INSPIRING IMPROVEMENT IN EVERYDAY CARE

STORIES FROM THE FRONTLINE

BC Clinical Care Management
Accomplishment Report 2014

OUR SHARED PURPOSE

Clinical Care Management (CCM) is a partnership between the Ministry of Health, health authorities, and the BC Patient Safety & Quality Council. CCM aims to ensure patients receive high quality, evidence-informed care by embedding continuous clinical improvement into everyday practice across the health system.

British Columbia Ministry of Health

BC Patient Safety & Quality Council
Working Together, Accelerating Improvement.

fraserhealth
Better health. Best in health care.

Interior Health
For your whole life

island health

northern health
the northern way of caring

Providence Health Care
How you want to be treated.

Provincial Health Services Authority
Province-wide solutions. Better health.

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

CHANGES ON A LARGE SCALE

CCM is about improving quality of care for British Columbians. In a complex system such as health care, it is not as simple as identifying a new set of guidelines: long established patterns of practice need to be changed and mindsets shifted as we work to transform our system. We've succeeded in doing this: **in residential care, medication reconciliation is now performed reliably 96% of the time**, reducing the risk of medication errors for residents.

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CCM provides a framework that enables best practice to become standard practice supported through inter-professional networks, communities of practice and improvement collaboratives. For example, over 200 clinicians within the BC Sepsis Network lead local improvement, and it's working: **in one region, sepsis mortality rates have decreased since 2012 from 27% to 6%**. Over 800 clinicians come together in the provincial Surgical Quality Action Network to learn and share innovative strategies to improve surgical care. **Provincial surgical checklist completion rates have improved steadily since 2012 from 67% to 92%.** Health professionals from almost every intensive care unit in BC have formed a provincial community of practice to work together on improving critical care, and voluntary stroke improvement collaboratives resulted in **detectable improvement in the provincial rate of acute thrombolytic treatment for ischemic stroke patients.**

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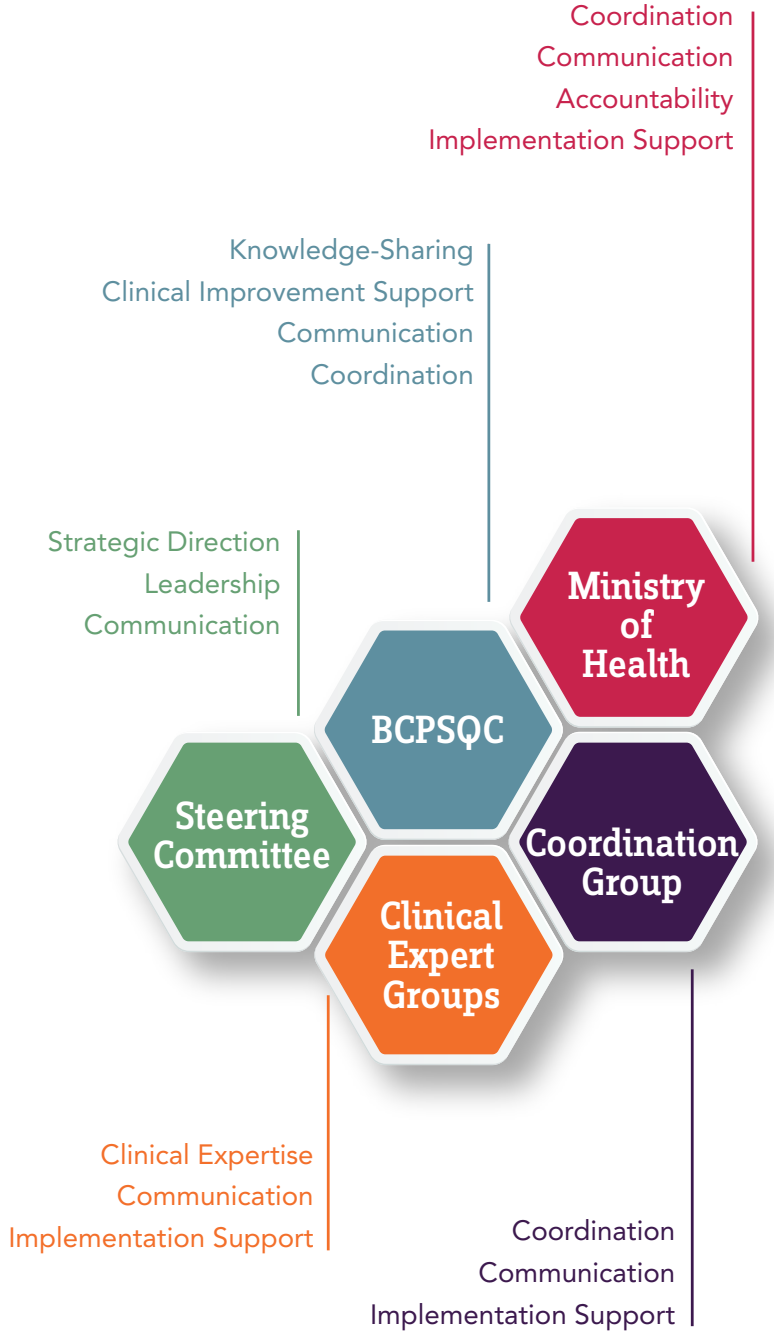
PROVINCIAL MULTIDISCIPLINARY GROUPS SUPPORTING CCM



"Large scale system change has not been attempted in the manner of CCM in Canada and there have been significant successes. We know we can continually improve the system, and I applaud the health care professionals, administrators, the BC Patient Safety & Quality Council, and ministry leaders for the work that has been accomplished to date."

DOUG HUGHES,
ASSISTANT DEPUTY MINISTER,
HEALTH SERVICES POLICY AND
QUALITY ASSURANCE DIVISION,
MINISTRY OF HEALTH

Clinical champions emerge naturally or are supported by their organizations to step forward. In many cases, informal leaders have been the strongest influencers. Physicians, pharmacists, nurses and others work together to decrease risk of clots: **provincial venous thromboembolism prophylaxis rates have increased significantly to 98% in critical care units, 93% in surgical units, and 86% in medical units**. Social networking has built relationships with ideas exchanged through Twitter and virtual learning sessions, and connections grow on LinkedIn. Change agents are learning about what motivates people through storytelling, alignment with local priorities, strong leadership and reliable measurement. **CCM is fundamentally changing the way we think about measurement for improvement**.

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CCM is continually adapting to leverage the passion and commitment of providers to improve care across the province. **Provincial hand hygiene compliance rates are now exceeding the target performance of 80%.** CCM is patient-centered and system-wide, builds on work already in progress, and engages patients and families. This booklet celebrates some of our collective achievements through the stories of patients, families, and caregivers. The CCM approach to evidence-informed care is transforming culture and contributing to positive, sustainable change in BC's health system.

