

The provision of infection prevention and control services in the public health sector in New Zealand

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Abstract. Infection prevention and control services are well established within publically funded hospitals within New Zealand. In 2007, the Ministry of Health Quality Improvement Committee developed a set of National Quality Improvement Programs including an Infection Prevention and Control project. This project, the implementation of a national hand hygiene program, provision of guidance to reduce central line associated bacteraemia and recommendations for a national surgical site infection surveillance program, was the first nationally coordinated infection prevention and control program. More recently the Health Quality and Safety Commission has been established and the responsibility of the program delivery shifted to the Commission. District Health Boards have agreed to participate in the programs and the recently introduced Quality and Safety Markers will track the progress of these programs. Ongoing committed to increasing the workforce capacity and capability is required to ensure the successful delivery of these programs.

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Healthcare delivery in New Zealand is predominantly funded by the New Zealand Government, with limited third party funding.¹ Three-quarters of the New Zealand health dollar, 'Vote Health', is administered by District Health Boards (DHB). DHB were established by the 2000 Public Health and Disability Act. There are currently 20 DHB across New Zealand, which provide care for a population of close to 4.5 million people. The role of the DHB is to plan, manage, provide and purchase health services for the population of their district to ensure that services are arranged effectively and efficiently and to meet the needs of primary care, hospital services, public health services, aged care services and funding for non-governmental organisations working in the sector such as Māori and Pacific providers.

Guidance for the delivery of infection prevention and control in the healthcare sector is provided for by the New Zealand Standards document NZS 8134.3.² The main intent of the Standard is to facilitate consistently safe and quality health and disability services, by identifying principles designed to reduce the rate of infections in the health and disability sector. It provides guidance on infection control management, implementing the infection control program, policies and procedures, education, surveillance, and antimicrobial usage. DHB infection prevention and control (IPC) programs are audited against this Standard.

The delivery of IPC programs within DHB is primarily by the IPC team, which is composed of IPC nurse specialists. All DHB, consistent with the Standard, will have an Infection

Control Committee that oversees the IPC activities within that DHB. Few DHB have medical roles dedicated to IPC activities; Clinical Microbiologists and Infectious Diseases Physicians provide support for IPC Services on an *ad hoc* basis. The level of support varies from 'reactionary' – in response to a specific issue such as an outbreak – to proactive, leading improvement initiatives within that DHB and undertaking research activities. The New Zealand Nursing Organisation National Division of Infection Control Nurses held its 30th annual conference in 2012 and has a well established structure which has enabled it to be proactive in this area and to contribute at a national level. Members regularly participate in the development of guidelines at a national level such as the 2002 Ministry of Health 'Guidelines for the control of methicillin-resistant *Staphylococcus aureus*'. A small but increasing number of Clinical Microbiologists and Infectious Disease Physicians are developing expertise in this area and taking on clinical leadership roles. Currently there is no national multidisciplinary group encompassing all healthcare workers working in the IPC area.

In 2007, the Ministry of Health Quality Improvement Committee (QIC) developed a set of National Quality Improvement Programs (NQIP) to be implemented by DHB and overseen by the Ministry of Health. The Infection Prevention and Control Program was part of NQIP. Auckland District Health Board (ADHB) was tasked with delivering the NQIP IPC programs; these were the establishment of a hand

Implications

- The national IPC programs will improve outcomes for patients.
- A skilled workforce is required to undertake these quality improvement activities.
- The Quality and Safety Markers are essential to quantify the level of harm and cost at a national level and to track the progress of the quality improvement activities aimed at reducing harm.

hygiene program aligned with the WHO '5 moments for hand hygiene', provision of a guidance document for the prevention of central line-associated bacteraemia and recommendations for a national surgical site infection surveillance program. The program was part of New Zealand's response to the management of healthcare-associated infections (HAI). The rates of HAI in New Zealand are similar to those in other developed countries.^{3,4} In 2003 it was estimated that the annual cost of such infections was approximately \$140 million.⁵

Strong linkages were established with the Hand Hygiene Victoria program in mid-2007 and from there the Hand Hygiene New Zealand (HHNZ), Ringa Horoia Aotearoa, program was developed. This program was rolled out over 2008–09 but uptake by individual DHB was variable as participation was not mandatory. An improvement in hand hygiene compliance and a reduction in healthcare-associated *Staphylococcus aureus* bacteraemia (HA-SAB) was seen at ADHB.⁶

