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# Cochrane reviews of educational and self-management interventions to guide nursing practice: A review

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## Abstract

**Background:** The burden of chronic disease on healthcare services worldwide is growing and the increased development of educational interventions which help patients to better manage their own conditions is evident internationally.

**Objectives:** This paper reports on findings of a review of Cochrane systematic reviews of interventions designed to improve patients' knowledge and skills to manage chronic disease, with particular reference to nursing contribution and practice.

**Methods:** Thirty Cochrane systematic reviews were identified as meeting the inclusion criteria. Data were extracted and summarised.

**Findings:** The majority of reviews included in this paper were judged by Cochrane reviewers to provide inadequate evidence ( $n = 18$ , 60%) of the effectiveness of the interventions reviewed. Information on the professional delivering the interventions was often not available, although 77% (23) of reviews mentioned that nurses were involved in a proportion of studies.

**Conclusion:** Educational programmes have definite benefits for patients suffering from asthma and are promising for interventions in areas such as diabetes mellitus, epilepsy and mental health. However, it still is not clear what the active ingredients of many successful interventions are.

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**Keywords:** Self-management; Patient education; Cochrane reviews; Chronic illness

## What is already known about the topic?

- Interventions for encouraging patients to understand and manage their chronic conditions are becoming increasingly wide spread
- Nurses are one of the most likely professional groups to undertake both formal and informal patient education
- There have been few attempts to summarise research-based benefits of educating patients on how to manage

their chronic illness using the highest quality systematic reviews, or to assess the contribution of nurses to clinical trials included within these reviews

## What this paper adds

- Although self-management interventions in a number of areas are promising, over half the reviews included were judged by the Cochrane reviewers to provide inadequate evidence for the interventions' effectiveness
- Reviews rarely concluded whether the profession of the educator was an important factor in the effectiveness of an intervention, however, nurses are delivering educational programmes independently and alongside other professionals

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- Although Cochrane reviews can provide nurses with the best evidence for practice, few reached conclusions with regard to the key components of intervention programmes.

## 1. Introduction

Non-communicable disease, such as cardiovascular disease, diabetes, and chronic pulmonary disease affect populations worldwide, but is becoming increasingly prevalent in developing countries. The proportion of deaths due to non-communicable disease globally is projected to rise from 59% in 2002 to 69% in 2030 (World Health Organisation (WHO), 2002). Chronic disease therefore places a huge burden on healthcare services worldwide. As the majority of chronic conditions are treated within the community, the role of the patient in understanding and managing their own health is becoming increasingly important. Education is considered a vital step towards enabling patients to play an active role in managing their own health (WHO, 2005).

The terms “patient education” and “self-management education” are closely related concepts. Patient education has been defined by the Cochrane Collaboration as “the teaching or training of patients concerning their own health needs.” Self-management has been defined as ‘the individual’s ability to manage the symptoms, treatment, physical and psychosocial consequences and lifestyle changes inherent in living with a long term disorder’ (Department of Health England, 2005). Bodenheimer et al. (2002) distinguish between patient education, which they suggest provides disease-specific information and technical skills, and self-management education which teaches problem-solving skills which allow patients to take appropriate actions to improve their health. They conclude that self-management education “complements, rather than substitutes for, traditional patient education.” A third term “self-care” is defined by the World Health Organisation (WHO) as including “activities that individuals, families, and communities undertake with the intention of enhancing health, preventing disease, limiting illness, and restoring health” (WHO, 1983). This includes the adoption of preventative strategies undertaken by individuals who do not suffer from acute or chronic illness. However, despite attempts to define these concepts, in practice, the terms are often used interchangeably, with patient education considered by some as simply the mechanism by which self-management skills are taught. Thus interventions which are termed patient education may refer to minimal interventions such as the provision of leaflets, whilst recent programmes which also describe themselves as educational, can comprise a variety of other elements including the teaching of self-management skills. However, all such programmes, from the simple to the more complex, aim to increase patients’ interest and involvement in their own care, and by doing so, empower them to manage their condition.

Finding ways of supporting people with chronic illness continues to feature heavily in the development of health care agendas, and the drive for educating patients about their conditions is evident internationally. In the US, self-management courses have been available through both private and public organisations for decades, and are seen as a vital way of cutting the costs of chronic disease (Bodenheimer et al., 2002). The UK has also embraced the concept, and has introduced a number of initiatives based on work carried out in the US (Lorig et al., 1997). The British Medical Association (2007) recently stated that self-care and self-management education should become “central to the patient involvement agenda” whilst the importance of self-management programmes has been acknowledged in a number of policy documents (Department of Health England, 2001, 2006). Similarly Jordan and Osbourne (2007) cite that “the Australian Government budget for the 2006–2007 financial year has an unprecedented provision for the implementation of chronic disease self-management education and training activities over the next 5 years.” The development of programmes is being reported from countries as diverse as China (Yip et al., 2007), Finland (Lahdensuo et al., 1998), Norway (Gallefoss et al., 1999) and Canada (Gadoury et al., 2005). Some well-established programmes for managing diabetes, asthma and heart disease have been rolled out across the USA, UK, The Netherlands, Australia and Canada. Additionally programmes modelled on the Stanford Chronic Disease Self-management Course (Lorig et al., 1997) which substitutes lay educators for healthcare staff (e.g. the Expert Patient programme in the UK, Kennedy et al., 2004) have also been adopted worldwide, having been translated into Chinese, Vietnamese, Norwegian, Somali, Bengali, Dutch, German, Hindi, Korean, and Italian.

Historically, educating patients has been considered a key feature of nursing (Henderson, 1966) and nurses continue to perceive patient education as important part of their role today (Kruger, 1991). Although patients have not always considered the role of nurse as educator to be as important as nurses do themselves (Summers, 1984; Tilley et al., 1987) recent research from the UK suggests that patients continue to find nurses easier to approach for information than doctors (Collins, 2005). Nurses are well placed to deliver patient education due to their extensive patient contact which provides them with the opportunity to assess patients’ educational needs and readiness to learn (Narrow, 1979). Pohl (1968) makes an important distinction between informal teaching (unplanned communication between clinicians and patients) and formal teaching (structured education). The benefit of informal patient education is that clinicians can tailor it to meet the needs of the patients’ and their condition, their capacity to understand, and their values and expectations. It has been acknowledged that insufficient attention has been paid to maximizing the effects of informal teaching (Wick and Robbins, 1998). However, it is challenging to assess the impact of *ad hoc* unplanned education, and most research literature to date refers to the delivery of structured patient education programmes.

Care from nurse specialists in the US has been proven to be effective in improving the clinical outcomes of patients with long-term conditions such as diabetes (Aubert et al., 1988). In the UK, the new general practice contract places a greater responsibility on practice nurses' responsibility to support patient management of their conditions in the community, but Macdonald et al. (2008) argues little attention has been given to how nurses might support this remit effectively. Astin and Closs (2007) in a recent editorial, also cite a World Health Organisation report (2005) which concludes that the international healthcare workforce lacks the "training, education and skills set" required to effectively manage chronic conditions. Astin and Closs (2007) suggest that little has been done to equip nurses, the largest group in the healthcare workforce, with the required knowledge and skills for self-management education, and call for greater opportunities for both pre-registration staff and qualified nursing staff to undertake suitable training.

A previous review of self-management interventions suggested that much of the published empirical research originated from the USA, followed by the UK and Australia (Barlow et al., 2002). In this review, Barlow et al. (2002) suggest that published literature on education demonstrates that self-management can provide benefits for patients in terms of knowledge, self-efficacy and health status. However, whilst economic evaluations of self-management programs have also been reported in a number of clinical areas, the variety of methods used make it particularly difficult to reach an overall conclusion as to the cost-effectiveness of self-management techniques (Willems et al., 2006).

As patient self-management education becomes increasingly widespread, and the number of clinical trials continues to increase, the growing volume of evidence available presents a challenge for nurses who wish to incorporate the latest research evidence into their practice. Carrion et al. (2004) report that the most frequently cited barrier by mental health nurses to utilising research is lack of time both to read research and to implement new practice ideas. Inadequate time to read and incorporate current research into care has also been cited as a problem in a number of other studies (Carroll et al., 1997; Funk et al., 1991). In addition, individual factors which hamper nurses' use of research have included a self-reported lack of confidence and knowledge in locating and critically evaluating research literature (Dunn et al., 1998).

Using systematic reviews to guide nursing practice may overcome some of these identified barriers (Oermann et al., 2007). Systematic reviews are generally considered to produce the highest standard of evidence for informing clinical practice (Sackett et al., 1997). They use rigorous methods to locate relevant research studies, and explicit criteria to assess the quality of these studies. Reviewers then reject poor quality studies, basing their conclusions on the highest quality evidence available. Oermann et al. (2007) also assert that systematic reviews "provide stronger evidence on the effectiveness of interventions than individual research studies

and integrated literature reviews, and they have less chance of author bias." Cullum (2000) has recommended that nurses always look for systematic reviews, such as those produced by the Cochrane Collaboration, to answer questions about clinical practice because they have already collected, assimilated and summarised the highest quality research.

The Cochrane Collaboration, formed in the UK in the 1993, aims to develop, publish and disseminate systematic reviews which are based on the strongest evidence available. It includes work by international researchers and has over 7000 professional members worldwide. It also has clearly stated and rigorous guidance for conducting systematic reviews. Reviews published by the Cochrane library are particularly highly regarded (Greenhough, 1997; Jadad et al., 1998). A comparison of Cochrane systematic reviews and meta-analyses with those published in paper-based journals suggested that the former had greater methodological rigour, and because Cochrane reviews are amended as more research becomes available, they were more likely to be up to date (Jadad et al., 1998).

The aims of the review reported in this paper were to:

- Assess the evidence for educational and self-management programmes within the Cochrane Library.
- Assess the contribution and involvement of nurses in the clinical trials incorporated within these reviews.
- Identify what nurses should be doing in practice in terms of educational interventions to obtain beneficial outcomes for patients.
- Evaluate the usefulness of using the Cochrane library to guide evidence based nursing practice.

