

Registered Nurse Prescribing Referral

A Preliminary Literature Review on Registered Nurse Prescribing

December 2015

Please note that this Preliminary Literature Review is a summary of information from other sources, not a representation of the policy position or goals of the Ministry of Health and Long-Term Care. If material in the review is to be referenced, please cite the original, primary source, rather than the review itself.

SUMMARY OF MAIN FINDINGS**Registered Nurse Prescribing Models in Other Jurisdictions**

- Three models of registered nurse (RN) prescribing were identified in other jurisdictions:
 1. ***Independent Prescribing*** – In this model a nurse may prescribe medications, from a limited or pre-defined formulary, within a regulated scope of practice.
 - In **Ireland**, the parameters of prescriptive authority (e.g., scope of practice, approved medications) are defined within a written agreement made between the nurse, medical practitioner(s), and employer.
 - In **New Zealand**, nurse prescribing has been implemented for RNs practicing in diabetes care; the possibility of extending prescribing rights to other suitably qualified RNs is currently being explored.
 - In the **United Kingdom (UK)**, Nurse Independent Prescribers are allowed to prescribe any licensed or unlicensed drugs within their clinical competence area.
 - In the **United States (US)**, nurse prescribing is regulated at state level and some Advanced Practice Registered Nurses (APRNs) are allowed to prescribe independently.
 2. ***Supplementary Prescribing*** – This model involves a patient-specific partnership between a physician and RN, where after initial diagnosis by the physician and with the patient's agreement, a nurse may prescribe medication from a limited formulary.
 - In the **UK**, a patient-specific clinical management plan is developed by the nurse and physician, which lists medicines the nurse is able to prescribe.
 - In some **US** states certain APRNs may prescribe in a supplementary capacity; these nurses need a written agreement that specifies scope of practice and medical acts allowed with or without a general supervision requirement; or require direct supervision by a licensed physician.
 3. ***Use of Protocols*** – In this model, multi-disciplinary teams develop written instructions which allow RNs to supply and administer medications within the terms of the predetermined protocol.
 - In **Australia**, endorsed RNs working in rural and isolated areas use protocols (e.g., standing orders, health management protocols, drug therapy protocols).
 - In the **UK**, RNs also use protocols.

Supports in Place to Enable Registered Nurse Prescribing

- **Education:** In all jurisdictions reviewed, a registered nurse must complete a post-graduate program or course(s) in prescribing prior to becoming a nurse prescriber.
- **Experience:** In the UK, Ireland, and New Zealand (proposed), nurses must have a minimum of three years clinical/practice experience prior enrolling in a nurse prescriber program.
- **Legislation:** Legislative changes have been made to relevant laws and regulations in the UK, Ireland, Australia, and New Zealand to enable RNs to prescribe medications; legislative changes are currently ongoing in the US.

Evaluations of Registered Nurse Prescribing

- Literature evaluating RN prescribing models in other jurisdictions was limited.
- New Zealand, Ireland, and the UK have evaluated their prescribing schemes and found some evidence to suggest RN prescribing was safe.

Implementation Challenges

- One review and five studies identified the following challenges for the implementation of supplementary nurse prescribing in the UK: 1) difficulty using or implementing clinical management plans; 2) poor information technology infrastructure; 3) lack of awareness among doctors, patients, nurses and other healthcare professionals regarding supplementary nurse prescribing; and 4) lack of funding.

OBJECTIVES

The requestor's stated objective was to update the Planning Unit's preliminary literature review #344 on Registered Nurse Prescribing whose purpose was to explore information on registered nurse (RN) prescribing in other jurisdictions including Australia, Ireland, New Zealand, Sweden, the United Kingdom (UK) and the United States (US). Topics of interest included: 1) models of RN prescribing, 2) supports put in place to enable nurse prescribing (e.g., legislation, regulation, education and training, electronic decision making tools), and 3) evaluations of these models. This review focused on prescribing by RNs^a (including non-nurse practitioners,^b with advanced nursing degrees) only and did not include information on prescribing by other nursing professionals (i.e., registered practice nurses^c or nurse practitioners).

Studies which did not specify the type of nurse prescriber (e.g., RN, nurse practitioner) evaluated were excluded from this review.

A previous planning unit product (#216), [A Preliminary Literature Review on Mechanisms for Enabling Non-Physician/Non-Dental Prescribing](#), also includes some information on nurse prescribing in other jurisdictions, however it is not specific to RNs.

SEARCH METHODS FOR IDENTIFICATION OF STUDIES

Individual peer-reviewed articles and review articles were identified through the Ontario Ministry of Health and Long-Term Care's computerized library database, PubMed, and Google Scholar. Grey literature was identified through Google and relevant government websites. The search was limited to English sources and therefore may not capture the full extent of initiatives in non-English speaking countries.

The Medical Subject Heading (MeSH) terms "Nurses", "Nurse's Role", "Prescription Drugs", and "Drug Prescriptions" were used in combination with the following keywords to identify relevant articles and documents for this review: "registered nurse", "nurse", "prescri*", "prescriptive authority", "scope of practice", "supplementary", "independent", "group protocol", and "non-medical".

Dr. Joan E. Tranmer of Queen's University provided research suggestions for the first edition of this review. A total of 38 references were identified and cited in this review: two review articles, 13 papers from peer-reviewed journals, and 23 documents from the grey literature. The first version of this review took approximately nine days to complete by one person.

^a In Ontario, registered nurses (RNs) undertake a comprehensive education (i.e., four year bachelor's degree) and autonomously meet the nursing needs of clients, regardless of the complexity of their conditions ([Health Force Ontario, 2013](#)).

^b In Ontario, nurse practitioners are usually RNs who have taken on an advanced role after having additional education and experience. Nurse practitioners are able to autonomously diagnose, order, and interpret diagnostic tests, prescribe pharmaceuticals, and perform procedures within their legislated scope of practice ([Health Force Ontario, 2013](#)).

^c In Ontario, registered practical nurses study for a shorter period of time (i.e., two or three year diploma) and work with clients with less complex conditions ([Health Force Ontario, 2013](#)).

A scan of the literature was conducted in July 2014, to identify additional and updated information on supplementary prescribing and independent prescribing models. In particular, new literature was identified for Australia, New Zealand, Sweden, the UK (including Scotland) as well as the US and was used to update the following sections: Australia (Education), New Zealand (Legislation and Prescribing Model; Education; and Evaluation of Nurse Prescribing); Sweden; and the UK (Legislation; Prescribing Models; Education; Evaluation of Nurse Prescribing).^d A total of 21 additional references were included from this scan: one review article, three papers from peer-reviewed journals, and 17 documents from the grey literature. In total, the searching for relevant material and writing of this update took approximately five days by one person.

DESCRIPTION OF THE FINDINGS

1. Limitations of the Literature

Literature evaluating RN prescribing models or initiatives in other jurisdictions was limited. Of the studies identified, many were qualitative in nature and reflected the views and experiences of various stakeholders (e.g., nurses, doctors, patients, other healthcare professionals) with RN prescribing. No information was identified on electronic decision making tools for RN prescribers.

2. Australia

2.1 Legislation

In Australia, a national law (*The Health Practitioner Regulation National Law*) allows the Nursing and Midwifery Board of Australia to endorse a RN as qualified to obtain, supply, and administer certain medicines for nursing practice in a rural and isolated practice area.^{1,2,e} However, local legislation from individual states and territories determines the medicines a RN is authorized to use and under what circumstances.^{3,4}

2.2 Prescribing Models

Two models appear to be used by endorsed RNs to administer medications without a prescription from a physician:

- **Protocols** (e.g., Health Management Protocols; Drug Therapy Protocols)^{5,6,f} – Written instructions developed by a multidisciplinary team for the initiation or administration of a specific medicine in particular circumstances in a defined environment and approved by the relevant institutions with whom ultimate responsibility lies.⁷ For example:
 - New South Wales and Queensland use protocols to enable nurse prescribing.⁸ In Queensland, the Drug Therapy Protocol within the *Health (Drugs and Poisons) Regulation 1996* states the circumstances and conditions under which a rural and

^d The following sections were added to this updated review: UK (6.4.2. Evaluation of Nurse Prescribing in Scotland; and 6.6 Implementation Barriers of Independent Prescribing); US (7.1 Legislation; 7.2 Prescribing Model; and 7.3 Education); as well as Section 8 on International Evaluation of Nurse Prescribing.

