An audit of nurses using standing order directives to administer medications to children at risk of contracting rheumatic fever

Karen Hoare, Tracy McKee, Laura Broome, Rhys Vaughan-Jones, Rawiri Jansen, Nicolette Sheridan

ABSTRACT

AIM: The following article reports an audit, conducted between July 2014 and July 2017, of adherence to best practice in medication administration and documentation by nurses.

METHOD: A sample of 47 registered nurses’ (RNs’) documentation relating to the administration of 939 medications using standing order directives were examined and scored by seven senior nurses and a medical practitioner against an audit tool. The scores were divided into four quartiles with the top two quartiles demonstrating best practice in adherence to safety standards for the administration of medication.

RESULTS: Forty-three RNs (91.5%) scored in the top two quartiles. The remaining four RNs (8.5%), following supervision by a senior nurse, subsequently demonstrated improvement in their documentation to the quartile one range of the audit tool. This audit demonstrates that, following education in diagnosis and treatment of common childhood conditions, the majority of nurses who were audited could diagnose simple conditions of childhood and safely administer medications to them. Moreover, two years after the programme was introduced, the serious sequelae of acute rheumatic fever (ARF) reduced in children aged 5–12 years.

CONCLUSION: RNs who took part in the audit used standing order directives to safely administer medications to children. RN prescribing throughout New Zealand should be explored as an effective means to provide timely treatment and improve patient outcomes.

Using standing order directives could be considered as elementary nurse prescribing. This topic has been under the spotlight in New Zealand since 2016, when the country’s nursing regulatory body announced changes that allow registered nurses (RN) to prescribe from a formulary of subsidised medications.1,2 The lowest level of nurse prescribing, whereby nurses can administer and supply medications, is by utilising standing order directives. A standing order is “a written instruction issued by a medical practitioner, dentist, nurse practitioner or optometrist. It authorises a specified person or class of people (e.g., paramedics, registered nurses) who do not have prescribing rights to administer and/or supply specified medicines.”3 Prior to 2011, when a group of diabetes nurse specialists were given prescribing rights over a very limited number of medications, the only nurses who were eligible to prescribe a wide range of drugs were registered nurse practitioners.4 A Cochrane review of 46 international studies (37,337 participants) demonstrated that non-medical prescribers, such as nurses and pharmacists, were as effective as usual care medical prescrib-
ers across a range of domains. An earlier systematic review of 17 empirical studies reported that non-medical prescribing was accepted and viewed positively by patients and professionals. Concern for public protection against drug misuse resulted in governments developing medicines regulation legislation from the nineteenth century onwards, and by the twentieth century, legislation restricted prescriptive authority to a small number of occupational groups, such as medical practitioners, dentists and vets. Towards the end of the twentieth century, non-medical prescribing was introduced into many Western countries. Notably, UK nurses have been prescribing for decades. In the UK in 2015, over 28,000 nurses were able to prescribe the same medications as doctors, on the provision that it is within their level of experience and competence.

A major concern for low-income countries, and high-income countries such as New Zealand, is safe and timely access to medications for populations with acute and chronic diseases. Nurses comprise the largest group of health professionals in New Zealand and are perfectly placed to prescribe medications, yet currently only 1% are registered with the Nursing Council of New Zealand (NCNZ) as nurse practitioners or nurse prescribers. In New Zealand, children of Māori and Pacific descent are important populations at high risk of a serious disease, acute rheumatic fever (ARF). ARF as a sequelae to group A beta haemolytic Streptococcus (GABHS) infection has all but disappeared in high-income countries. However, in New Zealand, high rates of ARF persist among Māori and Pacific children living in lower socioeconomic areas in the North Island. In response to this health issue, the New Zealand Government’s Ministry of Health funded a school-based rheumatic-fever prevention programme that commenced in 2012. In one Auckland district health board, the programme was designed to utilise health teams consisting of registered nurses and health workers based in 61 primary and intermediate schools. The programme is delivered in schools that were assessed as high risk for children developing ARF based on a range of criteria, including incidence of rheumatic fever, demography and hospitalisations. The programme is named Mana Kidz.

### Mana Kidz

The Mana Kidz programme comprises a network of primary health and community health organisations and is currently led by the National Hauora Coalition, a Māori primary health organisation. The nurses within the health teams perform daily assessments of children presenting with sore throats, skin infections and other child health issues. Mana Kidz was first piloted in a school in South Auckland and subsequently expanded to the remaining 60 schools that were predominantly classified as decile one (most deprived) in the Counties Manukau District Health Board (CMDHB) area. By 2016, the programme had reached approximately 24,000 children aged 5–12 years, 40% of whom identified as Māori and 50% as Pacific Island. The healthcare assistants within the teams provide outreach services to families to deliver medicines and address other healthcare needs of the children. RNs administer medicines under a standing order directive. The RNs in Mana Kidz undertook education that consisted of workbooks addressing the assessment and differential diagnosis of tonsillitis and skin conditions and the use of standing orders. A senior nurse educator skilled in public health and care of children and employed by Counties Manukau District Health Board facilitated these education events. Access to the Heart Foundation guidelines and algorithm for sore throat management were provided. A pre- and post-intervention study examining the effect of the Mana Kidz programme illustrated a 58% reduction in the number of children developing ARF two years after implementation of the programme.

