alone.

Domains and items were extracted verbatim. Information on the recall period, use of skip logic (a yes/no question designed to guide responders past irrelevant questions), exemptions and scope (disease-specific or total resource use) was also extracted.

Preparation for Delphi survey: The extracted items were scrutinised for overlap, and systematically deduplicated and reduced to a list size suitable for use as the starting point of a Delphi survey.

Results

59 instruments varying in length from 1 to 18 pages were included in the review. 165 domains, 2125 items of resource-use, and 5848 associated details were extracted.

The range of structures used to collect data was extremely wide, including tabular layouts, direct questions and tickboxes. Varying levels of information were requested about similar items (for example, the number of hospital stays or the number of nights spent in hospital).

Recall periods varied from 1 day to 12 months, and varied within an instrument in 10/59 cases (17%). 26/59 instruments (44%) issued instructions about exemptions. Total resource use was requested for 911 items in 43 questionnaires, while disease-specific resource use was requested for 876 items in 46 questionnaires; 160 items in 10 questionnaires explicitly requested both disease-specific and total answers. 43/59 instruments (73%) used skip logic at least once.

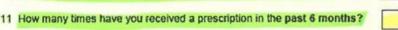| Instrument characteristics	
Type of instrument	
Questionnaire	55 (93%)
Diary	4 (7%)
Conditions covered	
Physical health	47 (80%)
Mental health	9 (15%)
Completed by patient	31 (53%)

Review conclusions

The review confirms that resource-use measurement by patient recall in economic evaluations alongside clinical trials is currently characterised by inconsistency; an instrument with wide applicability and demonstrable validity is urgently required.

Delphi survey

The 2125 items were reduced to 350 following preliminary scrutiny for overlap, and further reduced to 60 key items confirming that, despite the differences between instruments, the overlap in content was substantial. These items were used as the basis for an electronic Delphi survey aiming to identify items suitable for inclusion in a standardised resource-use measure. The Delphi technique is a means by which consensus can be achieved by participants distributed over a wide geographical area. Health economists with experience of conducting economic evaluations alongside clinical trials in the UK were invited to take part. The first round of the Delphi survey has now been completed and round 2 is ongoing.

Acknowledgments

PRIFYSGOL BANGOR UNIVERSITY

UNIVERSITY OF OXFORD

University of BRISTOL

MRC Hubs for Trials Methodology Research

University of BRISTOL

School of Social and Community Medicine