

COHORT 1
ISLAND HEALTH MODELING
AND ANALYTICS: SUMMARY OF
PHYSICIAN QUALITY
IMPROVEMENT PROJECTS

AUTUMN 2017



Document Purpose:

This document summarizes the work done by the Island Health's Physician Quality Improvement (PQI) Initiative.

The purpose of PQI is to provide training and support to physicians, through technical resources and expertise, to lead quality improvement (QI) projects, which build QI capacity. This investment increases physician involvement in quality improvement and enhances the delivery of quality patient care.

The SSC Physician Quality Improvement (PQI) Initiative is designed to strengthen the focus on physician-initiated quality improvement by engaging directly with physicians, providing them with QI education and resources, while supporting opportunities to carry out focused QI projects within health authority programs and structures. QI projects will be designed to increase effectiveness, efficiency, accountability and sustainability of specialist physician activities and services while improving patient experiences.

Primary Author:

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TEAM NORTH			
Physician	Specialty	Location	Aim Description
Hector Baillie	Internal Medicine	Nanaimo	To standardize Obstructive Sleep Apnea assessment in patients presenting with heart failure
Valorie Masuda	Residential Care	Duncan	To improve implantation of meaningful Medical Orders for Scope of Treatment in Residential Care
Corey Tomlinson	General Surgery	Comox	To improve and standardize documentation and protocols for patients presenting with GI bleeding
Karen Wong	Anesthesia	Nanaimo	To improve patient triage by comprehensive screening and scoring well in advance of surgery
Jessica Otte	Palliative Care	Nanaimo	To improve correct medication orders documentation processes on discharge
TEAM SOUTH			
Physician	Specialty	Location	Aim Description
Jason Wale	Emergency Medicine	Victoria	To improve access to opioid substitution therapy for ER patients presenting with opioid addiction
Gustavo Pelligra	Neonatal Intensive Care	Victoria	To standardize delayed umbilical cord clamping processes in term and preterm infant deliveries
John Galbraith	Microbiology	Victoria	To improve pneumococcal vaccination rates for medical patients prior to discharge from acute care
Rohit Pai	Gastroenterology	Victoria	To improve outpatient treatment documentation following paracentesis for ascites
Terrence Paul	Physician Services	Victoria	To increase the number of completed MOST forms for patients discharged from ICU
Dustin Loomes	Gastroenterology	Victoria	To improve uptake of Azathioprine therapeutic drug monitoring for clinical decision making

*missing project: Samuel Kohen, Internal Medicine, Comox

SLEEP DISORDER BREATHING IN CHF: A Common Finding in HF, not Commonly Recognized

Physician Lead: Dr. Hector Baillie

Location: Nanaimo **Specialty:** Internist

Background:

Obstructive Sleep Apnoea (OSA) leads to:

- intermittent hypoxia
- increased RV volumes
- SNS activation
- hypertension,
- arrhythmia,
- atherosclerosis
- heart failure.

Prevalence in the general population 2-7%, but 30-50% in HF patients. Treatment with Continuous Positive Airway Pressure (CPAP) or Mandibular Advancement Device (MAD) can improve health and increase survival (ACC/AHA class IIa recommendation).

Problem:

Sleep disordered breathing is poorly recognised as a cause (and effect) of heart failure. Diagnosis is simple, treatment effective. Patient compliance with both seems variable, despite proven benefit in terms of outcomes, and quality measures.

By using screening questionnaire, and intervening with CPAP or MAD, heart function improves.

Aim of Project:

- To determine prevalence **Sleep Disorder Breathing (SDB)** in 40 consecutive Heart Failure (HF) patients over a 6 month period.
- To identify an effective screening tool for obstructive sleep apnea (OSA)
- To determine if SDB intervention, combined with standard medical therapy, improves HF outcome measures (LV-EF, NT-proBNP): predicted 40% improvement.

Patient Voice:



- *"With CPAP, the difference was immediate... I slept like a baby for the first time in 3 years.... yes there is some frustration with the mask if the fit isn't perfect, but I feel wonderful now" - C.O.*
- *"Most nights I spent in the Lazy-Boy... I was sleepy with heart failure, I often felt I was drowning"*

PDSA Cycle:

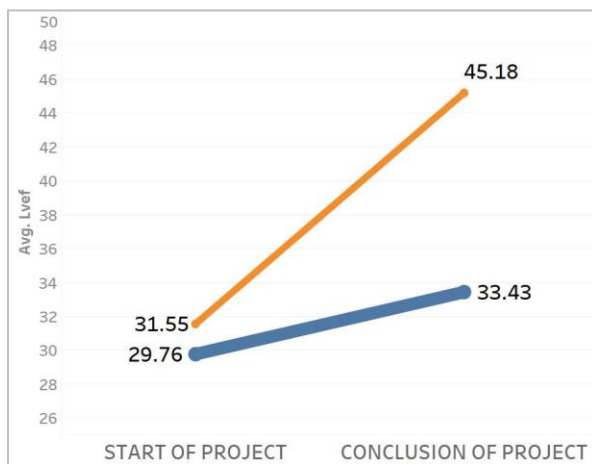
Patient identified as SDB

- CPAP/MAD therapy
- Improvement in EF and NT-proBNP
- Improvement in quality of life (subjective)

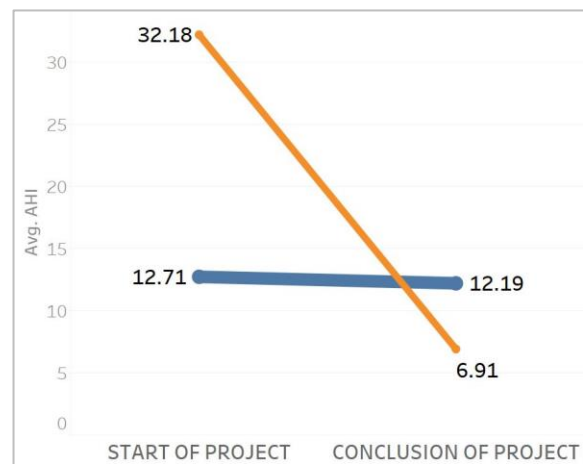
Data Analysis:

- Prospective consecutive patient enrolment from referral cohort to NRGH HF Clinic
- Age, sex, BMI, HR/BP, AHI (apnea-hypopnea index), LVEF (left ventricular ejection fraction), BNP (B-type natriuretic peptide) noted
- Epworth score on all patients
- Level III sleep study
- Follow-up visits to assess OSA+Rx: with measurement of LVEF/BNP/QoL
- **ORANGE** = Patients with Rx, **BLUE** = Patients with No Rx

Project Average LVEF Rates



Project Average AHI Rates



Conclusions:

1. Heart failure (HF) either with reduced or preserved ejection fraction, is becoming more common as our population ages, or as the obesity epidemic evolves. Common causes of HF include:
 - Hypertension
 - Ischemic heart disease
 - Valvular dysfunction
2. Obstructive sleep apnea is a well-recognized cause of refractory hypertension, arrhythmia and oxidative stress. It is more common in men, and is linked to obesity. OSA is under-recognized by referral physicians.
3. Our study shows that it must be considered in all patients with HF, who should be screened and offered appropriate therapy. Quality of life improves, LV function improves, and survival improves. CPAP and MAD treatment had positive benefit in terms of HF outcomes (Echo, BNP)
4. Epworth Score not a good screening tool: we will use STOP-BANG questionnaire in future. We would like to see the STOP-BANG questionnaire become standard in HF Clinics.

