

# Evidence briefing on specialist nurses in acute hospital settings

- In this preliminary report we have attempted to map synthesised and quality assessed research evidence on specialist nursing services from several sources.
- We identified seven potentially relevant systematic reviews of effectiveness, covering diabetes, epilepsy, breast care nurses, heart failure clinics, inflammatory bowel disease, multiple sclerosis and bronchiectasis. The reviews varied widely in the way they approached the topic and in their inclusion criteria.
- In very general terms, the reviews found limited evidence for the superior effectiveness of specialist nurses over standard care or other comparator. However, this should not be interpreted as evidence of ineffectiveness. The review findings may simply reflect the difficulty of assembling a strong evidence base in this field, particularly in view of the complexity of the interventions under evaluation.
- We identified twelve potentially relevant economic evaluations in the NHS EED database. In contrast to the systematic reviews (syntheses of several studies), the economic evaluations (single studies) often found positive results.
- The relevance of the economic evaluations to York Hospitals NHS Trust depends on how similar the services under evaluation (including 'usual care') are to those at York as well as the methodological rigour of the study.
- Interpretation and evaluation of the evidence requires further contextual information about the Trust's current services, in particular to assess generalisability of research evidence to the York setting. We would be happy to work with the Trust to identify areas for more detailed examination.

This evidence briefing has been produced for the York Teaching Hospital NHS Foundation Trust by the Centre for Reviews and Dissemination (CRD). Full details of methods are available on request ([paul.wilson@york.ac.uk](mailto:paul.wilson@york.ac.uk) or [duncan.chambers@york.ac.uk](mailto:duncan.chambers@york.ac.uk))

CRD is part of the National Institute for Health Research (NIHR) and a department of the University of York. The Centre produces and disseminates systematic reviews and associated economic analyses that evaluate the effects of health and social care interventions, and the delivery and organisation of health care. [www.york.ac.uk/inst/crd](http://www.york.ac.uk/inst/crd)

The contents of this evidence briefing are believed to be valid at the time of publication (June 2011). Significant new research evidence may become available at any time. The views expressed in this briefing are those of the authors and not necessarily those of the York Teaching Hospital NHS Foundation Trust or NIHR.

## Background

Management at York Teaching Hospital NHS Foundation Trust have asked CRD to investigate the evidence relating to the optimal use of specialist nurses within the Trust. This is to some extent an internal workforce issue but research evidence may be useful to identify areas where evidence of effectiveness/cost-effectiveness is particularly strong or weak and barriers or facilitators to effective deployment of specialist nurses.

Specialist nurses have a variety of job titles such as nurse practitioner, clinical nurse specialist and nurse consultant. They are employed at grade 6 and above on the Agenda for Change pay scales. Most midwives and health visitors also fall into this category. In this evidence briefing we have concentrated on services provided by nurses working in acute hospitals or across the primary–secondary care boundary.

## Methods

This briefing is based on existing sources of synthesised and quality-assessed evidence, primarily systematic reviews and economic evaluations. We searched for relevant research evidence in the following sources:

- DARE (Database of Abstracts of Reviews of Effects) for quality-assessed systematic reviews
- NHS EED for economic evaluations
- Health Technology Assessment (HTA) database
- Health Systems Evidence for systematic reviews and policy briefs.

We have also searched relevant research funded by the National Institute for Health Research (NIHR), specifically the outputs of the Service Delivery and Organisation (SDO) programme.

We have not performed a systematic review of the extensive primary literature on specialist nursing.

## Main findings

### *Systematic reviews of effectiveness*

We identified seven potentially relevant systematic reviews, of which five were Cochrane reviews. Topics covered were diabetes, epilepsy, breast care nurses, heart failure clinics, inflammatory bowel disease, multiple sclerosis and bronchiectasis (Table 1). The reviews varied in the way they approached the topic. Some attempted to evaluate specialist nursing services as a whole, while others evaluated specific interventions performed by nurses. The comparators also varied, standard or routine care being most common.

In very general terms, the reviews found limited evidence for the superior effectiveness of specialist nurses over standard care or other comparator. This was sometimes because few studies were found that met the inclusion criteria, as in the reviews of bronchiectasis, multiple sclerosis and inflammatory bowel disease. Where more studies were included, variations in interventions, comparators and outcome measures often limited the ability to draw firm conclusions.

The included systematic reviews were generally of high methodological quality (Cochrane reviews

follow standard methods and are generally considered high quality). However, DARE considered the conclusions of the review of nurse-led heart failure clinics to be optimistic and the review may not be applicable to the UK as no UK trials were included. The review of specialist nurses for multiple sclerosis was published in 2001 and does not appear to have been updated.

The general lack of evidence for superior effectiveness of specialist nursing services/interventions should not be interpreted as evidence of ineffectiveness. The review findings may simply reflect the difficulty of assembling a strong evidence base in this field, particularly in view of the complexity of the interventions under evaluation.