## 2. Methods

### 2.1. Research question and inclusion criteria

There is no "gold standard" definition of self-management (Barlow et al., 2002). The terms "patient education" and "self-management programmes" are often used by different trialists to describe similar programmes, and reviews often include studies which could be termed as both educational and self-management interventions. For example, Riemsma et al.'s (2003) review of patient education in arthritis uses a broad definition of education, to include interventions of both simple information provision and psycho-behavioural education to promote changes in health behaviours. In view of these issues, the present review adopted broad selection criteria to include all Cochrane systematic reviews of interventions designed to improve patients' knowledge and skills to manage chronic health problems.

Cochrane systematic reviews were independently assessed by the two authors against preset inclusion criteria incorporated in the framework outlined below:

- **Population:** People suffering from a chronic health problem or condition (including newly diagnosed), to include carers in the case of vulnerable adults or children.
- **Intervention:** Educational or self-management interventions by nurses or other healthcare professionals, designed to improve patients' management of their conditions.
- **Comparison:** As defined by Cochrane reviewers, in which the educational or self-management intervention was compared against usual care, the "gold standard" treatment, or alternative forms of educational interventions or non-education interventions.
- **Outcome:** Any benefits for patients or carers related to their health problem, including psychological and physical benefits.

## 2.2. Exclusion criteria

Protocols of Cochrane systematic reviews yet to be completed were excluded. In addition:

- Reviews of self-care interventions which aimed to increase preventive illness behaviours in healthy adults (e.g. to reduce smoking, promote a healthy diet, encourage physical exercise and encourage cycle helmet wearing) were excluded since the aim of the present review was to establish the benefits of educational interventions for people suffering from chronic health problems. However, interventions which targeted the reduction of blood pressure in hypertensive patients or cholesterol reduction in patients with hyperlipidemia were included as these conditions were considered to be chronic health problems.
- Reviews which only focused on the effectiveness of psychological interventions (e.g. psychotherapy or cognitive behavioural therapy) were excluded since their primary focus was not to improve patients' disease management skills. However, reviews which contained trials of both educational and psychological (or non-educational) interventions, but which featured a separate analysis of the impact of both types of intervention were included.
- Reviews in which the interventions were designed primarily for delivery by lay people (community leaders, and

other patients) were excluded as the review was aimed to inform the practice of nurses and other healthcare professionals.

## 2.3. Search strategy

A search strategy was developed to identify reviews of patient education, self-management and self-care studies. To ensure that all relevant studies were retrieved the online version of the Cochrane Database 2007 issue 4 was searched on 1 October 2007 for the following words; "educat\*" "self-management," and "self-care" in the title, abstract or keywords of all reviews. The database was interrogated again using the same search on the 15th January 2008 to ensure that the review was up to date. "Patient education" and "Self-care" were also entered as MESH terms which retrieved 51 and 24 articles, respectively, all of which had been identified previously from the initial keywords search. Self-management is not featured as an individual MESH term in the Cochrane Library. Due to the general inconsistency of terminology used by trialists and researchers, the term self-care was initially included to ensure that no relevant reviews were missed. However, it was anticipated that many reviews correctly categorised as self-care would be excluded to retain the focus of the review on chronic conditions rather than on healthy populations. A total of 247 possible Cochrane systematic reviews were identified. Decisions on which papers to exclude were made by two researchers (SC & IJN) and are summarised in Table 1. A final 30 reviews were included in the present review. As Cochrane reviews conform to rigorous methodology and are therefore considered to provide the best evidence, the reviews were not subsequently rated for quality.

## 2.4. Data extraction

The following information was extracted: author, title, publication date and updates, review aim, main comparisons, nurses' involvement in the study, the presence of a meta-analysis, the total sample size, and the Cochrane reviewers' conclusions. This process was completed by a single researcher (SC). The number of studies included in

Table 1  
Summary of exclusion criteria and studies excluded from the review.

Reasons for exclusion	Number of studies excluded
Retrieved reviews = 247 <sup>a</sup>	<i>n</i> = 217
Non-educational (e.g. service innovations or pharmaceutical treatments)	72
Self-care interventions which aimed to increase preventive illness behaviours in healthy adults (e.g. cycle helmet wearing)	69
Education or training interventions for staff	24
Psychological interventions only (e.g. psychotherapy or counselling)	24
A multi-faceted intervention where education was part of a complex package of care and support (and was not analysed separately)	25
Intervention delivered by lay people (community leaders or other patients)	1

<sup>a</sup> 2 reviews had been withdrawn at the time of the search.

the review and the total number of participants randomised into these studies was also extracted as a guide to the quantity of evidence available, although not all studies contributed to the different meta-analyses performed. Full details of all the reviews retrieved are presented in Table 2. As one of the aims of the review was to ascertain whether information provided by the Cochrane reviews might be used to guide practice, data extraction was performed without accessing the original primary research studies.

### 2.5. Findings of the review

The dates of first publication, latest substantial amendment, and most recent amendment were extracted from the review. Seventy percent (21) of reviews cited the date of their first publication within the last 5 years (from 2003 onwards). More importantly, over a third (11) reported that their most recent update had occurred within the last year (2007 or 2008) and 76% within the past 3 years (2005–2008).

### 2.6. Population

Included reviews evaluated the effectiveness of self-management and educational interventions for patients suffering from; asthma, diabetes, chronic obstructive pulmonary disorder (COPD), epilepsy, rheumatoid arthritis, atopic eczema, schizophrenia, bipolar disorder, stroke, human immunodeficiency virus (HIV), back pain, and cardiovascular risk (hypertension and hyperlipidemia). In addition, one review included a range of populations including those from the groups above plus patients with cancer, Alzheimer's disease, eating disorders, obesity and incontinence. Most studies included adult populations only ( $n = 20$ ); whilst 5 included children and/or adolescents only (under 16, with or without parents) and 5 included populations comprising adults, adolescents and children.

### 2.7. Intervention

Interventions ranged from simplistic patient education which informed patients about their condition (e.g. Gibson et al., 2002a) to self-management programmes which provided both education and taught practical self-management skills (e.g. Powell and Gibson, 2002). Self-management programmes promoted active illness management (e.g. altering medication, monitoring symptoms, or seeking help). In addition, some self-management programmes contained more complex interventions such as behavioural treatments (e.g. Rueda et al., 2006). Education comprised either general advice (e.g. epilepsy guidelines, Bradley and Lindsay, 2008) or was tailored for individual patients (e.g. action plans, Turnock et al., 2005). Interventions were delivered through written or multi-media materials (videos, booklets, and CD-ROMS), interactive sessions with professionals (e.g. workshops or discussion groups), non-interactive sessions (e.g. lectures) or a combination of these different approaches.

Programmes were delivered on an individual basis (e.g. Effing et al., 2007) and in group settings (e.g. Deakin et al., 2005). The duration of the interventions varied substantially both within and across reviews, ranging from one-off sessions lasting for 10 min (e.g. Valk et al., 2001), to more intensive programmes that ran for a couple of hours (e.g. Engers et al., 2008). There were also longer-term programmes which comprised over 200 sessions (e.g. Pekala and Merinder, 2002) or lasted for 4 years (e.g. Deakin et al., 2005).

### 2.8. Comparators

Reviews contained studies which compared the educational intervention with standard care, with another form of education (e.g. Valk et al., 2001), or with non-educational interventions (e.g. Engers et al., 2008). Standard or routine care varied widely and was poorly described by some studies. When defined, standard care could range from the medical or physical management of the condition with no intervention, or in some cases could provide different types of education and support which were not considered to be an intervention, but good standard care by the trialists (e.g. Welschen et al., 2005).

### 2.9. Outcomes

A range of outcomes was used in the reviews, which are detailed in Table 2. Only nine of the reviews (30%) specified a single primary outcome accompanied by secondary outcomes, whilst the remaining reviews utilised a range of outcomes measures which were not prioritised. Outcomes could be usefully classified into four types: clinical/physiological outcomes (e.g. metabolic outcomes, lung function, and disease severity); functional outcomes (e.g. exacerbations of the condition, restricted activity, days off work, reliance on medication, and pain); cognitive outcomes (e.g. self-efficacy, knowledge, patient satisfaction, awareness of medication side effects, and psychological health) and healthcare service use (e.g. emergency department visits and clinic attendance). Only a minority of reviews included studies which looked at the cost-effectiveness of the interventions being tested (e.g. Gibson et al., 2002b; Morriss et al., 2007).

### 2.10. Quality of studies reviewed

Although, by definition, all studies included in Cochrane reviews must achieve certain standards, the quality of trials included varied widely. Although it may be impossible to conduct single or double-blinded trials of educational interventions (where patients and staff are unaware of their interventions) it is often possible to ensure blind allocation of patients to treatment arms. Allocation concealment is considered important because it removes the possibility of a recruitment bias, which might ultimately lead to a form of



Table 2  
Summary of reviews included ( $n = 30$ ).