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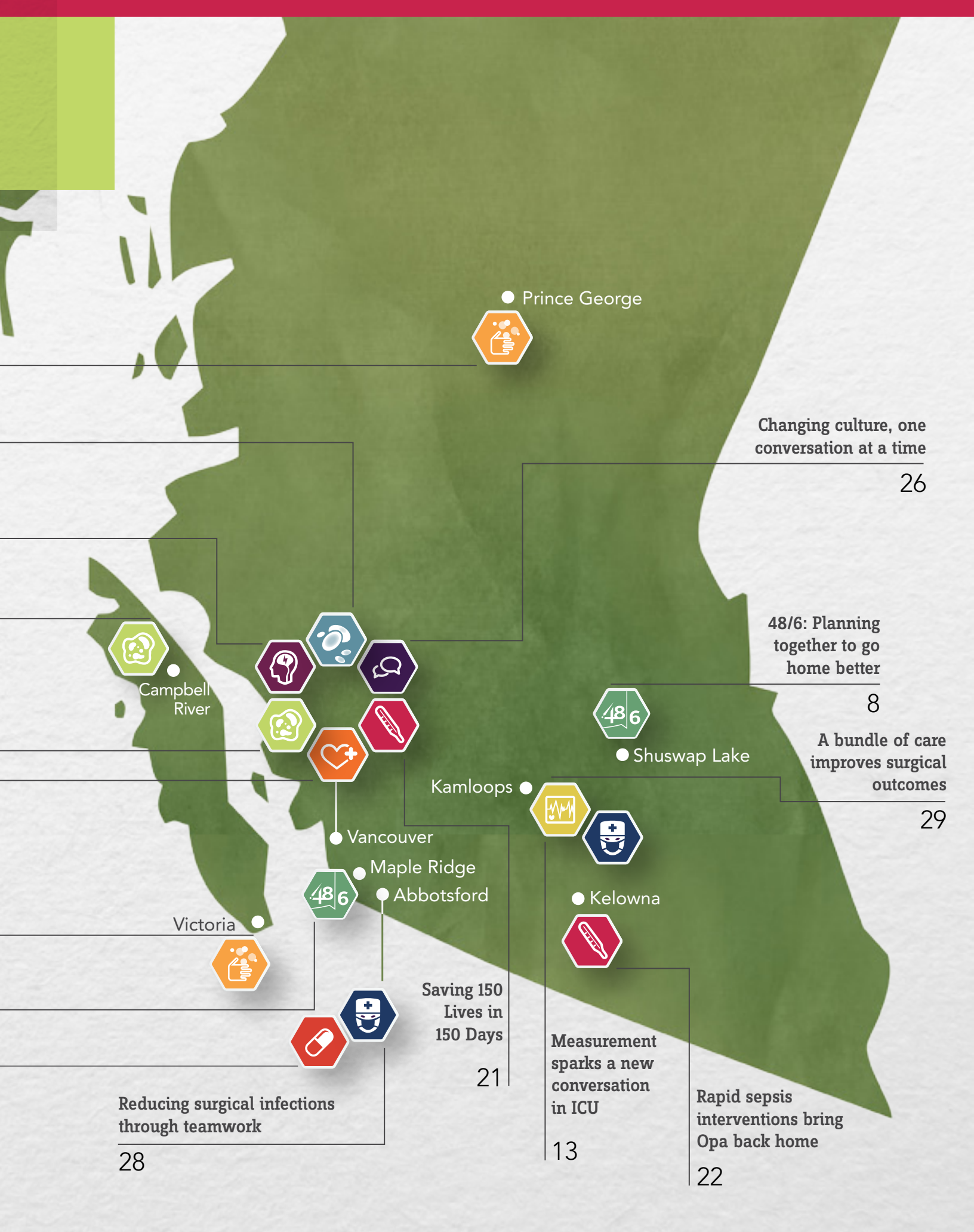
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TIMELINE

2010

- BC Innovation and Change Agenda is launched to improve the quality, safety and consistency of key clinical services.
- CCM Steering Committee is formed and CCM Charter completed.
- Nine initial topics include:
  - » Heart failure
  - » Hand hygiene in acute care
  - » Sepsis in the emergency department
  - » Venous thromboembolism prophylaxis
  - » Medication reconciliation in residential care
  - » Glycemic control in critical care
  - » Stroke and transient ischemic attacks
  - » Surgical safety checklist
  - » Surgical site infection

2011

- Coordinated implementation of clinical guidelines begins.
- CCM Data Guide is created.
- Two additional CCM topics are added:
  - » Antimicrobial stewardship
  - » Hospital care for seniors (48/6)

2012

- Provincial clinical networks established to support CCM.

2013

- Provincial improvement is seen in some key indicators.
- Online community CLwK.ca expands to include CCM.

2014

- *Setting Priorities for the BC Health System* released by Ministry of Health.
- New CCM Framework created.
- Five high priority areas added:
  - » Antimicrobial stewardship
  - » Hand hygiene in residential care
  - » Medication reconciliation in acute care
  - » Stroke rehabilitation
  - » Pain, agitation and delirium in critical care

HOSPITAL CARE FOR SENIORS

In Canada, seniors account for 40% of acute hospital stays. They remain hospitalized for longer than younger patients. Prolonged hospitalizations are associated with adverse outcomes for seniors including accelerated functional decline, pressure ulcers, and infections.[1]

The 48/6 Model of Care aims to prevent adverse outcomes for hospitalized seniors by addressing six integrated care areas of functioning through patient screening and assessment within the first 48 hours of hospital admission. Recognizing it is this kind of hospital care that benefits all populations, all health authorities in BC have chosen to extend 48/6 to all patients (not just seniors).

48/6: Planning together to go home better

STORY EXCERPT FROM @IH, INTERIOR HEALTH'S STAFF MAGAZINE

Audrey Martin was worried. At the age of 77 and living in Salmon Arm, she had battled a number of health issues for many years, including diabetes and a stroke that had limited her mobility and speech. And now this – a serious infection in her left leg that landed her in the Intensive Care Unit at Shuswap Lake General Hospital.

Audrey was left with little hope. She wondered if she would be headed for long-term care placement, instead of returning home to independent living with Ernie, her husband of 51 years. She feared her leg would require amputation or, worse yet, that she may die from the infection.

Today, Audrey has improved and is completing her recovery at home with her husband. She credits her progress to her caregivers and their use of the 48/6 model of care. Her nurse, Rob LaBelle, explains how 48/6 helped Audrey retain her level of functional ability: "Prior to 48/6, Audrey would probably have been designated for long-term care. Instead, the interdisciplinary team worked together with Audrey to return home at pre-hospital function much sooner than anyone could have imagined."

Audrey with staff members Rob Labelle and Suzanne Haskell

A comprehensive record helps nurses provide patient-centred care

In Fraser Health, the surgical inpatient team at Ridge Meadows Hospital knew they needed to streamline and update their documentation. Kelly Wallace, a Clinical Nurse Educator, noted that with so many new nursing staff and their patients at high risk of complications, they wanted to be more purposeful in their assessments to specifically target the personal risks for each patient.

Together with a regional team, they created a 24 hour nursing record aligned with 48/6 that provided a place to document care. The new forms have evidence-informed guidelines embedded to help staff learn and follow best practices, and they are starting to see a reduction in their Nurse Sensitive Adverse Event rate. Valerie MacDonald, a Clinical Nurse Specialist for orthopaedic surgery in Fraser Health, calls it a 'model of accountable care' and explains simply, "If it's a foreseeable risk for a patient, we need to prevent it."

AMBER KNUTSON, RN
CARIBOO MEMORIAL HOSPITAL,
WILLIAMS LAKE,
INTERIOR HEALTH AUTHORITY

"48/6 has allowed me to make a difference on an organizational level by inspiring those around me to get excited about innovation and improvements."

ANTIMICROBIAL STEWARDSHIP

The World Health Organization recently declared antibiotic resistance as an urgent global public health threat. "Antibiotic resistance is no longer a prediction for the future; it is happening right now, across the world, and is putting at risk the ability to treat common infections in the community and hospitals. Without urgent, coordinated action, the world is heading towards a post-antibiotic era, in which common infections and minor injuries, which have been treatable for decades, can once again kill."

