

TEAM PLAYERS

Hector M Baillie, MD, Internal Medicine, Project Lead
Honeylette Abesamis, RN, HF Clinic Nurse
Suzanne Beyrodt-Blyt, PQI Co-ordinator
Curtis Bilson, PQI Data Analyst

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 seem 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 OSA
- To determine if SDB intervention, combined with standard medical therapy, improves HF outcome measures (LV-EF, NT-proBNP): predicted 40% improvement.

PDSA Cycle



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

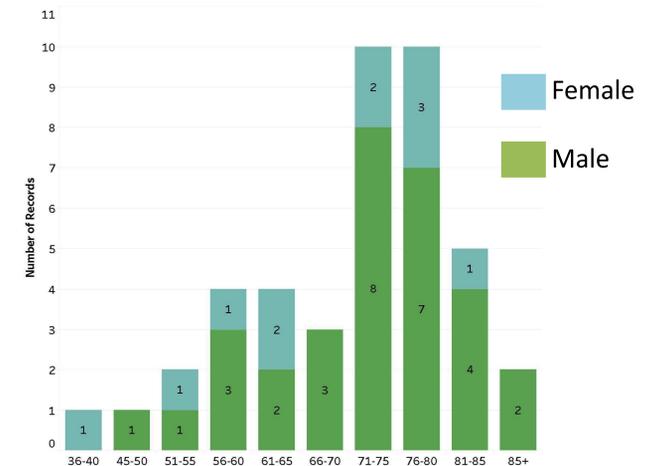


PATIENT VOICE

“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 HF, I often felt I was drowning”.

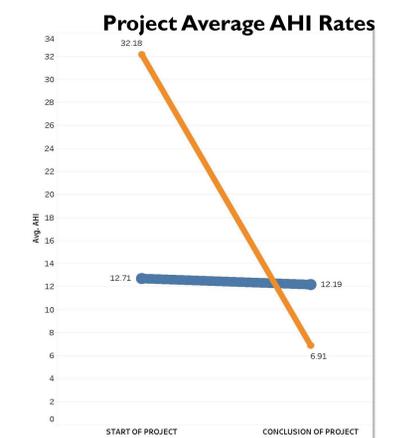
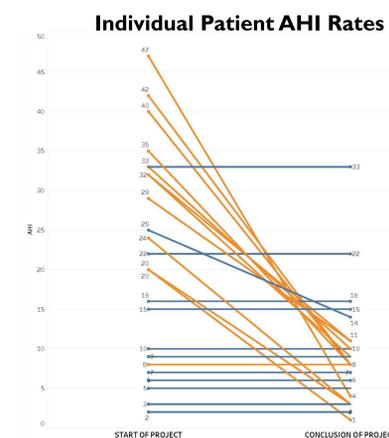
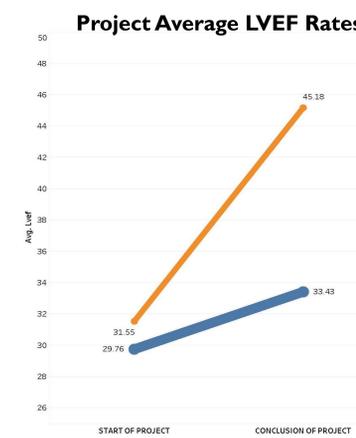
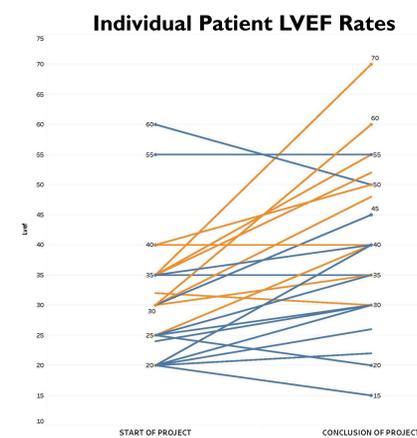
SDB Project: Patient Population Demographic by Age Group & Gender



DATA ANALYSIS

- Prospective consecutive patient enrolment from referral cohort to NRGH HF Clinic
- Age, sex, BMI, HR/BP,AHI, LVEF, BNP noted
- Epworth score on all patients
- Level III sleep study
- Follow-up visits to assess OSA+Rx: with measurement of LVEF/BNP/QoL

■ Rx
■ No Rx



CONCLUSIONS

Heart failure (HF) either with reduced or preserved ejection fraction, is becoming more common as our population ages, and as the obesity epidemic evolves. Common causes of HF include:
 - Hypertension - Ischemic heart disease
 - Valvular dysfunction.

Obstructive sleep apnoea is a well recognised cause of refractory hypertension, arrhythmia and oxidative stress. It is more common in men, and is linked to obesity. OSA is under-recognised by referral physicians.

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)

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.

TEAM PLAYERS

Dr. Valorie Masuda, Physician, Residential Care, Project Lead
Kristine Eastman, Clinical Nurse Leader
Gail Kerrone, Manager of Cairnsmore Place
Suzanne Beyrodt-Blyt, PQI Co-ordinator
Curtis Bilson, PQI Data Analyst

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

DATA ANALYSIS

Collection of data q3 monthly:

- MOST and date filled
- Proactive physician visit in last 3 months
- MOST prior to death
- Date of admission and expiry

FINDINGS

- Poor use of MOST at beginning
- Low proactive visits
- Improvement over time and *sustained*

BACKGROUND

- Medical Orders for Scope of Treatment (MOST)** is the medical orders 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

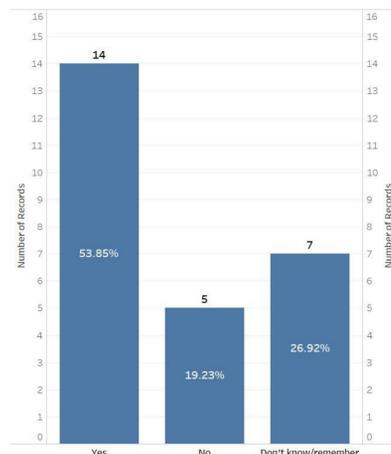
PATIENT VOICE

Cairnsmore Survey results:

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

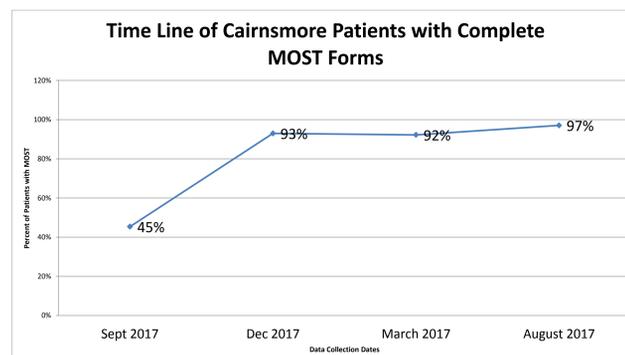
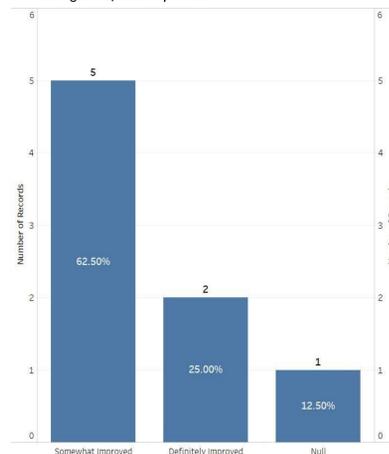
Resident Survey

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



Staff Survey

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



Proactive Visits

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

CONCLUSION

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.