Asthma	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study ( $n$ )	Rating	Summary of findings	Nurse involvement in studies
Gibson et al. (2002b); FP: 1999; SA: 2002; RA: 2004 (Reference: 29)	Does self-management plus review by a professional lead to improved health outcomes in asthma patients? What are the characteristics of programmes which lead to positive changes in health outcomes?	Adults with asthma (severe, moderate and mild); Outpatients & inpatients; GP/asthma clinics; home	Interventions: 1. Optimal self-management. 2. Self-monitoring + regular review. 3. Self-monitoring only. 4. Regular Review only. 5. Written action plan but not optimal self-management. Comparisons: Standard care (which sometimes included lower intensity interventions) and comparisons of 1–5	Multiple outcomes: asthma admissions, ER visits, doctor visits, days lost from work, lung function, use of medications, symptom scores, quality of life, costs.	Y	36; $n = 6090$	1	There was good evidence that self-management education alongside a written action plan and review reduced hospitalisations, emergency visits, service use, days off work, and improved nocturnal asthma & quality of life. The inclusion of written action plans appeared to facilitate optimal self-management. The intervention led to a significant reduction in indirect costs, increased direct costs and an overall (but non-significant) reduction in total costs.	Respiratory/asthma nurses delivered at least seven interventions independently and at least one with other professionals (professionals not always specified)
Gibson et al. (2002a); FP: 2000; SA: 2002; RA: 2004 (Reference:28)	Does limited (i.e. information only) asthma education have an impact on adult patients' use of services, asthma functioning, and asthma knowledge?	Adults with asthma (severe, moderate & mild); outpatients; GP/asthma clinics; home.	Interventions: 1. Interactive (individualised) education*. 2. Non-interactive (generic) leaflets or video*. 3. Combined non-interactive and interactive. *No self-management skills. Comparisons: standard care and comparison of 1 and 2	Multiple outcomes: Admission/readmission rate, ER visits, Lung function: expiratory volume Use of medications, symptom scores, quality of life, economic cost, days lost from work	Y	12; $n = 2542$	3	Limited asthma education (information only) without self-management skills training did not reduce hospitalisations, service use, time off work, or improve lung function or medication use in patients. There was limited evidence to suggest that patients perceived a significant reduction in symptoms after information. Emergency visits were reduced in a high-risk group but there was no evidence to suggest benefit in lower risk patients.	Nurse delivered at least one intervention independently (professionals not specified in other studies)
Powell and Gibson (2002); FP: 2003; SA: 2002; RA: 2003 (Reference: 52)	What are the effects of different formats of self-management education on patients' service use, functional status and quality of life?	Adults with asthma (severe, moderate & mild). Outpatients and inpatients; emergency room/GP/ nurse asthma clinics/ primary care	Interventions: 1.Optimal self-management (+ action plan). 2. Less than optimal self-management (no plan, reduced education, etc.). Comparisons: 1. Regular review with doctor. 2. Optimal versus non-optimal plans. 3. Peak flow versus symptom based action plans.	Multiple outcomes: ER visits, doctor visits, days lost from work or school, lung function (FEV1), use of medication, quality of life	Y	15; $n = 2460$	1	There was good evidence to suggest that self-monitoring + self-adjustment of medications with an action plan was equivalent to having medication adjusted by a doctor in terms of frequency of hospitalisation, and emergency and clinic visits. Peak flow and symptom based action plans were found to be equivalent. There was limited evidence from small number of trials suggested that lower intensity education and interventions which did not feature a regular review, resulted in greater service utilisation by patients.	Respiratory/asthma nurses delivered intervention independently in at least three studies (professionals not always specified)
Asthma	Review objective	Populations and settings	Interventions and comparisons	Outcomes	MA	Study ( $n$ )	Rating	Summary of findings	Nurse involvement in studies
Wolf et al. (2002); FP: 2003; SA: 2002; RA: 2005 (Reference:75)	What is the efficacy of asthma self-management education on health outcomes in children?	Children and adolescents (and their parents) with asthma (severe, moderate and mild). Outpatients and inpatients; GP/nurse asthma clinics; school; home	Interventions: 1. Brief asthma education (individual and group). 2. Intensive asthma education (individual and group). Comprising: self-management strategies (peak or symptom based) and/or action plans. Comparison: Usual care or comparison between interventions	Multiple outcomes: lung function; school absence; self-efficacy; emergency visits	Y	32; $n = 3706$	1	Educational interventions improved physiological function, improved self-efficacy, decreased days off school, and emergency room visits. There was no consistent impact on frequency of hospitalisations. Limited data on design factors suggest that single and multiple session, both individually and group were effective, but for improving different outcomes. Peak flow plans appeared most effective. The impact was greater in moderate-to-severe compared to mild-to-moderate asthma sufferers.	Nurse specialists and health visitors delivered the intervention in at least 16 studies independently; and participated in at least 2 more through multi-professional delivery (professionals not always specified)

Table 2 (Continued)

Asthma	Review objective	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Toeles and Ram (2004); FP: 2002; SA: 2003; RA: 2004 (Reference: 66)	Does the provision of a written action plan increase adherence and improve outcome in asthmatic patients?	Adults and Children with asthma (severe, moderate and mild). Outpatients and inpatients, home, community clinics	Interventions: 1. Education and written action plans (peak flow). 2. Education and written action plans (symptoms). Comparison: Usual care (to include education or no education without plans) or comparison of 1 & 2.	Primary outcome: Adherence to asthma medication and meter usage <i>plus secondary outcomes</i>	N	7; n = 967	2	There were insufficient research studies to ascertain the contribution of written action plans alone on health outcomes. Comparative findings for peak flow and symptom based plans were inconsistent. Written plans alone did not seem to change behaviour (adherence) or health outcomes, although adherence was poorly measured in a number of studies.	Nurse delivered intervention independently in at least one study (professionals mostly not specified or not involved)
Bhogal et al. (2006); FP: 2006; SA: 2006; RA: 2006 (Reference: 4)	What is the effect of providing versus not providing a written action plan in children and adolescents with asthma?	Children with asthma (severe, moderate and mild). Hospital, home, community clinics (or combination)	Interventions: 1. Written action plans (peak flow based). 2. Written action plans (symptom based). Comparison: Peak flow versus symptom flow based plans	Primary outcome: No. of pts with asthma exacerbations requiring emergency visits <i>plus secondary outcomes</i>	Y	4; n = 355	2	No studies compared the effect of a written plan against no written plan in children, so the effectiveness of providing a plan could not be evaluated. Symptom based plans reduced the number of exacerbations requiring clinic visits and were preferred by children, whilst peak flow based plans reduced the number of symptomatic days reported. However studies were small and there was not enough data to ascertain the reason for these differences.	Nurse delivered intervention independently in at least one study (professionals mostly not specified or not involved)
Asthma	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Tapp et al. (2007); FP: 2007; SA: 2007; RA: 2007 (Reference: 64)	Does education administered after an acute admission reduce subsequent admissions, or improve lung function, or quality of life in adults with asthma?	Adults with asthma presenting to emergency department or re-hospitalised. Emergency department; inpatients and outpatients	Interventions: Programmes combining: 1. Written plans. 2. Education sessions on symptoms. 3. Education on inhaler use. 4. Information booklet. Comparison: Usual care	Multiple outcomes: Hospital admission/re-admission rates, subsequent emergency room visits, GP visits, Lung function: Symptoms, use of medications, quality of life, days off sick, cost	Y	12; n = 1954	2	There was some evidence to suggest that educational interventions applied in the emergency department reduced subsequent asthma admissions to hospital but not further emergency visits. Better quality trials had interventions which included action plans. No improvements were reported in chronic disease indicators or quality of life, although participant numbers in relevant studies were low. It was not possible to distinguish between the effects of different types of education as most programmes contained a combination of four approaches.	Nurses delivered interventions independently in all studies except one (92%)
Haby et al. (2001); FP: 2000; SA: 2000; RA: 2004 (Reference: 31)	Does asthma education lead to improved health outcomes in children who have attended the emergency department for asthma?	Children (and parents) with asthma & emergency visit within previous 12 months. Outpatients and inpatients, home, community clinics	Interventions: 1. Information only. 2. Information and self-monitoring. 3. Information, self-monitoring and action plan. 4. Information & GP review (All information was interactive). Comparison: Usual Care or lower intensity intervention; comparisons of 1–4.	Primary outcome: Number of Emergency visits after intervention, <i>plus secondary outcomes</i>	Y	8; n = 1407	2	Overall educational interventions did not significantly reduce subsequent admissions to emergency rooms, hospital admission, or visits to the doctor. There was too little data to compare different methods of education. However, findings were inconsistent and the data trend was towards interventions being effective; reviewers suggest negative findings could be the result of too few or underpowered studies. Analysis was not performed on secondary outcomes due to inadequacy of data.	Asthma nurses and child nurses delivered interventions independently in all studies but one which they conducted alongside community workers.