Prescribing antimicrobials inappropriately can lead to an increase in resistant bacteria, which put our patients at risk of infections from 'superbugs' like Clostridium difficile, Staphylococcus aureus, and Pseudomonas aeruginosa. The examples below highlight local applications of antimicrobial stewardship (AMS).

The right care at the right time

Carefully selecting and matching the appropriate antimicrobial therapy to a specific patient's condition is one of the primary goals of an antimicrobial stewardship program. The story of a patient in Campbell River drives home how these programs can improve care and prevent poor outcomes.

Elaine's wound over her hip wasn't healing and, despite receiving outpatient wound care and oral antibiotics, it progressed into a large ulcerative lesion. She was admitted to Campbell River hospital where Michelle, the designated antimicrobial stewardship pharmacist, noted the bacterial culture showed a Nocardia species as the infectious source. Recognizing it as rare bacteria that is slow-growing but can become serious if disseminated to the body's vital organs, Michelle immediately contacted the on-call medical microbiologist for advice.

The patient's local physician, together with Michelle and the medical microbiologist, first selected an appropriate broad-spectrum antibiotic, and then arranged for transfer to a tertiary care facility in Victoria. The team worked together to ensure the aggressive IV antibiotic therapy could be continued for the patient at home. Elaine is now on oral antibiotics and making progress towards recovery.

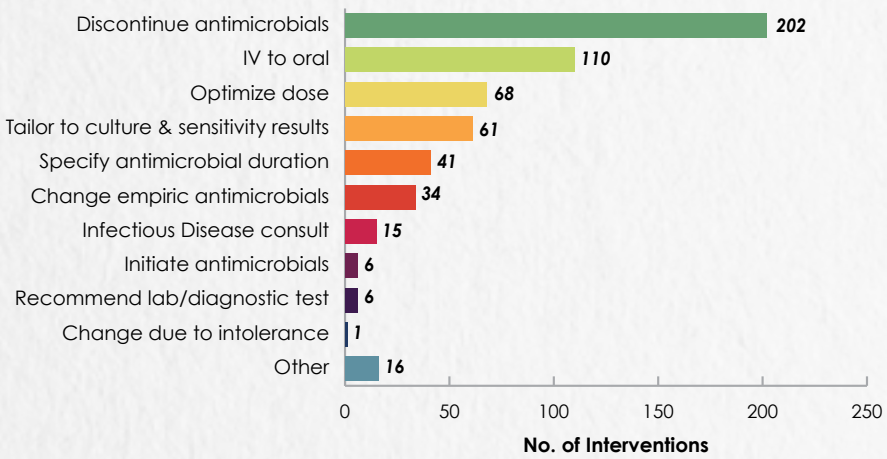
Responsible use of antibiotics helps kids get home faster

The PHSA Antimicrobial Stewardship Program was initiated throughout the health authority in 2013. At BC Children's Hospital, antimicrobials for all admitted patients are audited within 24 hours of initiation on work days. On average, 67 patients are reviewed each day. Pharmacists then provide feedback on antimicrobial prescriptions or patient cases requiring intervention. These reviews look at the use of appropriate antimicrobial agents for each specific patient, assess for de-escalation of broad spectrum empiric therapy, recommend transitions between intravenous and oral medications, and ensure the appropriate duration of treatment and prophylactic antimicrobials.

Since the program began, more than 500 patients received one or more recommendations for interventions. Clinician acceptance of recommended interventions averages 87%, and ranges from 65% to 90% depending on the clinical unit.

By reducing the number of days and dosages of antimicrobials, children have been discharged from hospital earlier. This not only reduces the cost of the patient's length of stay and duration of antibiotic usage, but it additionally improves access for other children requiring hospital care.

TYPES OF AMS INTERVENTIONS
SEP 27, 2013 - MAR 24, 2014



The type of AMS interventions at BC Children's Hospital were tracked from Sept. 2013 to Mar. 2014. The most common AMS interventions include discontinuing medication, changing from IV to oral, and optimizing the dose.

CARE OF CRITICALY ILL PATIENTS

During a critical illness, the body's response to stress can result in hyperglycemia, even in patients without diabetes. Uncontrolled hyperglycemia can increase the risk of bloodstream infections, acute renal failure, prolonged inflammation, polyneuropathies, and even death.[2,3]

Maintaining blood glucose levels within an acceptable range in critically ill adults requires a careful balance of intravenous insulin and nutrition to ensure levels are controlled but do not fall below hypoglycemic thresholds. ICU's across the province are working on optimally controlled blood glucose levels, as well as other quality improvement initiatives, for this fragile patient population.

The CCM initiative to improve care for critically ill patients contributed to the provincial expansion of the ICU database. The database is a web-based system providing each site with access to its own data for quality improvement. Data capture screens can be added or modified to suit ongoing local and provincial improvement initiatives. All intermediate and tertiary critical care units in the province are now reporting to the ICU database, providing new opportunities to improve quality of care.

DR. DAVID SWEET,
EMERGENCY/ICU PHYSICIAN
AND BCPSQC SEPSIS CLINICAL LEAD

"CCM provides clinicians with clear evidence-informed guidelines – but also provides the flexibility to embed guidelines into their workflow in a way that works for them. We are reducing clinical variation across the province, and patients are getting better care. That is what is important."

Critical Care Informatics Team, Interior Health

Measurement sparks a new conversation in ICU

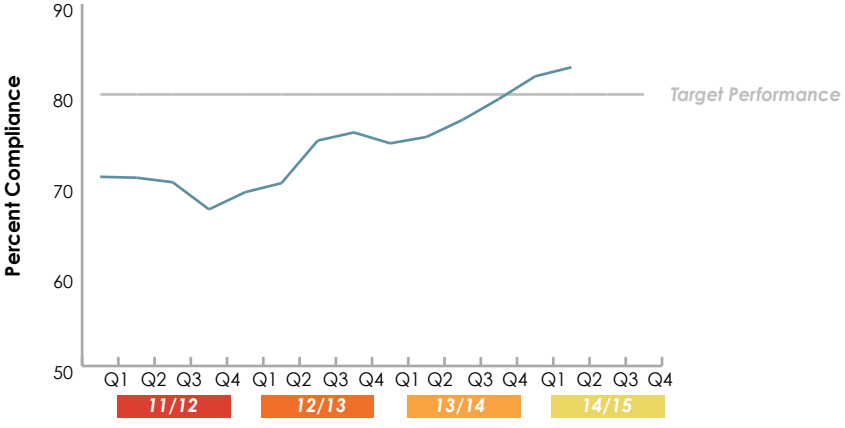
Improving the control of blood glucose levels in critically ill patients receiving IV insulin requires data entry for every glucometer test. At Royal Inland Hospital in Kamloops, a focus on improved documentation practices stimulated further discussion around blood glucose management and revealed concerns about their existing protocols. As glycemic control data was gathered and reports shared with the ICU team, opportunities for improvement became apparent resulting in an interdisciplinary team working collaboratively to make immediate changes to the existing insulin protocol. As a result of these changes, ICU RNs now have an ability to more tightly control blood glucose levels within safe ranges, and report having an increased level of comfort and confidence in the new protocol.

HAND HYGIENE

One in every nine hospital patients in Canada contracts a health care-associated infection.[4] Hand hygiene is considered the most important and effective infection prevention measure in the spread of health care-associated infections. Sounds simple, right? Just wash your hands. Yet ensuring everyone does it right, every time, for every patient is much more complex.