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

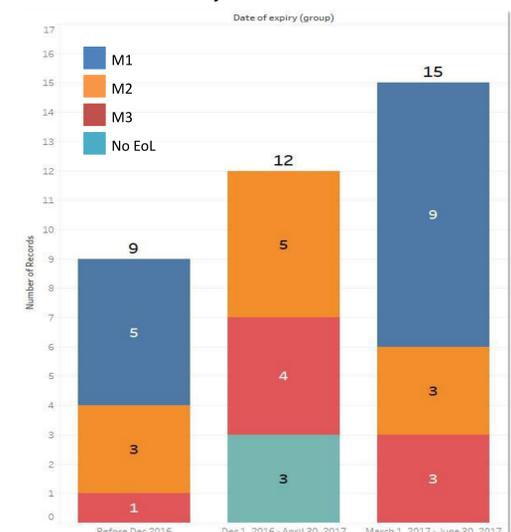
METHODOLOGY

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

PROJECT SPREAD

Two (2) additional residential care facilities in area adopted MOST and trying to integrate same forms and processes for proactive visits. Initial audits show similar results as our pre-intervention data

Cairnsmore Place expired residents December 2016 – June 2017



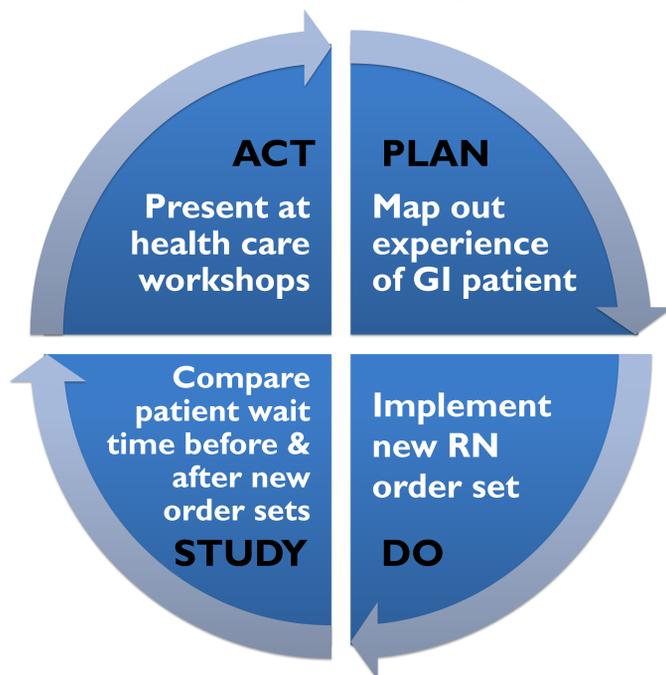
TEAM PLAYERS

Dr. Corey Tomlinson, General Surgeon, Project Lead
Carol Tinga, Clinical Nurse Educator SJGH
Barb Paulson, Clinical Nurse Leader SJGH
Leesa Lyster, Director, Quality & Risk Mgmt SJGH
Alana Drummond, Registered Nurse SJGH
Sarah Savage, Clinical Coordinator SJGH
Suzanne Beyrodt-Blyt, PQI Co-ordinator
Curtis Bilson, PQI Data Analyst

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



BACKGROUND

Gastrointestinal (GI) Haemorrhaging is caused by numerous reasons, including:

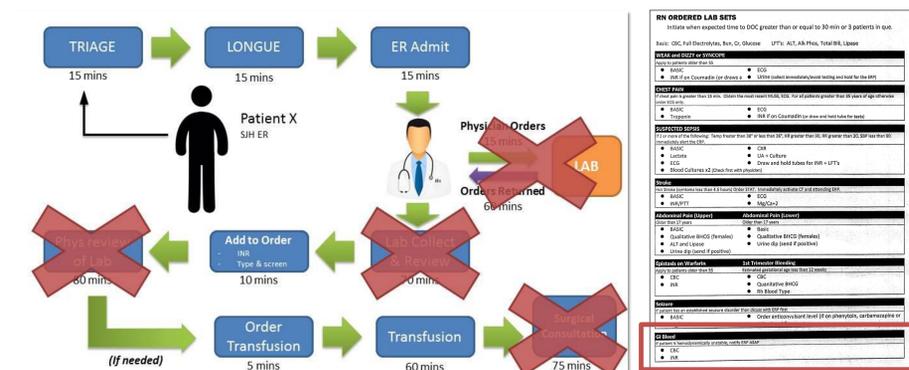
- Liver disease - Obesity - Coagulopathy
- Excessive alcohol use
- Nonsteroidal anti-inflammatory drugs (NSAIDs)
- Non-alcoholic Steatohepatitis (NASH)

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.



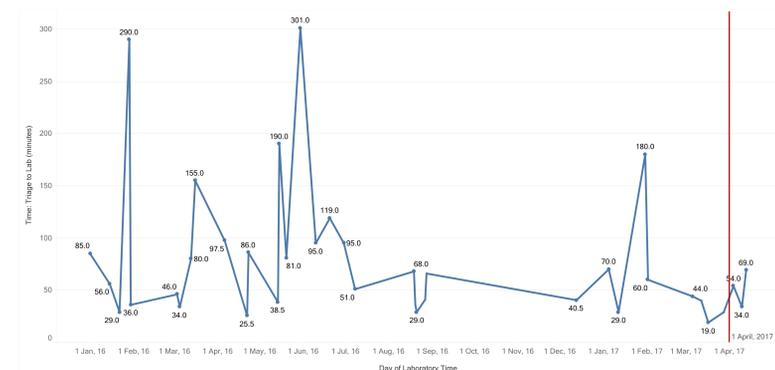
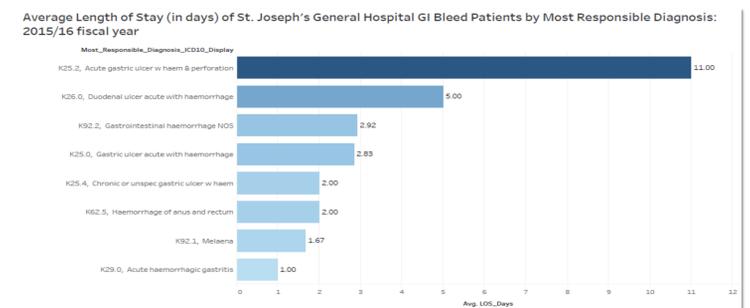
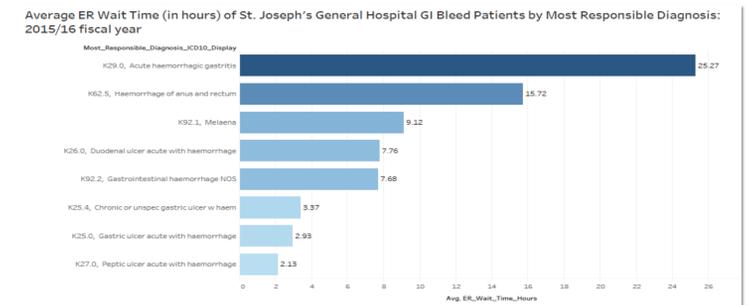
This patient care mapping experience identified several points of redundancy within our system potentially leading to exaggerated time to diagnosis, medical therapy, transfusion, and surgical referral.