^e The endorsement, known as the Scheduled Medicines [Rural and Isolated Practice] Endorsement, identifies RNs qualified to obtain, supply and administer schedule 2, 3, 4 & 8 medicines for nursing practice in a rural and isolated practice area ([Nursing and Midwifery Board of Australia, 2013](#)).

^f It is not prescribing in the true legal sense as it is through the use of health management and drug therapy protocols ([An Bord Altranais, 2009](#)).

isolated practice-endorsed RN (RIN) is authorized to administer or supply certain restricted and controlled drugs.⁹ Other RN drug therapy protocols include those of the Immunisation Program and Sexual Health Program.¹⁰

- Victoria has deemed that the health management protocols⁹ in the [Queensland Health Primary Clinical Care Manual \(PCCM\)](#) will be the clinical standard for the use and supply of medicines by endorsed nurses.¹¹
- **Standing Orders**^{12,13}– Standing orders provide a legal written instruction for the administration of medicines by an authorized person (e.g., RN) in situations where a prompt response using a standard procedure will improve consumer care and where a medicine is part of this procedure. Standing orders are developed by service providers (e.g., hospital committees) and are linked to their policies and procedures.^{14,15,16,17}
 - According to a 2010 report, RNs in all states and territories, except Northern Territory and Western Australia, may initiate medicines under standing orders.¹⁸
 - In Victoria, RNs (with or without endorsement) may administer some medications to patients as long as there is an agreed policy (i.e., a provider's standing orders or nurse-initiated drug policy^h) and the doctor is unable to be contacted.¹⁹

2.3 Education

To be eligible for endorsement, RNs must complete an approved program as determined by the Nursing and Midwifery Board of Australia.²⁰ A 2005 study of RNs in Queensland found that those who undertook a rural and isolated area endorsement program (i.e., RINs) were more confident in believing that they could explain to their clients how a medication works compared to those who did not complete the program. However, while RINs are more likely than non-RINs to provide a client with medication education on discharge, overall only 34% of nurses (RINs and non-RINs) 'always' provided this education.²¹

3. Ireland

3.1 Legislation

In Ireland, nurse prescribing was first introduced in 2007 following several legislative changes. This included changes to primary legislation (i.e., *The Irish Medicines Board [Miscellaneous Provisions] Act 2006*) and its associated regulations (i.e., *the Misuse of Drugs [Amendment] Regulations 2007, Medicinal Products [Prescription and Control of Supply] [Amendment] Regulations 2007, Nurse Rules 2007*).^{22,23} These new regulations attached the following conditions on nurse prescribers:

- A nurse prescriber must be employed by a health service provider in a hospital, nursing home, clinic or other health service setting (e.g., private home).
- A prescription must be issued in the usual course of providing a health service.
- The medicinal product is one that is given in the usual course of health services provided in the setting in which a nurse is employed.

⁹ In Queensland, health management protocols are the clinical care guidelines for the endorsed nurse that support and detail the clinical use, including administration and/or supply, of drugs listed in a drug therapy protocol ([An Bord Altranais, 2005](#)).

^h A nurse-initiated drug policy is the hospital policy that authorizes and guides RNs to administer certain medicines ([State Government of Victoria, 2012](#)).

The regulations also created a new classification of nurses (i.e., Registered Nurse Prescriber [RNP]), identified controlled drugs that can be prescribed by the RNP, and noted that employers may impose further restrictions prohibiting a nurse from prescribing.²⁴

3.2 Prescribing Model

In Ireland, a nurse's prescriptive authority is outlined in a document known as the Collaborative Practice Agreement (CPA), which is a written agreement between the nurse, registered medical practitioner(s), and the health service employer. The CPA defines the RNP's scope of practice and serves as a mechanism to ensure that communication and referral mechanisms have been established between the RNP and the medical practitioners regarding the care of their patients.^{25,26} The CPA also stipulates that a Drugs and Therapeutics Committee must approve the specific medication and/or categories of medication the RNP is able to prescribe.^{27,28} Accordingly, RNPs may independently prescribe within their field of clinical practice, from the formulary specified.²⁹

3.3 Education

To become a RNP, a RN must complete a post-graduate prescribing program recognized by the Irish Nursing Board (An Bord Altranais).^{30,i} Within this program, pharmacology, the legal and ethical aspects of prescribing, and clinical decision making constitute important topics of training.³¹ To enter the program, a nurse must:

- Have a minimum three years of clinical experience (within the past five years and with at least one year of full-time experience in a nurse's specific area of practice);
- Have competencies recognized at a Honours Bachelor Degree Level;
- Demonstrate continuous professional development; and
- Have a competent level of information technology literacy.^{32,33}

Following completion of a program, a nurse must apply to the Irish Nursing Board to become a RNP. The application includes the submission of an approved CPA Form.³⁴

3.4 Prescribing Supports

To support RNPs, the Irish Nursing Board has established practice standards and a decision making framework for nurse prescribing.³⁵ For further details see the Irish Nursing Board's [*Practice Standards and Guidelines for Nurses and Midwives with Prescriptive Authority*](#).

3.5 Evaluation of RN Prescribing

A 2009 national study evaluating the practice of independent nurse or midwife prescribing in Ireland across several domains (e.g., educational preparation, appropriateness and safety, patient satisfaction, nurses' and midwives' perceptions of outcomes, and health professionals' perceptions of outcomes) was identified.³⁶ It should be noted that this evaluation did not exclusively focus on RNs (i.e., staff nurses) as midwives and other classifications of nurses (e.g., advanced nurse practitioner; Clinical Nurse Specialists) were also included in the data and represented a majority of participants. Some key findings included:

- Overall, there was evidence of safe and appropriate prescribing practices by the nurse and midwife prescribers (e.g., an audit found that in 96% of cases there was agreement

ⁱ Education programs for nurse prescribing in Ireland, as well as independent and supplementary prescribing courses in the UK, are offered on a stand-alone basis (i.e., not part of a regular nursing curriculum) ([Kroezen et al., 2011](#)).

between reviewers that the medication prescribed was effective for the presenting medical conditions; reviewers also agreed that 89% of medicine dosage and 92% of directions were written correctly).

- Almost all patient respondents were in favour of nurse or midwife prescribing. In addition, over 90% of patients/parents/guardians were in agreement that receiving a prescription from a nurse or midwife had reduced their waiting time for treatment.