Supporting a meaningful MOST with Proactive Physicians Visits

Physician Lead: Dr. Valorie Masuda

Location: Duncan **Specialty:** Residential Care

Background:

- Medical Orders for Scope of Treatment (MOST) is the medical order that identifies one of six designations for scope of treatment. These designations provide direction on adult resuscitation status, critical care interventions and medical interventions
- Average life expectancy for resident in residential care is 12-14 months
- Lack of identification of residents entering dying time
- Lack of identification of patient's goals of care

Problem:

No articulation of resident's goals of care:

- unnecessary interventions/medications
- unnecessary emergency room visits and hospitalization
- Late initiation of palliative care in dying

Aim of Project:

To establish goals of care for patients in residential care and articulate them in the MOST tool thereby reducing transfers to hospital, initiating earlier palliative care, better medication use.

PDSA Cycle:

PLAN:

- Assessing residential care physician visits cycles and MOST form compliance
- Recall for proactive visits

DO:

- Develop resident & staff surveys
- Baseline data of MOST documentation

STUDY:

- Data collection at q3 month intervals
- Review and compare data findings
- Continuous modification on feedback from physicians

ACT:

- SBAR tool for RN-physician communication
- Report outcomes to residential care facilities in area

Methodology:

- Pre-intervention chart audit and audits q3 months
- Facility developing and using forms to encourage and support proactive visits
- Staff and patient/family surveys

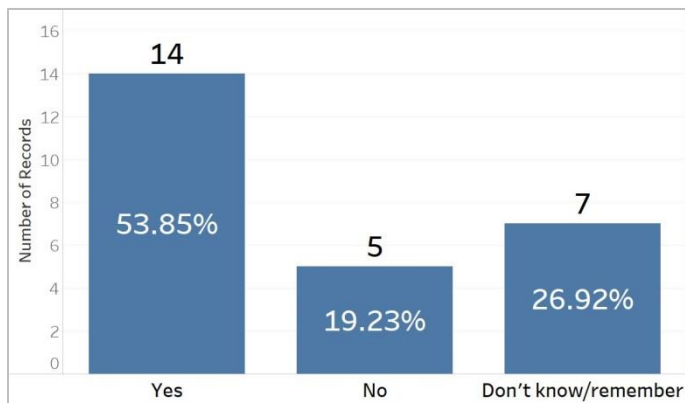
Patient Voice:

Cairnsmore Survey Results:

April 2017, Post Project Intervention surveys (Residents survey & Staff survey)

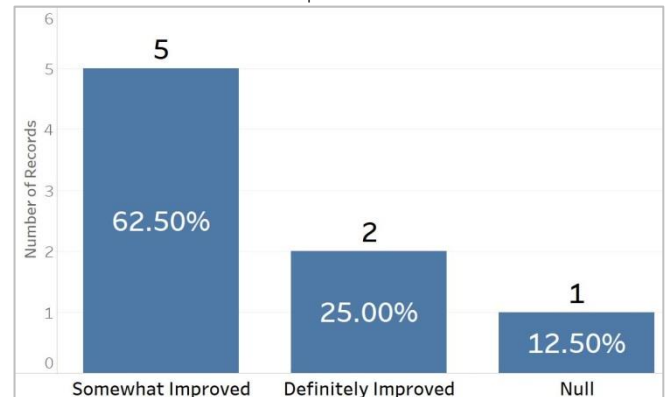
Resident Survey

"Has anyone asked what your/your loved one's 'Goals of Care' are?"

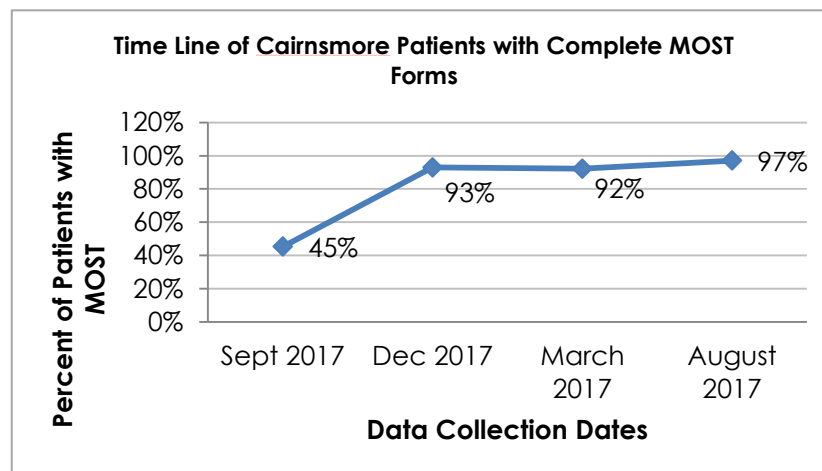


Staff Survey

"Has treatment that resides receive clearly reflect their goals of care improved?"



Data Analysis:



Proactive Visits

1. Pre-intervention: **30%**
2. 1st Quarter of Project: **81%**
3. 2nd Quarter of Project: **70%** (3/35 physicians not in compliance)
4. 3rd Quarter of Project: **82%** (8% were 10 days late)

Data Analysis:

Our initiative in a residential care facility resulted in increased physician proactive visits, increased MOST documentation and increased M1 designation or M2 designation prior to death.

These results were sustained over the course of 9 months. We will continue to support the other facilities in adopting a similar program to improve patient care in residential care.