Addition of new line within RN order set (above in red) reduced wait times substantially.

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**



SJGH Gastrointestinal (GI) Haemorrhaging Patients: Triage to Laboratory Time (in minutes) over timeline (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.

TEAM PLAYERS

Dr. Karen Wong, Anesthesiologist, NRGH, Project Lead

Derek O'Beirne, Clinical Coordinator

Rose Marshall, Registered Nurse

Andree Lineker, Clinical Nurse Leader

Diane Rintala, O.R. Booking Coordinator

Suzanne Beyrodt-Blyt, PQI Coordinator

Curtis Bilson, PQI Data Analyst

Members of NRGH Dept. Anesthesia:

- **Dr. James Capstick** - **Dr. Sarah Hall**

- **Dr. Jason Lee** - **Dr. Michael Pariser**

Pacific Urology

- **Dr. William Carlson** - **Dr. Geoffry Palmer**

BACKGROUND

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

AIM OF PROJECT

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

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

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

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

PDSA Cycle



Small Test of Change:

- **Questionnaire** (multiple cycles)
- **Scoring system** (on-going)
- **Pre-op phone call** (on-going)

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**

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

Urology Pre-op project patient survey results			
	Q1: Did you find the questionnaire easy to fill in?	Q2: Did you find the phone call experience from the Pre-op nurse helped you in regards to understanding the preparation and processes needed prior to your surgery?	Q3: What was your overall experience with the pre-op process?
Patient			
Pt 1	Positive	Positive	Positive
Pt 2	Positive	Positive	Positive
Pt 3	Positive	Positive	Positive
Pt 4	Positive	Positive	Positive
Pt 5	Positive	Positive	Positive
Pt 6	Positive	Positive	Positive
Pt 7	Positive	Positive	Positive
Total Positive	7	7	7
Total Neutral	0	0	0
Total Negative	0	0	0
Percent Positive	100%	100%	100%
Percent Neutral	0%	0%	0%
Percent Negative	0%	0%	0%

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

PATIENT VOICE

"I can see why all anesthesiologists would (and should) want to be aware of these items prior to surgery"

"impressed with the process"

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.

TEAM PLAYERS

Dr. Jessica Otte, Palliative Care, Project Lead
Dr. Ian Bekker, Physician
Dr. Mary Lynn Fyfe, Chief Medical Information Officer
Kristina McDonald, Senior Specialist Strategist, Clinical Informatics
Cheryl Campbell, Consultant, Medication Safety
Ravin Grewal, Cerner Operations
Suzanne Beyrodt-Blyt, PQI Coordinator
Curtis Bilson, PQI Data Analyst

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

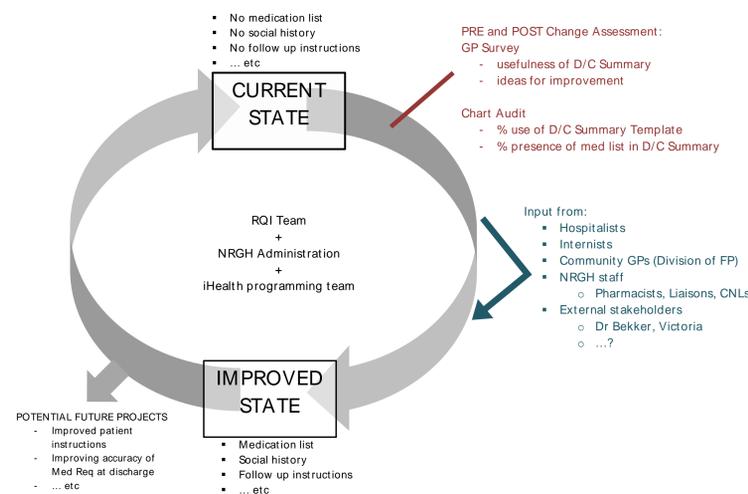
- Experienced a fall
- Prolonged hospital stay
- Discharged with discharge summary, Rx, and verbal patient instructions
- GP receives discharge summary per template, but no list of medications or follow-up instructions included
- GP gets fax from pharmacist with med list, asking him to sign it so they 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
- What happened?**



"The problem is that you're overmedicated. Luckily there are drugs that can help with that."



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

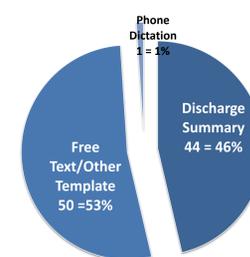
ACT: Create feedback process for clinicians to provide ongoing input into how this is working for them, modify Discharge Summary template accordingly

DATA ANALYSIS

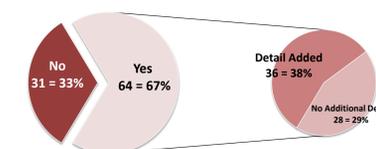
Assessments of Discharge Summaries

NOV 2016:
100 Charts; 5 excluded (patient deceased)

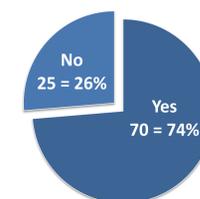
Template Used



Medication List Present

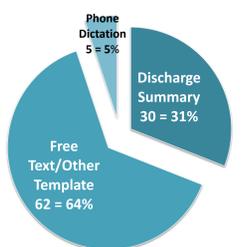


Demarcated Follow-Up Plan

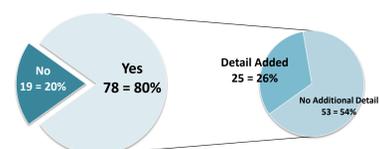


APR 2016:
100 Charts; 2 excluded (patient deceased)

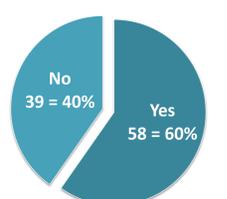
Template Used



Medication List Present



Demarcated Follow-Up Plan



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

TEAM PLAYERS

- Dr. Jason Wale**, CCFP(EM)/FCFP Emergency Physician at the RJH and VGH ER Departments and Team Leader
- Amanda Adams**, RN, Clinical Nurse Educator, RJH
- Matthew Erickson**, RN, Nurse Manager of VGH
- Shana Hall**, Project Manager for Island Health Mental Health
- Dr. Ramm Hering**, CCFP, Medical Director for Victoria Rapid Access Addictions Clinic and Island Health Medical Director
- Dr Ann Nguyen**, CCFP, Addictions Medicine Physician & Victoria Youth Clinic
- Richard Wanban**, PharmD, Clinical Pharmacist RJH Emergency

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

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.

