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QUALITY IS LOVE: Clinical Audit in FHA

Professor Avedis Donabedian was one of the leaders who created many of the fundamental principles of Quality assessment in healthcare. He was known as “Mr. Structure-Process-Outcome” as he focused quality improvements in these areas.

The clinical audit systematically looks at the diagnosis, care and treatment of patients. This improves the quality of health care which is a goal that Patients, Clients, Residents, Staff and Physicians of Fraser health stand squarely with the FHA Board. The fundamental question of Quality is “How can you show that you are doing a good job” and this is answered by clinical audits.

Some physicians were initially reluctant to support the clinical audit process, but over the last two years as we have learned what it is (and isn’t) there has been steadily growing support.

Physicians in FHA now enthusiastically participate in Regional Department Medical Quality committees which include Morbidity and Mortality rounds, Clinical audits and many other quality activities.

We are particularly proud of some of these initiatives, such as the Delirium Quality Improvement Project undertaken by the Department of Hospitalists which has been nationally recognized winning the Quality and Safety Award, and the People’s Choice Award (Hospital Category) at the 11th Annual Canadian Society of Hospital Medicine conference.

There is still work to be done to improve the breadth and depth of Quality processes amongst the physicians of FHA, but we are most definitely going in the right direction.

“Systems awareness and systems design are important for health professionals, but they are not enough. They are enabling mechanisms only. It is the ethical dimensions of individuals that are essential to a system’s success. Ultimately, the secret of quality is love. You have to love your patient, you have to love your profession, you have to love your God. If you have love, you can then work backward to monitor and improve the system.”

— Avedis Donabedian

Dr Jan Kornder MD FRCPC FACC
PMD for Quality Improvement and Patient Safety, Fraser Health

Dr Peter Doris MD FRCSC
Chair, HAMAC, Fraser Health

Dr Andrew Webb MD FRCP MFMLM
VP Medicine, Fraser Health
At the February 22, 2011, meeting of the Board of Directors of the Fraser Health Authority, the Board passed four resolutions related to clinical audit, peer review and quality improvement. Of these resolutions two related directly to clinical audit requesting HAMAC to:

- ensure all regional departments develop a process of clinical audit by peer review that is appropriate to the clinical function of the department and ensures continuing improvement in the quality of medical care in the department.
- ensure all members of the medical staff participate in regular clinical audit of their clinical practice by peer review both within the process developed by regional departments and as required by relevant accreditation processes, with a report of that participation made available to the Board in the quarterly reporting by HAMAC.

This report, dated October 2013, provides an update on the activities undertaken by regional departments to monitor and improve the medical quality of care provided by their members.

**STRUCTURES to support and protect Medical Quality Improvement activities**

**Health Authority Medical Advisory Committee (HAMAC)**

In an effort to provide more comprehensive and consistent reporting by the Regional Departments to HAMAC on their medical quality activities, a structured report and schedule has been adopted by HAMAC. Each of the 15 Regional Departments provides a report to HAMAC on their medical quality improvement activities two times (2x) per year using the reporting template. Utilizing the data from the Regional Department reports, HAMAC is able to provide comprehensive and consistent reports to the Board of Directors on medical quality improvement activities being undertaken by Departments within Fraser Health.

**Department and Division Medical Quality Committees**

There are currently 46 medical committees that have been established by the Board as standing committees of HAMAC for the purposes of evaluating and improving the safety and quality of patient care.

The following Departments and Divisions have established and convened medical quality committees with approved Terms of Reference.