"I AM BLEEDING"

Navigating Upper GI Haemorrhage

Physician Lead: Dr. Corey Tomlinson

Location: Comox **Specialty:** General Surgery

Background:

- **Gastrointestinal (GI) Haemorrhaging** is caused by numerous reasons, including:
 - Liver disease
 - Obesity
 - Coagulopathy
 - Excessive alcohol use
 - Nonsteroidal anti-inflammatory drugs (NSAIDs)
 - Non-alcoholic Steatohepatitis (NASH)

Problem:

In our current state patients in North Island arrive in ER and are navigated to a number of locations:

- discharge home
- inpatient admission, or
- lateral transfer to a sister hospital

Associated with increased ER utilization are amplifications in patient wait times to diagnosis, medical therapy, transfusion, and endoscopy. The amplification of time from presentation to treatment and intervention generates potential for increased morbidity and mortality.

Team Mission:

To improve management of patients presenting to the St. Joseph's Emergency Room with Upper GI bleeding (UGIB) by; reducing patient exposure to avoidable morbidity, increasing effectiveness of goal directed therapy, and improve efficiency for patient outcome measures.

PDSA Cycle:

PLAN: Map out experience of GI patient

DO: Implement new RN order set

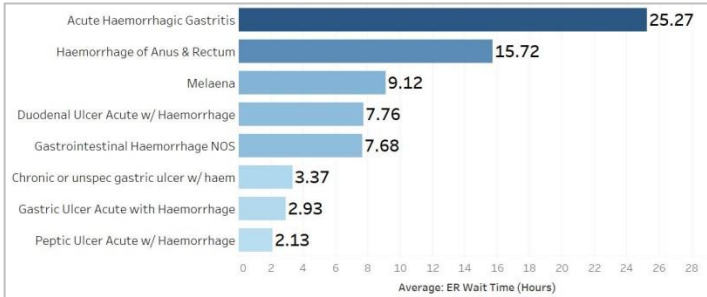
STUDY: Compare patient wait time before and after new order sets

ACT: Present at health care workshops

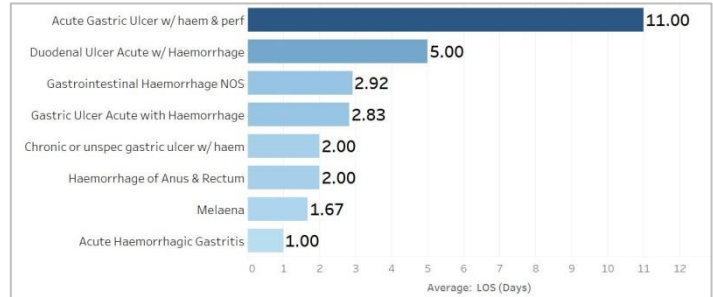
Data Analysis:

- In 2015/16, **St. Joseph's General Hospital (SJGH)** patients with Gastrointestinal (GI) bleeding:
- **306** patients discharged.
- Equates to **14%** of total Island Health GI Bleed population, ranked 4th among facilities
- Average ER wait time = **9.23 hours**
- Average length of stay = **3 inpatient days**

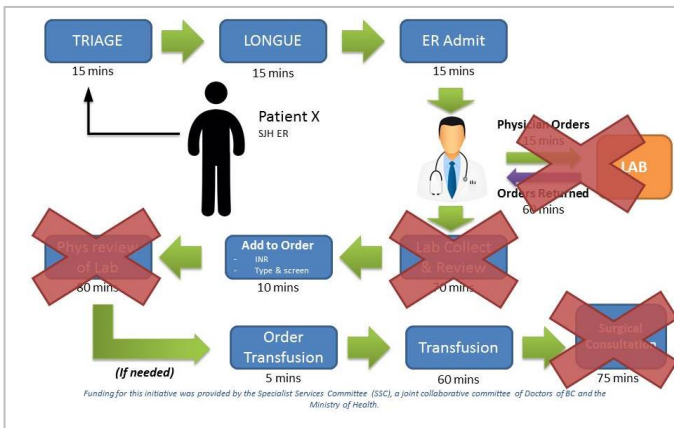
Avg Wait Time (hours) of GI Bleed Patients @ SJGH E.R.



Avg LOS (days) of GI Bleed Patients @ SJGH

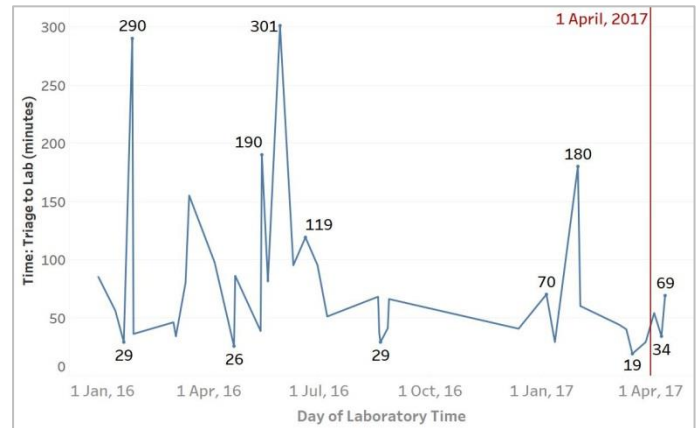


Patient Care Map



This identified several points of redundancy within our system potentially leading to exaggerated time to diagnosis, medical therapy, transfusion, and surgical referral.

Triage to Lab Time (minutes) over timeline SJGH Gastrointestinal Haemorrhaging Patients



Jan 2016 – April 2017
Including date of intervention (April 1, 2017) as red line

Outcomes:

Results from implementation of this project include:

- Increase in INR and Temp documentation
- Increase in UGIB receiving Pantoloc
- Increase in Endoscopy <24 hours
- Reduction in Triage to Lab/ER Wait Times

Conclusions:

Our team believes that the implementation of a multidisciplinary approach to the diagnosis and treatment for patients with upper GI bleeding will substantially improve overall patient outcome. We endeavour to decrease times to diagnosis, treatment, transfusion, and endoscopy. Further, we venture to decrease variability among physician prescribing habits for octreotide, proton pump inhibition, and red blood cell transfusion.