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"

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.

PROBLEM

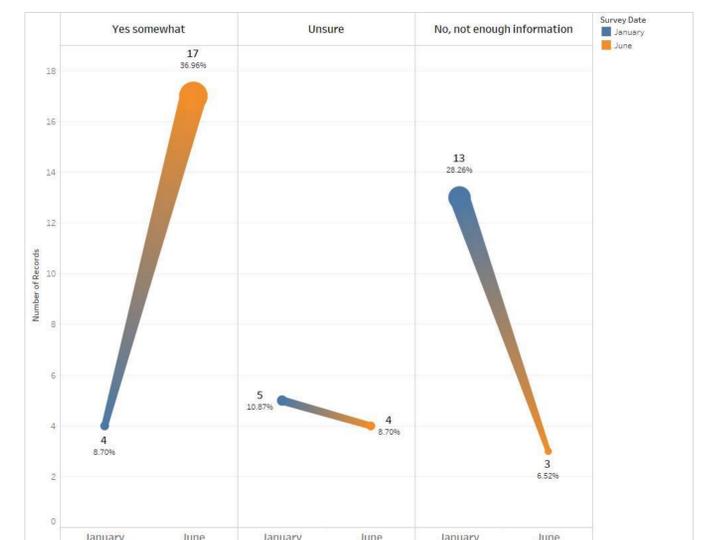
- Opioid addicted patients need to use their drug several times a day to avoid withdrawal sickness.
- Without substitution therapy most patients could not reliably wait several hours for traditional ER referral to treatment.
- As a result ERs have focused on treating symptoms of opioid abuse: infectious 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.

PROGRESS TO DATE

South Island ER Staff Survey

January vs June responses

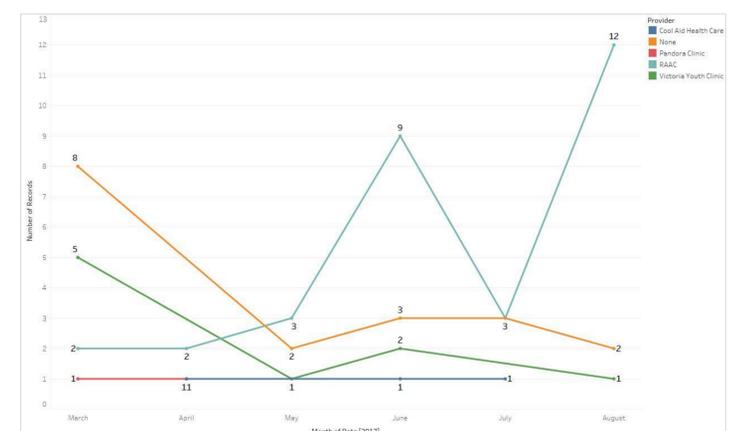
Q: "Do you feel comfortable treating ER patients in withdrawal with Suboxone?"



Project Data ER Referrals to Community Providers

February – August 2017

Total Record of Referral over Timeline (months)



TEAM PLAYERS

- Dr Gustavo Pelligra**, Neonatologist, Project Lead
- Gillian Kozinka**, Manager Perinatal Services
- Rosie Holmes**, PQI Project Coordinator
- Curtis Bilson**, PQI Data Analyst

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

PATIENT VOICE



*Stay Calm,
Delay
Clamping*

PROJECT SPREAD

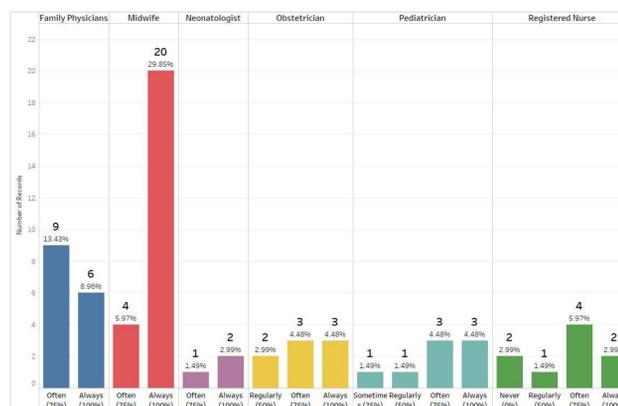
- Educational rounds for local practitioners
- Share results and guidelines with other perinatal groups both at the HA and provincial levels (PSBC)
- Sustainability: incorporate cord clamping time in the newborn record data collection form for ongoing monitoring of practices

DATA ANALYSIS

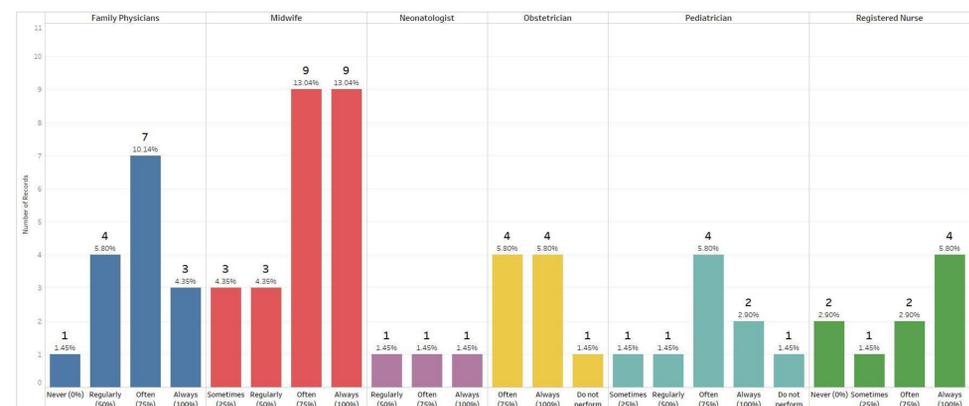
- Hospital deliveries at VGH
- Survey of current practices by practitioner group
- Data collection cord clamping time over one week

NICU Cord Clamping Survey Results:

April 2017
Q2: "Do you routinely perform (or request) Delayed Cord Clamping for term infants?"



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.

TEAM PLAYERS

Dr. John Galbraith, Medical Microbiologist, Team Lead

Pharmacists:

- Stephanie Tarasoff
- Sara Cassidy
- Megan Matwychuk
- Dana Cormier
- Celina Panchuk
- Celia Culley

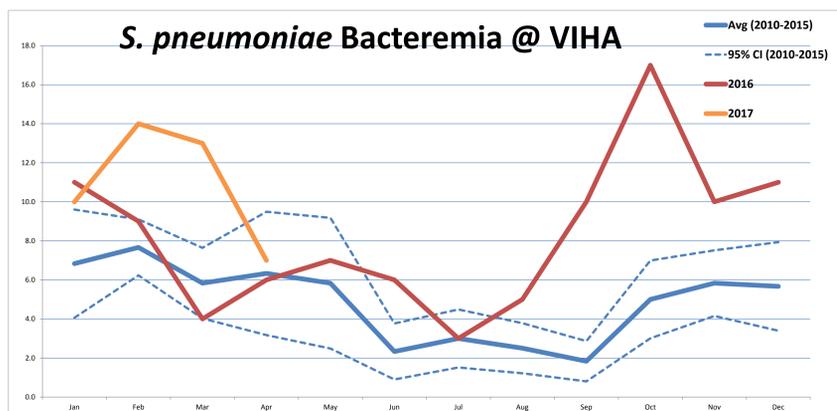
Dr. Matt Moher, Physician

Dr. Jim Hutchinson, Medical Director

Dr. Dee Hoyano, Medical Health Officer

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%. Its estimated that half of these deaths could be prevented through vaccination.