Diabetes	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Deakin et al. (2005); FP: 2004; SA: 2005; RA: 2005 (Reference:14)	What are the effects of group-based, patient-centred training on clinical, lifestyle and psychosocial outcomes in people with type 2 diabetes?	Adult patients with type 2 (poorly and non-poorly controlled) who were receiving insulin and were NIDDM. Primary care; outpatient clinics.	Interventions: 1. Long-term group education. 2. Short term group education. Comparison: Usual care	Multiple outcomes: metabolic control; Diabetes knowledge; quality of life; self-efficacy; weight, complications and lifestyle	Y	11; n = 1532	1	Group education was effective at improving FBG and glycated haemoglobin in both the short and long term, and reduced the need for medication. There was weaker evidence that it might decrease blood pressure and weight, and improve quality of life, self-management skills and diabetes knowledge. Programmes delivered by a nurse, showed similar effects to the main analysis. The duration of intervention did not appear to affect the impact of programme.	Nurses delivered intervention with dietitians in three studies and delivered one trial independently
Welschen et al. (2005); FP: 2005; SA: 2005; RA: 2005 (Reference: 72)	What is the impact of self-monitoring blood glucose (SMBG) on patients with type 2 diabetes mellitus (not using insulin) on HbA1c, patient quality of life, and satisfaction with treatment?	Adult patients with type 2 diabetes not treated with insulin; (poorly and non-poorly controlled). Outpatients (but often unspecified)	Interventions: 1.SMBG (including education on monitoring, diet and/or exercise). Comparisons: 1. No monitoring (control). 2. Urine testing. 3. Comparison of blood, urine and no monitoring	Multiple outcomes: glycaemic control; quality of life; patient satisfaction	N	6; n = 1313	2	There was weak evidence of greater improvement in HbA1c levels in SMBG than in control groups. No differences were found on quality of life measures. Trials were of limited quality and the reviewers suggested that self-monitoring was not always optimised by trialists by providing advice on diet modification. Control groups also featured education, nutritional advice and medication management which may have confounded the results of some studies.	Nurses delivered two interventions independently; and one alongside dietitians & physician assistants (professionals not always specified)
Nield et al. (2007); FP: 2004; SA: 2007; RA: 2007 (Reference: 47)	What impact does dietary education have on weight, complications, or metabolic outcomes in patients with type 2 diabetes?	Adult diabetic patients (poorly and non-poorly controlled) Receiving insulin and NIDDM. Hospital/outpatient clinics	Interventions: 1. Dietary advice. 2. Dietary advice + behavioural training. 3. Dietary advice + exercise. Comparison: three intervention groups	Multiple outcomes: weight loss, Micro/macro complications	Y	18; n = 1467	2	There was insufficient research to determine the effect of dietary advice alone for the treatment of type 2 diabetes mellitus on metabolic control. However, the addition of exercise to dietary advice showed an improvement of metabolic control after 6 and 12 months follow-up. No studies looked at the impact of the intervention on mortality, morbidity, or quality of life.	Nurses participated in two interventions as part of mixed professional teams (professionals largely unspecified)
Vermeire et al. (2005); FP: 2005; SA: 2005; RA: 2005 (Reference:70)	What is the impact of interventions to improve adherence to treatment recommendations in people with type 2 diabetes mellitus on adherence, diabetes-related morbidity and mortality?	Adult diabetic patients (poorly and non-poorly controlled) Receiving insulin and NIDDM. Primary care; outpatient clinics, community settings	Interventions: 1.Interactive education (n = 4). 2. Non-interactive (video). <i>Non-educational interventions included: Medication interventions, nurse support, home support, pharmacy interventions.</i> Comparison: usual care; education (video versus traditional versus specialist educator)	Multiple outcomes: health outcomes, morbidity and mortality, direct & indirect indicators of adherence	N	Education studies; 4 n = 518. Overall: 21 studies	2	Simple diabetes education programmes did not have a consistently beneficial effect. HbA1c declined slightly in most of the education studies, plus small improvements in knowledge of diabetes and prescription adherence. However, the authors suggest that most demonstrated changes are not likely to be clinically significant. They also suggest that research quality is so poor that it may not be able to demonstrate effectiveness.	Professionals not specified for the four education interventions

Table 2 (Continued)

Diabetes	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Valk et al. (2001); FP: 2001; SA: 2001; RA: 2004 (Reference: 69)	What is the effectiveness of patient education on the prevention of foot ulcers in patients with diabetes mellitus?	Adult patients with diabetes (Type 1&2) who were at low, moderate, high or unspecified risk of amputation. Home, primary care, podiatry clinics, outpatients.	1. Intensive education (group & individual education, hands on-workshop). 2. Brief education (leaflets, video). Comparison: 1. Standard care. 2. Brief versus intensive education	Primary outcome: foot ulceration, infection, amputation and ulcer recurrence <i>plus secondary outcomes</i>	N	9; n = 3153	2	There was weak evidence from flawed studies of an improvement in foot care knowledge in the short term and a reduction in ulcers in a high-risk group. No conclusions could be drawn as to whether complex or simple, brief or intensive interventions were more effective. Methodological problems included many underpowered studies; and outcomes of foot ulceration and amputation were only evaluated in half of the trials.	Three interventions delivered independently by nurse educators and two alongside other professionals (professionals not always specified)
Epilepsy	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Ramaratnam et al. (2008); FP: 2001; SA: 2005; RA: 2008 (Reference: 53)	Do psychological treatments (including education) for people with epilepsy reduce seizure frequency and/or improve quality of life?	Adults and children with epilepsy. Outpatient and specialist epilepsy clinics	Intervention: 1.Group education programmes. <i>Other non-educational interventions included: CBT, Relaxation, Behaviour therapy, Alternative therapies.</i> Comparison: usual care	Primary outcome: Seizure reduction <i>plus secondary outcomes</i>	N	Education studies; 4, n = 1025. <i>Overall=14 studies</i>	2	All four educational studies reported benefits in terms of increasing patients understanding of epilepsy and their perceived coping skills. Only one of the four examined impact on seizure reduction. There was evidence of an impact on compliance with treatment and seizure management. The authors suggest that the overall evidence is not reliable enough to support the introduction of any interventions into clinical practice.	Programmes delivered by a range of healthcare professionals including nurses (but not always specified)
Shaw et al. (2007); FP: 2007; SA: 2007; RA: 2007 (Reference:60)	What impact does self-management education on adults with epilepsy in terms of seizure frequency and severity?	Adults with epilepsy. Outpatient and specialist epilepsy clinics	Intervention: 1. Interactive education (2-day group education workshops). Comparison: usual care/ waiting list	Primary outcome: seizure frequency; <i>plus secondary outcomes</i>	N	2; n = 483	2	There was some evidence from the 2 studies retrieved that self-management education could improve disease knowledge and reduce seizure frequency. However, research evidence was of poor quality and not sufficient to establish the true extent of the programmes' effectiveness or to determine the key components of education programme.	Programmes delivered by a range of healthcare professionals (professions not always specified)
Stokes et al. (2007); FP: 2007; SA: 2007; RA: 2007 (Reference: 61)	What impact does self-management education in children with epilepsy have on their seizure frequency and severity?	Children and adolescents with epilepsy. Unreported setting	Intervention: 1.Group education for children + parents. Comparison: usual care	Primary outcome: Seizure frequency; <i>plus secondary outcomes</i>	N	1; n = 167	2	There was evidence from one poor quality study that an education programme could reduce frequency of seizures, improved knowledge, & improve certain behavioural outcomes in children. However, available research did not allow the determination of what the key components of the programme were.	Delivered by teachers (nurses = 0%)
Bradley and Lindsay (2008); FP: 2008; SA: 2007; RA: 2007 (Reference: 7)	What impact do specialised interventions for epilepsy have on seizure frequency, quality of life and health status for adults with epilepsy?	Adults with epilepsy. Outpatient and specialist epilepsy clinics	Intervention: 1. Self-management group education. 2. Guidelines + education. 3. Self-monitoring side effects. 4. Information leaflets. <i>Review also included other non-educational interventions.</i> Comparison: usual care	Multiple outcomes: seizure frequency and severity, medication levels, health status, quality of life, cost	N	Education studies; 5 approx = 1616. <i>Overall=13 studies</i>	2	The self-management programme demonstrated some effectiveness at improving compliance and seizure frequency. Monitoring side effects did reduce the number of adverse events and clinic visits significantly, but distribution of leaflets or guidelines with or without education did not show benefits. Evidence is limited and based on a small number of underpowered studies.	Nurses delivered at least one study independently; two were delivered by a range of healthcare professionals including nurses (professionals not always specified)

COPD	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Effing et al. (2007); FP: 2003; SA: 2007; RA: 2008 (Reference: 20)	What impact does self-management education have on COPD patients in terms of their health outcomes and service use?	Adult patients with COPD as primary diagnosis (asthma excluded). Outpatient clinics; primary care; community.	Intervention: 1. Group education. 2. Individual education. 3. Individual education + action plans. 4. Written information. 5. Complex intervention including education & exercise. Comparison: usual care	Multiple outcomes: quality of life scores, symptom scores, exacerbations, use of medication, hospital admissions, etc.	Y	14; n = 2239	1	Self-management did lead to significant reductions in hospital admissions and improvements in quality of life. No significant effects were found either in the number of exacerbations, emergency visits, lung function or days lost from work. Reduction in admissions suggested that self-management might be cost-effective. Evidence was insufficient to formulate clear recommendations regarding the form and contents of self-management programmes.	Respiratory nurses delivered at least three interventions independently and participated in others with other professionals (professionals not always specified)
Turnock et al. (2005); FP: 2005; SA: 2005; RA: 2005 (Reference: 67)	Do action plans for people with COPD lead to reductions in hospital admissions, use of services, and medication?	Adult patients with COPD as primary diagnosis (asthma excluded). General practice	Interventions: 1. Written information (including action plans). 2. Written information (including action plans) + face to face education. Comparison: usual care	Multiple outcomes: no. of hospital admissions, healthcare use, use of medication (antibiotics or steroids)	Y	3; n = 367	2	A review of the use of action plans showed no significant effects on reducing use of healthcare resources, improving physiological or clinical outcomes. There was some evidence to suggest a change in knowledge and improved medication management. However, research is inadequate in terms of study numbers and quality. No comparison was performed to establish the effect of receiving nurse education in addition to written information.	Respiratory nurse delivered the only face-to-face education independently (100%)
Cardiovascular risk	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Schedlbauer et al. (2004); FP: 2004; SA: 2004; RA: 2008 (Reference: 58)	What is the impact of interventions designed to improve adherence to lipid-lowering medication in patients with hyperlipidemia in terms of adherence and clinical outcomes?	Adults prescribed lipid-lowering medication for primary or secondary prevention of cardiovascular disease. Pharmacies/Health maintenance organisations.	Interventions: 1. Education – (information on medicine through leaflets/video) with professional input in one study. <i>Also included non-educational interventions: Drug regime changes reminders &amp; Group behaviour training.</i> Comparison: usual care	Multiple outcomes: adherence (multiple definitions) physiological, health outcomes & adverse events as a proxy measure for adherence	N	Education studies = 2; n = 1023. <i>Overall: 8 studies</i>	2	The intervention with professional input plus information reported an increase in adherence. Interventions without professional input reported improvements which were not significant. However, the reviewers suggest that given the limited number of poor quality studies, there is not sufficient evidence to recommendation introduction of any of the interventions clinical practice.	Nurses not mentioned in education interventions (professionals not always specified)
Schroeder et al. (2004); FP: 2004; SA: 2004; RA: 2006 (Reference: 59)	What is the impact of interventions designed to improve adherence to blood pressure lowering medication on patients with hypertension?	Adults with hypertension & treated with blood pressure lowering drugs. Primary care, outpatient or community setting, occupational settings	Interventions: 1. Group education. 2. Individual education. 3. Written information. <i>Also included non-educational: Drug regime changes. Patient support, Organisational changes in care.</i> Comparison: usual care	Multiple outcomes: adherence (multiple definitions) change in blood pressure	N	Education studies 6; n = 1213. <i>Overall: 38 studies</i>	2	Patient education studies were mostly unsuccessful, with only one small trial of group education + follow up postal information reporting increased adherence but with no effect on blood pressure. Complex interventions which included education, support, motivation, counselling and dosage changes were also inconsistent in their findings and did not lead to large changes.	Nurses not mentioned in education studies; (professionals not always specified)

