International Journal of Nursing Studies 51 (2014) 1048–1061

Contents lists available at ScienceDirect

International Journal of Nursing Studies

journal homepage: www.elsevier.com/ijns

Review

The effects of nurse prescribing: A systematic review

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ARTICLE INFO

Article history:
Received 29 September 2013
Received in revised form 5 December 2013
Accepted 9 December 2013

Keywords:
Drug prescriptions
Nurses
Nurse practitioners
Physicians
Review
Systematic

ABSTRACT

Background: In 2008, we conducted a systematic review on the effects of nurse prescribing using studies with a comparative design. In view of the growing number of countries that are introducing nurse prescribing and the fact that several studies into nurse prescribing have been conducted recently, there is a need for an updated review to reassess the available information on the effects of nurse prescribing when compared to physician prescribing.
Objective: To identify, appraise and synthesise the evidence on the effects of nurse prescribing when compared to physician prescribing on the quantity and types of medication prescribed and on patient outcomes.
Design: A systematic review.
Data sources: In addition to the previous review, which covered the literature up to 2005, 11 literature databases and four websites were searched for relevant studies from January 2006 up to January 2012 without limitations as to language or country. Moreover, full-text copies of all studies included in the previous review were reviewed.
Review methods: A three-stage inclusion process, consisting of an initial sifting, checking full-text papers for inclusion criteria and methodological assessment, was performed independently by two reviewers. Data on effects were synthesised using narrative and tabular methods.
Results: Thirty-five studies met the inclusion criteria. All but five studies had a high risk of bias. Nurses prescribe in comparable ways to physicians. They prescribe for equal numbers of patients and prescribe comparable types and doses of medicines. Studies comparing the total amount of medication prescribed by nurses and doctors show mixed results. There appear to be few differences between nurses and physicians in patient health outcomes: clinical parameters were the same or better for treatment by nurses, perceived quality of care was similar or better and patients treated by nurses were just as satisfied or more satisfied.
Conclusions: The effects of nurse prescribing on medication and patient outcomes seem positive when compared to physician prescribing. However, conclusions must remain tentative due to methodological weaknesses in this body of research. More randomised controlled designs in the field of nurse prescribing are required for definitive conclusions about the effects of nurse prescribing.

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http://dx.doi.org/10.1016/j.ijnurstu.2013.12.003

What is already known about this topic?

- Over the last two decades, the number of countries in which nurses are legally permitted to prescribe medication has grown considerably.
- In 2008, we conducted a systematic review on the effects of nurse prescribing using studies with a comparative design to compare the effects of nurse prescribing to physician prescribing.
- In view of the growing number of countries that are introducing nurse prescribing and the fact that several studies into nurse prescribing have been conducted recently, there is a need for an updated review.

What this paper adds

- Our updated systematic review suggests that nurses prescribe for a wide range of patients and in comparable ways to physicians.
- Patients were generally more or equally satisfied with the care provided by nurses compared to the traditional care provided by physicians.
- Conclusions must remain tentative due to methodological weaknesses in this body of research. More randomised controlled designs in the field of nurse prescribing are required for definitive conclusions about the effects of nurse prescribing.

1. Introduction

1.1. Background

Nurses can legally prescribe medication in quite a number of countries nowadays, including Australia, Canada, Finland, Ireland, New Zealand, Norway, South Africa, Sweden, the Netherlands, the United Kingdom and the United States of America (Aarts and Koppel, 2009; Ball, 2009; Drennan et al., 2009; Kroezen et al., 2011, 2012; Ministry of Health WaS, 2011; Van Ruth et al., 2008). The extension of prescribing rights to nurses has been introduced for several reasons. It is expected, among others, that nurse prescribing will contribute to efficient and effective patient care and will improve the quality and continuity of care (Buchan and Calman, 2004; Department of Health, 1999, 2002; Dutch House of Representatives, 2011; Emmerton et al., 2005; Kroezen et al., 2011; Ministry of Health WaS, 2011; Van Ruth et al., 2008). Moreover, nurse prescribing offers the potential to make better use of nurses' professional skills, increase nurses' autonomy and yield time savings for medical practitioners and patients (Bradley and Nolan, 2007; Buchan and Calman, 2004; Department of Health, 1999; Kroezen et al., 2011; Raad voor, 2002).

Even though the term 'nurse prescribing' suffices as a descriptor, the actual practice it refers to varies considerably, both within countries and internationally (Kroezen et al., 2011, 2012; Jones, 2009). Nonetheless, three general models of nurse prescribing are usually distinguished in the literature, viz. independent prescribing, supplementary prescribing and prescribing based on patient group directions (see Box 1). This review will adhere to this general classification.

Box 1. General models of nurse prescribing

Independent prescribing

Legally permitted and qualified independent prescribers are responsible for the clinical assessment of a patient, the establishment of a diagnosis and decisions about the appropriateness of medication, treatment or an appliance, including the issuing of a prescription (Department of Health, 2010a; Watterson et al., 2009). Prescribing usually takes place from a limited formulary – a list containing a limited and defined number of medicines that can be prescribed – or an open formulary. This form of prescribing is also referred to as initial, autonomous, substitutive or open prescribing (National Nursing and Nursing Education Taskforce, 2006; Van Ruth et al., 2008)

Supplementary prescribing

Supplementary prescribing is defined as a voluntary partnership between an independent prescriber – a doctor or a dentist – and a supplementary prescriber – usually a nurse or a pharmacist. After the initial assessment and diagnosis of a patient's condition have been carried out by the independent prescriber, the nurse may prescribe from an open or limited formulary and will collaborate or consult with the independent prescriber before issuing the prescription, even though direct supervision is not required (Department of Health, 2010b; National Nursing and Nursing Education Taskforce, 2006; Watterson et al., 2009)

In the United Kingdom, an important additional feature of supplementary prescribing is the collaboration between the independent and supplementary prescribers in drawing up a Clinical Management Plan which needs to be approved by the patient before implementation (Department of Health, 2010b; Hartley, 2003). Supplementary prescribing is also known as dependent, collaborative, semi-autonomous or complementary prescribing (National Nursing and Nursing Education Taskforce, 2006; Van Ruth et al., 2008)

Patient group directions

Patient group directions (PGDs), formerly known as group protocols, refer to written instructions for the supply and administration of named medicines in an identified clinical situation (Department of Health, 2010c; National Nursing and Nursing Education Taskforce, 2006; Royal College of Nursing, 2004; Van Ruth et al., 2008). Drawn up by a multidisciplinary team, they are specifically designed for a particular group of patients with a specific condition, thus excluding individualised prescriptions (Harris et al., 2004). Group protocols should not be seen as independent prescribing, since nurses or other health-care professionals are only allowed to supply and administer medications within the strict terms of a predetermined protocol, albeit using their own assessment of patient needs (Hartley, 2003; Royal College of Nursing, 2004)

In 2008, the Netherlands Institute for Health Services Research (NIVEL) conducted a systematic literature review of the effects of nurse prescribing using studies with a comparative design (Van Ruth et al., 2008). In this review we concluded that overall, the effects of nurse prescribing appeared to be positive. However, of the 23 studies that were included in the review, all but two had a high or moderate risk of bias, based on the EPOC criteria (Cochrane Effective Practice and Organisation of Care Review Group, 2002). The present systematic review is an update of this earlier review (Van Ruth et al., 2008). Since our previous review was published, nurse prescribing has been introduced in two more countries, viz. Finland and the Netherlands (Ministry of