The following reports an audit conducted to establish the adherence of nurses’ documentation to guidelines developed for the Mana Kidz programme.

### Aim

To examine the documentation of RNs against a best practice audit tool (Table 1) when standing order directives were used to supply medicines to primary and intermediate school children (5–12 years) who were at risk of ARF.
Table 1: Audit tool illustrating 14 statements agreed by the quality group.

<table>
<thead>
<tr>
<th>Example of medication audited</th>
<th>Medication cephalixin</th>
<th>Medication amoxicillin</th>
<th>Medication flucloxacillin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All entries identifiable with signature and discipline or electronically identifiable</td>
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<tr>
<td>2. All entries dated and timed</td>
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<tr>
<td>3. All entries in chronological order</td>
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<tr>
<td>4. Clinical history documented thoroughly and accurately</td>
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<td>5. Nursing Assessment documented completely and accurately</td>
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<td>6. Communication with students, family and other professionals documented</td>
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<tr>
<td>7. Change of condition is documented</td>
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<td>8. All lab results are followed up</td>
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<tr>
<td>9. Weight entered in database/student record</td>
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<td>10. Referrals are accurately documented and followed up</td>
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<td>11. Medications are administered within 24hrs of result being received *</td>
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<tr>
<td>12. Administration of medications is recorded (including date and person administering)</td>
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<td>13. Discharge letter is complete and accurate</td>
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<td>14. Adherence checks are complete</td>
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<tr>
<td><strong>Totals</strong></td>
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</table>
Method

Using a structured audit tool that detailed important clinical information, the notes of RNs were examined to compare information they collected on a patient management system with the information on the audit tool (Table 1). The audit tool development utilised a consensus approach, with a quality group of qualified professionals that met during 2013 to formulate the Manual of Operations and Standing Orders. The group comprised two general practitioners, one nurse practitioner, one RN educator, a practice manager and a quality adviser from CMDHB. This quality group identified the need for standardisation of auditing across the programme. They reviewed the tools being used at that time and were quickly able to identify one for testing in late 2013. The change management model, Deming’s Plan-Do-Study-Act (PDSA) cycle, was also implemented with four versions of the tool trialled over a period of six months. The final version has been in use from July 2014. This audit comprised examining the notes against the 14 statements agreed by the quality group (Table 1). Statement 4 (line 4, Table 1), which specifically relates to assessment of a sore throat, refers to documentation of a comprehensive assessment of the child’s throat for tonsillar exudate, cervical lymph nodes and temperature. These clinical signs can be formulated into the McIsaac score that was modified from the Centor score to estimate the probability of a GABHS tonsillitis. Statement 8 (line 8, Table 1) refers to documenting a positive or negative throat swab result. Every child who was given antibiotics for a sore throat had a throat swab taken. This direction was stated in the standing order. Statement 9 (line 9, Table 1) refers to documentation of the child’s current weight to ensure that the correct dose of antibiotic is administered. Statement 14 (line 14, Table 1) required documentation that adherence to antibiotics for a sore throat was checked at day five and day 10. Each listed medication was scored against the 14 statements as follows: complete=1, partly complete=2, not completed=3 and not applicable=1. A perfect score was 14 and the worst score possible was 42. RJ (author) issued the standing orders and reviewed all of the audits as the medical practitioner in the audit team.

Ethics

Massey University’s Human Ethics Committee granted approval for this project under a low-risk audit category due to the anonymised nature of the data.

Sample size

Forty-seven RNs’ notes were audited by seven senior nurses and a medical practitioner. The number of medications administered by these RNs using standing order directives and examined by the audit team ranged between four and ten. At the start of their employment with the Mana Kidz programme, nurses were audited every month. This frequency reduced to every three months, providing they produced satisfactory scores on the audit tool (Table 1). The number of medications audited was a pre-determined percentage of the number of medicines administered by the nurse. Figure 1 demonstrates the range of medications reviewed within each audit.