Pre-surgical Screening Re-design Project

Physician Lead: Dr. Karen Wong

Location: Nanaimo **Specialty:** Anesthesia

Background:

- 7000-8000 out-patient surgeries are performed at NRGH every year
- Over 5929 surgical patients were over age 70 (Apr 2016-March 2017)

Problem:

- No standardized pre-operative assessment and education process for patients undergoing out-patient surgery
- Increasing problem as:
 - Aging surgical population with more comorbidities
 - Greater demand for surgery as an outpatient basis due to limitations in resources
- Comprehensive pre-op patient preparation has been shown to reduce morbidity, mortality, improve OR efficiency and provider satisfaction

Aim of Project:

To develop a comprehensive program that will improve the coordination and quality of perioperative care for patients by:

- Improving the assessment process (Patient Questionnaire)
- Triage patients well in advance of surgery to allow timely optimization of patient (Screening by RN based on scoring system)
- Providing pre-operative instructions to every patient coming for surgery (phone call by RN within week prior to surgery)

Methodology:

- Urology patients undergoing day surgery in the months of July, August, September 2017 at NRGH were enrolled
- Pre-op questionnaire and patient information brochure were provided at the time of surgical consent at the surgeons' office
- The questionnaire is then reviewed by trained RNs who triage patients based on the patient history and surgical complexity using a screening guide. If a patient requires an anesthesia consult or chart review based on screening, arrangements are made immediately so surgery is not delayed.
- Pre-op phone calls were made by Surgical Daycare RNs to review medications and out-patient surgery instructions with patients not requiring a pre-op clinic visit
- The number of cases were tracked, and valuations were performed regularly with team members, as well, select patients were also interviewed

Data Analysis:

Quantitative Data:

- Number of questionnaires
 - received vs. completed
- Number of anesthesia consults generated,
- Number of physician reviews

Qualitative Data:

- Patient feedback, feedback from MOAs, surgeons, RNs, and anesthesiologists

Evaluation at 8 weeks

- Eligible (charts received and reviewed): **69**
- Completed questionnaires: **48**
- Partial Completion: **6**
- No questionnaire due to urgency of booking: **15**
- Anesthesia Consults generated: **12**
- Reviews for anesthesia: **5**
- OR delays for consults to occur: **2**

Findings:

- The questionnaire is user-friendly and effective in triaging high-risk patients
- There is a learning curve to using the screening guide; efficiency improves with time
- Participating patients, RNs, surgeons, MOAs and anesthesiologists find the process acceptable
- Regular engagement with all participating parties essential to identify problems with existing workflow

Project Spread:

- In collaboration with South Island from the beginning of the project, ultimately we would establish a standard process Island-wide
- Province-wide effort underway to improve surgical care and minimize waste/inefficiencies, pre-surgical preparation is a key component
- On-going evaluation at NRGH involving anesthesia, surgery, nursing and administration to pursue continuation of current program with expansion to more surgical specialties

Conclusion:

A comprehensive pre-operative screening program can be implemented at NRGH. This is successful when multiple stakeholders are consulted and act collaboratively in the patients' best interest.

Making Discharge Summaries Great Again: Discharge Summary QI at NRGH

Physician Lead: Dr. Jessica Otte

Location: Nanaimo **Specialty:** Palliative Care

Background:

In March 2016, with "go live" of the electronic health record (iHealth) in Nanaimo, the process for Discharge Documentation changed for patients admitted to Nanaimo Regional General Hospital (NRGH). Even before that, there were concerns about timely communication of discharge plans for patients and handover of critical information to Primary Care Providers.

Problem:

- Concerns of community practitioners that they are not getting the information necessary to continue care for their patients after hospitalization
- Concerns from hospital providers about inaccuracies in content, productivity loss due to altered work-flow
- Work-around solutions not satisfactory for community providers, patients, or health authority needs
- Discharge process is inconsistent with Island Health Policy 9.3.3PR: *Discharge of a Patient/Client Procedure*
- Low morale, disempowerment, and burnout in NRGH

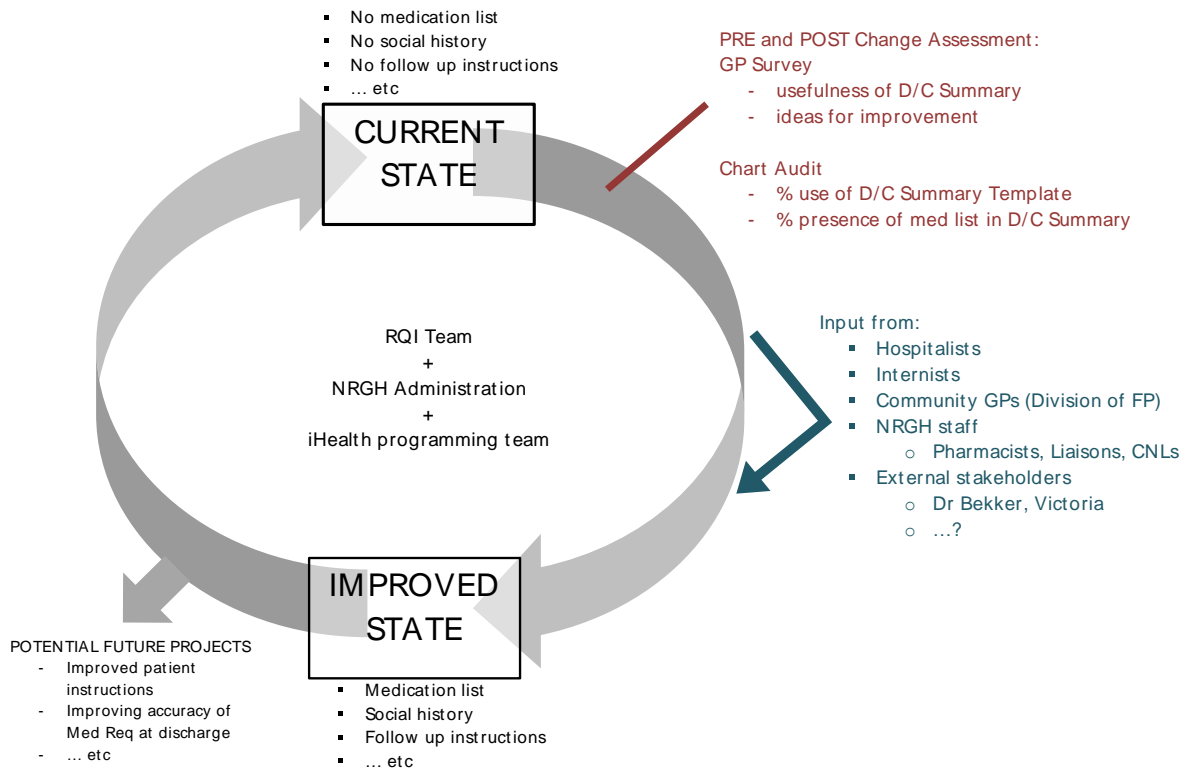
Aim of Project:

To improve the usefulness and accuracy of discharge summaries for complex, adult patients discharged from NRGH by transforming the Discharge Summary template. Rates of documentation of both A) a correct medication list and B) an explicit post-discharge community care plan, should be increased to 100% in 6 months, for patients under the internal medicine and hospitalist services.