Compliance rates are publicly reported through the Provincial Infection Control Network. Across British Columbia hand hygiene compliance in acute care facilities has reached 82%.

PROVINCIAL HAND CLEANING[1] COMPLIANCE BY QUARTER AND YEAR



1. Data were aggregated by fiscal quarter (Q1 of 2014/2015 was from April 1 – June 19, 2014) for FHA, PHC, VIHA, and NHA, and by calendar quarter (April 1 – June 30, 2014) for IHA, VCHA (except PHC) and PHSA.

Hand hygiene compliance has improved across the province and exceeded the target performance of 80% in the first quarter of 2014/2015.

Cultivating a culture of transparency

Clean Shots' campaign photo: Kelsey Breault RN, Infection Prevention and Control Practitioner, Dawson Creek hospital

In 2010, Northern Health didn't have a regional hand hygiene program. That changed precipitously when the Office of the Auditor General set provincial expectations, Accreditation Canada included it as a required organizational practice, and hand hygiene became a CCM topic. "We wanted to see the hand hygiene rates improve, infection rates decrease and did not want to see our patients get an infection", says Deanna Hembroff, Northern Health's regional manager of infection prevention and control, who is also co-chair of the Provincial Hand Hygiene Working Group of British Columbia.

Educating staff involved on-the-spot teaching, participation in the development of an online module, and a web page full of resources. A real-time dashboard was created on their regional intranet site. Deanna explains, "Staff can see how they are doing each day and display the trends over time. The dashboard is updated with our data every 24 hours so staff can use it for improvement purposes." Northern Health has seen its acute hand hygiene rates improve dramatically over time. Compliance has increased over the past four years from 59% to 79%. "We participated in the provincial 'Clean Shots' photo contest to make it fun. We're expanding our program into residential care, and thinking more about how we can bring hand hygiene to home and community care areas. We want to see sustainment of our rates, and to work with patients to ensure they are able to wash their hands when they are unable to mobilize. Our culture is changing – our staff realize how important it is to protect patients from hospital-acquired infections."

NORTHERN HEALTH[123] HAND CLEANING COMPLIANCE BY QUARTER AND YEAR

1. Includes audits at the emergency departments.

2. Includes audits in the specific clinics (i.e. dialysis, day surgery) or outpatient areas.

3. Includes self-audits conducted by units/departments in some facilities.

Northern Health has shown improvement in its hand hygiene compliance, from 59% at the start of 2011/2012 to 79% in the first quarter of 2014/2015.

A fresh clean strategy to improve hand hygiene

In 2013, with data showing consistently low hand hygiene compliance rates, Island Health began focus group sessions with staff and patients to refresh strategies for improvement.

Through these sessions, five key drivers emerged:

1. Mentoring, training and 'in-the-moment feedback' for staff; easily accessible learning hubs with consistent, up-to-date and evidence-based hand hygiene information; and outreach education/support for hand hygiene observers through a SharePoint site;

2. New hand hygiene products and branding;

3. Customized hand hygiene software and collection methods were used to minimize errors and support quality improvement with user-friendly, timely and informative reports;

4. Expansion of the program into residential and ambulatory care areas; and

5. Support from senior leadership.

The first 8 months, hand hygiene rates increased from 77% to 85%. Island Health continues to foster staff engagement and support through its new hand hygiene community of practice.

"When a clinical topic becomes a CCM, it encourages a health authority to sustain it as a priority initiative. That gives us the traction we need to make changes."

CARMEN DYCK, QI ADVISOR, CLINICAL GUIDELINES INITIATIVE, VANCOUVER COASTAL HEALTH

HEART FAILURE

Approximately 98,000 British Columbians have congestive heart failure.[5] It is the most common cause of hospitalization in people over age 65, and has an average one-year mortality rate of 33%. It is one of the most expensive chronic diseases to treat; costing the health care system more than $1.1 billion annually.[6]

Heart failure is a condition that usually happens over a period of time. It causes the heart muscle to weaken and not pump well, resulting in poor blood circulation to tissues and organs. Accurate and timely diagnosis is vital to alter the natural history of the disease and to ensure appropriate evidence informed treatments are used for these high risk patients.

Provincial Heart Function Clinics have been created that offer a variety of inter-professional heart failure care and services, and practice support resources have been developed to help providers deliver evidence-informed care.

Overcoming the burden of paperwork

Clinical Care Management spreads the use of evidence-informed guidelines for each topic – which are often operationalized through pre-printed order sets. For patients with co-morbidities such as stroke and heart failure, this can sometimes result in more than ten pages of orders. The sheer volume of work required to wade through the orders can be a barrier to best practice for busy caregivers.

At Providence Health Care, the heart failure improvement team created an innovative basic admission order set customized for a patient's specific complex health requirements. During testing of the new order sets at Mt. St. Joseph's Hospital in Vancouver, strong physician engagement in the project resulted in a fourfold increase in heart failure order sets used within a 3 month period. COPD order set use doubled during this time, and there was increased use in order sets for HIV patients and VTE prophylaxis.

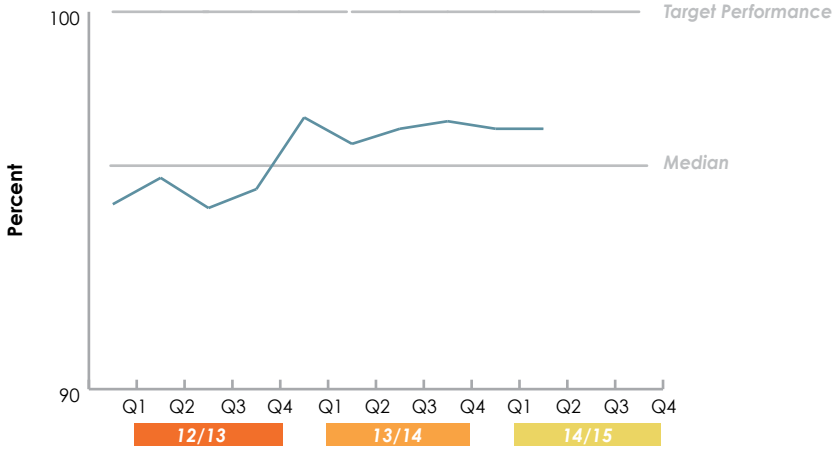
It is a good example of the streamlining that is required to coordinate care improvement across so many different topic areas within a complex health system. It is not easy work – but innovative approaches like this one reduce the burden for staff, which translates to better care for patients.

MEDICATION RECONCILIATION

Medication reconciliation is about empowering health care providers to work together with patients to ensure accurate medication information is documented and communicated consistently between care settings. Having an accurate list of medications is a contributing factor to a reduction in medication errors.

Medication reconciliation has been implemented province-wide at health authority owned and operated residential care facilities for all admissions and readmissions. The percentage of residents receiving medication reconciliation has reached 96%. Work is underway to implement medication reconciliation processes at acute care facilities in BC.

PROVINCIAL AVERAGE PERCENT MEDICATION RECONCILIATION IN RESIDENTIAL CARE



Across the province, audits have shown medication reconciliation in residential care has been consistent (96% median).

Medication safety for inpatients and outpatients

Over the last five years, PHSA has implemented medication reconciliation upon admission for all of their inpatients. They have sustained high compliance to the process and have updated their system to pre-populate the patient's current medication list using Pharmanet information.

In 2014, BC Cancer Agency began medication reconciliation for all new patient visits in ambulatory care. Approximately 400 ambulant care medication reconciliation audits are conducted weekly, with results sent to leaders and shared with frontline staff. Their average compliance rate is currently at 76%.