Table 2 (Continued)

Cardiovascular risk	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Fahey et al. (2006); FP: 2006; SA: 2006; RA: 2006 (Reference: 24)	What is the impact of interventions designed to improve the control of blood pressure (BP) in patients with hypertension?	Adults with hypertension (those in receipt and not in receipt of hypertensive medication). Primary care, outpatient or community setting.	Interventions: 1. Self-monitoring education. 2. Patient education (written and face to face). <i>Non-educational patient interventions also included: Education of staff, reminders, organisational changes in care.</i> Comparison: usual care	Multiple outcomes: actual BP, control of BP; clinic visits	Y	Self-monitoring; 15, n = 2202. Education; 16, n = n/a <i>Overall 56 studies</i>	2	The authors concluded that simple education programmes directed at patients are unlikely to influence control of blood pressure. Self-monitoring did appear to reduce diastolic BP, although trials did not always optimise its' potential. In addition, many interventions, including self-monitoring were multi-faceted and so it was difficult to determine the effectiveness of the different components. Given the paucity of studies, the reviewers cannot make recommendations for any interventions to be used in clinical practice.	Nurse delivered at least three interventions (self-monitoring or education)
Mental health	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Pekkala and Merinder (2002); FP: 2000; SA: 2002; RA: 2002 (Reference: 50)	Does Psycho education improve compliance with medication, knowledge, and reduce the time to relapse in people with schizophrenia?	Adults and adolescents with schizophrenia and related disorders including those with multiple diagnoses (plus their carers). Outpatients and in-patients	Interventions: 1. Group education programmes (brief and standard). 2. Individual education (brief). Comparisons: usual care/waiting list; + supportive psychotherapy	Multiple outcomes: compliance with medication; compliance with follow up; relapse	Y	10; n = 1125	1	Both brief and standard length psycho-educational programmes significantly decrease relapse and readmission rates. There was mixed evidence of other positive benefits such as improved knowledge and mental state. Although a generally positive effect was found on a number of outcomes, the range of outcome scales were difficult to interpret. There was insufficient data to analyse whether different duration or formats of psycho-education influenced effectiveness. Such programmes may be cost-effective although cost data is limited.	Professionals rarely specified. No nurses mentioned.
Morriss et al. (2007); FP: 2007; SA: 2006; RA: 2006 (Reference: 43)	Does educating patients with bipolar disorder to recognise early warning symptoms (EWS) of their illness increase the time to illness recurrence?	Adults with bipolar disorder or associated diagnoses. Outpatient clinics	Interventions: 1. EWS education (simple). 2. EWS education (complex). 3. Psychological therapy + EWS. Comparisons: Usual care, or Usual care + support, or psychological interventions without EWS	Primary outcome: Time to recurrence of episode (manic or depressive) <i>plus secondary outcomes</i>	Y	11; n = 1306	1	EWS increased time to first recurrence since education, decreased hospitalisation and improved general functioning. Effective EWS interventions seem to require around 12 sessions and involve therapists of high competency. When interventions accompanied psychological treatments, it was not always clear what the independent impact of EWS was. EWS did not however reduce depressive or manic symptoms so the mechanism by which education works is unclear.	Majority carried out by psychologists/ psychiatrists or unspecified therapists. No nurses mentioned.
Miscellaneous	Review question	Populations and settings	Interventions and comparisons	Outcomes	MA	Study (n)	Rating	Summary of findings	Nurse involvement in studies
Ersner et al. (2007); FP: 2007; SA: 2007; RA: 2007 (Reference: 23)	What is the impact of psychological and educational interventions on patient experience, health outcomes and quality of life in children with atopic eczema and their parents?	Parents of children, adolescents or infants with atopic eczema. Range of severity. Outpatient clinics and GP surgery	Interventions: 1. Group parental education. 2. Individual tailored parental education. <i>Non-educational interventions included: Hypnotherapy.</i> Comparison: usual care	Multiple outcomes: global assessment; disease severity; sleep; quality of life	N	4; n = 1483. <i>Overall studies; 5</i>	2	There was weak evidence to suggest that education programmes could help to reduce eczema severity and parental quality of life. It was not possible to compare education led by nurses or other professionals from existing evidence. The low number of studies and methodological problems made it difficult to draw reliable conclusions.	Two interventions were nurse led and the remaining interventions were delivered by multi-professional teams.

Riemsma et al. (2003); FP: 2002; SA: 2003; RA: 2006 (Reference: 55)	What is the impact of patient education on improving health status in adults with Rheumatoid Arthritis (RA)?	Adults with diagnosis of RA. Outpatients and community clinics	Intervention: 1. Education (information only). 2. Educational programmes which also included counselling & social support, & behavioural treatments (biofeedback, etc.). Comparisons: usual care/ waiting list; less intensive education interventions; comparison of educational and non-educational interventions	Multiple outcomes: severity of arthritis, disability, joint problems, pain, global assessment of functioning	Y	Information only; 9 <i>n</i> = 1044. <i>overall studies; 31</i>	When all complex programmes (which included counselling and behavioural treatments) were combined in the analysis, interventions were effective in improving disability scores and psychological status in the short term but not in the long term (3–14 months). A sub analysis showed that information only education had no significant effects, although there was a favourable trend for improving pain and psychological functioning.	Nurses delivered three interventions studies independently and three more in multi-professional teams. (professionals not always specified)
Engers et al. (2008); FP: 2008; SA: 2007; RA: 2007 (Reference: 22)	What is the impact of education for non-specific acute, sub-acute and chronic low-back (LBP) pain on reducing pain and improving functional status in adults?	Adults suffering from acute, sub acute or chronic non-specific LBP. Primary care, community clinic, physiotherapy department, GP office, occupational setting, private clinic, back schools	Interventions: 1. Patient education (written). 2. Education sessions. 3. Booklet + education. Comparison: usual care or other education interventions, or physiotherapy, chiropractic sessions, exercise, massage, CBT, Yoga.	Multiple outcomes: Pain, perception of improvement, return to work	N	10; <i>n</i> = 7139 2 approx (mixed diagnosis populations)	The review found little research on chronic compared to acute back pain. However, limited research suggests that individual education is less effective at reducing pain than other more intensive interventions. Although there is better evidence that intensive individual education for patients with (sub) acute LBP is more effective than usual care for returning people to work. The most intensive programmes were most effective. There was no evidence that there was an optimum way to provide information.	Nurses delivered at least one study independently (professionals not always specified)
Smith et al. (2008); FP: 2001; SA: 2001; RA: 2007 (Reference: 62)	Which information provision strategies are most effective at improving patient and carers' knowledge about stroke?	Adult patients with a diagnosis of stroke and/or their identified caregivers (and/or families). Hospital stroke unit, day hospital, home	Interventions: 1. Active education sessions. 2. Active sessions + tailored written information. 3. Passive information provision (general leaflets). Comparison: usual care	Multiple outcomes: Knowledge about stroke and mood	Y	17; <i>n</i> = 1773 1 pts and 1058 carers	The review found evidence that stroke related knowledge, satisfaction and depression could be improved in patients and carers by structured education sessions. The impact on outcomes however may have been clinically insignificant. In addition, active interventions appeared to be more effective than passive information at reducing patient depression and anxiety.	Four studies delivered by nurses independently and at least one in a multi-professional team (professionals not always specified)
Rueda et al. (2006); FP: 2005; SA: 2006; RA: 2006 (Reference: 56)	What is the impact of patient education and support to improve adherence to highly active antiretroviral therapy (HAART) in children/ adults with HIV/AIDS?	Children and/or adults with HIV/AIDS receiving HAART. Hospital, outpatients, community clinics	Intervention: combined approaches of: 1. Tailored individual education. 2. Group education. 3. Education + supportive counseling. 4. CBT + education. Non-educational interventions included: <i>motivational interviewing, reminders</i> . Comparison: usual care, minimal education or comparisons 1–6	Primary outcome: Adherence (variously defined) <i>plus secondary outcomes</i>	N	Education; 12 <i>n</i> = n/a. <i>Overall studies; 19</i>	It was difficult to estimate the effect of education alone as many programmes combined education, counselling and support. However, education interventions targeting practical medication management skills appeared to be more effective than those targeting more complex psychological constructs (such as CBT). Those programmes delivered on an individual basis, for 12 weeks or more appeared to have the most impact.	Nurses delivered seven interventions independently and one alongside others (professionals not always specified)
Murray et al. (2005); FP: 2004; SA: 2004; RA: 2005 (Reference: 45)	How effective are interactive health communication applications (IHCA) for people with chronic disease at improving health outcomes and emotional outcomes and knowledge?	Adult, children and carers using IHCA with chronic disease (see text). Community, primary care, outpatient, inpatient	Interventions: 1. ICHA information + peer support. 2. ICHA information + decision support. 3. ICHA information + change support. Comparison: normal care, non-interactive forms of patient education (e.g. written); interactive educational sessions led either by peers or professionals.	Multiple outcomes: knowledge, social support, self-efficacy, emotional, behavioural and clinical outcomes	Y	24; <i>n</i> = 3739 1	IHCAs significantly improved clinical outcomes, knowledge and perceived social support, and improve health behaviours. No definite conclusions were possible on the effects of IHCAs on self-efficacy, emotional or economic outcomes. The review did not provide direct comparison between professionally led education and IHCAs. However, it appeared that ICHA improved knowledge and perception of social support over and standard information (books, videos, CD-ROMS) in most studies.	Professionals not involved

FP, date first published; SA, date of most recent substantive amendment; RA, date of latest amendment; MA, meta-analysis conducted?

selection bias. Recruitment bias is particularly likely in educational interventions. In accordance with the Cochrane Collaboration Handbook quality ratings for trials are dependent on the concealment of allocation (Clarke and Oxman, 2002). However, a substantial number of trials included within the Cochrane reviews did not report blinding on allocation to treatment, resulting in poor ratings for these studies. Reviewers, on the whole, were often unimpressed by the quality of studies included in their reviews, and often commented on this in their conclusions. The use of meta-analysis techniques which allow estimated effect sizes to be calculated for a number of similar interventions were only used in 56% (17) of reviews. The remaining reviews provided narrative summaries of the results.