Case Example:

- Elderly woman experienced a fall
- Prolonged hospital stay
- Discharged with discharge summary, Rx, and verbal patient instructions
- GP receives discharge summary per template, but no list of medications or follow-up instructions included
- GP gets fax from pharmacist with med list, asking him to sign it so they can dispense her medications
- Patient receives medications, takes them according to instructions
- She suffers a fall, breaks her hip, and winds up dying of complications (aspiration pneumonia) in hospital

Methodology:



PDSA Cycle:

PLAN: Review charts of discharged, elderly patients to determine which discharge template (if any) was being used, and whether a medication list was present; survey GPs in the community to see what information they need in a discharge summary and in what format they would like this

DO: Redesign of iHealth discharge summary template to include key headings; move towards ensuring a complete, accurate, reconciled medication list for discharge (with indications of what should CONTINUE, CHANGE, START, STOP and reasoning behind this); provide education for implementation, launch.

STUDY: Re-sample charts to determine proportion of charts containing a medication list, taken from random sample of 100 discharge summaries selected from all internist and hospitalist providers at NRGH at 0, 3, and 6 months following intervention

ACT: Create feedback process for clinicians to provide ongoing input into how this is working for them, modify Discharge Summary template accordingly

Next Steps:

- Highly provider dependent - same practitioners tendency to include or omit medications / discharge plans. Others have a tendency to include everything and medication change detail
- Some are still dictating through the manual system
- When the Discharge Template appeared to have been used (as opposed to a free text/other template/manual dictation), the medications were more likely to be forgotten BUT the post discharge plan was more likely to be explicit

ER OPIOID SUBSTITUTION THERAPY: Emergency Department Response to Fentanyl Crisis

Physician Lead: Dr. Jason Wale

Location: Victoria **Specialty:** Emergency Medicine

Background:

- Canada has one of highest incident rates of opioid addiction per capita in world.
- Fentanyl overdose claimed 956 OD deaths in BC in 2016 (3X the avg. deaths from motor vehicles) and more than 1500 BC overdose deaths projected for 2017.
- >80% of these patients had medical encounters in the year prior to death. **Most of these were in Emergency Departments.**
- ERs have unique opportunity to intervene.
- July 1st 2016: the BCCPS allow physicians to prescribe Suboxone for opioid replacement therapy. This allowed all ED physicians to use this Rx for first time.

Problem:

- Opioid addicted patients need to use their drug several times a day to avoid withdrawal sickness.
- Without substitution therapy most patients could not reliably wait several hours for traditional ER referral to treatment.
- As a result ERs have focused on treating symptoms of opioid abuse: infectious complications, trauma, psychiatric consequences, etc.
- In 2016 for every opioid death there were 20 ED presentations for OD.
- Cultural shift is required in the ER to take a preventative strategy to capitalize on these patients now presenting in ER and proactively help this population.

Patient Voice:

Patients in BC who have died from fentanyl overdose in 2016

Many patients at risk perceive ER as unfriendly and judgmental, not able to help in meaningful way.



“Nobody really wants to be using. We just have to”

“I don’t like going to the Emergency Room because they treat me like dirt”

Aim of Project:

- To initiate a cultural shift in the ER to view opioid addiction as a chronic illness and initiate overdose preventative treatment.
- To offer 100% of opioid addicted patients identified in the ER the opportunity for substitution therapy and immediate referral to addictions treatment.

PDSA Cycle:

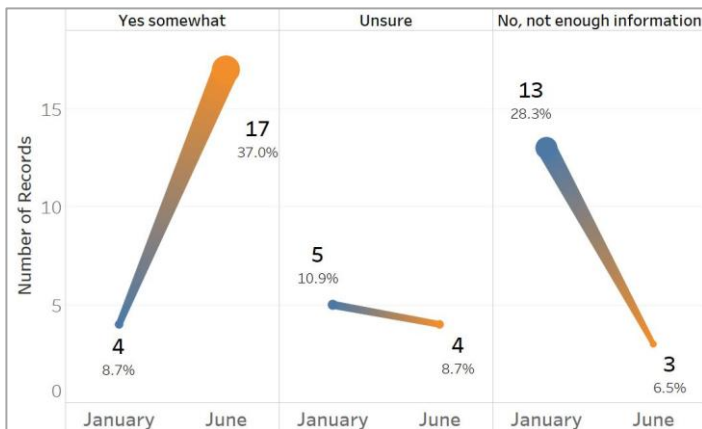
- Develop treatment and referral pathways.
- Engage and motivate staff to initiate treatment/referral
- Track referral rates and patient response
- Identified need for home induction, nurse initiated referral, peer support

Methodology:

- Broadly consulted to standardize ER Suboxone protocols and encourage use.
- Partnered with Victoria Rapid Addiction Access Clinic , Victoria Youth Clinic and Victoria Cool Aid Society to standardize ER rapid referral process.
- Umbrella Peer Society and Youth Outreach workers to optimize success of patients arriving at first appointment.
- Utilize Island Health Authority Emergency Department Quality Council for knowledge translation and spread to all Island Health ER's in fall of 2017

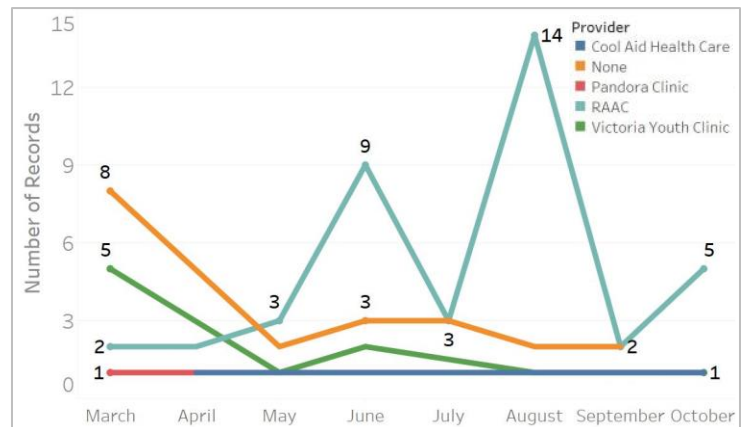
South Island ER Staff survey

"Do you feel comfortable treating ER patients in withdrawal with Suboxone?"
January vs June surveys



South Island Opioid ER Patients

Referral to Community Addictions Services



Conclusion:

The Fentanyl crisis is the biggest health emergency in Canada today claiming more than one life every 6 hours in BC and worsening rapidly. Cultural shift in the ER environment is difficult but necessary to treat this chronic disease now presenting in accelerating numbers to our most acute facilities.

Proactive staff and patient/peer engagement, nurse empowerment to refer and direct outpatient organizational partnerships have all proven necessary to shape a system that expedites the appropriate care of these vulnerable patients. Our hope is that all community ER's adopt these strategies to help turn this rising tide of opioid deaths.