4. New Zealand

4.1 Legislation and Prescribing Model

Until recently, only nurse practitioners whose qualifications were registered with the Nursing Council were eligible to prescribe medications in New Zealand.^{37,38} However, in 2011, new regulations were passed which allowed RNs practicing in diabetes health (i.e., Diabetes Nurse Specialist [DNS]) to prescribe 26 medicines commonly used to treat problems associated with diabetes. In particular, the *Medicines (Designated Prescriber—Registered Nurses Practising in Diabetes Health) Regulations 2011* made provision for the Nursing Council of New Zealand to authorize changes to scopes of practice for individual practitioners where it was satisfied that a RN has the appropriate qualifications to prescribe (i.e., within specialist diabetes care services).³⁹ In February 2014, the Nursing Council of New Zealand confirmed that the qualification and training for nurses who wish to apply for prescribing rights in diabetes health will remain the same as for nurses in the 2011 pilot and the 2012 roll out.^{40,41}

Following an evaluation of prescribing among DNSs, the Ministry of Health invited an application from the Nursing Council of New Zealand in February 2013 to extend the prescribing rights for suitably qualified RNs practicing in other healthcare fields as well. The Nursing Council of New Zealand undertook consultations on two proposals for RN prescribing. This included the creation of two proposed roles:

- **Community nurse prescribing** – includes nurses who have three years practice experience and who have taken a course in community nurse prescribing. These nurses would be able to diagnose and treat minor ailments and infections in normally healthy people and promote health and prevent disease by prescribing contraceptives, vaccines and other medicines.⁴² The Council further proposed a six day education program, including three days of prescribing under the supervision of a medical mentor.⁴³
- **Specialist nurse prescribing** – includes nurses with a minimum of three years practice experience and a postgraduate diploma in prescribing (with courses in pathophysiology, assessment of common conditions, pharmacology and prescribing). These nurses would be authorized to prescribe medicines for patients who have long term conditions (e.g., diabetes, chronic respiratory disease) within a collaborative interdisciplinary team.⁴⁴

In October 2013, the Nursing Council of New Zealand published an analysis of the 197 submissions^j that it received, and reported that there was strong overall support for the Council's proposals and the extension of nurse prescribing. However, the report also noted that there was less agreement and divergent views regarding some areas within both proposals, particularly the

^j Submissions were received from health care system stakeholders; a large proportion of submissions were received from individual nurses or groups of nurses ([Nursing Council of New Zealand, n.d.](#)). Individual submissions are available [here](#).

lists of prescription medicines, but also the proposed qualification and training for community nurse prescribing.⁴⁵

According to an analysis and summary of submissions for:

- **Community nurse prescribing**
 - 90.2% of submitters supported the community nurse prescribing proposal.
 - 91.0% of submitters agreed that community nurse prescribing will enable patients to receive more accessible, timely and convenient care.
 - Only 38.7% of submitters agreed with the proposed education and training for community nurse prescribing. The reasons given for not supporting the qualification and training were that it was insufficient and the list of medicines was too extensive.
- **Specialist nurse prescribing**
 - 93.6% of submitters agreed with the proposal that suitably qualified and experienced registered nurses should be able to prescribe from the specialist and community nurse prescribing lists of medicines.
 - 94.3% of submitters agreed that specialist nurse prescribing will enable patients to receive more accessible, timely, and convenient care.
 - 94.2% of submitters agreed that nurses with specialist nurse prescribing authority should be required to work in collaborative multidisciplinary teams.
 - 90.5% of submitters agreed with the proposed education and training for specialist nurse prescribing.
 - 62.3% of submitters agreed with the list of prescription medicines for specialist nurse prescribing.⁴⁶

For more detailed information on the findings of the consultation, see the Nursing Council of New Zealand's [Executive Summary: Analysis of Submissions](#).

As of October 2013, the Nursing Council of New Zealand had decided to establish an expert advisory group to assist with the development of a list of medicines for limited prescribers in relation to both proposals. In response to the feedback received, the Nursing Council of New Zealand will undertake further work on both proposals before they are finalized. It has also decided to work on the specialist nurse prescribing proposal before the community nursing proposal; however no specific timeframe was provided.⁴⁷

4.2 Education

Currently, the educational requirements for RN prescribing in diabetes care include two postgraduate qualifications with content that includes pathophysiology; clinical assessment and decision making; and pharmacology; as well as a six to 12 week supervised practicum, which requires that the applicant demonstrates knowledge to safely prescribe all specified diabetes medicines and knowledge of the regulatory framework for prescribing.^{48,49}

4.3 Evaluation of Nurse Prescribing

Following the 2011 changes allowing DNS prescribing, a demonstration project and evaluation was conducted to test the effectiveness and safety of this model, with the objective of informing

implementation and extension of the model elsewhere. Overall, the authors of this study concluded that DNS prescribing was safe, of good quality, and clinically appropriate. For example:

- No adverse events or hospitalizations for patients during the project were attributed to DNS prescribing.⁵⁰
- 96% of audited prescriptions complied with legal requirements.⁵¹
- Patients reported high satisfaction with DNS prescribing particularly related to convenience as it was noted that it saved them time and resulted in fewer delays in waiting for a prescription.⁵²
- Clinical audit findings supported all prescribing decisions made.⁵³
- Patient interviews suggested that DNS prescribing in the diabetes centres improved access to medicines by providing a more timely service.⁵⁴

5. Sweden

Since 1994, district nurses^k and nurses working with elderly in Sweden have been permitted to prescribe drugs from a limited formulary; these medications are also available as over-the-counter preparations.^{55,56,57} Following the completion of a postgraduate diploma in specialist nursing, district nurses become authorized to prescribe medication by taking an eight week course on pharmacology and drug treatment, which is included in the speciality course (i.e., the Primary Health Care Specialist Nursing program) for all district nurses.^{58,59,60} In 2000, the right to prescribe was extended to include other specialist nurses with a documented education in pharmacology and pathology, working in community health care or home nursing.⁶¹ No further details or evaluations were identified regarding nurse prescribing in Sweden.

6. United Kingdom

6.1 Legislation

In the UK, supplementary nurse prescribing was introduced in 2003 following amendments to the *Prescription Only Medicines (Human Use) Order 1997*.⁶² This legislation ensures that qualified nurses (i.e., supplementary prescribers) are able to prescribe and administer prescription only medications in accordance with CMPs related to individual patients.⁶³ These changes applied to all UK countries (i.e., England, Wales, Northern Ireland, Scotland),⁶⁴ which all use supplementary nurse prescribing.

In 2006, legislation came into effect which enabled all qualified Extended Formulary^l and Extended/Supplementary nurse prescribers^m to become Nurse Independent Prescribers.⁶⁵

New legislation came into force in April 2012 allowing nurse independent prescribers to prescribe any schedule 2-5 controlled drugsⁿ for any medical condition, within their clinical competence,

^k In Sweden, district nurses do not have independent medical authority and operate under the supervision of physicians in the primary care and home care sectors ([Esmail, 2013](#); [Anell et al., 2012](#)). Sufficient information was not available to determine how district nurses compare to RNs in Ontario.

^l Since May 2006, extended formulary nurse prescribers have been called nurse independent prescribers ([NMC, 2006](#)).

^m Since May 2006, extended/nurse prescribers have been called nurse independent/supplementary prescribers ([NMC, 2006](#)).

ⁿ Controlled Drugs are medicines that are controlled under the Misuse of Drugs Legislation and include addictive drugs with no therapeutic value (Schedule 1), opiates (Schedule 2), barbiturates (Schedule 3), benzodiazepines and steroids (Schedule 4) and preparations that contain low strength controlled drugs (Schedule 5) ([NHS, 2012](#)).

removing the previous limitations.^o However, these changes do not apply to the prescribing of cocaine, diamorphine or dipipanone^p for the treatment of addiction (this is restricted to Home Office licensed doctors).⁶⁶

6.2 Prescribing Models

Three models of RN prescribing were identified in the UK:

- **Independent Prescribing:** Nurse Independent Prescribers are specially trained nurses allowed to prescribe any licensed and unlicensed drugs within their clinical competence. In 2006, nurse prescribers were given full access to the British National Formulary and this has put nurses on a par with doctors in relation to prescribing capabilities. As of April 2012, nurse independent prescribers were able to prescribe controlled drugs within their competence and practice the mixing of medicines, including controlled drugs.
 - *Community Practitioner Nurse Prescribers* are a distinct group of independent prescribers. They consist of district nurses^q, health visitors^r and school nurses^s who are allowed to independently prescribe from a limited formulary called the Nursing Formulary for Community Practitioners which includes over-the-counter drugs, wound dressings and applications.⁶⁷
- **Supplementary Prescribing:** Supplementary prescribing is a voluntary partnership between an independent prescriber (e.g., doctor) and a supplementary prescriber (e.g., a RN) to implement an agreed patient-specific clinical management plan (CMP) with the patient's agreement.⁶⁸ In this model, a doctor provides an initial diagnosis and the supplementary prescriber may prescribe medications from a pre-specified list of medicines^t as outlined in the patient's CMP. Although these medicines must be within the supplementary prescriber's area of competence,⁶⁹ there is no specific formulary or list of medicines, nor are their legal restrictions on the clinical conditions which a supplementary prescriber may treat.⁷⁰ Thus, supplementary prescribers may prescribe from the entire British National Formulary, including all controlled drugs, provided they are listed in a CMP.⁷¹ The collaborating doctor shares the responsibility of prescribing and holds full responsibility for the assessment and diagnosis of a patient.⁷²
- **Patient Group Directions:** Patient Group Directions (PGDs) are another method through which nurses can prescribe. PGDs refer to written instructions, developed by a multidisciplinary team (e.g., doctors, pharmacists, nurses), for the supply and administration of named medicines in an identified clinical situation. PGDs are specifically

^o Previously, nurse independent prescribers were restricted to a specified range of controlled drugs for special medical conditions ([NPC, 2010](#)).

^p Diamorphine (i.e., heroin) and dipipanone are both opioids ([NHS, 2008](#)).

^q District nurses visit people in their own homes or in residential care homes, providing increasingly complex care for patients and supporting family members. District nurses also have a teaching and support role, working with patients to enable them to care for themselves or with family members, teaching them how to give care to their relatives. They are also accountable for their own patient caseloads. ([NHS, n.d.](#)).

^r Health visitors are registered nurses or midwives who undertake further training (post-registration) in health visiting ([NHS, n.d.](#)). They see parents and families in a variety of settings, including their homes, clinics, and general practitioner surgeries ([NHS, n.d.](#)).

^s School nurses provide a variety of services such as providing health and sex education within schools, carrying out developmental screening, undertaking health interviews and administering immunization programs. School nurses can be employed by the local health authority, community NHS providers, or by a school directly ([NHS, n.d.](#)).

^t This list is developed by the nurse and the doctor, following initial diagnosis ([Drennen et al., 2009](#)).

designed for a particular group of patients with a specific condition (i.e., not individual patients). Nurses are only able to supply and administer medications within the strict terms of the predetermined protocol.^{73,u}

6.3 Education

To become a nurse prescriber, a RN must complete a postgraduate program in prescribing recognized by the Nursing and Midwifery Council in the UK.^{74,75,76} This program is taught at an undergraduate level and includes training on, among other topics, consultation skills, decision making, clinical pharmacology, evidence based practice, and the legal, policy and ethical aspects of prescribing. To enter a nurse prescribing program, a nurse must:

- Have three years of clinical experience, with at least one year in the clinical field in which they intend to practice; and
- Arrange for a Designated Medical Practitioner who will supervise them during their practice period.^{77,78}

Once the program is completed, an individual must successfully register as a nurse prescriber with the Nursing and Midwifery Council. They are also responsible for maintaining and updating prescribing knowledge and competencies.⁷⁹

A 2007 information package of a nurse prescribing course at the University of Sheffield stated that supplementary prescribing may be the most appropriate mechanism for prescribing where a nurse is newly qualified as a prescriber or where a team approach to prescribing is clearly appropriate.⁸⁰ Further, according to a 2006 NMC document, it is not possible to prescribe as a supplementary prescriber without undertaking preparation to be a nurse independent prescriber first.⁸¹

With regard to prescribing under PGDs, no specific training is required for nurses using this method, although most clinical commissioning groups^v provide some in-house training.^{82,83} A PGD can, in principle, be drawn up for any medical condition, however it has been noted that it should be reserved for those situations where it offers 'an advantage for the patient without compromising patient safety'.⁸⁴

6.4 Evaluation of Nurse Prescribing in the UK

According to the Royal College of Nursing, the benefits of nurse prescribing (both independent and supplementary) in the UK have been consistently reported in the literature (mainly through qualitative and anecdotal surveys as well as questionnaires), with evidence showing improved patient care and satisfaction, increased access to medicines, reduction in waiting times and delivery of high quality care.⁸⁵ The Royal College of Nursing also notes that some evidence shows that nurse prescribing improves patient care by ensuring timely access to medicines and treatment, and increasing flexibility for patients who would otherwise need to wait to see a doctor.^{86,87,88,89} Other individual studies evaluating the impacts of nurse prescribing in the UK are highlighted below.

^u According to the Department of Health (2012), PGDs are not a form of prescribing per se.

^v Formerly Primary Care Trusts (PCTs). On April 1, 2013, PCTs were abolished and replaced with clinical commissioning groups ([NHS Choices, 2013](#)).

6.4.1. Evaluation of the Supplementary Nurse Prescribing Model

Two studies were identified that evaluated various aspects of supplementary nurse prescribing.

- **Safety:** A 2008 study found preliminary evidence regarding the safety of supplementary prescribing by nurses and pharmacists in England. In an audit of 77 consultations, no errors were identified, although three prescriptions were assessed as being inappropriate overall (two of these involved a nurse prescribing a branded rather than generic medicine, and the other involved a pharmacist prescribing a medicine that was considered more expensive than others in its class).⁹⁰
- **Clinical effectiveness and costs:** A 2010 study comparing the clinical effectiveness and costs of nurse supplementary prescribing and independent medical prescribing in mental health found that there were no significant differences between the two types of prescribing in terms of medication adherence, health status, side effects and satisfaction of overall care.
 - The total annual cost per patient was £803 higher (or £1713 higher including unpaid care from family or friends) for mental health nurse supplementary prescribers' patients, but these differences were not statistically significant. The authors noted that the cost difference between supplementary nurse prescribing and independent medical prescribing was the result of patients in the nurse prescribers' group being more likely to be admitted as psychiatric patients in the past 12 months. The authors noted that there was insufficient information to determine the reason for these differences in admittance rates.⁹¹

Several additional studies surveyed nurses regarding their opinions about supplementary prescribing using CMPs and found generally positive views:

- In one study, nurse prescribers viewed the CMPs as successful in improving efficiency (e.g., shared responsibilities with physician, rapid management of common problems) and prescribing practices (e.g., patient safety), and was also considered to be a robust framework for the ongoing review of each patient's management.⁹²
- Similarly, nurse prescribers in another study felt that the CMP was a useful tool to assure safety, provided the plan had been discussed, received full agreement from, and signed by a doctor.⁹³
- Nurses in a final study believed that supplementary prescribing resulted in quicker access to medicines and services for patients, and that time saved through supplementary prescribing allowed for nurses to spend more time with patients, which was deemed beneficial for continuity of care.⁹⁴

6.4.2. Evaluation of Nurse Prescribing in Scotland

A 2009 evaluation report found that the expansion of nurse prescribing has benefited patients, improved public health, and benefited health care professionals. These benefits include improved patient access to treatment, enhanced patient care, maintaining and improving patient experience, enhanced professional satisfaction and application of nurse skills, building inter-professional collaboration, enabling effective use of medical staff time, and maintaining public health standards.

- According to the study, nurse prescribing is considered safe. However, stakeholder groups, the health professionals themselves and their managers all identified the need for effective education, supervision, and auditing of nurse prescribing work. Further, evidence

- suggests that nurse prescribing has been both effective and efficient without a large surge in drug budgets, unnecessary prescribing, or threats to public health or patient safety.⁹⁵
- For further information on stakeholder perspectives of nurse prescribing, the impact of nurse prescribing on health service, and public health and patient safety in nurse prescribing, see the Scottish Government's [Evaluation of the Expansion of Nurse Prescribing in Scotland](#).