PROBLEM

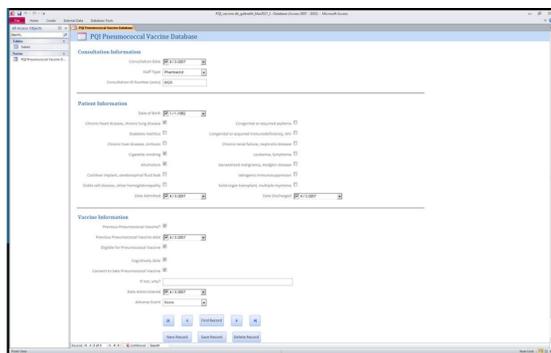
Pneumococcal vaccine coverage is very poor amongst eligible adults. The socially disadvantaged have even worse rates of vaccination despite multiple contacts with the health care system.

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



Pneumococcal Immunization MS Access database interface

PATIENT VOICE

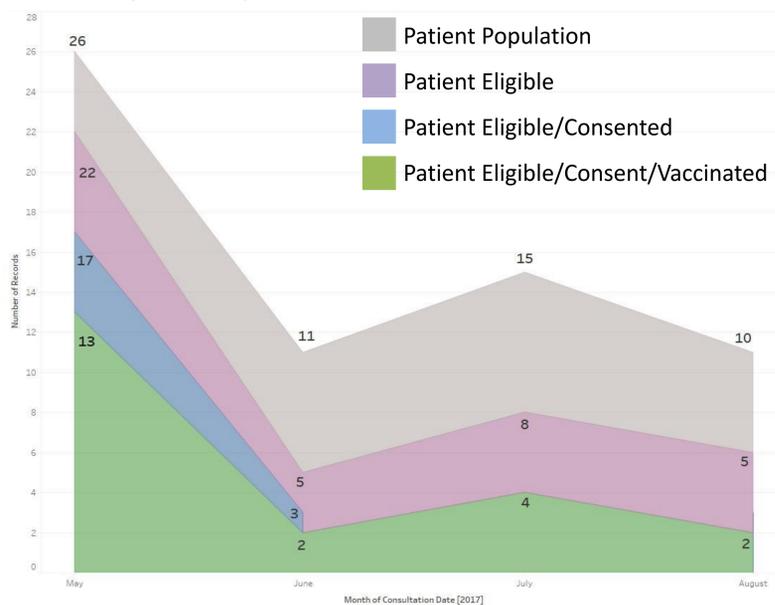
"This is so convenient"

"I've wanted this vaccine for awhile"

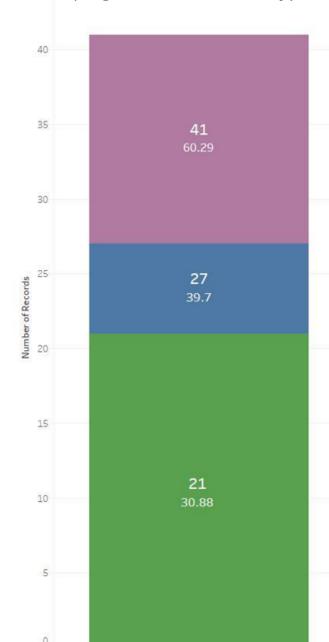
DATA ANALYSIS

Patient Population:

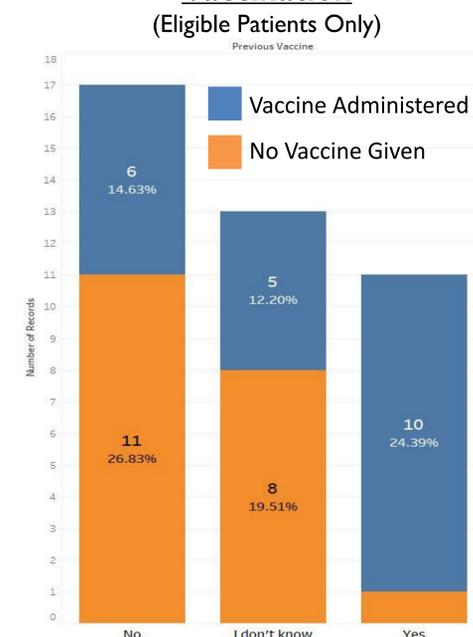
- Admitted to medical units 6N & 4S
- April – August 2017



Project Totals (Eligible Patients Only)



Previous Pneumococcal Vaccination (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

CONCLUSION

Clinical pharmacists are well positioned to:

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

TEAM PLAYERS

Dr. Rohit Pai, Gastroenterology, Island Health, Project Lead
Dr. Oscar Cruz-Pereira, Gastroenterology, Island Health
Andrea Beresh, MOA, Pacific Digestive Health
Chris Bradbury, Ultrasound Royal Jubilee Hospital
Sandy Paton, Medical Daybed Royal Jubilee Hospital
Rosie Holmes, PQI Coordinator
Curtis Bilson, PQI Data Analyst

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:

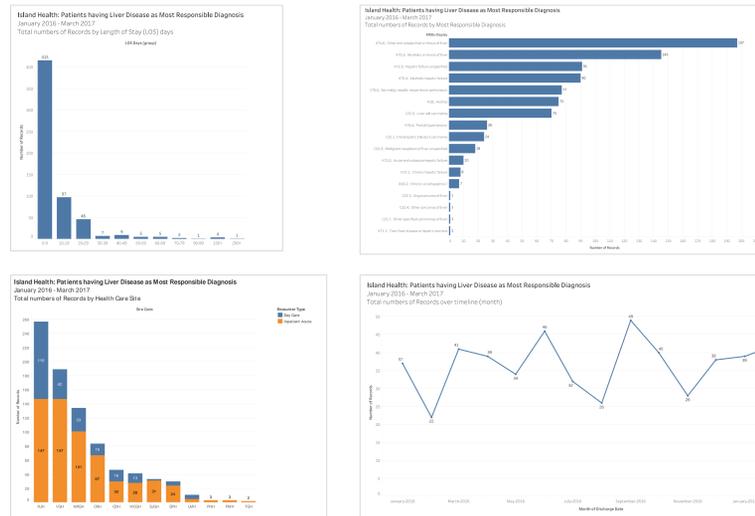
- Volume of drainage (L)
- Pre and post paracentesis weight
- Total dose of albumin given
- Whether specimens were sent for analysis (cell count, culture)