Timing of Umbilical Cord Clamping

Physician Lead: Dr. Gustavo Pelligra

Location: Victoria **Specialty:** Neonatal Intensive Care

Background:

Research has shown numerous benefits of delaying cord clamping for most newborns:

- Increased blood volume
- Improved iron stores
- Transfusion of stem cells

Problem:

- Traditional practice has been to cut the umbilical cord immediately at the time of birth
- Current guidelines recommend delaying cord clamping for at least 30-60 seconds. Adherence to the guidelines is inconsistent between different practitioners and settings

Aim of Project:

- To standardize practices for optimal timing of umbilical cord clamping at VGH over a 6 months period
- To achieve 100% compliance with current evidence-based guidelines

Methodology:

- Review current evidence
- Survey practitioners
- Baseline data collection.
- Develop local guidelines
- Data collection post-intervention

PDSA Cycle:

- **Plan:** survey design
- **Do:** survey practitioners and data collection
- **Study:** data analysis and results interpretation
- **Act:** develop local guidelines and educate practitioners

Project Spread:

- Educational rounds for local practitioners
- Share results and guidelines with other perinatal groups both at the HA and provincial levels (PSBC)
- Sustainability: incorporate cord clamping time in the newborn record data collection form for ongoing monitoring of practices

Data Analysis:

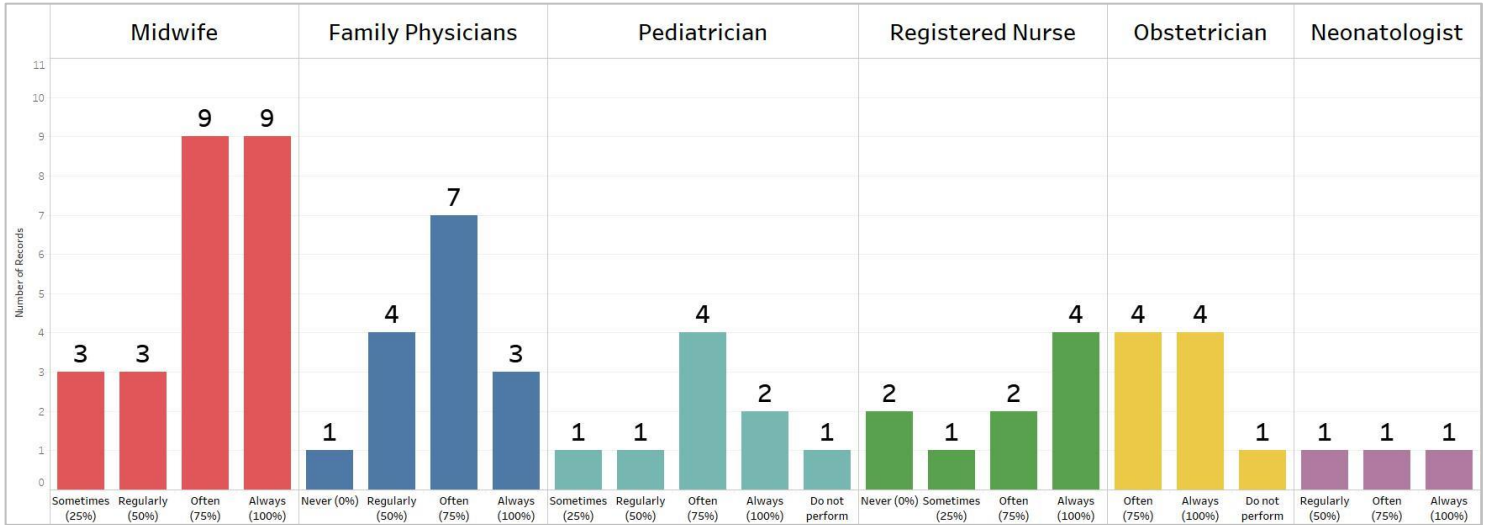
- Hospital deliveries at VGH
- Survey of current practices by practitioner group

Data collection cord clamping time over one week

NICU Cord Clamping Survey Results:

April 2017

Q5: "Do you routinely perform (or request) Delayed Cord Clamping for pre-term infants?"



Findings

- Inconsistent data records of cord clamping time
- Significant variations in practice between different practitioner groups

Conclusions:

Delayed cord clamping provides many benefits for newborns. Despite the growing body of evidence supporting delayed cord clamping, widespread implementation of this clinical practice is challenging. At VGH, there are wide practice variations between perinatal practitioners and inconsistent data records on timing of cord clamping. Developing local guidelines and protocols, ongoing data collection and monitoring, as well as education of perinatal practitioners, are key interventions to ensure that most infants receive the proven benefits of delayed cord clamping in a safely manner.

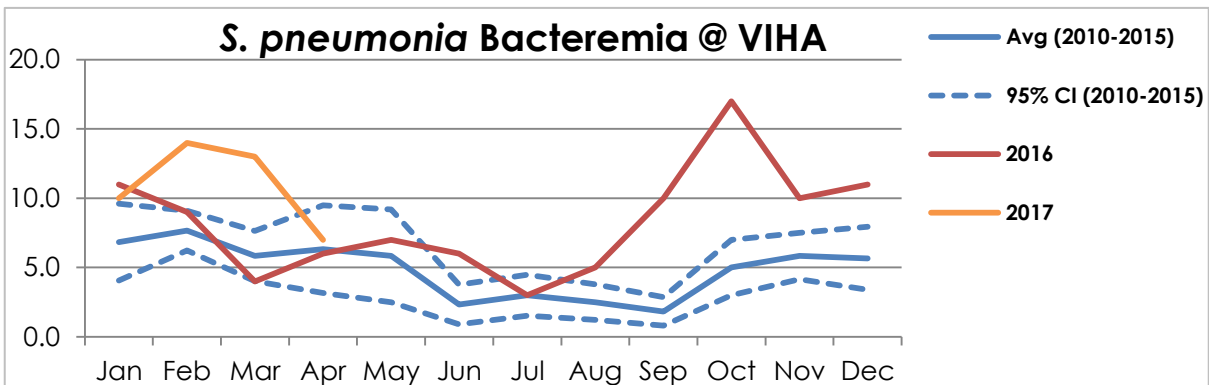
Improving Pneumococcal Immunization Rates: Adults Admitted to Acute Care

Physician Lead: Dr. John Galbraith

Location: Victoria **Specialty:** Microbiology

Background:

Invasive Pneumococcal Disease (IPD) is responsible for tens of thousands of hospitalizations and thousands of deaths in Canada each year. The highest rates of IPD occur amongst the elderly where the case fatality rate is 30 - 40%. It's estimated that half of these deaths could be prevented through vaccination.