### 2.11. Conclusions of the reviews

Each review was categorised independently by the authors (SC & IJN) to summarise the reviewers' conclusions. Disagreements between authors, which were few, were resolved by discussion. The following categories were applied:

- (1) Reviewers conclude that the intervention is more effective than the comparison/control or in cases where the comparison/control is the 'gold standard' that it is equally effective.
- (2) Reviewers conclude that there is insufficient evidence to know whether or not the intervention is more or less effective than the comparison interventions.
- (3) Reviewers conclude that the intervention appears to have no substantial benefits or is less effective than comparison interventions.

Reflecting both the paucity of studies, and the quality of the design and reporting of the trials, 60% (18) of the reviews were categorised as 2, suggesting that there was insufficient evidence on which to draw firm conclusions on the effectiveness of the intervention. The ratings of individual reviews are provided in Table 2.

### 2.12. Number of studies

In total, 339 studies which trialed educational or self-management interventions were featured in the reviews with more than 55,409 participants (complete participant data was missing in several reviews). Where reviews evaluated both educational and non-educational interventions, calculation of the number of studies and participants taking part was restricted to the educational interventions. The numbers of studies in a review ranged from just 1 (Stokes et al., 2007) to 36 (Gibson et al., 2002b). The median number of studies for the 30 reviews was calculated to be 9.5 and the median number of participants was approximately 1467 per review (interquartile range, 10299.75–2229.75). By chronic condition, reviews in Asthma tended to have the largest number of

participants (range 355–6090). The total number of participants in each review is included in Table 2.

## 3. Results

We turn here to answer the questions posed by the review.

### 3.1. What are the conclusions of Cochrane systematic reviews which evaluate the effectiveness of educating patients about their health?

Over a quarter of the reviews investigated asthma management and 50% of these reported conclusive findings. Evidence from the reviews have established that when patients monitor their own asthma symptoms and are trained how to adjust their medication they can achieve similar health outcomes to when their medications are adjusted by a doctor, as long as they also receive a regular medical review (Gibson et al., 2002b; Powell and Gibson, 2002). Such programmes also appear to be effective at improving health outcomes for children (Wolf et al., 2002). However, the independent effect of action plans, which inform patients how to respond to the results of self-monitoring, and which are common component of most self-management programmes, was less certain. Specifically, there was inconsistent evidence as to whether action plans can work in isolation or only as part of an optimal self-management programme, and whether symptom based or peak flow-based action plans are superior (Toelle and Ram, 2004; Bhogal et al., 2006). Simply providing information to patients without any form of self-management training appears to be less effective at improving health outcomes (Gibson et al., 2002a) than combination treatments. Providing education to high risk adults and children with a history of previous emergency admission to improve subsequent asthma control was promising, in that it reduced subsequent admissions to hospital in adults and showed small but non-significant benefits in children. However, the results of the two relevant reviews in this area were inconclusive overall because only a small number of underpowered trials were located (Haby et al., 2001; Tapp et al., 2007).

The second largest set of reviews focused on diabetes mellitus, with programmes targeting the reduction of foot ulceration, improvement of blood glucose control, diet and weight, increasing treatment adherence and promoting general self-care (Deakin et al., 2005; Valk et al., 2001; Nield et al., 2007; Welschen et al., 2005; Vermeire et al., 2005). The majority of evidence for education, advice and self-monitoring, according to reviewers, was weak. Only one review out of five concluded that there was sufficient evidence to be confident of the results obtained, namely that group education programmes were effective at improving both clinical outcomes, weight and some psychosocial outcomes of adults with diabetes (Deakin et al., 2005). Although the theoretical models that were used to plan



the group-based education programme were only reported in just over half of the studies included, the reviewers concluded that programmes with “participatory or empowering and adult-centred principles” were likely to be most effective and that the duration of the intervention did not appear crucial.

Reviews suggested that group education might help adults and children with epilepsy to reduce the frequency of their seizures and improve their knowledge of the condition. There was limited information on how it might improve other important outcomes (Stokes et al., 2007; Shaw et al., 2007; Ramaratnam et al., 2008; Bradley and Lindsay, 2008). Self-management programmes which included symptom monitoring also appeared to reduce clinic visits and adverse events. However, although there were four separate reviews conducted on epilepsy management, the trials available were limited, and the reviews often featured the same four or five studies. Reviews of interventions to help adult patients manage COPD reported that they might improve patient knowledge, quality of life and reduce the frequency of hospital admissions, but the contribution of action plans to such programmes is still uncertain (Effing et al., 2007; Turnock et al., 2005). Although some studies of both epilepsy and COPD have shown promising results, reviewers conclude that there are too few well controlled, adequately powered studies to draw consistent conclusions on the strength of the interventions for COPD or epilepsy or to identify the necessary components of successful programmes.

The two reviews focused on interventions to improve adherence to medication to lower lipids and blood pressure in patients with cardiovascular risk reported unimpressive results with mostly small or no benefits found (Schedlbauer et al., 2004; Schroeder et al., 2004). Limited evidence suggested that having professional input improved any small impact of providing written or video information in terms of adherence, but there was little evidence of improvements in patients’ clinical outcomes. None of the reviewers were confident of their findings due to poor quality studies and uncertainty about the most accurate way to measure patient adherence. Similarly results of self-management programmes for improving the blood pressure control of hypertensive patients were disappointing (Fahey et al., 2006). Simple education programmes appeared not to influence patients’ control, although self-monitoring had some impact on reducing blood pressure. The reviewers suggest that studies did not always trial what they would consider to be optimal self-monitoring, and thus may have underestimated the potential of well-designed programmes to control blood pressure.

Reviews of mental health interventions found convincing evidence that a programme to monitor early warning symptoms could delay time to recurrence and decrease readmission rates in patients with bipolar disorder (Morriss et al., 2007), whilst psychoeducation could prove beneficial to patients with schizophrenia by decreasing relapse rate and

readmission rates (Pekkala and Merinder, 2002). Both reviews were unable to disentangle the mechanisms behind the programmes’ effectiveness, as the interventions did not seem to improve levels of symptoms in bipolar disorder or improve compliance with medication in patients with schizophrenia. However, given the suggested clinical benefits, and the fact that the interventions may be cost-effective through decreasing admission rates and service utilisation, both reviews conclude that the programmes are a worthwhile consideration for managers and policy makers.

Single reviews evaluated educational interventions for people with HIV; rheumatoid arthritis; eczema, stroke and back pain. One review of group and individual education programmes for the parents of children with eczema found weak evidence that interventions could help to reduce the severity of eczema in children and improve quality of life in parents (Ersser et al., 2007). However, the reviewers located only a small number of studies with methodological flaws, and so the results could not be pooled and no definitive conclusion could be reached. Although Riemsma et al.’s (2003) review of patient education encompassed a range of interventions from simple information provision to counselling and behavioural treatments, it also provided analysis by intervention type. The reviewers concluded that providing information only to people with arthritis on how to manage their disease had no significant effect on health outcomes, and that only more complex programmes which contained behavioural treatments showed limited short-term benefits. However, trials of information provision featured low numbers of participants and so the reviewers suggest that the results should be accepted but only with caution.

A review of interventions for acute, sub-acute and chronic lower back pain (Engers et al., 2008) found that individual face to face programmes of two and a half hours appeared to be more effective at returning patients with sub-acute pain back to work than no treatment and were as effective as non-educational treatments such as chiropractic or massage therapy. However for patients with chronic back pain, of which there were fewer studies, physical manipulation (physiotherapy, yoga exercises, back school) were more effective than education for improving specific back function and generic functioning. For almost all studies, there was no description of the theoretical basis on which programmes were developed and it was not possible for the reviewers to perform a meta-analysis. A review by Smith et al. (2008) concluded that active education sessions could improve stroke related knowledge, patient satisfaction and improve depression symptoms in patients suffering from a stroke and their carers. However the improvements in outcomes were small and the reviewers felt were unlikely to be clinically significant. Active sessions involving face-to-face education provided greater benefits than passive information given in the form of leaflets. Although the reviewers conclude that the research is promising and warrants further development, they also point to high drop out rates in active education sessions.

Rueda et al.'s review (2006) of interventions to improve adherence to antiretroviral therapy concluded that educational interventions that provided practical medication management skills, were more beneficial than more complex therapies (such as cognitive behavioural therapy) designed to target psychological constructs. Programmes delivered on an individual basis for 3 months or longer were associated with improved adherence outcomes. However, the impact of these programmes on virological or immunological outcomes was unknown. Although a number of studies were retrieved, many were of poor quality and their results were not combined due to variation of design and outcomes between studies. The final review which focused on the impact of interactive health communication applications for people with chronic disease (Murray et al., 2005) concluded that ICHAs were definitely effective on some clinical outcomes, including knowledge and perceived social support, although their effect on other psychosocial measures such as self-efficacy was less well established. There was no evidence however, that these applications reduced service utilisation, and little evidence about the mechanisms by which they had their effect or information regarding the characteristics of patients for whom they might be most beneficial.