This October, Abbotsford Cancer Centre staff and physicians were honoured in a celebration for reaching a consistent 100% compliance rate. Similar sustainability efforts and successes have been achieved at other PHSA agencies. Implementing medication reconciliation at the time of discharge is currently underway in a number of inpatient units.

SEPSIS

Sepsis is a condition where the body's response to infection damages its tissues and organs. If sepsis isn't recognized early and treated promptly, it can become severe and lead to multi-organ system failure – or, for more than 6 million people in the developed world each year – death.[7]

30,000 Canadians are hospitalized each year because of sepsis. At 30%, it has one of the nation's highest in-hospital mortality rates.[8] If sepsis is caught early and treated effectively, it can be prevented from becoming more severe, reducing the likelihood of poor patient outcomes.

Established by the BC Patient Safety & Quality Council in 2013, the BC Sepsis Network has grown to over 200 clinicians working on improving sepsis care in BC. The Network provides tools, resources and events to raise awareness, educate, and support the implementation of evidence-informed BC Sepsis Guidelines in emergency departments across the province.

"The [BC Sepsis] guidelines are out there now. They're published, they're evidence-based and they are irrefutable, so this is not experimental anymore."

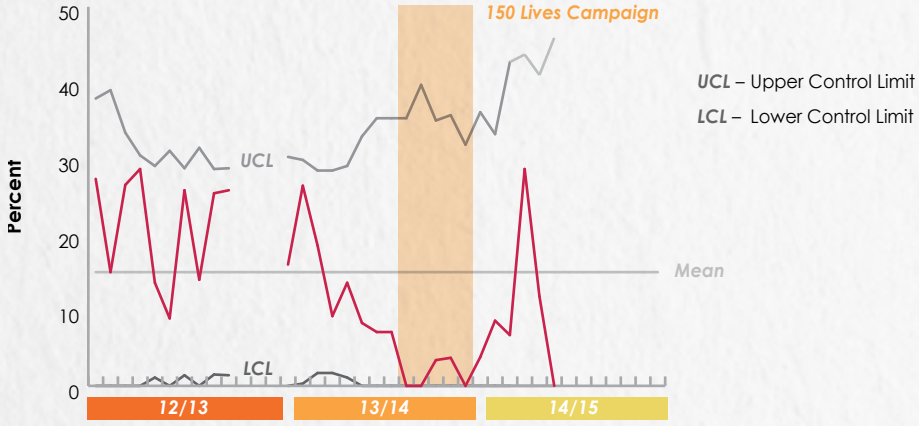
DR. MIKE ERTEL, EMERGENCY PHYSICIAN AND CHIEF OF STAFF, KELOWNA GENERAL HOSPITAL

Saving 150 Lives in 150 Days

On World Sepsis Day 2013, the BC Patient Safety & Quality Council launched a provincial campaign to increase the usage and spread of sepsis protocols. The campaign ran for 150 days from October 2013 to March 2014. The premise for the campaign was simple: based on the evidence-based 'number needed to treat' for severe sepsis and septic shock, one life could be saved for every 5 protocols used.[9]

32 teams from emergency departments around the province voluntarily joined the campaign. In total, more than a thousand patients were screened for severe sepsis and septic shock, and 750 patients were treated with a sepsis protocol. This province-wide commitment for reducing sepsis mortality improved patient outcomes and saved more than 150 lives in 150 days.

FRASER HEALTH: IN-HOSPITAL MORTALITY RATE FOR PATIENTS INVESTIGATED FOR SEVERE SEPSIS IN THE EMERGENCY DEPARTMENT



Fraser Health severe sepsis mortality rates have improved. Some of the lowest mortality rates occurred during the 150 Lives Campaign which ran from October 2013 until March 2014.

Opa

Rapid sepsis interventions bring Opa back home

STORY SUBMITTED BY DONNA MENDEL, REGIONAL PRACTICE LEADER, INTERIOR HEALTH

This past winter, my 91-year old father-in-law (everyone calls him 'Opa') was hospitalized multiple times with sepsis. While Opa is a naturally good-natured, fit and healthy man, much of his recovery can be directly attributed to the wonderful care he received in various departments of Kelowna General Hospital and as a community care outpatient.

Opa's first admission came at the end of January 2014 after he suffered all night with acute abdominal pain. At the Emergency Department, diagnostic tests revealed an impacted gallstone. Surgery was not recommended due to his high risk of bleeding. Throughout the day and into the next, he managed through the pain – but on the second day, he suddenly began gasping for air. His daughter called for help. Within minutes, a team of health professionals were in the room. They initiated the sepsis protocol including a fluid bolus and antibiotics. Within an hour his symptoms had markedly improved. His second admission was six weeks later, and again he received rapid intervention with the sepsis protocol.

Three months later he is back to his usual routine: driving his own car, doing all of his own yard work and preparing all of his own meals. I'm confident that without well-developed sepsis orders his treatment would not have gone so smoothly nor would he have recovered as quickly.

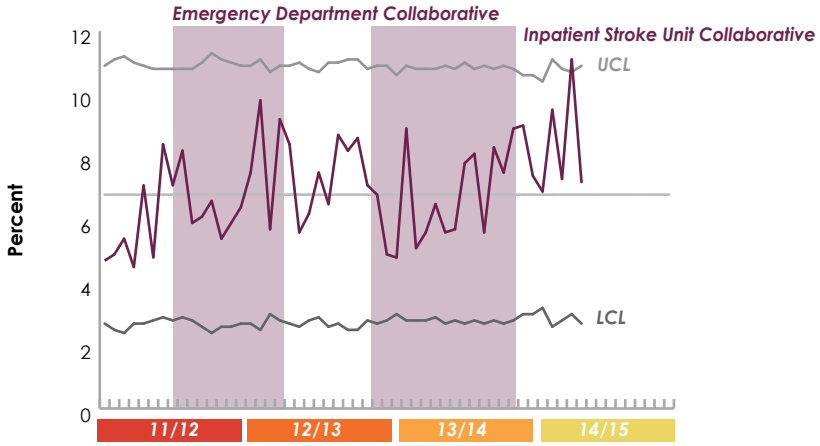
STROKE

Stroke is the number one cause of acquired long-term disability and the third leading cause of death in BC. *Time is brain* – and care processes within both the pre-hospital setting and emergency departments require sustained improvement efforts to achieve optimal care. The CCM stroke initiative aims to standardize the care of ischemic stroke, hemorrhagic stroke, and transient ischemic attack patients through the use of evidence-informed guidelines, protocols, and pathways.

Two provincial stroke improvement collaboratives have been successful in reducing stroke mortality in some regions in BC. The first improvement collaborative, co-led by the BC Patient Safety & Quality Council and Stroke Services BC, ran from September 2011 to June 2012 and helped to standardize care for emergency departments, leading to a significant increase in the provincial rates of ischemic stroke patients who are receiving acute thrombolytic treatment.

Stroke Services BC led a second improvement collaborative from January to December 2013. This resulted in the opening of 75 new dedicated stroke unit beds across the province. Dr. Devin Harris, Stroke Clinical Lead for the BC Patient Safety & Quality Council and Medical Advisor for Stroke Services BC, explains the importance of this achievement: "Stroke units, consisting of a designated ward with specially trained physicians, nurses, and therapists, have been unequivocally shown to reduce death and disability post-stroke". A third improvement collaborative will launch in 2015 to focus care improvement on stroke rehabilitation.