### *Other systematic reviews*

Two reviews of barriers and facilitators to the development of advanced or specialist nursing roles in UK hospitals were identified from the Health Systems Evidence database. These reviews were basically qualitative and difficult to evaluate for methodological quality. The more general review<sup>1</sup> identified relationships with other staff groups and role ambiguity as the most important factors hindering or facilitating the implementation of specialist and advanced nursing roles. A second review, focusing on intensive care, included studies on the effect of extended nursing roles on care process, patient outcomes and quality of care indicators, and nurse job satisfaction.<sup>2</sup> However, this review only performed a limited synthesis of the included studies.

## **Economic evaluations**

Twelve potentially relevant economic evaluations were found in the NHS EED database (Table 2). The majority of these have been critically appraised by the NHS EED team. Services for diabetes, cancer and post-surgical patients were the subject of multiple economic evaluations. Evaluations of nurse-led anticoagulant services and services for patients with Parkinson's disease and rheumatoid arthritis were also found.

In contrast to the systematic reviews (syntheses of several studies), the economic evaluations (single studies) often found positive results. For example, one UK evaluation found that a diabetes specialist nursing service was associated with a shorter length of hospital stay than standard care without adversely affecting readmission rates, use of community resources or perceived quality of care. A second study found that provision of nurse-led clinics (in addition to standard care) to control hypertension and hyperlipidaemia in diabetes was likely to be cost-effective.

However, as with the systematic reviews, the interpretation of the economic evaluations is not straightforward. Most of them were based on data collected from a clinical study at a single hospital. The relevance of the findings to York Hospitals NHS Trust depends on how similar the services under evaluation (including 'usual care') are to those delivered at York as well as the methodological rigour of the study. It might be helpful to look at these studies in more detail once we have more background information on the situation in the York Trust.

## Other research

The NIHR SDO programme has produced a number of reports on the nursing, midwifery and health visitor contributions to chronic disease management. One report evaluated specialist nursing as a model of care provision and compares it with other approaches.<sup>3</sup> Another SDO report attempted to integrate the findings of three (not necessarily systematic) literature reviews that looked at different aspects of the topic.<sup>4</sup>

Finally, a policy briefing published by the World Health Organisation<sup>5</sup> looked at the role of the advanced practice nurse in the UK and identified evidence (including systematic reviews) as a major driver for the expansion of such roles, although the examples cited were from primary care.

## Implications for York Hospitals NHS Trust

This initial mapping of the literature on specialist nursing suggests that there is synthesised research evidence available that could be helpful to York Hospitals NHS Trust. Interpretation and evaluation of the evidence requires further contextual information about the Trust's current services, in particular to assess generalisability of research evidence to the York setting. We would be happy to work with the Trust to identify areas for more detailed examination.

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Table 1. Selected systematic reviews

<b>Intervention(s)</b>	<b>Comparator(s)</b>	<b>Effectiveness of specialist nurse intervention</b>	<b>Quality of evidence (based on GRADE system)*</b>	<b>Main findings</b>
Specialist nurse care management/delivery for patients with bronchiectasis <sup>6</sup>	Any other pattern of care delivery	Unknown effectiveness	Low to moderate	One crossover RCT compared nurse-led and doctor-led care. No statistically significant differences in infective exacerbations, lung function, exercise capacity, quality of life or hospital admissions (bronchiectasis related?). Nurse-led care had significantly higher costs compared with doctor-led care.
Specialist diabetes nurse intervention in addition to routine care <sup>7</sup>	Routine care	Unknown effectiveness	Low	Six trials with 1382 participants followed for 6 to 12 months were included. Glycated haemoglobin not significantly different between groups at 12 months. Significant differences between groups found in single trials. No data on costs.
Specialist nurse for patients with multiple sclerosis <sup>8</sup>	Not specified	Unknown effectiveness	Very low	Only one methodologically weak study was included. This concluded that patients and GPs found the specialist nurse service helpful but generalisability of the findings was uncertain.
Any specialised or dedicated team or individual for the care of patients with epilepsy <sup>9</sup>		Not specified	Unknown effectiveness (likely to be beneficial for some outcomes)	Five trials (seven papers) evaluated specialist epilepsy nurses. Overall, 'no convincing evidence that specialist epilepsy nurses improve outcomes for people with epilepsy'. Some evidence of benefit for outcomes such as depression, satisfaction with care and knowledge about epilepsy.
Individual interventions carried out by breast care nurses <sup>10</sup>	No breast care nurse, other supportive care intervention or other care	Unknown effectiveness	Low	Five RCTs/CCTs included, categorised into three groups. Psychosocial interventions around diagnosis and early treatment benefitted some aspects of QoL. Supportive care around radiotherapy and nurse-led follow-up were each assessed in one trial. Overall the review found 'limited evidence...to support the contention that interventions by BCNs assist in the short-term with the recognition and management of psychological distress for women with breast cancer'.
Hospital or community-based interventions by gastroenterology and IBD specialist nurses with the intention of improving access and outcomes for patients with IBD <sup>11</sup>	Conventional medical management; interventions evaluated without a conventionally treated group were also included	Unknown effectiveness	Low	Only one RCT was included, which compared a specialist nurse-delivered counselling package with routine outpatient clinic follow-up. Pooled mean mental health scores at 6 months were higher in the counselling group but the difference was not statistically significant. Other pooled estimates of physical and psychological well-being showed no significant differences.
Heart failure disease management incorporating specialist nurse-led HF clinics <sup>12</sup>	Usual care	Unknown effectiveness (DARE considered authors' conclusions optimistic)	Low to moderate	Six RCTs were included. Differences between intervention and control groups not significant for primary outcomes. Programmes with hospital discharge planning and immediate post-discharge follow-up had better outcomes than those without