### 3.2. *What is the evidence for self-management and patient education programmes from reviews in the Cochrane Library to guide practice?*

It has been suggested that the ultimate success of all self-management programmes lies with the engagement and endorsement of healthcare professionals (Jordan and Osbourne, 2007). In particular staff working in primary care can guide patients with chronic conditions into self-management programmes. A recent evaluation of the lay lead expert patient programmes identified that one of the factors preventing professionals from engaging was the uncertainty of the benefits of self-management programs (Kennedy et al., 2004). The most striking finding of the present review of professionally led programmes was that Cochrane reviewers concluded that there was insufficient evidence to establish the effectiveness of interventions in 60% (18) of the reviews. This does not mean that reviewed interventions are necessarily ineffective, but it does mean that for a number of the self-management reviews in the Cochrane library there is insufficient evidence to make practice recommendations. Equally, the majority of the reviews which were considered to provide sufficient evidence also called for further research to provide more precise estimates of treatment effectiveness. The call from Cochrane reviewers for additional high quality research is not unique to educational interventions. For example, El Dib et al. (2007) reporting on a sample of 1016 reviews in the Cochrane library, found that 96% of reviews proposed that further research was needed to establish the effectiveness of the interventions in question.

Frequent methodological limitations reported by Cochrane reviewers of educational interventions included randomisation procedures being poorly explained and too few trialists attempting allocation blinding. Reviewers also noted that many of the studies were underpowered. The median number of studies across the reviews was calculated as 9.5 and the median number of participants across the 30 reviews was approximately 1467 per review (interquartile range, 1029.75–2229.75). Mallett and Clarke's (2002) estimation using a sample of 258 reviews, that a typical Cochrane review included six trials, a median number of 945 participants (interquartile range, 313–2511) per review, and 118 participants per trial (interquartile range, 60–241) provides a useful comparison. Although some studies may be rightly considered by reviewers to be underpowered, many of them contained at least 118 participants, whilst, the often-cited problem of insufficient power among studies is not unique to studies of educational interventions. An additional limitation, commented upon by reviewers, was the variety of outcome measures selected by trialists, which limited opportunities for conducting meta-analyses to estimate overall treatment effects on clinical health outcomes, physiological status or psychological outcomes. Of the reviews included in the present summary, only 56% (17) conducted a meta-analysis.

The trialists' and equally the reviewers' choice of outcomes are crucial in determining whether an intervention will be deemed to be effective. Deciding on outcome measures which will be universally accepted is particularly challenging in the context of educational interventions. Citing an improvement in knowledge as the primary outcome of education interventions, one could argue that effectiveness might be easier to demonstrate (Smith et al., 2008). However, many believe that unless these interventions also confer visible health benefits, they are of limited value. Even when a core set of trial outcomes have been established by disease experts in the field, these outcomes may not be considered by all as relevant to educational interventions. For example, Riemsma et al.'s review (2003) of rheumatoid arthritis has been questioned on the grounds that the health outcomes selected (e.g. joint pain and swelling) whilst appropriate for evaluating the effects of rheumatic medication, may be insensitive to the benefits of self-management interventions (Edwards, 2002). Equally, the assumption that changing patients' knowledge or attitudes will lead to behavioural change is, of course, questionable. Moreover, even if behavioural change is accomplished, this does not mean that health outcomes will necessarily improve. This point is illustrated by Turnock et al. (2005) who points out that whilst the increased use of antibiotics and steroids by COPD patients post-education may indicate effective self-management of medications as part of an action plan, it also exposes patients to adverse health outcome effects in the long term (e.g. bacterial resistance) as well as side effects from medication.

### 3.3. What is the contribution and involvement of nurses in the clinical trials incorporated within Cochrane systematic reviews?

Over 77% (23) of reviews did not mention the profession of the clinicians or researchers delivering the interventions in at least one but often several of the studies included in the review. For this reason, the true contribution of different professionals was difficult to ascertain. However, two-thirds (20) of the reviews included studies in which at least one intervention had been delivered independently by a nurse; although this ranged from only one study (Deakin et al., 2005) to almost all specified interventions (Haby et al., 2001). When studies where nurses had worked alongside other professionals to deliver the intervention were also included their involvement increased to 77% (23). Among the reviews in which nurses were not mentioned, only two provided full details of the professionals delivering all the interventions, and therefore nurses may still have been involved in some studies. In addition, many studies referred to “educators” without specifying their profession. It is likely that many of these could also have been nurses. Due to frequent missing information regarding the professions of those delivering interventions, it was not possible to calculate the median number of nurse delivered interventions per review as originally planned.

In asthma education, interventions triggered by emergency hospital visits (Tapp et al., 2007; Haby et al., 2001) were delivered almost exclusively by either asthma nurses or emergency department nurses. Nurses played a lesser but still significant part in the delivery of self-management education which originated in primary care or community clinics (Gibson et al., 2002b; Wolf et al., 2002). Nurses were involved with interventions in diabetes, delivering programmes independently but more usually as part of a team (Deakin et al., 2005; Valk et al., 2001; Nield et al., 2007; Welschen et al., 2005; Vermeire et al., 2005). A sub-analysis reported by Deakin et al. (2005) found effect sizes generated from nurse-led trials in diabetes matched that of the main meta-analysis, suggesting that nurses would be suited to delivering this type of intervention. In epilepsy, programmes were delivered by a mixture of generally unspecified healthcare professionals or teachers. Specialist epilepsy nurses were involved in a number of other interventions reviewed, although these were not included as they were not primarily educational (Stokes et al., 2007; Shaw et al., 2007; Ramaratnam et al., 2008; Bradley and Lindsay, 2008). Nurses featured frequently in the delivery of education for patients with chronic pulmonary disease (Effing et al., 2007; Turnock et al., 2005) arthritis (Riemsma et al., 2003) patients receiving active antiretroviral therapy (Rueda et al., 2006), and patients who had suffered a stroke (Smith et al., 2008), either by delivering programmes independently or as members of multi-professional groups. Half of the studies in the review of eczema interventions (Ersser et al., 2007) were nurse led, whilst others featured nurses in multi-professional teams.

In the area of cardiovascular risk, the professional delivering the intervention was often unspecified. Although nurses were involved in delivering several interventions designed to improve blood pressure control (Fahey et al., 2006) pharmacists were more commonly involved with interventions designed to improve adherence to medications (Schedlbauer et al., 2004; Schroeder et al., 2004). Interventions in schizophrenia and bipolar disorder were delivered by a variety of clinical staff; in most cases, psychologists or unspecified “therapists” (Pekkala and Merinder, 2002; Morris et al., 2007). Nurses were not mentioned in any of the studies, but both these interventions might be a suitable for trained mental health nurses to deliver. Physiotherapists were, perhaps unsurprisingly, the dominate profession in the studies included in the review of interventions for back pain (Engers et al., 2008) although nurses were still involved in some non-physical therapies.

The greatest challenge to ascertaining the contribution of nurses to educational and self-management interventions was that professional background of healthcare staff delivering the intervention was often unspecified in the review. In some instances, the Cochrane reviewers mentioned specifically that the professionals delivering the interventions were not provided in the study. In other reviews it was not clear whether the decision to omit this information was due to the trialists or the reviewers themselves. For highly structured, replicable educational programmes such as the Modular Service Package Epilepsy – MOSES (Reid et al., 2001) the professional background of the healthcare worker may be unimportant if they have been adequately trained in delivering the intervention. However for less structured education programmes, where the success of the intervention may be influenced substantially by the clinician’s approach, skill and training, the professional background of the healthcare worker may matter far more. Limited information is provided by trialists, and therefore within reviews, regarding the previous training of the person performing the intervention. Therefore, even on those occasions when it was specified that a nurse was delivering or involved with the intervention, it was almost impossible to establish their level of qualification or experience. Given the concerns about the skills shortage within the healthcare workforce for delivering self-management interventions, the implication of these programmes in terms of further training required are surely important. In addition, the minimum level of training and profession of the person needed to deliver the intervention is likely to have implications for the incremental costs associated with the intervention, and ultimately its cost-effectiveness.

The profession of the staff member delivering the intervention was generally not considered of primary importance in most reviews, with interventions that were similar in design being pooled, regardless of the professional involved. Indeed, it is often not feasible to expect sub-analysis by profession when trial numbers are low, and it is also difficult to disentangle the impact of members of one profession from

those of another when interventions are conducted by multi-disciplinary teams or different combinations of staff. However, where possible, a sub-analysis by profession would be very useful. From the viewpoint of users of the Cochrane library, we would suggest that information on the educators' training, background and profession (when available) could be tabulated as core information within the included study characteristics, to assist readers in considering the feasibility of implementing the interventions in their own practice.

### *3.4. What are the implications of educational interventions and self-management programmes for practice?*

One of the key aims of this paper was to look at self-management programmes across chronic diseases to examine whether successful designs, specific components or theoretical frameworks could be identified. The overall goal of many interventions included in this review is similar in the sense that they aim to empower individuals to manage their own health. However there are clear differences in focus across disease states. In asthma, COPD, diabetes and epilepsy, self-management programmes have tended to focus on symptom monitoring (seizure management, monitoring air flow, or regularly assessing blood glucose). Patients have been encouraged to learn pre-emptive strategies, often using action plans, to identify symptoms and to prevent or reduce the frequency of severe or even life threatening exacerbations. In fact a similar preventative strategy was also found to be effective in preventing relapse in bipolar patients. In contrast, educational and self-management interventions for conditions such as arthritis, back pain, stroke and eczema, where exacerbations require less acute treatment and medical intervention, tend to adopt a broader approach. These types of programme often focused on the psychosocial problems of patients living with their illness, and aimed to improve psychological and social functioning. Findings from this present review certainly suggest that preventative strategies may have a more immediate and visible effect on health, whilst programmes with a more holistic approach may have less dramatic short-term benefits and longer term benefits that are harder to capture. Other authors also conclude that self-management programmes where the objective goals of therapy are easy to understand (e.g. keeping diabetic blood glucose levels within particular range or using meters to measure peak flow in asthma) may be more effective than those where the goals of education are less easy to define and where the disease may be less responsive to current treatments (Barlow et al., 2002; Warsi et al., 2004).

