HEALTH QUALITY & SAFETY COMMISSION NEW ZEALAND
Kupu Taurangi Hauora o Aotearoa

How-to guide

Reducing opioid-related harm through the use of care bundles

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Contributors

The work of the safe use of opioids national collaborative informed the development of this how-to guide, supported by its steering group and expert faculty and a team from the Institute for Healthcare Improvement.

The second edition of the how-to guide is expected in April 2018. Feedback on this first edition is welcome. To provide comments, please contact: info@hqsc.govt.nz.

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1. Introduction

For 18 months from October 2014, the Health Quality & Safety Commission (the Commission) partnered with 20 district health boards (DHBs) and MercyAscot Hospital in a national 'formative' collaborative.

An output of this safe use of opioids national collaborative (the collaborative) was four emerging care bundles to reduce opioid-related harm.

This how-to guide supports the use and further testing of these care bundles.

2. Background: Safe use of opioids national collaborative

2.1. Aim

The aim of the collaborative was to reduce the harm related to opioid use nationally by 25 percent in all the participating areas of DHB hospitals by April 2016.

2.2. Goals

1. Develop care bundles for opioid safety.
2. Increase the capability with participating teams in improvement science.
3. Create a reusable clinical network across New Zealand for further medication safety work.

2.3. Design

Consumers were involved at all levels of the programme.

The Commission used the Institute for Healthcare Improvement's (IHI's) collaborative model for achieving breakthrough improvement, underpinned by the Model for Improvement, to develop care bundles that reduce opioid-related harm.

National and regional learning sessions and site visits supported teams in using quality improvement tools and methods.

Teams developed specific, measurable, achievable, reliable and time-based (SMART) aim statements, theory of change using driver diagrams, and data collection tools. They then tested their change ideas using plan–do–study–act (PDSA) cycles to address an opioid-related harm area of their choice.

2.4. Measurement

The majority of participating teams manually collected data each week in their pilot areas for their identified process, outcome and balancing measures.

They collected outcome data and analysed it using three methods: two-sample test of proportions, statistical process control (SPC) charts and relative percentage change from baseline.

The DHBs shared their monthly reports with the Commission, and the Commission created dashboards to display the findings.

2.5. Results

2.5.1. Harm reduction

The majority of change ideas were tested in surgical areas. Constipation was the most common harm area that DHBs chose to focus on.

Of the 21 teams eligible for the collaborative, 17 actively participated. Five of those participating were excluded from the analysis because a baseline was not established.

Of the 12 remaining teams, seven hospitals (58 percent) showed relative reduction in opioid-related harm of greater than 25 percent; six of these teams (50 percent of all teams in the analysis) exhibited a special cause[1] in a statistical process control (SPC) chart. Another two hospitals showed a relative reduction of between 0 and 25 percent (one with a special cause). Three hospitals showed a relative increase in harm (no special cause).

2.5.2. Care bundles

DHB teams identified interventions for each care bundle. National and international expert panels then reviewed those choices using a modified-Delphi technique.

The final selection of interventions for the care bundles was based on published evidence, local quality improvement data and expert opinion.

Four care bundles were developed. Three were care bundles for individual harm areas (opioid-induced constipation, opioid-induced ventilatory impairment and uncontrolled pain) and one was a composite care bundle (covering all these harms as well as opioid-induced nausea and vomiting). An accompanying comprehensive ‘how-to guide’ (this document) supports further opioid safety work.

2.5.3. Capability building

Longitudinal surveys showed that teams increased in their quality improvement capability.

2.5.4. Sustainability

At the end of the collaborative teams shifted focus to embed/spread their improvement with ongoing support from the Commission. A national network of inter-professional teams (safe use of opioids group) has continued to meet to support and plan for use of the care bundles.

[1] ‘Special cause’: cause of variation which is not an inherent part of a process, but arises out of intermittent and unpredictable factors. These extraordinary causes are indicated by data points that fall outside of the limits of a control chart.

3. What is the Commission's role?

The Health Quality & Safety Commission is a Crown entity. Under the New Zealand Public Health and Disability Amendment Act 2010 the Commission is charged with:

- providing advice to the Minister of Health on how quality and safety in health and disability support services may be improved
- leading and coordinating improvements in safety and quality in health care
- identifying key health and safety indicators (such as events resulting in injury or death) to inform and monitor improvements in safety and quality
- reporting publicly on safety and quality, including performance against national indicators
- sharing knowledge about and advocating for safety and quality.

The Commission works to help New Zealand have the high-quality health care. To achieve this mission, it simultaneously pursues the Triple Aim of: 1) improved quality, safety and experience of care; 2) improved health and equity for all populations; and 3) best value for public health system resources (Figure 3.1).

Figure 3.1: Triple Aim

4. What is this how-to guide?

The format of this how-to guide is based on the IHI's collaborative breakthrough approach.[2] The IHI's guides are designed to address specific health care interventions that hospitals and/or entire health systems can pursue to improve the quality of health care while reducing unnecessary death, medical error, and cost.