6.5 Implementation Barriers and Facilitators of Supplementary Prescribing

One literature review and five individual qualitative studies identified several barriers to and a few potential facilitators to the implementation of supplementary nurse prescribing in the UK.^{96,97,98,99,100,101} These include:

- **Practical issues:** Practical issues included difficulty accessing patients' medical records and lack of, or no access to, prescribing pads.^{102,103,104}
 - **Difficulties using or implementing CMPs:** Several Issues were highlighted regarding the use or implementation of the CMP. For example, setting up a CMP was noted as being too time-consuming^{105,106,107,108} and there were difficulties in finding a doctor to sign them.¹⁰⁹ In addition, a review article noted that participants in some studies believed that the CMP was less suitable for patients with co-morbidities or more complex presentations, and was frequently described as being restrictive in nature resulting in inflexible prescribing that inconvenienced patients.¹¹⁰
 - **Poor information technology (IT) infrastructure:** Poor IT infrastructure was noted as a barrier, in particular, software that could not accommodate supplementary prescribing (e.g., inability to print prescriptions).^{111,112,113,114,115}
 - In contrast, another study noted that access to appropriate IT and facilities (along with a pre-existing working relationship between a doctor and nurse prescriber) can make the supplementary prescribing process easier.¹¹⁶
- **Awareness regarding supplementary prescribing:** Three studies identified lack of awareness and understanding of the supplementary prescriber role among patients, peers, doctors and other healthcare professionals as a barrier to implementation.^{117,118,119}
 - In contrast, one study noted that the level of support, from both peers and employers, was a potential facilitator to implementation. In particular, a top-down approach, where an overall commitment to supplementary prescribing is embedded within an organization, was advocated as being important by key stakeholders (e.g., nurse supplementary prescribers, doctors, patient group representatives).¹²⁰
- **Funding:** One review article highlighted that lack of funding or strategy for supplementary prescribing in primary care was a barrier to implementation. This included local funding problems and failure to commission non-medical prescribing posts at a local level.¹²¹

6.6 Implementation Barriers of Independent Prescribing

A 2012 Royal College of Nursing report stated that 20% of nurse independent prescribers continue to prescribe under a supplementary capacity and that a few NHS hospitals require newly qualified nurse independent prescribers to practice under a supplementary prescriber capacity for six

months before they take on full prescribing responsibilities. Furthermore, some NHS trusts^w have local policies that restrict nurse prescribing based on settings (i.e., emergency department), or having to work within a trust's local formulary. The report also notes that there are ongoing issues regarding the limited availability of continued training and development resources for qualified nurse prescribers to refresh their knowledge and skills.¹²² However, no further details were provided on this barrier.

7. United States

In the United States (US), nurse prescribing is regulated at a state level.¹²³ A 2009 report notes that nurse prescribing is only permitted to be undertaken by those at the level of advanced practice registered nurses (APRN).^{124,x}

7.1 Legislation

There is no uniform model of regulation of APRNs across the US states. Each state independently determines the APRN legal scope of practice, the roles that are recognized, the criteria for entry-into advanced practice and the certification examinations accepted for entry-level competence assessment.¹²⁵ The National Council of State Boards of Nursing is currently in the process of campaigning for the adoption of a regulatory model for APRNs (i.e., Consensus Model for APRNs).^{126,127} The target date for full implementation of the APRN Consensus Model, including licensure, accreditation, certification, education and full prescriptive authority is 2015.^{128,129,130} No further details were identified regarding specific legislation related to nurse prescribers.

7.2 Prescribing Model

Within the APRN Consensus Model, APRNs are independent practitioners and licensed to practice as an APRN in one of the four APRN roles (i.e., nurse practitioners, clinical nurse specialists, nurse anesthetists, and nurse midwives).¹³¹

According to a 2014 document on the APRN Consensus Model, many US states and territories allow APRNs to independently prescribe drugs, but not all four roles are given the same prescribing authority in the different states (e.g., in Colorado, Hawaii, and Connecticut all four types of APRN may independently prescribe; whereas in Arizona, only nurse practitioners are allowed to independently prescribe).¹³² Depending on the state, APRNs are licensed to prescribe independently (e.g., Colorado, Hawaii, Connecticut) or in a supplementary capacity (i.e., not independently, as is the case in Delaware, Iowa, Indiana, and Missouri).^{133,134} APRNs who are 'Not Independent' prescribers need a written agreement that specifies scope of practice and medical acts allowed with or without a general supervision requirement by physician; or require direct supervision in the presence of a licensed physician with or without a written practice agreement.¹³⁵

^w As of April 1, 2013, NHS trusts were expected to become foundation trusts by 2014 ([NHS, 2013](#)).

^x Advanced Practice Registered Nurses include nurse practitioners, clinical nurse specialists, nurse anesthetists, and nurse midwives ([Nursingworld, 2014](#)).

^y The National Council of State Boards of Nursing (NCSBN) is an independent not-for-profit organization that acts as a collective voice of nursing regulation in the US and its territories. It aims to lessen the burden of state governments and brings together boards of nursing to act and counsel together on matters of interest ([NCSBN, 2014](#)).

7.3 Education

To qualify as APRN, a nurse needs to complete an accredited graduate-level education program (e.g., master's or doctoral) or post-graduate certificate (either post-master's or post-doctoral) in one of the four recognized APRN roles and needs to pass a national certification examination. APRN education must include at a minimum, three separate comprehensive graduate-level courses (the APRN Core) in: advanced physiology/pathophysiology; advanced health assessment; and advanced pharmacology.¹³⁶

8. International Evaluation of Nurse Prescribing

A 2014 systematic review on the effects of nurse prescribing^z compared to physician prescribing included 35 studies from the US, the UK, the Netherlands, Canada, Norway, and Colombia and concluded that the effects of nurse prescribing on medication and patient outcomes appear to be positive when compared to physician prescribing. However, the authors note that conclusions should remain tentative due to methodological weaknesses in this body of research. The authors found that:

- Twelve of thirteen studies showed no differences between nurse and doctor prescribing with regards to clinical outcomes (e.g., blood pressure levels, asthma control, health status).
- Three studies in primary care reported no differences between nurses and general practitioners in the number of referrals to secondary care, while two studies of patients with diabetes found that patients cared for by specialized nurses were more likely to be referred back to their general practitioner to continue treatment (compared to patients cared for by medical specialists).
- Eleven of 15 studies on the number of patients prescribed medications reported that the number of patients for whom a nurse prescribes medication is similar to the number of patients for whom a physician prescribed medication.
- Twelve of 13 studies suggested patients were generally more satisfied or equally satisfied with the care provided by a nurse compared to traditional care provided by a physician.
- Six of eight studies found that nurses generally spent more or equal amounts of time with patients compared to doctors.¹³⁷

Please take the time to complete an anonymous two-minute to inform us how this review met, or did not meet, your needs.

^z According to Gielen and colleagues (2014), 22 of the 35 studies involved independent nurse prescribing, two studies involved supplementary nurse prescribing, five studies described a mix of independent and supplementary prescribing, and six studies looked at prescribing based on group directions.