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**

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

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 (work in progress)

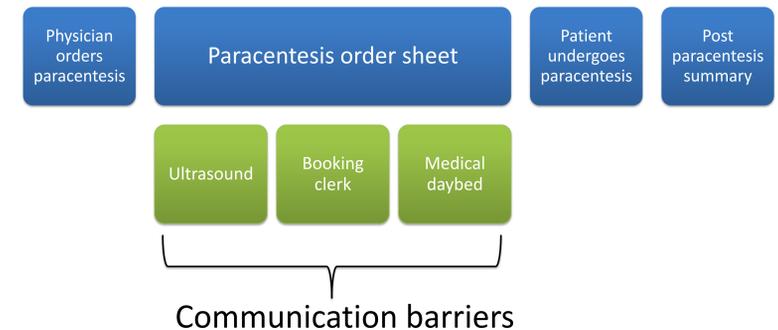
- Special cause variable: many changes to medical daycare and high turnover of key staff



PATIENT VOICE

“The healthcare system treats me like a second class citizen because I have liver disease”

PROCESS



DATA ANALYSIS

- Monthly excel sheet with descriptive data
- Number of paracentesis per month (outpatient and ER)
- Documentation completion (drainage volume, infectious panel including cell count and cultures)

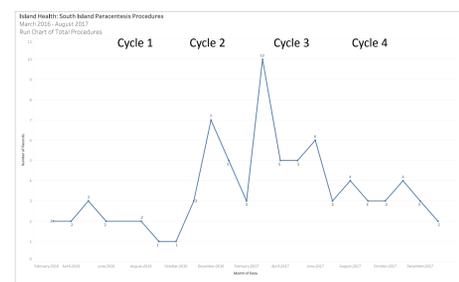


Figure 1: Run chart of paracentesis by month

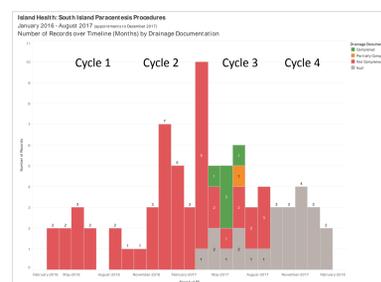


Figure 2: Drainage documentation

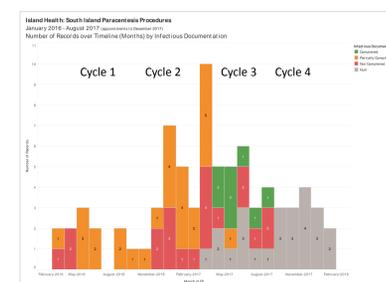


Figure 3: Infectious documentation (cell count, cultures)

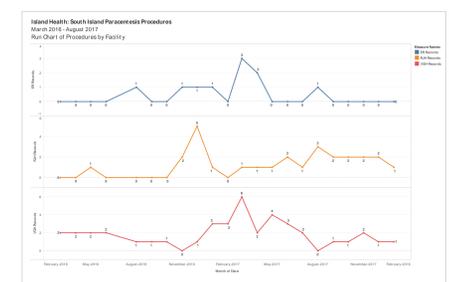


Figure 4: Run chart of paracentesis by site including ER

FINDINGS

- Aim statement met by cycle 3 with drop off in cycle 4 – communication barrier
- ER drainage relatively low in patients followed by hepatologists

CONCLUSION

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)

TEAM PLAYERS

Terrance W. Paul BSc. M.D. FRCP(C), FCCP
Consultant in Respiratory, Sleep and Critical Care
Medicine, Project Lead

With the Aid of:

Dr. G. McIntyre, Dr. M. Wale and Dr. O. Ahmad
L. Atkins, S. Webb, S. Martin, S. Butler, P. Cross, T. Curtis,
C. Homuth RNS; C. Bilson, R. Holmes

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

PDSA Cycle



- Interventions began late Jan 2017
1. Admission bundles including MOST
 2. Health Care provider education sessions
 - MDs
 - RNs
 3. MOSTers 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

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 document.

BACKGROUND

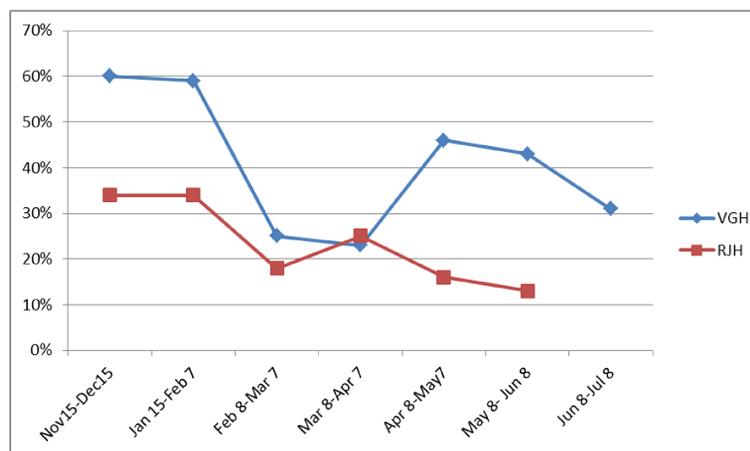
By their nature critical care units everywhere face life and death decisions daily. End of life decisions are complex and can be challenging. Ideally health care providers have clear documentation reflecting the patients and their family's wishes with regard to life-support decisions.



MOST

Medical Orders for Scope of Treatment

RESULTS



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

CONCLUSION

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.

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

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 a completed MOST at discharge/ ICU patients discharged in %

PROJECT SPREAD

Plan is to implement same interventions on other wards

- Admission bundles including MOST
- Health Care provider education sessions
- MOSTers and pamphlets
- Follow-up and tracking MOST completion

Date	RJH	VGH
Nov 15-Dec 15	34%	60%
Jan 15-Feb 7	34%	59%
Feb 8-Mar 8	18%	25%
Mar 8 - Apr 7	25%	23%
Apr. 8 - May 7	16%	46%
May 8-June 8	13%	43%
Jun 8-July 8	Pending	31%

Reduce ER Transfers from Kiwanis Lodge to NRGH

TEAM PLAYERS

Dr. Diane Wallis, Medical Coordinator, Kiwanis Village Lodge,
Project Lead

Sue Aberman, Executive Director of Kiwanis Village Lodge

Gene Neufeld, Manager of Nursing Services

Celeste Young, LPN

Anna Martin, Social Worker

Mel Lagrotta, Unit Clerk

Stevyn Llewellyn, Facility Pharmacist

Laura McIntyre, RN ED NRGH

Beccy Robson, Nanaimo Division of Family Practice

Suzanne Beyrodt-Blyt, PQI Coordinator

BACKGROUND

There is a common belief that a substantial proportion of transfers to NRGH ED are “unnecessary”. This tends to be measured by the number of residents who are returned to the facility within 24 Hrs.