PROVINCIAL AVERAGE PERCENT OF ISCHEMIC STROKE PATIENTS WHO RECEIVE ACUTE THROMBOLYTIC TREATMENT[1]



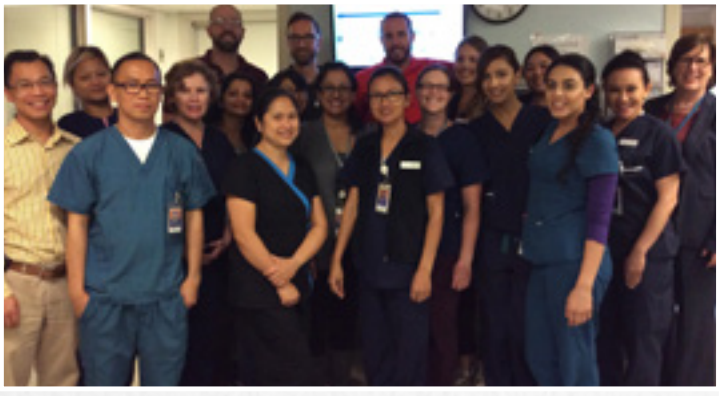
1. Treatment is Tissue Plasminogen Activator (tPA) within the Emergency Department.

The chart shows improvement since 2010/2011. Note: It is not clinically appropriate for all ischemic stroke patients to receive acute thrombolytic treatment. Excellent consistent stroke care would be achieved when provincial rates reach approximately 10%.

Interdisciplinary teamwork saves the brain

At St. Paul's Hospital in Vancouver, a Code Stroke Protocol provides rapid assessments and interventions for patients brought to the emergency room and a modified version was created for those who show stroke symptoms during an inpatient stay. A neurologist performs a standardized National Institute of Health Stroke Scale (NIHSS) test on admission to quantify patient deficits and, as a result of comprehensive training programs, 27 nurses have become 'stroke certified' and are able to repeat the NIHSS at the time of discharge. This provides patients with continuity in care during inpatient and rehabilitation phases.

Patients who are admitted with a stroke (or experience one while in hospital) are cohorted on a stroke unit and cared for by an array of health professionals – RNs and LPNs, clinical nurse specialists and educators, care aides, physiotherapists, occupational therapists, speech language pathologists, dietitians, pharmacists, social workers and neurologists. The inpatient stroke team ensures every patient receives an interdisciplinary assessment within 48 hours of admission to the stroke unit. An evaluation showed that over 13 months, 76% to 97% of assessments were completed within 48 hours (target 100%) and 57% to 84% of all assessments were completed within 24 hours (target 90%).



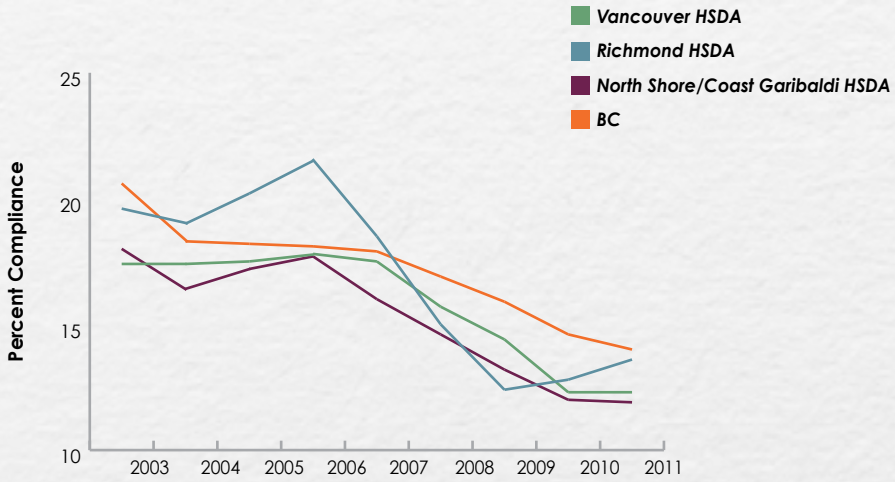
St. Paul's Hospital stroke team

‘From worst to first’: Regionalization of stroke care decreases mortality

Vancouver Coastal Health delivers acute, residential and community health care services to 25% of British Columbia’s population, with stroke care being provided in urban, rural and remote communities. Performance measures demonstrated some areas of excellence with significant regional variation due to lack of coordination and standardization across communities. Stroke patients were not consistently receiving the right care, at the right time, in the right place.

The organization introduced guideline-based stroke protocols to improve care locally and define how and when patients should be moved to specialized stroke centers. Through quality improvement initiatives supported by the CCM stroke initiative, “we went from worst to first” reports Dr. Patrick O’Connor, VP Medicine, Quality and Safety. “In stroke care we have moved from least incidence but worst outcomes (death and long term care) to some of the lowest mortality rates in the country.”

30-DAY STROKE IN-HOSPITAL MORTALITY (RISK ADJUSTED RATE[1]) AT VANCOUVER COASTAL HEALTH



1. Based on three years of pooled data from CIHI, data source Discharge Abstract Database

30-Day Stroke In-Hospital Mortality Rates have decreased from 2003-2011 in Vancouver Coastal Health’s three Health Service Delivery Areas (HSDAs).

“From our VP Medicine, to the Program Director and all of our local champions, our organization supported us to participate in the provincial stroke unit collaborative and to work on improvement. It’s helped us work towards trying to make sure every stroke patient gets the rapid response and best care they need.”

BEENA PARAPPILLY, CLINICAL NURSE SPECIALIST – MEDICINE/ AMBULATORY PROGRAM, ST. PAUL’S HOSPITAL, PROVIDENCE HEALTH CARE

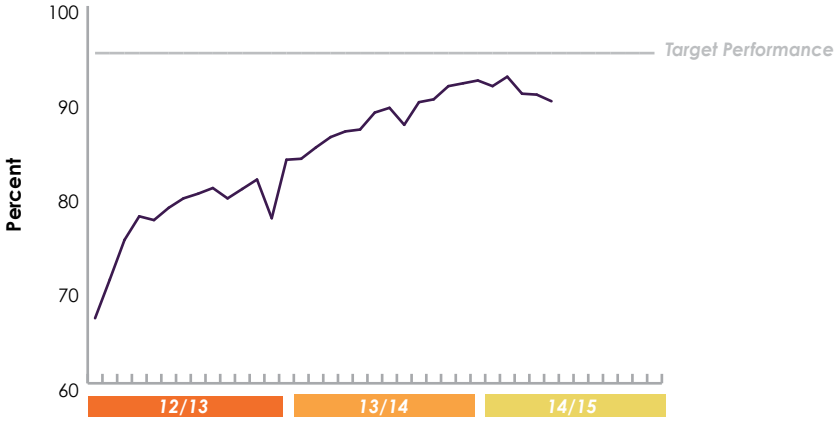
SURGICAL CHECKLIST

Communication is considered a vital part of safe care for patients. Use of the surgical checklist can improve teamwork, increase efficiencies,[10,11] and reduce complications during and after surgery.[12] Over 90% of surgical cases in BC have used the surgical checklist.

The surgical safety checklist itself doesn't prevent harm to patients – it's how it is used to prompt a comprehensive conversation that can prevent adverse events. Changing culture in the operating room takes time and deliberate focus. Members of the Surgical Quality Action Network in BC are working to support checklist implementation through observations and peer coaching.