\* The GRADE system rates the quality of evidence essentially indicating how confident we can be about the extent to which the estimates of effectiveness are correct.

Table 2. Selected economic evaluations

<b>Intervention(s)</b>	<b>Comparator(s)</b>	<b>Setting</b>	<b>Main findings</b>
<b>Diabetes</b>			
Diabetes specialist nursing service <sup>13</sup>	Standard care (any management performed by health professionals other than the specialist nurse(s))	UK Hospital	The specialist nurse service was associated with a shorter length of hospital stay without any adverse impact on readmission rates, use of community resources and perceived quality of care
Specialist nurse-led clinics for control of hypertension and hyperlipidaemia in diabetes <sup>14</sup>	Standard (hospital-based) care	UK Secondary care	Provision of nurse-led clinics as adjunctive care was likely to be cost-effective
Specialist nurse as main care provider for type II diabetes <sup>15</sup>	Standard doctor-led (internist) care	Netherlands Hospital outpatient	Clinical outcomes were similar between groups. Healthcare costs were significantly lower and patient satisfaction higher in the nurse treatment group.
<b>Cancer</b>			
Advanced practice nurse care for women with breast cancer <sup>16</sup>	Standard medical care	USA Integrated health care system	APN care improved some outcomes such as uncertainty, mood and well-being without increasing health care visits and hospitalisations. However, the extra costs of the nurse treatment were not offset by reductions in the costs of care, leading to an overall increase in costs.
On-demand follow-up of patients with prostate cancer by a specialist nurse <sup>17</sup>	Urologist-led follow-up	Sweden Secondary care	Specialist nurse follow-up of men not suited for curative treatment was safe and cost-effective, especially for men without metastases. Total costs for urologist group SEK 19,454/patient/year (SEK 15,198 without metastases), for nurse group SEK 17,033 (10,731)
<b>Other</b>			
Specialist nurse-supported discharge following elective gynaecological surgery (planned discharge on post-operative day 3) <sup>18</sup>	Routine care (discharge on post-operative day 5 or 6)	UK Hospital	Nurse-supported discharge significantly reduced length of stay and healthcare costs without introducing any adverse physical or psychological effects
Nurse specialist anticoagulant service <sup>19</sup>	Consultant anticoagulant service	UK Hospital	No difference in costs or effectiveness between the two services. Nurse specialist service a viable alternative model of service provision
Service provided by Parkinson's disease nurse specialists <sup>20</sup>	Usual consultant-led care	UK Hospital outpatient	Outcomes were similar between groups but the nurse-led service was associated with higher costs
Nurse practitioner-physician collaboration to manage hospitalised patients <sup>21</sup>	Usual care	USA Academic medical centre	Collaborative physician/nurse practitioner multidisciplinary care management of hospitalized medical patients reduced LOS and improved hospital profit without altering readmissions or mortality.
Specialist liaison nurse following surgery for aneurysmal subarachnoid haemorrhage <sup>22</sup>	Standard care	UK Secondary/ community care	Total costs were reported to be lower in the intervention group than the usual care group (\$753,000 vs. \$1,383,000), resulting in savings of \$315,000 per annum over 2 years at 2003 prices.
Specialist liaison nurse following surgery for aneurysmal subarachnoid haemorrhage <sup>23</sup>	Standard care	UK Secondary/ community care	Average annual cost of the SLN project was £32,000. Savings to families and the NHS through reduced time off work, medical time and readmissions were reported to be £156,400 per annum.
Clinical nurse specialist care (in addition to rheumatologist care) for patients with rheumatoid arthritis <sup>24</sup>	In-patient or day patient multidisciplinary team care	Netherlands Hospital	Costs of initial treatment were €200 for nurse specialist, €5,000 for in-patient and €4,100 for day patient care. Over 2 years of follow-up there were no significant differences in quality of life and utility