REFERENCES

All website links working as of July 2014

- ¹ Nursing and Midwifery Board of Australia. (2014). [Registration standard for endorsement for scheduled medicines registered nurses \(rural and isolated practice\)](#).
- ² Nursing and Midwifery Board of Australia. (2013). [Frequently asked questions, 6 June 2013, Registration as a nurse or midwife](#).
- ³ Australian Health Practitioner Regulation Agency. (2010). [Fact sheet: Endorsement of registration](#).
- ⁴ Nissen, L., Kyle, G., Stowasser, D., Lum, E., Jones, J., McLean, C. (2010). [Non-medical prescribing: An exploration of likely nature of, and contingencies for, developing a nationally consistent approach to prescribing by non-medical health professionals](#). *Final Report*.
- ⁵ Nursing and Midwifery Board of Australia. (2014). [Registration standard for endorsement for scheduled medicines registered nurses \(rural and isolated practice\)](#).
- ⁶ Nissen, L., Kyle, G., Stowasser, D., Lum, E., Jones, J., McLean, C. (2010). [Non-medical prescribing: An exploration of likely nature of, and contingencies for, developing a nationally consistent approach to prescribing by non-medical health professionals](#). *Final Report*.
- ⁷ The National Nursing and Nursing Education Taskforce. (2006). [National Nurse Prescribing Glossary \(NNPG\)](#).
- ⁸ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁹ Queensland Government. (2014). [Health \(Drugs and Poisons\) Regulation 1996: Drug Therapy Protocol – Rural and Isolated Practice Area Endorsed Nurse](#).
- ¹⁰ Queensland Government. (2013). [Medicines and Poisons](#).
- ¹¹ State Government of Victoria. (2012). [Nurse Endorsement Policy Framework 2012](#).
- ¹² Nursing and Midwifery Board of Australia. (2014). [Registration standard for endorsement for scheduled medicines registered nurses \(rural and isolated practice\)](#).
- ¹³ Nissen, L., Kyle, G., Stowasser, D., Lum, E., Jones, J., McLean, C. (2010). [Non-medical prescribing: An exploration of likely nature of, and contingencies for, developing a nationally consistent approach to prescribing by non-medical health professionals](#). *Final Report*.
- ¹⁴ Australian Department of Health and Ageing. (2006). [Guiding principles for medication management in the community – July 2006: Guiding principle 11 – Standing orders](#).
- ¹⁵ State Government of Victoria. (2012). [Nurse Endorsement Policy Framework 2012](#).
- ¹⁶ Government of South Australia. (2012). [Standing orders for the administration of drugs of dependence in a health service facility](#).
- ¹⁷ Government of Queensland. (2013). [Statewide standing orders for the supply or administration of medication for public health response](#).
- ¹⁸ Nissen, L., Kyle, G., Stowasser, D., Lum, E., Jones, J., McLean, C. (2010). [Non-medical prescribing: An exploration of likely nature of, and contingencies for, developing a nationally consistent approach to prescribing by non-medical health professionals](#). *Final Report*.
- ¹⁹ State Government of Victoria. (2012). [Nurse Endorsement Policy Framework 2012](#).
- ²⁰ Nursing and Midwifery Board of Australia. (2014). [Registration standard for endorsement for scheduled medicines registered nurses \(rural and isolated practice\)](#).
- ²¹ Hegney, D., Plank, A., Watson, J., Raith, L., McKoen, C. (2005). Patient education and consumer medicine information: a study of provision by Queensland rural and remote area Registered Nurses. *Journal of Clinical Nursing*, 14(7), 855-62.
- ²² An Roinn Sláinte Agus Lenaí– Department of Health & Children, Health Service Executive, An Bord Altranais Nursing Board & National Council for the Professional Development of Nursing and Midwifery. (2007). [The introduction of nurse and midwife prescribing in Ireland: An Overview](#).
- ²³ Drennan, J., Naughton, C., Allen, D., Hyde, A., Felle, P., O'Boyle, K., Treacy, P., & Butler, M. (2009). [National independent evaluation of the nurse and midwife prescribing initiative](#).
- ²⁴ Drennan, J., Naughton, C., Allen, D., Hyde, A., Felle, P., O'Boyle, K., Treacy, P., & Butler, M. (2009). [National independent evaluation of the nurse and midwife prescribing initiative](#).
- ²⁵ An Bord Altranais. (2012). [Frequently Asked Questions about Prescriptive Authority](#).
- ²⁶ An Bord Altranais. (2012). [Collaborative Practice Agreement \(CPA\) for nurses and midwives with prescriptive authority, third edition](#).

- ²⁷ An Bord Altranais. (2009). [Evaluation of An Bord Altranais regulatory framework for prescriptive authority.](#)
- ²⁸ An Bord Altranais. (2012). [Collaborative Practice Agreement \(CPA\) for nurses and midwives with prescriptive authority, third edition.](#)
- ²⁹ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature.](#) *BMC Health Services Research*, 11: 127.
- ³⁰ An Bord Altranais. (2012). [Frequently Asked Questions about Prescriptive Authority.](#)
- ³¹ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature.](#) *BMC Health Services Research*, 11: 127.
- ³² An Bord Altranais. (2012). [Frequently Asked Questions about Prescriptive Authority.](#)
- ³³ An Bord Altranais. (2007). [Requirements and Standards for Education Programmes for Nurses and Midwives with Prescriptive Authority, First Edition.](#)
- ³⁴ An Bord Altranais. (2012). [Frequently Asked Questions about Prescriptive Authority.](#)
- ³⁵ An Bord Altranais. (2010). [Practice Standards and Guidelines for Nurses and Midwives with Prescriptive Authority.](#)
- ³⁶ Drennan, J., Naughton, C., Allen, D., Hyde, A., Felle, P., O'Boyle, K., Treacy, P., & Butler, M. (2009). [National independent evaluation of the nurse and midwife prescribing initiative.](#)
- ³⁷ Hoare, K.J., Mills, J., & Francis, K. (2012). The role of government policy in supporting nurse-led care in general practice in the United Kingdom, New Zealand and Australia: An adapted realist view. *Journal of Advanced Nursing*, 68(5), 963-980.
- ³⁸ Wilkinson, J. (2011). Extending the prescribing framework to nurses: Lessons from the past. *Collegian*, 18(4), 157-163.
- ³⁹ Wilkinson, J., Carryer, J., Adams, J., & Chaning-Pearce, S. (2011). [Evaluation of the Diabetes Nurse Specialist Prescribing project.](#) *New Zealand Society for the Study of Diabetes.*
- ⁴⁰ Nursing Council of New Zealand. (2014). [Further extension of prescribing to registered nurses working in diabetes health.](#)
- ⁴¹ Reed, C. (2011). [Medicines \(Designated Prescriber - Registered Nurses Practising in Diabetes Health\) Notice 2011.](#) *Extract from the New Zealand Gazette, 31/3/2011, No. 41, p.1006.*
- ⁴² Nursing Council of New Zealand. (2013). [Consultation on two proposals for registered nurse prescribing: Community nurse prescribing, specialist nurse prescribing.](#) *Consultation document.*
- ⁴³ Nursing Council of New Zealand. (2013). [Consultation: Two proposals for registered nurse prescribing.](#)
- ⁴⁴ Nursing Council of New Zealand. (2013). [Consultation on two proposals for registered nurse prescribing: Community nurse prescribing, specialist nurse prescribing.](#) *Consultation document.*
- ⁴⁵ Nursing Council of New Zealand. (2013). [Consultation: Two proposals for registered nurse prescribing.](#)
- ⁴⁶ Nursing Council of New Zealand. (2013). [Consultation: Two proposals for registered nurse prescribing.](#)
- ⁴⁷ Nursing Council of New Zealand. (n.d.). [Analysis of submissions concerning registered nurse prescribing.](#)
- ⁴⁸ Wilkinson, J., Carryer, J., Adams, J., & Chaning-Pearce, S. (2011). [Evaluation of the Diabetes Nurse Specialist Prescribing project.](#) *New Zealand Society for the Study of Diabetes.*
- ⁴⁹ Nursing Council of New Zealand. (2014). [Guideline: Prescribing Practicum for Diabetes Registered Nurse Prescribing.](#)
- ⁵⁰ Wilkinson, J., Carryer, J., Adams, J., & Chaning-Pearce, S. (2011). [Evaluation of the Diabetes Nurse Specialist Prescribing project.](#) *New Zealand Society for the Study of Diabetes.*
- ⁵¹ Wilkinson, J., Carryer, J., Adams, J., & Chaning-Pearce, S. (2011). [Evaluation of the Diabetes Nurse Specialist Prescribing project.](#) *New Zealand Society for the Study of Diabetes.*
- ⁵² Wilkinson, J., Carryer, J., Adams, J., & Chaning-Pearce, S. (2011). [Evaluation of the Diabetes Nurse Specialist Prescribing project.](#) *New Zealand Society for the Study of Diabetes.*
- ⁵³ Wilkinson, J., Carryer, J., Adams, J. (2014). Evaluation of a diabetes nurse specialist prescribing project. *Journal of clinical nursing*. 23 (15-16): 2355-2366
- ⁵⁴ Wilkinson, J., Carryer, J., Adams, J. (2014). Evaluation of a diabetes nurse specialist prescribing project. *Journal of clinical nursing*. 23 (15-16): 2355-2366
- ⁵⁵ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature.](#) *BMC Health Services Research*, 11: 127.
- ⁵⁶ Wilhelmsson, S., & Foldevi, M. (2003). Exploring views on Swedish district nurses' prescribing – A focus group study in primary health care. *Journal of Clinical Nursing*, 12(5), 643-650.
- ⁵⁷ Mardby, A.C.M., Jakobsson, A.G., Hedenrud, T.M. (2014). Beliefs about medicines among prescribing and non-prescribing nurses in Sweden. *Journal of Nursing Education and Practice*. 4(8) published online