The purpose of this how-to guide is to support the health professionals in using and possibly refining four emerging care bundles designed to reduce opioid-related harm. The term 'emerging' is used because, although some evidence from the individual interventions indicates they are effective, no evidence yet exists to show improvement when the interventions are used together.

This how-to guide is based on the outputs of the safe use of opioids national collaborative, namely the change ideas tested (what, how, lessons learned) and resources produced by the participating teams (see sections 7–11). It also includes data collection forms to support measurement (see the appendices).

The next phase of work, in the New Zealand context, is focused on refining the care bundles and how-to guide, and ongoing measurement to determine the impact of their use on opioid-related harm. The Commission's medication safety team will continue its partnership with DHBs under the auspices of a national network focused on improving opioid safety – 'the safe use of opioids group'.

The second edition of the how-to guide is expected in April 2018. Feedback on this first edition is welcome. To provide comments, please contact: info@hqsc.govt.nz.

[2] Institute for Healthcare Improvement. 2003. *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement.* IHI Innovation Series white paper. Boston: Institute for Healthcare Improvement. URL: www.IHI.org (accessed 6 December 2016).

5. Case for reducing opioid-related harm

Opioids are a class of medicines that are very effective in managing severe pain. However, they are also the class of medicines most commonly linked to patient harm. These harms include potentially life-threatening over-sedation and respiratory depression (leading to respiratory arrest if not recognised and corrected). Other common adverse effects associated with prescribed opioid therapy include: nausea, vomiting, constipation, delirium, hallucinations, falls, hypotension, aspiration pneumonia and addiction.[3]

The extent of this harm has been demonstrated internationally and locally. It is the reason that opioids have been at the top of the Institute for Safe Medication Practices (ISMP) High-Risk Medicines list since 1989[4] – indicating that special care is required when they are prescribed, dispensed, supplied, stored and administered.

Opioids have particular characteristics that exacerbate their high risk:

- many preparations that look alike or sound alike, which can lead to errors in prescribing, dispensing and administration
- multiple different routes of administration
- the need for close monitoring of respiratory rates and sedation
- significant risk from interactions with other sedating medication.

There is no universally accepted bundle of evidence-based interventions to reduce harm from opioids. Evidence for any particular intervention is modest at best.

These considerations were the impetus behind the safe use of opioids national collaborative. The collaborative ran in conjunction with the Commission's *Open for better care* campaign, starting when the focus was on medication safety and high-risk medicine use.

[3] ME Seddon, A Jackson, C Cameron, et al. 2013. The Adverse Drug Event Collaborative: a joint venture to measure medication-related patient harm. *New Zealand Medical Journal* 126(1368).

[4] Institute for Safe Medication Practices. 2012. ISMP's List of High-Alert Medications. URL: www.ismp.org/Tools/highalertmedications.pdf (accessed 6 December 2016).

6. Design principles of this how-to guide

6.1. Partnership-focused

The emerging care bundles are a key output of the safe use of opioids national collaborative. The collaborative was an 18-month-long partnership that involved the Commission, 20 DHB hospitals and MercyAscot Hospital, a private provider (see Section 2).

6.2. Use of improvement science

The collaborative was based on the IHI's breakthrough-series collaborative methodology. Frontline hospital staff engaged in small-scale, rapid cycle testing of 'change ideas' to reduce opioid-related harm.

6.3. Bundles to drive improvement

The IHI developed the concept of 'bundles' to help health care providers more reliably deliver the best possible care for patients undergoing particular treatments with inherent risks. A bundle is a 'structured way of improving the processes of care and patient outcomes: a small, straightforward set of evidence-based practices – generally three to five – that, when performed collectively and reliably, have been proven to improve patient outcomes'.[5]

In the context of this how-to guide, the actual 'evidence' from the collaborative is not presented. More specifically, this how-to guide does not deal with the issue of 'attribution' – the relationship between the interventions tested by the participating teams and any observed changes in the measures used. The collaborative has been independently evaluated; please refer to the full evaluation report for more information about the collaborative's outputs (for example, measures, interventions and data).[6]

The how-to guide consists of three bundles on individual harms – opioid-induced constipation, opioid-induced ventilatory impairment and uncontrolled pain – and a composite bundle covering a range of opioid-related harms. The bundles contain 'elements' (interventions) that the DHBs believed should be included based on their knowledge and experience.

6.4. Consensus

Expert 'Delphi' panels reviewed the bundle elements to establish whether they were suitable to include in the composite bundle. The collaborative's expert faculty was then convened to finalise the three individual bundles and create the composite bundle. A modified-Delphi technique was used to achieve consensus regarding the final content; this was based on

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[5] R Resar, FA Griffin, C Haraden, TW Nolan. 2012. *Using Care Bundles to Improve Health Care Quality*. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement. URL: www.IHI.org (accessed 6 December 2016).

[6] Full report available at: www.hqsc.govt.nz/assets/Medication-Safety/collaborative/PR/Opioid-collaborative-evaluation-Dec-2016.pdf.

expert opinion, review of published literature, and the quality improvement data that the collaborative teams generated. The IHI provided advice and guidance about the bundle development process, content and ongoing measurement.