Changing culture, one conversation at a time

PERCENT OF BC SURGICAL CASES IN WHICH A COMPREHENSIVE CHECKLIST WAS COMPLETED BY THE SURGICAL TEAM



The provincial surgical checklist completion rate has been steadily improving from 67% starting in 2012/2013 to over 90% in 2014/2015.

Dr. Ramesh Sahjpaul, Chief of Surgery and Medical Director, Lions Gate hospital

Allison Muniak has watched many surgical procedures. She's not a medical student or a nurse – she's a Human Factors Specialist, and in 2011 she was asked to assess the use of the surgical safety checklist tool throughout Vancouver Coastal Health/ Providence Health Care operating rooms. Through 47 observations, 162 surveys and 25 interviews with health providers, Allison and her colleague sought to understand the quality of the conversation that was happening around the checklist. "Over time, I noticed a distinctive shift in culture in the operating rooms. Before the checklist was implemented, I would rarely be asked who I was or what I was doing in the surgical suite. Later, as the surgical checklist was implemented, the members of the surgical team were beginning to introduce themselves to me, ask me my name, and inquire about my work. There has been a dramatic improvement in communication between all team members and with the patient – definitely an improvement in situation awareness."

Dr. Ramesh Sahjpaul, Chief of Surgery and Medical Director at Lions Gate Hospital, explains how surgical culture is changing. "I would feel most uncomfortable now not conducting a surgical checklist/pause and verifying with the entire surgical team that we are all in agreement as to what we are doing and how we are going to do it. The prescriptive checklist notion was never the intent (and indeed the World Health Organization encouraged local modifications of the 'standard' checklist). Rather the purpose was to change the culture of how we function as a surgical team. This, to me, is the true culture shift that has occurred in our operating rooms. Of course, we have work to do, but we are well on our way..."

SURGICAL SITE INFECTION

Surgical site infection is one of the most common health care associated infections among surgical patients, resulting in extended hospital stays, higher costs to the health system, and poor patient outcomes. Although 25 hospitals in BC are participating in the National Surgical Quality Improvement Program (NSQIP) – a rigorous, outcome-based, risk-adjusted measurement platform - all have a responsibility to implement antibiotic timing and tracking of surgical site infection rates.

Reducing surgical infections through teamwork

In 2010, Abbotsford Regional Hospital (ARH) began working on reducing Surgical Site Infections (SSI) for colorectal surgical patients. Starting with raising awareness and providing education, they ensured frontline staff were involved and engaged in the planned changes and that they had champions who were committed to leading the project.

Peggy Klassen, Clinical Resource Nurse for Surgical Day Care (SDC) and Pre-Admission Clinic, along with the surgical and anaesthesia team, initiated a colorectal bundle of changes (appropriate antibiotic timing and dosing prior to each procedure, normothermia within the OR, and appropriate hair removal).

Antibiotics are now administered with appropriate timing 99% to 100% of the time. Pre- and intra-operative active warming is applied to all colorectal surgical patients and appropriate hair removal is performed as close to the surgical time as possible. Additional improvements include preoperative cleansing with appropriate solutions; providing patients with instructions at discharge; and rigorous documentation of IV fluids in the OR, post-anesthetic care unit, and the surgical inpatient unit.

Abbotsford Regional Hospital's Surgical Lead Team for SSI Improvement 2011

A bundle of care improves surgical outcomes

An interview with Interior Health West's Quality Improvement Consultant, Julie Wootton.

What was it that prompted your team to begin this clinical improvement work?

Both the NSQIP risk-adjusted and non-risk adjusted data for Royal Inland Hospital (RIH) indicated we were a high outlier (as compared to other NSQIP hospitals) in surgical site infections (SSIs), specifically with our colorectal patients. This correlated with our infection control team's data. When we shared this with the staff, there was a lot of interest and engagement to put a team together to review opportunities for improvement.

Can you tell us about what your team did to address this?

We started by putting together an interdisciplinary team from our pre-, intra-, and post-operative areas. Based on evidence-informed best practices, we worked on developing an SSI bundle that included 23 interventions. Some of these we were already doing, but a few were new, such as the use of antimicrobial sutures, wound barriers and implementing a containment technique in the intra-operative phases.

How did it make a difference?

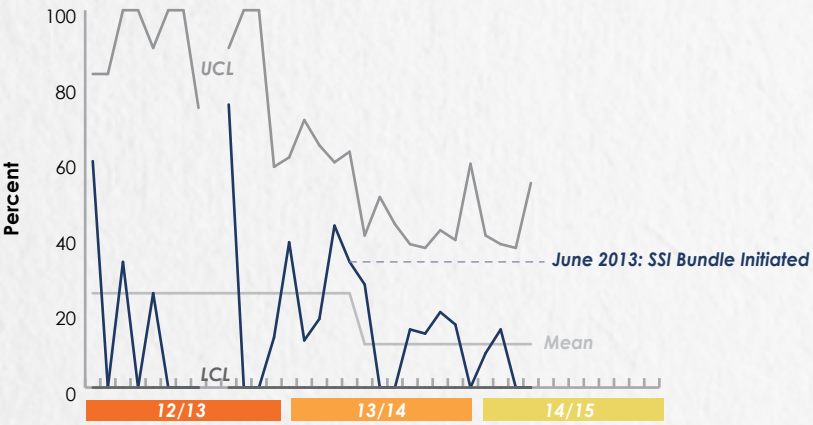
One of the things we worked on was the location and timing of antibiotic administration. The changes we made led to increased compliance with guidelines for antibiotic timing in colorectal surgeries from 33% to 63%.

With a lot of things introduced at the same time, it's difficult to tell exactly what made the difference. But through our bundled approach to improving care, we are proud to say we have decreased the SSI rate in colorectal surgery from 25% to 11%, and our overall SSI rate has decreased from 2.9% to 2.2%.

Where will this work lead you next?

There is still room for improvement. Our team will continue to review the data, monitor bundle compliance and keep up with current best practices to reduce the rates of surgical site infections for all of our surgical cases.

RIH POST OPERATIVE COLECTOMY/PROCTECTOMY SSI OCCURRENCE RATE (NSQIP NON-RISK ADJUSTED DATA)



At Royal Inland Hospital, the post operative surgical site infection rate (colectomy/proctectomy) has decreased from 25% to 11%. Improvement was observed with the introduction of the bundled approach to care.

VTE

Venous thromboembolism (VTE) is a disorder that includes deep vein thrombosis and pulmonary embolism, and is one of the most common preventable complications from hospitalization. Pulmonary embolism can lead to shortness of breath, chest pain, and death. The majority of hospitalized patients are at risk for developing VTE.

VTE is *preventable*. Establishing methods to provide appropriate thromboprophylaxis to patients based on standardized risk assessments is a safe, cost-effective and efficacious way to prevent VTE in nearly all patient groups.[13,14]

Acute care hospitals in BC audit for appropriate prophylaxis in critical care, surgical, and medical units. In intensive care units, appropriate prophylaxis rates average 98%, with medical and surgical units averaging 86% and 93% respectively.

"Island Health is continuing to enhance clinical practice and patient care through the implementation of best practice guidelines. The partnership and collaboration among health authorities, the Ministry of Health and the BCPSQC on the CCM initiative has supported continuous learning and required strong clinical leadership and frontline staff engagement.

Implementing CCM in our health authority has been a continuous, iterative and responsive improvement process. This aligns with our vision for quality improvement and is necessary in our dynamic health care system.

As our culture of quality continues to grow, I'm hopeful we will continue to learn from our large scale change efforts and move forward in ways that benefit our patients and our staff."