- ⁵⁸ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁵⁹ Wilhelmsson, S., & Foldevi, M. (2003). Exploring views on Swedish district nurses' prescribing – A focus group study in primary health care. *Journal of Clinical Nursing*, 12(5), 643-650.
- ⁶⁰ Mardby, A.C.M., Jakobsson, A.G., Hedenrud, T.M. (2014). Beliefs about medicines among prescribing and non-prescribing nurses in Sweden. *Journal of Nursing Education and Practice*. 4(8) published online
- ⁶¹ Mardby, A.C.M., Jakobsson, A.G., Hedenrud, T.M. (2014). Beliefs about medicines among prescribing and non-prescribing nurses in Sweden. *Journal of Nursing Education and Practice*. 4(8) published online
- ⁶² Medicines and Healthcare Products Regulatory Agency. (2010). [Supplementary Prescribing](#).
- ⁶³ United Kingdom Government. (2003). [The Prescription Medicines \(Human Use\) Amendment Order 2003: Explanatory Note](#).
- ⁶⁴ UK Government. (2003). [The Prescription Only Medicines \(Human Use\) Amendment Order 2003](#).
- ⁶⁵ Watterson, A., Turner, F., Coull, A.F., Murray, I., Boreham, N. (2009). [An evaluation of the expansion of Nurse Prescribing in Scotland](#). Scottish Government Social Research
- ⁶⁶ NHS. (2012). [Controlled Drugs](#). National Prescribing Centre.
- ⁶⁷ Royal College of Nursing. (2012). [RCN Fact Sheet Nurse Prescribing in the UK](#).
- ⁶⁸ Bissell, P., Cooper, R., Guillaume, L., Anderson, C., Avery, A., Hutchinson, A., et al., (2008). [An evaluation of supplementary prescribing in nursing and pharmacy](#). *Final Report for the Department of Health*.
- ⁶⁹ Courtenay, M., Carey, N., Burke, J. (2007). [Independent extended and supplementary nurse prescribing practice in the UK: A national questionnaire survey](#). *International Journal of Nursing Studies*, 44(7), 1093-1101.
- ⁷⁰ Medicines and Healthcare Products Regulatory Agency. (2010). [Supplementary Prescribing](#).
- ⁷¹ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁷² Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁷³ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁷⁴ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature – Additional File 4 – Description of nurse prescribing in nine Western European and Anglo-Saxon countries according to core themes](#). *BMC Health Services Research*, 11: 127.
- ⁷⁵ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁷⁶ Royal College of Nursing. (2012). [RCN Fact Sheet: Nurse Prescribing in the UK](#).
- ⁷⁷ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature – Additional File 4 – Description of nurse prescribing in nine Western European and Anglo-Saxon countries according to core themes](#). *BMC Health Services Research*, 11: 127.
- ⁷⁸ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁷⁹ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁸⁰ The University of Sheffield. (2007). [SNM 3223 / 624 Nurse / Midwifery Independent / Supplementary Prescribing Course Information Pack](#).
- ⁸¹ Nursing & Midwife Council. (2006). [Standards of proficiency for nurse and midwife prescribers](#).
- ⁸² Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁸³ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature – Additional File 4 – Description of nurse prescribing in nine Western European and Anglo-Saxon countries according to core themes](#). *BMC Health Services Research*, 11: 127.
- ⁸⁴ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature](#). *BMC Health Services Research*, 11: 127.
- ⁸⁵ Royal College of Nursing. (2012). [RCN Fact Sheet Nurse Prescribing in the UK](#).
- ⁸⁶ Royal College of Nursing. (2012). [RCN Fact Sheet Nurse Prescribing in the UK](#).