PATIENT VOICE

- Lack of advanced care planning
- Family members may not share the resident’s view on their care
- POA versus substitute decision-maker not universally understood

PROBLEM

- Nursing staff unable to contact the GP acutely
- Lack of 24 hour RN staffing on site
- Pressure from family to do “everything possible”
- Clarity of transfer process for nursing staff
- Insufficient documentation of resident’s wishes

AIM OF PROJECT

To enhance the procedures at Kiwanis Village Lodge in order to reduce the number of ER transfers by 70% by December 2017

METHODOLOGY

- Determine how many residents have been transferred from Kiwanis Lodge to the ED from Jan-Mar of 2017
- Determine the “WHY” of the transfer/useful clinical information
- Examine whether the resident could have received care at the facility instead of being transferred
- Re-analyse transfers at the end of the project



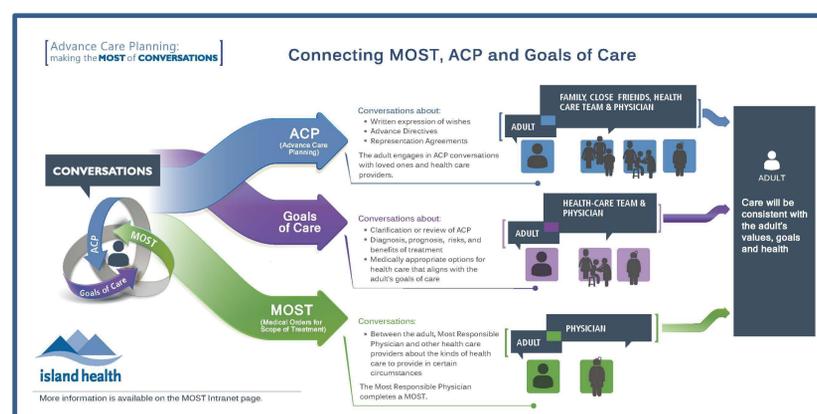
FINDINGS so far

- GP contact list is out of date
- RN on call not consistently contacted by LPNs
- MOST not implemented on site so patient wishes on care are not clear
- Licensing reports are done immediately but lack detail
- Scope for reduction in transfers

PDSA Cycle



Plan: Develop a work protocol for RNS/LPNS for resident assessment and review prior to transfer(MOST)
Do: Trial for 3 months
Study: Resident transfer details, “Why” “Who” “How many”
Act: Team decides to Adopt/Adapt/Abandon introduced protocol



NEXT STEPS

- Staff education: MOST, Bowel Care, POA, UTI’s, Delirium, in lunch and learn opportunities
- Patient and family education: use existing communication structures to educate and roll out once education completed
- Contact all facility GPs for preferred contact details
- Develop transfer decision-tree for nursing staff
- Pharmacist to develop in house policies for common drug complications contributing to ER transfers
- Collaborate with other project leads to not re-invent the wheel
- Create a process which can be used in other facilities
- Present project findings to GP Groups and/or Division of Family practice
- Link in with Nanaimo Residential Care Initiative

DATA ANALYSIS

- 75 residents in facility
- Data on ED transfers available
- Analyse cases for common themes
- Assess utility of transfer

TEAM PLAYERS

Dr. Dustin Loomes MD, FRCPC (GI), Project Lead

Dr. Lufang Yang MD, MS, PhD, Clinical Chemist

Stephanie Tuson Data Analyst

BACKGROUND

Azathioprine (AZA) is an immunosuppressive medication used for many different autoimmune 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.

PATIENT VOICE

“Very thankful to have this test available locally.”

METHODOLOGY

1. Send patient samples to Prometheus Laboratories, San Diego U.S., for AZA metabolite analysis
2. 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

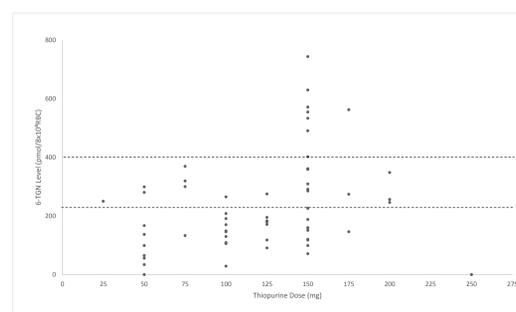


Figure 1: 6-thioguanine level according to azathioprine dose

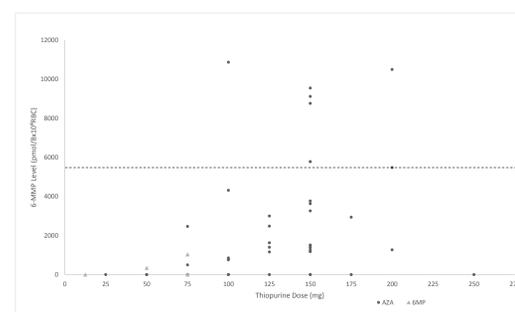


Figure 2: 6-methyl mercaptopurine level according to azathioprine dose

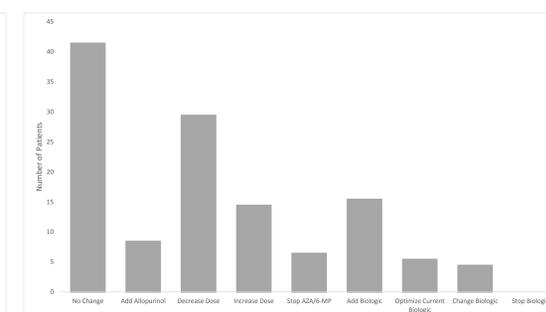


Figure 3: Change in clinical management after AZA metabolites

FINDINGS

1. Azathioprine metabolites do not correlate in a linear fashion to dose
2. Metabolites affect clinical decision making
3. QI project increased physician uptake of AZA metabolites

CONCLUSION

- Victoria now one of two cities in Canada to offer AZA metabolites.
- Metabolite monitoring results in optimization of AZA dosing, potentially improving tolerability, safety, and clinical effectiveness.
- Clinical decision making improves with AZA monitoring.

TEAM PLAYERS

- Dr. Daisy Dulay**, Physician, Cardiac Services, Project Lead
- Echocardiography:**
- Sara Quist**, Clerical
- Kim Ostrinski**, Project Analyst
- Claire Mackelson**, QA supervisor
- Amanda Deforge**, Echo supervisor
- Alissa Merz**, Senior Business Analyst
- Ryan Davis**, Heart Health Director
- Physician Quality Improvement:**
- Roseanne Holmes**, PQI Coordinator
- Curtis Bilson**, Data Analyst
- Junko Fukui Innes**, Operations Research Consultant

BACKGROUND

Identifying unnecessary referrals from various physician groups, and the ability to create strategies for more efficient referral ordering systems has been able to show a reduction in wait times for both echocardiography inpatients and outpatients. 30% of US healthcare spending does not improve patient health.

