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

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# 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.



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

Service		Туре		1000		_			Private Cost		
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		1 Pillow 2 Anti allergy bed covers									
				_							
Long-stay ward Emergency / crisi			3 P	3 Peak flow medicine							
General medical Other (describe)	Resource Use	e Assess	ments		Servi	ce Provider					
Other (describe)	Resource Use		Num	aber of contacts in	a last 3 months	prior to the s			Other (please	Tick if Not Applicable	01/06/2010
Other (describe) Other (describe)	Resource Use	GP		ber of contacts in Rheumatologist	a last 3 months	prior to the s	tart of randomis		<u></u>	Not	01/06/2010
Other (describe) Other (describe)	Resource Use		Num		a last 3 months	prior to the s			Other (please	Not	01/06/2010
General medical Other (describe) Other (describe) Other (describe)	GP practice Telephone		Num		a last 3 months	prior to the s			Other (please	Not	01/06/2010

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A fully validated standardised resource-use measure suitable for use in a wide variety of trials could potentially increase data quality, improve comparability between costeffectiveness 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.

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.

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ATIEN	T TRAVEL COST		- 91		nome	L
H (I	low do you usually longest part) of the	y travel to your GP's surgery e journey?	/? I need you to tell m	e about the main	ery	
Walk			1		actice	
	Cycle		2			
	Bus or mini	bus		ANSWER 2a)		
				ANSWER 2a)		Г
			5	ANSWER 2a)		L
	Private car		SECTION	D: AIDS AND	APPLIANCES	
	Plea	your last TORPEDO-CF	study visit?		aids or appliance	s because of your CF since
)	Other mod Plea	10) Please tell us whe your last TORPEDO-CF Yes No If yes, Type	study visit?		aids or appliance Quantity (# applicable)	Private Cost
i) ))	Other mod Plea Cost of ret Distance o	your last TORPEDO-CF Yes 🗌 No 🔲 If yes,	study visit? please complete th x if received from NHS / Social	ne table below	Quantity	Private Cost
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Type of instrument	
Questionnaire	55 (93%)
Diary	4 (7%)
Conditions covered	
Physical health	47 (80%)
Mental health	9 (15%)
Completed by patient	31 (53%)

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# 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.

0. In the past 6 months how many times has a nurse visited you at home?

**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.

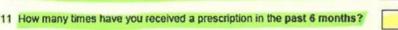
# Review conclusions

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



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.

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