Christine Jerrett, Team Lead, Clinical Documentation, and Inpatient Orders and Results, Providence Health Care

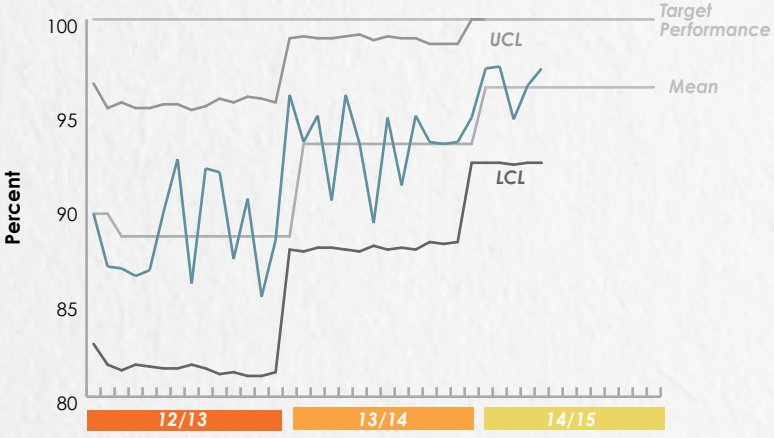
'Measure-vention': Improvement at the point of care

We all know data drives improvement. You must be able to measure how you're doing to make changes in a system. We also know it's important to analyze that data and share it with frontline care providers as soon as possible to support rapid tests of change. But what if we could collect data on a patient - and then use it *immediately* to improve their care?

Providence Health Care is doing just that. A team of registered nurses prospectively audited medical and surgical wards to determine whether prophylaxis was given appropriately. Instead of taking that data away for analysis and returning weeks later, they connect with nurses and physicians immediately if a patient is at risk and not receiving appropriate prophylaxis. If the care providers are not available, they leave a memo on the chart noting the discrepancy and asking for it to be remedied. The concept of using quality measurement to prompt concurrent intervention at the point of care is a term known as 'measure-vention'.

"The bottom line is that data collected on a patient doesn't help improve their care if it comes back a month later. It's better to use information at the time you collect it, to prevent adverse events from happening right then", explains Christine Jerrett.

PERCENT OF ADULT PATIENTS RECEIVING APPROPRIATE VTE PROPHYLAXIS AT PROVIDENCE HEALTH CARE SITES



Appropriate treatment with VTE prophylaxis has steadily improved at Providence Health Care.

DR. JATINDER (TAJ) BAIDWAN,
EXECUTIVE VICE-PRESIDENT
& CHIEF MEDICAL OFFICER,
ISLAND HEALTH AUTHORITY

MEASUREMENT

Understanding our health system performance

Leslie Forrester, Epidemiologist and Manager of Surveillance & Performance Measurement at Vancouver Coastal Health, has noticed a fundamental change in the way people look at numbers. "CCM has really elevated the interest in looking at data. There's demand from frontline providers for timely, unit level data that makes sense to them. It sparks a conversation. They want information to determine how they are doing in relation to performance targets. People are excited about data – and that makes me happy."

The quality improvement and decision support teams at Vancouver Coastal Health find it a challenge to meet the increasing requests by health professionals to understand their performance through data. With a desire to create meaningful graphs from the hundreds of spreadsheets generated on the units, they are working in partnership with the Emily Carr University of Art + Design on an innovative web portal. "Our vision is for units to be able to enter their quality improvement data into a centralized web based system, where it would auto-generate unit level trending reports in real-time while also enabling the production of aggregated reports at a regional, facility or even program level. To have the server space and requisite tools to support units to use real-time data – that would be amazing", says Leslie.

They're also creating efficiencies between CCM topics. Leslie explained, "We use portable tablets with different applications installed so auditors can collect data for more than one metric, while reviewing a patient's chart on the unit. They can look at VTE, and audit the quality of the medication reconciliation process while collecting hand hygiene observations. This reduces data entry error by building business logic into the applications, and cuts the time for auditors to collect the data in half. As the data are collected electronically there is no need for data entry enabling timely reporting of results often within a day or two of period end."

Interior Health Authority has similarly developed innovative ways to collect and use data for improvement. Their quality team built an application that allows for prospective data collection using mobile technology. Data is compiled electronically and their system auto-generates a graph of clinical performance over time in a format that is easily understood and ready to be shared with frontline improvement teams.

Linda Comazzetto, Corporate Director for Quality, Risk and Accreditation at Interior Health explains the importance of data for improvement: "Measurement is absolutely essential to helping health professionals understand how well they are doing. With rapid access to their data, they can understand their current performance and this helps to build a culture of continual improvement in our health system."

SUMMARY

Lessons Learned and Future Directions

"This is going to be a long journey of standardization, optimization, striving for best outcomes and getting some consistency."

HEALTH AUTHORITY BOARD MEMBER

A recent study led by the InSource Research Group looked at factors that help or hinder implementation of clinical guidelines within the complexity of our provincial health system using CCM as a case study for how to achieve large scale change in BC. Through focus groups, interviews and surveys with clinicians, administrators, senior executives and board members from every health authority in the province, a picture emerged of the strategies required to achieve changes on a provincial scale.

1. **Prepare for health system transformation to evolve.** Set broad goals provincially and allow participating sites to choose areas to focus on,
2. **Clear a path through the complexity**. Leaders should develop simple goals to help focus system change efforts,
3. **Promote shared clinical leadership.** Support physician engagement and inter-professional team practice,
4. **Strengthen knowledge management.** Develop reliable indicators and provide timely local outcomes data,
5. **Develop an ongoing communication strategy to support change initiatives.** Frame communication in a way people find personally engaging, and
6. **Recognize the effectiveness of networks.** Encourage local leaders and staff to form teams that work and learn together.

"Clinical Care Management has great potential within our system to support clinical improvement at the point of care. I applaud the significant work that's been done for patients in British Columbia, and encourage the many stakeholders involved to keep challenging the system to improve."

STEPHEN BROWN,
DEPUTY MINISTER OF HEALTH

In 2014, a new CCM framework was developed and is aligned with these recommendations to build local champions; support adaptation of guidelines to local contexts and culture; avoid change fatigue by aligning with local priorities and other drivers; ensure consistent and clear communication for frontline providers; and provide a means for demonstrating the clinical value of CCM.

The new structure for CCM has two distinct measurement strategies for each clinical topic. Guided by the provincial clinical expert groups, the BC Patient Safety & Quality Council and the provincial CCM coordination group, local improvement teams will select quality improvement metrics based on their own context. This data will be used to drive improvement at the site level, using small samples to inform clinicians and guide rapid tests of change. The Ministry of Health will use quality assurance metrics for accountability purposes, to assure quality of care is improving across the province.

New clinical topics will be selected where opportunities exist to improve care. With consideration to existing work already underway, new topics will align with other drivers such as the *Setting Priorities for the BC Health System*'s priority populations and Accreditation Canada's *Required Organizational Practices*. Topics that have demonstrated sustained implementation, guideline compliance, and practice improvement will be transitioned out of the CCM structure to appropriate local, regional or provincial leadership.

As this initiative learns, grows, and matures, Clinical Care Management is positioned to effectively embed evidence-informed guidelines, measurement, and continuous clinical improvement into everyday practice, using a patient-centered and system-wide approach. Together, we will build a health system that consistently provides safe, quality care for every patient in British Columbia, *every time*.

ENDNOTES

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