Results

A sample of 47 RNs’ documentation relating to the administration of 939 medications using standing order directives were examined and scored by seven senior nurses and a medical practitioner against the audit tool (Table 1). The scores were divided into four quartiles, with the top two quartiles demonstrating best practice in adherence to safety standards for the administration of medication. Audits were conducted between July 2014 and July 2017, and the 939 documented medications were allocated to 112 audits. Within this timeframe, some RNs were audited more than once. Figure 1 demonstrates the distribution range of medications administered by the RNs per audit, with the smallest number being two audits consisting of four medications, and the largest number of audits was 34 with eight medications. In this sample, the scores ranged between 14 and 25. For each of the 112 sets of documentation, the mean score was calculated. Mean scores were then allocated to quartiles as demonstrated in Figure 2. The highest-quality scores of between 14 and 16 were allocated to quartile 1: 91 (81%) of the sets met this standard. Seventeen sets (15%) met quartile two scores of between 17 and 19, and three sets scored in the quartile 3 range of between 20 and 22. One documentation set met the quartile 4 score.
Discussion

Strengths and weaknesses

The strengths of this study include the compilation of an audit tool by a team with different professional backgrounds and expertise who met frequently to modify iterations of the tool following its use in practice. This is the first international study that examines nurses' documentation of using standing orders to supply medicines to children. A weakness of this study was that, rather than following the Delphi process, the development of the audit tool used a consensus approach. Additionally, there were no inter-rater reliability measures undertaken, although cross-checking with the medical professional occurred for those nurses whose audit scores were allocated to quartiles 3 or 4.

This audit demonstrates that the majority of RNs working using standing order instructions adhered to best practice standards when administering medications for children. RNs working for Mana Kidz are usually public health nurses, and a number identify as Pasifika and Māori. A re-audit of the four RNs who initially scored in the quartile 3 to 4 range demonstrated an improvement in all of their scores to within the quartile 1 range following supervision by a senior nurse. Supervision comprised sitting individually with the RNs and peer reviewing cases to highlight areas that needed attention. Additionally, supervision included site visits to the clinic for the supervisor to role model best practice and adherence to guidelines. This study supports international literature from England and Scotland demonstrating the appropriateness and safety of nurse prescribing. Both medical practitioners and nurses highlighted the contribution to public health by nurse prescribers in a Scottish study. Antibiotic stewardship with more careful targeting of microbial drugs was an area where nurse prescribers potentially addressed medical practitioner over-prescribing. Furthermore, the public show considerable confidence in nurse prescribing. Importantly, the Scottish study of surveys, case studies and interviews did not identify any issues that would affect patient safety.

Within New Zealand there has been a significant, demonstrable improvement in child health, with a reduction of 58% of children developing ARF in the two years following implementation of the Mana Kidz programme. In light of this important finding, policymakers and healthcare providers have a duty to commit resources to the expansion of RN prescribing. Currently only 441 RNs and 481 nurse practitioners are certified by NCNZ to prescribe medications. This number represents less than 2% of the registered nurses and nurse practitioners in New Zealand. Nurses are the largest group of healthcare profes-

Figure 1: Illustrates the number of audits and distribution of medications per audit.
sionals in New Zealand, and utilising them to prescribe medications would potentially improve health outcomes for all population groups, not just children at risk of contracting ARF.

Barriers to nurse prescribing include limited support from both nursing and medical employers and a complete lack of financial remuneration for nurses willing to take on the added responsibility of prescribing. Additional constraints include access to prescribing training and mentors (medical and nurse practitioners) willing to supervise nurses during their prescribing practicum. A postgraduate diploma in RN prescribing has been available at a number of New Zealand universities since 2017, and yet, as of 9 July 2021, there are still only 441 nurse prescribers registered with NCNZ.

Standing orders provide a vehicle for nurses to prescribe medications. However, this system is labour intensive and onerous for the medical and nurse practitioners who issue them. New Zealand’s Medicines (Standing Order) Amendment Regulations 2011 stipulate:

“If a standing order does not require the countersigning of charted treatments, or requires countersigning less frequently than once each month, the issuer must, at least once each month, audit a sample of the charted treatments of patients to whom medicines have been administered or supplied under the standing order.”

A recent New Zealand study exploring organisational views of the use of standing orders in general practice concluded that there was suboptimal understanding of the legislation. Additionally, the same study highlighted a lack of standardisation of standing orders, insufficient education of some nurses and that some general practitioners did not understand their responsibilities regarding the issuing of standing orders.

The unnecessary workload that standing orders generate for the issuer prohibits medical and nurse practitioners from engaging in supporting nurses to prescribe. Our audit has demonstrated that nurses safely adhere to policy and guidelines when prescribing medications. Nurses should be supported and encouraged to become RN prescribers through further postgraduate study. Most importantly, nurses who are able to access and supply medications could potentially improve patient outcomes.

Figure 2: Number of documentation sets in each quartile. One documentation set contained between 4 and 10 medications.
Competing interests:
Nil.

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REFERENCES