In December 2009, the government agreed to strengthen the health sector's focus on quality and safety by replacing the Quality Improvement Committee (QIC) with a standalone Crown Agent, the Health Quality and Safety Commission. The Health Quality & Safety Commission (Commission) was established under the *New Zealand Public Health & Disability Amendment Act 2010* to ensure all New Zealanders receive the best health and disability care within the resources available. The responsibility for the NQIP programs shifted from the Ministry to the Commission. A review was undertaken of the three programs. Tenders were issued for the delivery of the Hand Hygiene New Zealand program and the establishment of a central line-associated bacteraemia prevention program. This allowed for reinvigoration of the programs; ADHB undertook to deliver the HHNZ program⁷ and Counties-Manukau District Health Board in collaboration with Ko Aotearoa established the Target CLAB Zero initiative.⁸

HHNZ is aligned with Hand Hygiene Australia using the same data collection processes for hand hygiene compliance and adapted educational material for the New Zealand health sector. This collaboration has been very successful. Auditing is undertaken thrice yearly and during the last audit period, March 2013, all 20 DHB contributed data. Further work is being done around the outcome measure, HA-SAB, to standardise reporting. It is expected that this program will be

delivered across the entire health sector including primary care.

The Target CLAB Zero initiative has used the US Institute of Healthcare Improvement collaborative methodology for the delivery of the quality improvement initiative. The key objectives were to reduce the CLAB rate to <1 per 1000 line days by April 2013, provide leadership, coordination and data management and to establish a robust national measurement for CLAB. It is also expected that this approach will spread beyond intensive care units within DHB. The collaborative has been successful at providing coordination and leadership with participation by all intensive care and high dependency units within DHB hospitals.

The recommendations developed for a national surgical site surveillance program in 2009–10 were reviewed and a cost benefit analysis of the program was carried out. The outcome of these activities has led to the Commission implementing a national surgical site surveillance program. The program is in the early phases of implementation but will start with orthopaedic procedures: total hip and knee joint replacements. The data collected by the surveillance program will link with quality improvement initiatives to reduce surgical site infections. Following on from these procedures will be cardiac surgery and Caesarean sections.

The Commission has developed a set of Quality and Safety Markers (QSM) to track the progress of the national programs. They consist of a process marker (measuring processes shown to improve outcomes), which would be used for targets and comparisons, and outcome measures, which would describe the quantum of harm and cost at a national level. National thresholds will be set for process measures such as 70 percent compliance for hand hygiene compliance and 90 percent for compliance with CLAB insertion and maintenance bundles. The QSM for the national surgical site infection surveillance program are in development.

It is an exciting time for the New Zealand IPC community. The role of IPC in patient safety is being acknowledged. Four regional networks are being established nationally to assist with delivery of the programs. One of the concerning issues though is the workforce capacity; there is a limited number of IPC nurse specialists working within DHB – about 55 full-time equivalents – and even less medical personnel – just over one full-time equivalent. This falls well short of published estimates for IPC nurse specialist full-time equivalents per beds or admissions.^{9,10} Registrars training in infectious diseases or clinical microbiology locally do not get exposed to the comprehensive infection prevention and control programs seen in overseas hospitals and as a consequence have limited understanding of this area. Additional resources, in particular the number of trained IPC nurse specialists, are needed to allow the IPC teams to deliver these national quality improvement programs. The expectation that this can happen in the absence of additional resources is unrealistic.

Postgraduate training programs for IPC within New Zealand are limited and the current funding framework does not support participation in distance learning courses in other

countries such as Australia; however, this is currently being reviewed. There are few if any academic posts nationally and only limited research published by one or two DHB IPC teams. The national programs are quality improvement programs and training in quality improvement methodology is also important to assist the teams with facilitating change in their own DHB. Along with increasing the workforce capacity we need to invest in developing a national framework to bring together all those working in this area such as the nurse specialists, medical practitioners, medical laboratory scientists, scientists, epidemiologists and pharmacists together to allow for sharing of information and expertise.

In keeping with the theme from the 2012 NZNO Infection Control Division conference in 2012 'it's not what you do, it's the way that you do it', at a national level we are delivering several IPC programs that are improving patient outcomes. We just need to ensure that the IPC teams are adequately resourced and have the necessary skills to achieve this.

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