Problem:

Pneumococcal vaccine coverage is very poor amongst eligible adults. The socially disadvantaged have even worse rates of vaccination despite multiple contacts with the health care system.

Aim of Project:

To improve pneumococcal immunization rates on selected medical units (6N and 4SE) at the Royal Jubilee Hospital (RJH) by 50 percentage points within six months.

Methodology:

- Creation a multidisciplinary team
- Use of Access database to track:
 - Assess vaccine eligibility
 - Obtain consent
 - Obtain physician order
 - Dispense/administer vaccine
 - Monitor/record adverse reactions
 - Inform Family Physician
 - Track HCW time
- Patient education
- Family physician notification

Data Analysis:

Patient Population:

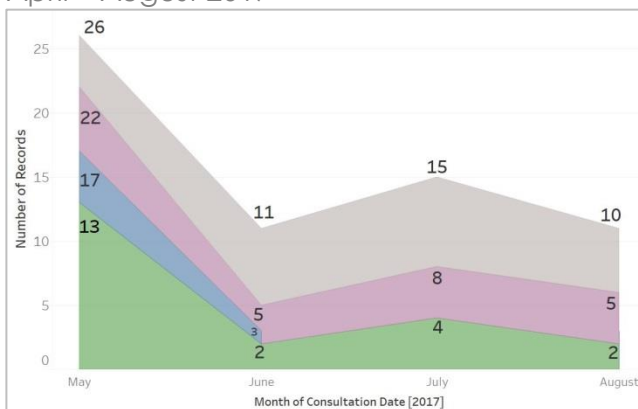
- Admitted to medical units 6N & 4S
 - April – August 2017

Graph Legend:

- Patient Population
- Patient Eligible (but No Consent)
- Patient Eligible/Consented (but No Vaccine)
- Patient Eligible/Consent/Vaccinated

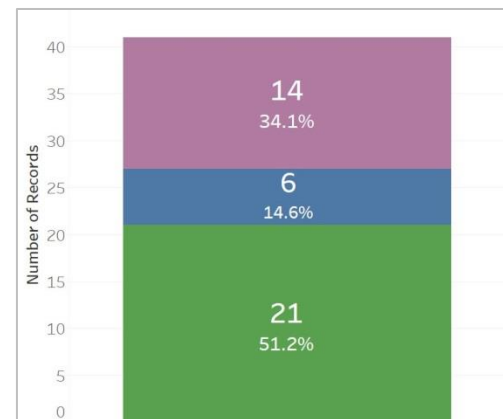
Patient Population:

- Admitted to medical units 6N & 4S
- April – August 2017



Project Totals

(Eligible Patients Only)



Findings:

What we have learned so far:

- The current public health database is not reliable for assessing vaccine history
- A pneumococcal vaccine assessment can be incorporated into the “Best Possible Medication History (BPMH)”
- A patient information brochure can help to inform patients and family physicians
- Formal discharge planning is a work in progress

Conclusions:

Clinical pharmacists are well positioned to:

- *assess acute care inpatients for pneumococcal vaccine eligibility*
- *obtain patient consent*
- *advise physicians on the optimal vaccine schedule*

Improving Documentation of Outpatient Paracentesis Drainage

Physician Lead: Dr. Rohit Pai

Location: Victoria **Specialty:** Gastroenterology

Background:

Ascites (fluid in abdomen) is a common complication of decompensated liver cirrhosis:

- Symptoms: abdominal pain, nausea, anorexia, shortness of breath
- Limited treatment options: salt restriction, diuretics and large volume paracentesis (intermittent drainage via catheter of fluid by radiographic insertion)
- Associated with 70% 2 year mortality – palliative diagnosis in many cases
- High morbidity – frequent ER visits and hospitalizations
- Definitive therapies available include transjugular intrahepatic portosystemic shunt (TIPS) and tunneled catheter (Tenckhoff)

Problem:

Outpatient paracentesis has poor documentation of key parameters:

- Drainage volume
- Volume of albumin (blood product)
- Whether specimens sent to rule out infection

Poor documentation can lead to inadequate drainage and inadequate management

- Morbidity for patients
- ER visits
- Potential for missed infections associated with high mortality
- Over or underutilization of albumin

Aim of Project:

To improve documentation of paracentesis by 50 percentage points (ie. zero documentation to 50% of cases documented) by using a post paracentesis summary sheet over 6 months, documenting:

- Volume of drainage (L)
- Pre and post paracentesis weight
- Total dose of albumin given
- Whether specimens were sent for analysis (cell count, culture)

PDSA Cycle:

Cycle 1: baseline data and clarifying process, design of summary sheet

Cycle 2: implementation of summary sheet

- Low uptake of sheet

Cycle 3: coordinated meeting by key stakeholders

- Improved uptake – reach aim statement

Cycle 4: reduced uptake again, communication barrier between booking clerk and medical daybed. Special cause variable: many changes to medical daycare and high turnover of key staff

Methodology:

Outpatients with liver cirrhosis followed by hepatology (Dr. Pai, Dr. Cruz-Pereira)

Outcome measures

- Ascites drainage documentation
- Infection analysis sent (cell count, differential)

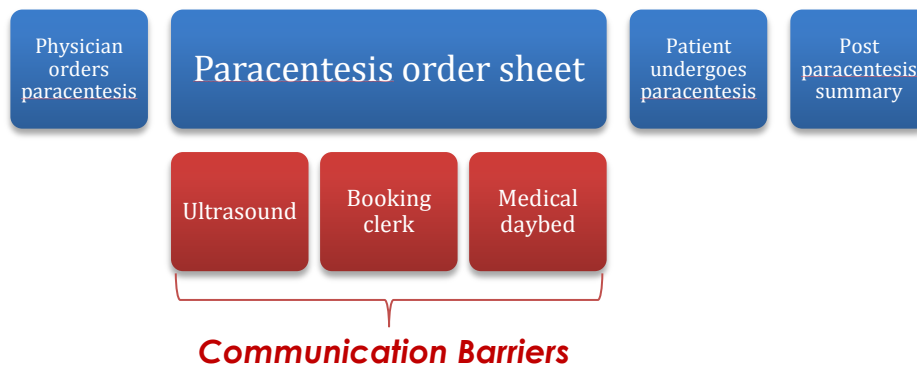
Process measures

- Number of patients undergoing radiographic (ultrasound guided) paracentesis through medical imaging

Balancing measures

- Patient comments/satisfaction
- ER visits for drainage

Process:



Data Analysis:

- Monthly excel sheet with descriptive data
- Number of paracentesis per month (outpatient and ER)
- Paracentesis Documentation completion (see graph below)



Conclusions:

This project was able to achieve the aim statement but sustainability will be key moving forward, ideal goal would be 100% documentation over time. Communication between providers is largest barrier and future processes should likely require fewer steps to improve quality (ie: outpatient paracentesis clinic)

Closing the Gap:

Medical Orders for Scope of Treatment in South Island Critical Care Units

Physician Lead: Dr. Terrence Paul

Location: Victoria **Specialty:** Physician Services

Background:

By their nature critical care units everywhere face life and death decisions daily. End of life decisions are complex and can be challenging. Ideally health care providers have clear documentation reflecting the patients and their family's wishes with regard to life-support decisions.