Anesthesiology – Regional Department Medical Quality Committee
- Site based local medical quality committees
EXECUTIVE SUMMARY
Clinical Audit Annual Report

Cardiology - Regional Department Medical Quality Committee
- Cardiac Surgery Quality Subcommittee
- General Cardiology Quality Subcommittee, Abbotsford Regional Hospital
- General Cardiology Quality Subcommittee, Surrey Memorial Hospital
- General Cardiology Quality Subcommittee, Royal Columbian Hospital
- Interventional Cardiology Quality Subcommittee, Royal Columbian Hospital

Critical Care – Regional Department Medical Quality Committee

Emergency Medicine – Regional Department Medical Quality Committee

Family Practice – Regional Department Medical Quality Committee

Geriatric Medicine - Regional Department Medical Quality Committee

Hospitalists - Regional Department Medical Quality Committee

Laboratory Medicine & Pathology - Regional Department Medical Quality Committee

Medicine - Regional Department Medical Quality Committee
- Abbotsford Regional Hospital Medicine Quality Committee
- Burnaby Hospital Medicine Quality Committee
- Delta Hospital Medicine Quality Committee
- Eagle Ridge Hospital Medicine Quality Committee
- Royal Columbian Hospital Clinical Teaching Unit Medicine Quality Committee
- Surrey Memorial Hospital Short Stay Unit Medicine Quality Committee
- Division of Endocrinology Quality Committee
- Division of Gastroenterology Quality Committee
- Division of General Internal Medicine Quality Committee
- Division of Infectious Disease Quality Committee
- Division of Nephrology Quality Committee
- Division of Neurology Quality Committee
- Division of Oncology Quality Committee
- Division of Rehab Medicine & Physiatry Quality Committee
- Division of Respirology Quality Committee

Medical Imaging - Regional Department Medical Quality Committee

Mental Health and Substance Use - Regional Department Medical Quality Committee
- Regional Division of Addictions Medical Quality Committee
- Regional Division of Child, Youth and Young Adult (CYYA) Psychiatry Medical Quality Committee
- Regional Division of Geriatric Psychiatry Medical Quality Committee
- Regional Division of Tertiary Psychiatry Medical Quality Committee
- Delta Hospital Mental Health and Substance Use Medical Quality Committee
• Surrey Memorial Hospital Mental Health and Substance Use Medical Quality Committee
• Abbotsford Regional Hospital Mental Health and Substance Use Medical Quality Committee
• Burnaby Hospital Mental Health and Substance Use Medical Quality Committee
• Chilliwack General Hospital Mental Health and Substance Use Medical Quality Committee
• Langley Memorial Hospital Mental Health and Substance Use Medical Quality Committee
• Peace Arch Hospital Mental Health and Substance Use Medical Quality Committee
• Ridge Meadows Hospital Mental Health and Substance Use Medical Quality Committee
• Royal Columbian Hospital Mental Health and Substance Use Medical Quality Committee
• Jim Pattison Outpatient Care and Surgical Centre Mental Health and Substance Use Medical Quality Committee

Obstetrics and Gynecology – Regional Department Medical Quality Committee

Surgery - Regional Department Medical Quality Committee
• Site based local medical quality committees

Goals for 2014:

Anesthesiology – Local Department Medical Quality Committees
• Establish an effective reporting system

Obstetrics and Gynecology
• Establish a regional perinatal and neonatal quality review committee
• Establish local multidisciplinary perinatal and neonatal review committees

Pediatrics
• Determine committee structure
• Develop Terms of Reference
• Convene first meeting of the Regional Department Medical Quality Committee

Surgery
• Inventory each surgical committee within Fraser Health that will include: purpose (Terms of Reference if available); membership; meeting frequency; and reporting relationship. This inventory will be used to organize and sanction committees of the Department of Surgery, and to determine how best to support their activities.
• Continue to establish and foster effective reporting systems for the local and division based medical quality committees.
CLINICAL AUDITS

The following clinical audits have been completed or commenced prior to October 2013:

Department of Cardiology
- Clinical audit to determine the degree of concurrence of ECG Reader Interpretations.
- Clinical audit of the medical care provided to patients presenting with Acute Coronary Syndrome (ACS)
- Procedure wait times
- Weekend handover notes
- Echo appropriate utilization criteria
- Appropriateness of Interventional Cardiology Procedures

Department of Critical Care
- Critical Care Physician Compliance with Rounding Checklist