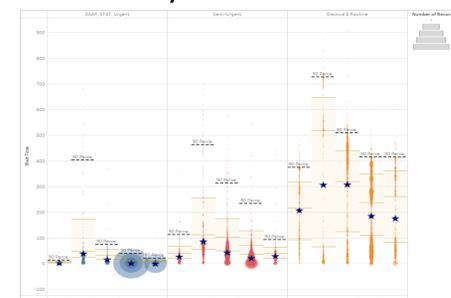
Berwick et al, JAMA 2013

Urgency category	Recommended Wait Time
Emergent	Within 1 day
Urgent/Semi-urgent	Within 7 days
Scheduled	Within 30 days

PROBLEM

Island Health echocardiography wait times exceed recommended wait times in Canada:

- Unable to expand due to physical space limitations, operational costs, and staff shortages
- Feedback to referring physicians have been shown to reduce unnecessary echos



Bhatia et al, JACC 2017

Island Health Echo Wait Times (in days)

- By "Priority":
 - Blue = ASAP, STAT, Urgent
 - Red = Semi-Urgent
 - Orange = Elective & Routine
- and "Facility": CDH, CRH, NRG, RJH, & VGH
- Star indicates average wait time
- Light yellow box indicates range between 25th percentile to 75th percentile
- Thickness of line indicates number of records

AIM OF PROJECT

Reduce unnecessary echos by 5% by nudging:

- Identify target MD group
- Show data to referring MD group
- Review appropriate use criteria (AUC)

METHODOLOGY

- All May 1st, 2017 echos at RJH analyzed based on:
 - clinical indication
 - level of urgency
 - patient age
 - referring physician group
 - echo location
 - AUC
- Snapshot overview of echo from May 2016 to May 2017
- Snapshot review of patients 90 and older who had an echo from March to May 2017
- Review of up-island patient referred to RJH for echo Feb 2016 to Jan 2017

PATIENT IMPACT

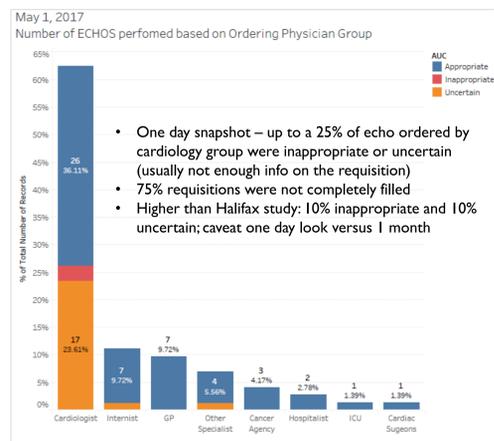
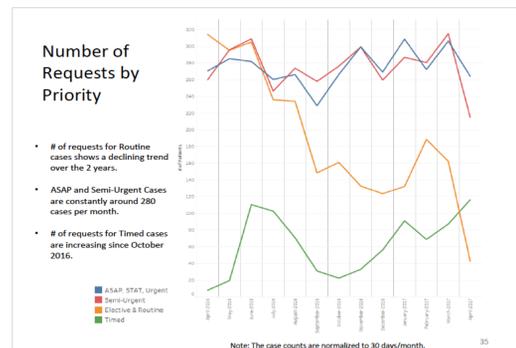
Inappropriate studies affects care

- Delay in diagnosis & management for patients waiting
- Inconvenience factor for patients who undergo unnecessary testing

Development of **Appropriate Use Criteria (AUC)** and **Choose Wisely Campaigns** are aimed to reduce the unnecessary testing

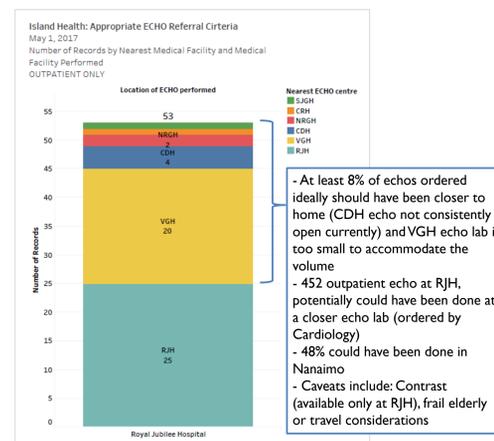
DATA ANALYSIS

RJH Echo Requests



- One day snapshot – up to a 25% of echo ordered by cardiology group were inappropriate or uncertain (usually not enough info on the requisition)
- 75% requisitions were not completely filled
- Higher than Halifax study: 10% inappropriate and 10% uncertain; caveat one day look versus 1 month

Livingston et al, Can Journal of Cardiol 2013



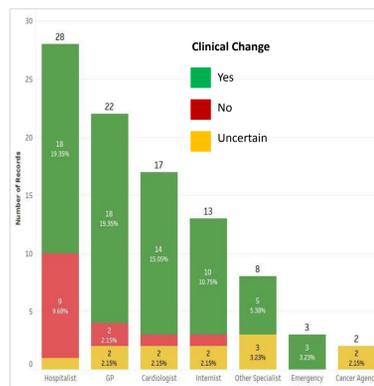
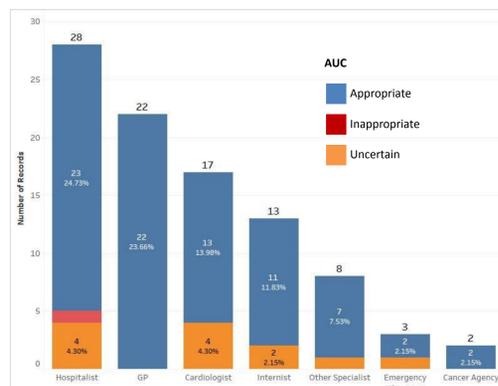
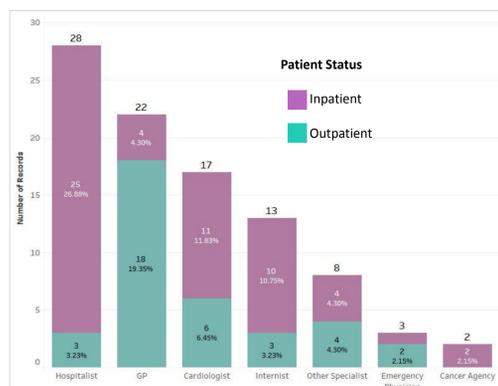
Patient who had an echo completed at RJH, but could have had the echo closer to their home address.



FINDINGS

- High proportion of combined uncertain & inappropriate echos
- Majority of requisitions are not filled out properly
- Cardiology seems to be the intervention group for change; Presentation and email campaign to nudge the group upcoming this month. May consider other MD groups in which change might be effective
- Appropriate use but is its clinical relevant for elderly patients

Echo data from March to May 2017 Patients 90 years of age and over



Like clinical trials, while an echo may be appropriately ordered, the questions to ask are: Is it clinically relevant? Will it really change management?

NEXT STEPS

- DO:** Present data to cardiology group. Collect retrospective data on patients under age of 40 (another population in which echo would be low yield for clinical change) & identify physician group.
- STUDY:** sample monthly afterwards how many are inappropriate or uncertain, as well as how many requisitions were completed fully.
- 2nd PDSA:** Developing strategies to regularly nudge, but not annoy, ordering physicians