- ⁸⁷ Carey, N., Stenner, K. (2011). Does non-medical prescribing make a difference to patients? *Nursing Times*; 107:26, 14-16. As cited in: Royal College of Nursing. (2012). [RCN Fact Sheet Nurse Prescribing in the UK](#).
- ⁸⁸ Drennan, J. et al (2009). [Independent evaluation of the nurse and midwife prescribing initiative](#). As cited in: Royal College of Nursing. (2012). [RCN Fact Sheet Nurse Prescribing in the UK](#).
- ⁸⁹ National Prescribing Centre (2010) [Non-medical prescribing by nurses, optometrists, pharmacists, physiotherapists, podiatrists and radiographers. A quick guide for commissioners](#) As cited in: Royal College of Nursing. (2012). [RCN Fact Sheet Nurse Prescribing in the UK](#).
- ⁹⁰ Bissell, P., Cooper, R., Guillaume, L., Anderson, C., Avery, A., Hutchinson, A., et al. (2008). [An Evaluation of Supplementary Prescribing in Nursing and Pharmacy](#). Final Report, Department of Health.
- ⁹¹ Norman, I.J., Coster, S., McCrone, P., Sibley, A., & Whittlesea, C. (2010). [A comparison of the clinical effectiveness and costs of mental health nurse supplementary prescribing and independent medical prescribing: A post-test control group study](#). *BMC Health Services Research*, 10:4.
- ⁹² Scrafton, J., McKinnon, J., & Kane, R. (2012). [Exploring nurses' experiences of prescribing in secondary care: Informing future education and practice](#). *Journal of Clinical Nursing*, 21(13-14), 2044-2053.
- ⁹³ Bradley, E., Hynam, B., Nolan, P. (2007). [Nurse prescribing: Reflections on safety in practice](#). *Social Science & Medicine*, 65(3), 599-609.
- ⁹⁴ Bissell, P., Cooper, R., Guillaume, L., Anderson, C., Avery, A., Hutchinson, A., et al. (2008). [An Evaluation of Supplementary Prescribing in Nursing and Pharmacy](#). Final Report, Department of Health.
- ⁹⁵ Watterson, A., Turner, F., Coull, A.F., Murray, I., Boreham, N. (2009). [An evaluation of the expansion of Nurse Prescribing in Scotland](#). Scottish Government Social Research
- ⁹⁶ Bissell, P., Cooper, R., Guillaume, L., Anderson, C., Avery, A., Hutchinson, A., et al. (2008). [An Evaluation of Supplementary Prescribing in Nursing and Pharmacy](#). Final Report, Department of Health.
- ⁹⁷ Cooper, R.J., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). [Nurse and pharmacist supplementary prescribing in the UK – A thematic review of the literature](#). *Health Policy*, 85(3), 277-292.
- ⁹⁸ Courtenay, M., & Carey, N. (2008). Nurse independent prescribing and nurse supplementary prescribing practice: A national survey. *Journal of Advanced Nursing*, 61(3), 291-299.
- ⁹⁹ Cooper, R., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). Stakeholders' views of UK nurse and pharmacist supplementary prescribing. *Journal of Health Services Research & Policy*, 13(4), 215-221.
- ¹⁰⁰ Stenner, K., Carey, N., & Courtenay, M. (2010). Implementing nurse prescribing: a case study in diabetes. *Journal of Advanced Nursing*, 66(3), 522-531.
- ¹⁰¹ Carey, N., & Courtenay, M. (2008). [Nurse supplementary prescribing for patients with diabetes: A national questionnaire survey](#). 17(16), 2185-2193.
- ¹⁰² Carey, N., & Courtenay, M. (2008). [Nurse supplementary prescribing for patients with diabetes: A national questionnaire survey](#). 17(16), 2185-2193.
- ¹⁰³ Bissell, P., Cooper, R., Guillaume, L., Anderson, C., Avery, A., Hutchinson, A., et al. (2008). [An Evaluation of Supplementary Prescribing in Nursing and Pharmacy](#). Final Report, Department of Health.
- ¹⁰⁴ Cooper, R.J., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). [Nurse and pharmacist supplementary prescribing in the UK – A thematic review of the literature](#). *Health Policy*, 85(3), 277-292.
- ¹⁰⁵ Cooper, R.J., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). [Nurse and pharmacist supplementary prescribing in the UK – A thematic review of the literature](#). *Health Policy*, 85(3), 277-292.
- ¹⁰⁶ Stenner, K., Carey, N., & Courtenay, M. (2010). Implementing nurse prescribing: a case study in diabetes. *Journal of Advanced Nursing*, 66(3), 522-531.
- ¹⁰⁷ Courtenay, M., Carey, N., Burke, J. (2007). [Independent extended and supplementary nurse prescribing practice in the UK: A national questionnaire survey](#). *International Journal of Nursing Studies*, 44(7), 1093-1101.
- ¹⁰⁸ Bissell, P., Cooper, R., Guillaume, L., Anderson, C., Avery, A., Hutchinson, A., et al. (2008). [An Evaluation of Supplementary Prescribing in Nursing and Pharmacy](#). Final Report, Department of Health.
- ¹⁰⁹ Bissell, P., Cooper, R., Guillaume, L., Anderson, C., Avery, A., Hutchinson, A., et al. (2008). [An Evaluation of Supplementary Prescribing in Nursing and Pharmacy](#). Final Report, Department of Health.
- ¹¹⁰ Cooper, R., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). Stakeholders' views of UK nurse and pharmacist supplementary prescribing. *Journal of Health Services Research & Policy*, 13(4), 215-221.
- ¹¹¹ Bissell, P., Cooper, R., Guillaume, L., Anderson, C., Avery, A., Hutchinson, A., et al. (2008). [An Evaluation of Supplementary Prescribing in Nursing and Pharmacy](#). Final Report, Department of Health.
- ¹¹² Cooper, R., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). Stakeholders' views of UK nurse and pharmacist supplementary prescribing. *Journal of Health Services Research & Policy*, 13(4), 215-221.

- ¹¹³ Courtenay, M., & Carey, N. (2008). Nurse independent prescribing and nurse supplementary prescribing practice: A national survey. *Journal of Advanced Nursing*, 61(3), 291-299.
- ¹¹⁴ Carey, N., & Courtenay, M. (2008). [Nurse supplementary prescribing for patients with diabetes: A national questionnaire survey](#). 17(16), 2185-2193.
- ¹¹⁵ Cooper, R.J., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). [Nurse and pharmacist supplementary prescribing in the UK – A thematic review of the literature](#). *Health Policy*, 85(3), 277-292.
- ¹¹⁶ Cooper, R., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). Stakeholders' views of UK nurse and pharmacist supplementary prescribing. *Journal of Health Services Research & Policy*, 13(4), 215-221.
- ¹¹⁷ Cooper, R.J., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). [Nurse and pharmacist supplementary prescribing in the UK – A thematic review of the literature](#). *Health Policy*, 85(3), 277-292.
- ¹¹⁸ Cooper, R., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). Stakeholders' views of UK nurse and pharmacist supplementary prescribing. *Journal of Health Services Research & Policy*, 13(4), 215-221.
- ¹¹⁹ Bissell, P., Cooper, R., Guillaume, L., Anderson, C., Avery, A., Hutchinson, A., et al. (2008). [An Evaluation of Supplementary Prescribing in Nursing and Pharmacy](#). Final Report, Department of Health.
- ¹²⁰ Cooper, R., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). Stakeholders' views of UK nurse and pharmacist supplementary prescribing. *Journal of Health Services Research & Policy*, 13(4), 215-221.
- ¹²¹ Cooper, R.J., Anderson, C., Avery, T., Bissell, P., Guillaume, L., Hutchinson, A., et al. (2008). [Nurse and pharmacist supplementary prescribing in the UK – A thematic review of the literature](#). *Health Policy*, 85(3), 277-292.
- ¹²² Royal College of Nursing. (2012). [RCN Fact Sheet Nurse Prescribing in the UK](#).
- ¹²³ Kroezen, M., van Dijk, L., Groenewegen, P.P., & Francke, A.L. (2011). [Nurse prescribing of medicines in Western European and Anglo-Saxon countries: A systematic review of the literature – Additional File 4 – Description of nurse prescribing in nine Western European and Anglo-Saxon countries according to core themes](#). *BMC Health Services Research*, 11: 127.
- ¹²⁴ Drennan, J., Naughton, C., Allen, D., Hyde, A., Felle, P., O'Boyle, K., Treacy, P., & Butler, M. (2009). [National independent evaluation of the nurse and midwife prescribing initiative](#).
- ¹²⁵ NCSBN. (2008). [Consensus Model for APRN Regulation: Licensure, Accreditation, Certification & Education](#).
- ¹²⁶ NCSBN. (2014). [APRN Campaign for Consensus: Moving Toward Uniformity in State Laws](#).
- ¹²⁷ Nursing World. (2010). [APRN Consensus Model Frequently-Asked Questions](#).
- ¹²⁸ Klein, T.A. (2012). Implementing Autonomous Clinical Nurse Specialist Prescriptive Authority. *Clinical Nurse Specialist*. 26(5), 254-262.
- ¹²⁹ NCSBN. (2008). [Consensus Model for APRN Regulation: Licensure, Accreditation, Certification & Education](#).
- ¹³⁰ Nursing World. (2010). [APRN Consensus Model Frequently-Asked Questions](#).
- ¹³¹ NCSBN. (2008). [Consensus Model for APRN Regulation: Licensure, Accreditation, Certification & Education](#).
- ¹³² NCSBN. (2014). [Major Components of the Consensus Model by State](#).
- ¹³³ NCSBN. (2014). [NCSBN's APRN Campaign for Consensus: State Progress toward Uniformity](#).
- ¹³⁴ NCSBN. (2014). [Major Components of the Consensus Model by State](#).
- ¹³⁵ NCSBN. (2014). [NCSBN's APRN Campaign for Consensus: State Progress toward Uniformity](#).
- ¹³⁶ NCSBN. (2008). [Consensus Model for APRN Regulation: Licensure, Accreditation, Certification & Education](#).
- ¹³⁷ Gielen, S.C., Dekker, J., Francke, A.L., Mistiaen, P., Kroezen, M. (2014). The effects of nurse prescribing: A systematic review. *International Journal of Nursing Studies*. 51(7):1048-1061.