Department of Emergency Medicine
- Sepsis management
- STEMI management
- Stroke management

Department of Family Practice
- Effectiveness of Family Practitioner and Hospitalists Discharge Practices

Department of Geriatric Medicine
- Appropriateness and effectiveness of the medical care provided at the initial assessment/new consult appointment to outpatients referred with a suspected diagnosis of dementia

Department of Hospitalists
- Utilization of the regional pre-printed orders for Geriatric Delirium (in acute care) by Hospitalists at the Royal Columbian and Eagle Ridge Hospitals
- Hospitalists care processes at admission and discharge
Department of Medicine
- Division of Endocrinology: Management of thyroid nodules
- Division of Endocrinology: Diabetes in pregnancy outcomes
- Division of Gastroenterology: Lower GI endoscopy reporting
- Division of General Internal Medicine: Concurrence of ECG reader interpretations
- Division of General Internal Medicine: Clinical audit of the medical care provided to patients presenting with Acute Coronary Syndrome (ACS)
- Division of Infectious Diseases: Appropriateness and effectiveness of the medical care provided by the Home IV Program to patients with diabetic foot infection.
- Division of Oncology: Completion of MOST for oncology patients at the time of admission to Surrey Memorial Hospital
- Division of Respirology: Bronchoscopy reporting

Department of Medical Imaging
- Echocardiography report content
- Carotid ultrasound report content
- BIRADS category inclusion in radiology reports
- Imaging guided lung biopsy yield and results
- Hospital congestion and medical imaging examination report turn around time

Department of Mental Health and Substance Use
- MHSU & Emergency cross-program clinical audit to improve patient safety and quality of care
- MHSU polypharmacy audit for tertiary mental health sites

Department of Surgery
- Surgical safety checklist audit
- Review of surgical site infections as identified by NSQIP, RCH Orthopedics
- Division of General Surgery: Laparoscopic colon resection at Chilliwack General Hospital
- Division of Vascular Surgery: Effectiveness of complex EVAR review policy
- Division of Vascular Surgery: Effectiveness of Vollmar ring endarterectomy as an alternative to arterial bypass
- Division of Vascular Surgery: VQI database
PEER REVIEW AND CHART REVIEW

The following departments have implemented formal, continuous peer review or chart review programs.

Department of Medical Imaging
  • Lower Mainland Interim Radiologist Peer Review

Department of Laboratory Medicine & Pathology
  • Anatomic Pathology quality management program

Department of Emergency Medicine
  • 72 hour returns

MORBIDITY & MORTALITY REVIEW

Most departments are participating in M & M review processes at a local site level, or at a divisional level. Appropriate reporting and follow-up of recommendations remains an area for improvement.

PERFORMANCE REVIEW/CLINICAL PERFORMANCE APPRAISAL

To improve physician performance and quality of patient care, the Department of Mental Health and Substance Use (MHSU) is designing and implementing a specific performance review tool for MHSU physicians within Fraser Health. The tool will provide a structured format to guide the discussion between department/division/site leaders and individual members of the department for the purposes of practice improvement and personal development. With content drawn from the CANMEDS and components of the psychiatry residency FITER, the performance review tool consists of 3 parts:
  • Self evaluation completed by the physician
  • Physician practice profile – quantitative information about the physician’s patient care load over the last year
  • Feedback from peers – online 360° tool to collect anonymous multi-source feedback

The tool will be undergoing pilot testing in October and November of 2013, and will be fully implemented across the Department in the Spring of 2014.
Background

At the February 22, 2011, meeting of the Board of Directors of the Fraser Health Authority, the Board passed four resolutions related to clinical audit, peer review and quality improvement. Of these resolutions two related directly to clinical audit requesting HAMAC to:

- ensure that all regional departments develop a process of clinical audit by peer review that is appropriate to the clinical function of the department and ensures continuing improvement in the quality of medical care in the department.
- ensure all members of the medical staff participate in regular clinical audit of their clinical practice by peer review both within the process developed by regional departments and as required by relevant accreditation processes, with a report of that participation made available to the Board in the quarterly reporting by HAMAC.