Problem:

- A standard document for communicating treatment levels of care the Medical Orders for Scope of Treatment (MOST) exists in Island Health (and province wide)
- This document has been significantly underutilized in Hospitals in Victoria in general
- Of particular concern, South Island ICUS underutilized the MOST with up to 60% of patients leaving the ICU without a completed document

Aim of Project:

To decrease the number of patients without a completed Medical Orders for Scope of Treatment (MOST) form at the time of discharge from two South Island (VGH and RJH) Intensive Care Units

Methodology:

- Use a number of stepwise interventions to decrease the proportion (%) of patients discharged from South Island ICUs without a completed MOST form.
- Routine tracking of patients without completed MOST at discharge/ ICU patients discharged

PDSA Cycle:

Interventions began late Jan 2017

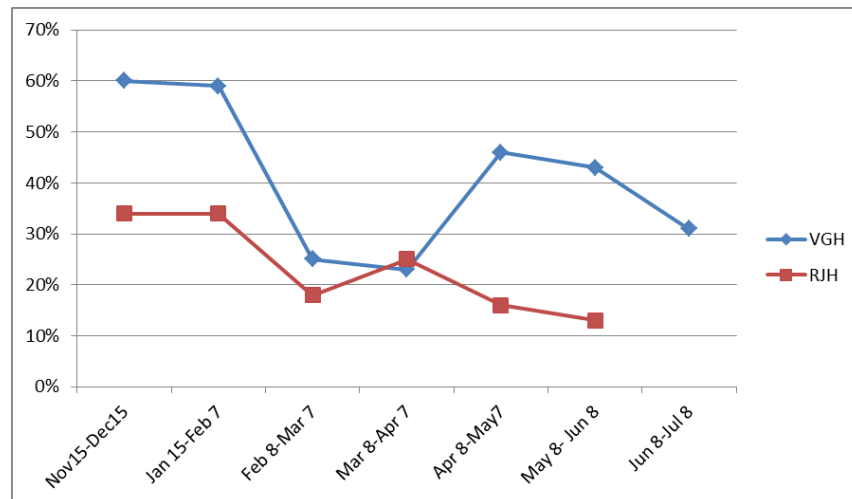
1. Admission bundles including MOST
2. Health Care provider education sessions
 - MDs
 - RNs
3. MOSTers (MOST Posters) and pamphlets (Family integration)
4. Tracking MOST completion

Data Analysis:

Monthly tracking of:

- Patients discharged without a completed MOST/ ICU patients discharged expressed as %
- Data collected by Critical Care Informatics Nurses: L. Atkins, S. Webb, S. Martin

Percentage of Patients Discharged from ICU without a Completed MOST (by site)



Findings:

The stepwise introduction of various interventions succeeded in significantly reducing the number of patients discharged from two South Island ICUs without a completed MOST documents.

Conclusions:

End of life decisions and guidelines are complex and can be challenging, but are necessary in providing comprehensive care for patients, Particularly in ICUs where critical life and death decisions are undergone on a routine, day by day basis.

Island Health and the Province of British Columbia have created a document entitled the Medical Orders for Scope of Treatment (the MOST) which defines the level of care a patient desires and ensures health care aligns with their wishes.

Through a series of stepwise interventions, two intensive care units in South Vancouver Island successfully reduced the number of patients who were discharged from the ICUs without a completed MOST. With ongoing data collection and interventions the rate of patients without a MOST can be reduced further in ICUs and almost certainly in other health care units as well.

Improving the Safety of Azathioprine Through Metabolite Monitoring

Physician Lead: Dr. Dustin Loomes

Location: Victoria **Specialty:** Gastroenterology

Background:

Azathioprine (AZA) is an immunosuppressive medication used for many different auto-immune diseases, including Crohn's disease and Ulcerative Colitis. Evidence shows that metabolites are needed for safe and effective use.

Problem:

AZA has complex metabolism in the liver and bone marrow, and obtaining an accurate and safe dose for a patient requires monitoring of blood metabolite levels.

Aim of Project:

Improve local gastroenterologist uptake of azathioprine therapeutic drug monitoring in patients with Crohn's disease and Ulcerative colitis.



Methodology:

- Send patient samples to Prometheus Laboratories, San Diego U.S., for AZA metabolite analysis
- Use samples to develop lab test at VGH

PDSA Cycle:

1. Develop AZA metabolite test in Victoria (VGH)
2. Expand AZA uptake among GI physicians
3. Develop handouts and reduce EMR barriers of use
4. Expand project to NRGH collection point

Project Spread:

- Expand availability to all Gastroenterologists
- Spread project to NRGH/RJH sample collection
- Expand AZA metabolites to other internal medicine specialities and outside Island Health once lab billing code is in place

Data Analysis:

Important data metrics

- Baseline AZA use
- AZA metabolite use
- AZA dose and metabolites
- Clinical decision making
- Clinical outcomes

Figure 1: 6-thioguanine level according to azathioprine dose

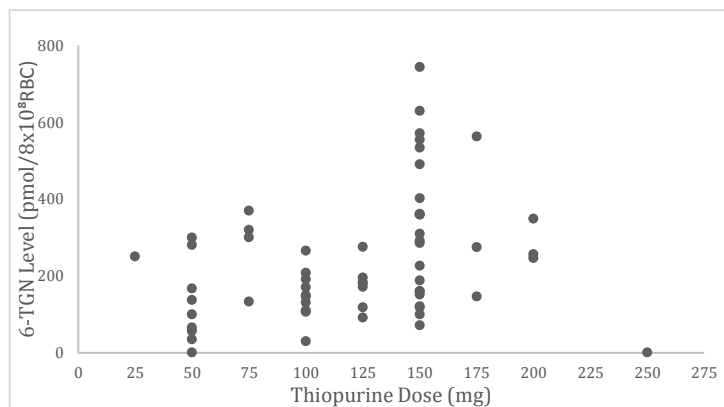


Figure 1: 6-methyl mercaptopurine level according to azathioprine dose