It is now conventional wisdom that providing information to patients without teaching them practical skills can limit the ways in they can utilise this knowledge to improve their health, and this is certainly borne out by the reviews considered. Programmes which educated patients to be proactive tended to produce greater effects than simple

information provision. Education delivered by a professional rather than by written information, often appeared to have greater benefits for patients. However, with trials of written information, it is difficult to ascertain the degree to which booklets and leaflets were actually read, whilst the quality of all forms of education, including written material, was rarely addressed. Although face-to-face education proved more effective for some people, patient preference will always be important. Indeed, as reviewers point out, drop out rates within some trials suggested that some patients did not wish to attend scheduled sessions. In addition, since leaflets and books are relatively inexpensive, they may prove better value for money than face-to-face education despite their effects being less dramatic. Whilst rarely an outcome of these studies, cost is an important consideration, and further cost-effectiveness analysis on the different educational formats will help to clarify their value.

Overall, the reviews included in this study also support the view that the more tailored the written material to the individual patient, the more likely it is to be effective (Rueda et al., 2006; Bradley and Lindsay, 2008). Interactive health applications (IHA) as reported by Murray et al. (2005) appeared more promising at improving knowledge than leaflets but without involving the practical inconvenience of attending sessions. However, there is insufficient evidence to conclude that they deliver significantly better health outcomes than face-to-face education. Although intuitively it would seem that interactive programmes, where patients can learn using a "hands on" approach should be more effective than didactic sessions (e.g. lectures), there is little evidence as yet from reviews to confirm this idea. What is also uncertain from the reviews is whether the addition of cognitive and behavioural components to education or self-management programmes provides significant additional health benefits for patients to justify the potential extra costs in terms of staff training and time. Perhaps not surprisingly, interventions which were more intensive and were delivered over a longer time scale (three months or more) were, on the whole, more successful than briefer interventions. It is worth noting that many studies used relatively short follow up times of between 3 and 6 months, and only a few studies adopted longer follow up periods of 12 months or more. Particularly with interventions for chronic conditions, there is always a danger of reporting beneficial findings which if a longer follow up had been provided would have diminished (e.g. Riemsma et al., 2003), or equally missing a benefit that may have occurred, but was not apparent at a shorter follow up.

There is no clear answer as to whether education is better provided in a group or individually. Group delivery of specialist therapies such as CBT or psychotherapy has been found to be both as effective as individual therapy whilst being more cost-effective for certain conditions (McCrone et al., 2005; Tucker, 2007). However, insufficient data prevented many reviews included in this study from making direct comparisons between delivering education individu-

ally or by group. Great success has been found with group education for diabetic patients (Deakin et al., 2005) whilst it appeared that individual education to promote adherence with treatment for HIV patients was more effective. Wolf et al. (2002) found that both group and individual education for self-management of asthma in children was effective, but interestingly on improving different outcomes. It seems reasonable to suggest the nature of the material, the characteristics of the patients and the degree to which participants value a supportive network of peers, will ultimately determine whether a programme is suitable for delivery in a group setting. Even then, the success of the intervention may depend largely on the rapport between the participants and the facilitation skills of the educator.

### 3.5. *What are limitations of using Cochrane reviews to guide practice?*

One of the main aims of this paper was to ascertain the value of the Cochrane library to nurses wanting to inform their practice. Previous research suggests that the Cochrane library may be under utilised by nurses in practice (Blackhall and Milan, 2001) with one small study suggesting that up 72% of nurses in a London teaching hospital had never used the library and 60% had never previously heard of it. Although this may not be representative of the population of professional nurses as a whole, Pearson (2007) argues that awareness of the Cochrane Collaboration among nurses should be better given that they are the largest group of health care professionals, and increasing nurses' engagement could offer much to the development and dissemination of findings from Cochrane reviews. Whether this occurs as the result of new initiatives such as the proposed Cochrane Nursing Care Network (CNCN) which is designed to encourage and support nursing contributions to Cochrane reviews, remains to be seen.

Although utilising the Cochrane reviews can provide nurses with the best evidence on an intervention, thus reducing the need for time-consuming process of retrieving and appraising primary studies, there are obvious limitations to their use. Cochrane reviews should be updated as new evidence becomes available, and although we found over a third of reviews included had been updated within the last year, searching the Cochrane library is not necessarily the most reliable way of retrieving the most recently published trials because of the inevitable delay between publication and updates. In addition, systematic reviews may be regarded as redundant by the health care professional, if the outcomes which they or the patient value, have not been considered by the reviewers.

Another limitation for utilising reviews to guide practice is that reviewers have not by and large been able to disentangle the effects of multi-component packages to identify their key active ingredients. Complex treatment packages are notoriously difficult to evaluate, and there are recommendations (MRC, 2000) for designing trials which enable

the independent measurement of elements of the intervention. Many of the studies included within these Cochrane reviews were not designed to allow this. Cochrane reviewers often note that reporting of trials is poor and lament that too few details are provided in the original papers with respect to the process and content of the interventions described. In part, this may be the result of a failure of journal editors to require that reported studies comply with reporting guidelines for different types of study (e.g. QUORUM, Moher et al., 1999) or to word limit pressures within journal articles. This problem was identified by Vermeire et al. (2005) who reviewed studies reporting interventions of adherence to treatment in diabetes patients. They comment that “Many studies seem to report on ‘black box’ research: doing an intervention and measuring HbA1c at the end of the study period. In many studies it remains unclear what really happened in those participants, what made metabolic parameters change or what made them remain unchanged.” Insufficient detail about the intervention can also lead reviewers to either incorrectly pool the findings of interventions which are not alike, or be over-cautious and not pool findings from studies which could in fact be combined. Reviewers also reported that whilst an intervention may appear to change clinical outcomes, it may not change patients' behaviour in managing their condition. Although a number of reviewers refer to the importance of self-efficacy (Shaw et al., 2007; Effing et al., 2007), the mechanisms by which different interventions or components of interventions work are rarely established, and the limited number of theoretical models underpinning the interventions compounds this problem.

It is difficult to ascertain what interventions work for whom from the current set of reviews. Few conclusions have been reached with regard to whether the same educational intervention is effective for patients with different levels of illness severity, or whether they work better for newly diagnosed patients compared to those with a longer duration of illness. Some tentative conclusions have been drawn from the larger number of asthma reviews, which suggest that interventions may work more effectively in patients who are less well controlled or have a tendency to use emergency services more frequently (Gibson et al., 2002b). However, the education of patients attending sessions after an exacerbation requiring hospitalisation was not as successful as envisaged (Haby et al., 2001; Tapp et al., 2007). Reviewers speculate that lack of findings may be due to recruitment bias in terms of socioeconomic factors which relate to insurance policies in the USA. Few Cochrane reviews were able to examine the impact of patient age, gender and ethnicity on intervention outcomes, largely due to insufficient numbers of studies, but also due to insufficient detail provided by the studies with respect to the participants' characteristics. Another factor when considering the results of systematic reviews is the generalisability of participants recruited to randomised controlled trials with patients in the general population. Trial participants are volunteers, and so poten-



tially may have higher levels of motivation or interest in their own health. As self-management interventions require substantial personal commitment from the patient, it is possible that trialed interventions will always be more effective and more acceptable to these participants than for patients in routine clinical practice.

Self-management of chronic conditions is a growing field, and this is reflected by the number of Cochrane reviews on this subject that have been published in the past 18 months (Tapp et al., 2007; Shaw et al., 2007; Stokes et al., 2007; Engers et al., 2008; Ersser et al., 2007). The sophistication of education programmes in terms of design and delivery have undoubtedly developed, especially with the introduction of multi-media resources. This raises the question of the currency of studies included within reviews and the stability of the most common comparator, “usual care”. Given the trend to make care more “patient focused” it seems likely that standard care today includes substantially more patient education than a decade ago. Moreover the growth of educational techniques and technology is so rapid that it has led some reviewers (e.g. Effing et al., 2007) to suggest that older studies could be excluded as Cochrane reviews are updated. Excluding studies on the basis of age alone is not something we would support but it does highlight the importance of future systematic reviews having clear inclusion and exclusion criteria. It also suggests the importance of considering whether usual care is sufficiently similar across studies to justify pooling findings in an attempt to obtain a more precise measure of the interventions’ effectiveness.

#### 4. Conclusion

In summary, this review of Cochrane reviews shows that assisting patients to become more knowledgeable about their condition, and providing them with basic skills to manage their illness on a day to basis, can result in physical and psychological patient benefits, and in some cases reduce their dependence on service use. Self-management interventions for patients with asthma, epilepsy, and diabetes are particularly promising, and nurses are clearly contributing to educational interventions of chronic disease by both delivering programmes independently and alongside other professionals. However, more high quality research is needed in most conditions to clarify the true potential of such programmes within different conditions, and this review has been able to provide only limited answers to the questions posed.

Reviews included in this paper were those where the primary intervention was educational and focused on teaching new knowledge and/or skills about chronic illness. It excluded those programmes where education was just a minor component of a more complex intervention. When complex programmes lacked sufficient detail in terms of their content, Cochrane reviewers performing sub analyses

were often pragmatic in assigning interventions to different categories (e.g. educational, psychological or physical interventions). When interventions were not classified by the reviewers, the authors of this paper had to determine, often with limited information, which studies to include as educational or self-management interventions. A limitation of this review may arise from our decision to exclude complex packages of care which combine education, self-management, social support, behavioural training and/or psychotherapy. Limiting the scope of interventions included in this review was designed to improve the precision of estimates of treatment effect of education and self-management *per se*; but in so doing, it may limit the value of findings to clinicians. In practice the best interventions available to improve patient health may comprise a complex package of education and other non-educational treatments.

#### Conflict of interest

None declared.

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