Two years later, in this second annual report dated October 2013, an update on the implementation of these recommendations and the activities undertaken by regional departments to monitor and improve the medical quality of care provided by their members is provided.

Structures to support and enable medical quality improvement

1. Medical quality improvement framework

Although not formally adopted by HAMAC, the framework (Figure 1) is used by most Departments as an effective tool to guide discussions about medical quality improvement and to categorize activities undertaken. In summary, medical quality improvement activities focus on improving the medical management of the patient by answering key questions:

- Do we know what the right things are to provide clinically effective care?
- Are we doing the right things right?
- Do we know what patients’ experiences have been with the medical aspects of their care?
- Do we know what adversely affects patients?
- Is the medical staff currently competent and supported through professional development?
- How do we know?
Figure 1     Medical Quality Improvement Framework\(^1\)

Knowing and acting on what's right – current best known practice

Using evidence-based practice. Searching for and critically appraising evidence

- Clinical practice guidelines
- Protocols
- Checklists
- Pre-printed orders

Being supported to do the right things right in the work environment – proper systems and support

Redesigning systems and practices for quality and safety

Knowing if you're doing the right things right and acting if you aren't

Using quality improvement and clinical audit

- Chart/case Review
- Image/slides review
- Audits of CPG/PPG/protocol use and outcomes

Knowing and acting on patients' and service users' experiences

Involving patients and service users to improve services. Learning from feedback and complaints

- Patient satisfaction with clinical care
- Complaints from peers & health professionals
- Complaints from patients

Knowing and acting on how patients are adversely affected by things

Managing clinical risk. Investigating and learning from adverse events

- Morbidity & Mortality Review Rounds
- Patient Safety Learning System (PSLS) Medical Management Reviews
- Trigger tools

Knowing and acting on how to do things right – proper techniques and procedures

Appraising clinical performance. Supporting professional development.

- Case-based discussion
- Direct observation of practice
- 360° Assessment
- Clinical audit

Information on Quality and Safety to support Accountability

--\(^1\) Figure 1 adapted from “Clinical Governance Manual”. Healthcare Quality Quest, UK, 2008
2. Quality Committees

The Department, Division, and local quality committee structures are the venue for engaging peers in discussion, and the foundation upon which medical quality improvement programs can be established.

A significant undertaking for the regional departments has been determining quality committee structures that will enable quality activities to take place in a coordinated and planned approach, and to also ensure medical quality improvement activities are afforded protection under Section 51 of the Evidence Act.

13 of the 15 regional departments have established a Regional Department Medical Quality Committee (RDMQC). Appointed by the Board on the recommendation of HAMAC, these standing medical committees are responsible for:

- evaluating, controlling and reporting on clinical practice in order to maintain and improve the safety and quality of patient care;
- appraisal and control of quality of patient care;
- professional practice evaluation and structured quality improvement of the care provided to patients by its members. This includes reviewing:
  - patient clinical outcomes
  - adverse clinical events arising from patient care
  - morbidity and mortality
  - mechanisms of care provision
- providing advice to HAMAC with respect to patient care;
- providing advice to Regional Department Heads and/or HAMAC with respect to the education of the Medical Staff and other health care professionals.

In addition to the RDMQC, some departments that have multiple divisions have established Regional Division Medical Quality Committees, and others have established medical quality committees at a site (local) level. This approach allows peers of sub-specialities within a division to have focused quality discussions and also aligns existing committees functioning at a local site level with regional department structures.

The Departments of Family Practice and Obstetrics and Gynecology both established their respective Regional Department Medical Quality Committees in 2013. The Department of Medicine also spent concerted effort in establishing their divisional and site based quality committee structures.

In total, there are currently 46 department associated medical quality committees within Fraser Health.

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2 Regional Department Medical Quality Committee Terms of Reference
3. **Building Awareness and Engagement – Informing Physicians about Medical Quality Improvement**

For medical quality improvement to be successful physicians must believe in the benefits of engaging in the activity; have trust that the outcome will be used for improvement of medical practice and patient care; and be involved in selecting the activity to ensure that it is relevant and has value to them.

Commencing in April 2012, invited presentations were provided to Departments and Divisions for the purpose of:
- providing information about the medical quality improvement framework and each component within the framework
- providing specific information about the clinical audit process
- engaging physicians in the medical quality improvement discussion
- identifying a medical quality improvement activity to undertake in the coming year

Similar information has also been provided in one-on-one conversations with department and, division heads, and heads of department (local).

4. **Reporting – Communicating Achievements**

In order to assist regional departments with reporting their medical quality initiatives to HAMAC, and HAMAC in turn reporting to the Board, a regional department medical quality reporting template and schedule (Figure 2) has been adopted and utilized over the past year.

**Figure 2 - Schedule of Reporting By Regional Departments to HAMAC**

<table>
<thead>
<tr>
<th>Regional Department</th>
<th>Month for Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jan</td>
</tr>
<tr>
<td>Medical Imaging</td>
<td>X</td>
</tr>
<tr>
<td>Lab Medicine &amp; Pathology</td>
<td>X</td>
</tr>
<tr>
<td>Medicine</td>
<td>X</td>
</tr>
<tr>
<td>Critical Care</td>
<td></td>
</tr>
<tr>
<td>Cardiology</td>
<td>X</td>
</tr>
<tr>
<td>Surgery</td>
<td></td>
</tr>
<tr>
<td>Anesthesiology</td>
<td>X</td>
</tr>
<tr>
<td>Obstetrics &amp; Gynecology</td>
<td></td>
</tr>
<tr>
<td>Emergency Medicine</td>
<td></td>
</tr>
<tr>
<td>Mental Health &amp; Addictions</td>
<td>X</td>
</tr>
<tr>
<td>Family Practice</td>
<td></td>
</tr>
<tr>
<td>Hospitalists</td>
<td>X</td>
</tr>
<tr>
<td>Pediatrics</td>
<td></td>
</tr>
<tr>
<td>Geriatric Medicine</td>
<td></td>
</tr>
<tr>
<td>Infection Prevention &amp; Control &amp; Public Health</td>
<td></td>
</tr>
</tbody>
</table>
Clinical Audit – Defining, Identifying and Implementing

Clinical audit is a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit standards/criteria and the implementation of changes in practice if needed. 3

Clinical audit has 3 key elements:
- Measurement – measuring a specific element of clinical practice
- Comparison – comparing results with the recognized standard/criteria
- Evaluation – reflecting on the outcome of the audit and where indicated, changing practice accordingly

By conducting a clinical audit current clinical practice can be measured and compared objectively with established good practice, and if necessary, enable actions to be taken to improve care provision.

As part of a comprehensive medical quality improvement program, clinical audit can:
- provide evidence of current practice against regional department/provincial/national/international guidelines or standards;
- assess how closely local practice resembles recommended practice;
- establish if you are actually doing what you think you are doing;
- reinforce the implementation of evidence-based practice; and,
- influence improvements to individual patient care.

Clinical audit has a defined methodology that consists of eight (8) steps as illustrated in Figure 3.

Figure 3 – The Clinical Audit Process

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3 Adapted from National Institute for Clinical Excellence. Principles for Best Practice in Clinical Audit. Radcliffe Press, Abingdon, 2002
The first two steps in the clinical audit process set the direction for all subsequent steps and activities. In identifying the topic and defining the audit objectives, it is crucial that the topic has value and relevance to the department/division members, and that the objectives focus on improving the medical quality of care.

Departments and divisions have started to engage in the discussion about clinical audit – what it is, why it is important, and identifying topics of interest. For those departments that have multiple divisions such as Medicine, clinical audits have been identified and implemented at a division level. Once the topic has been selected by the department/division, a physician champion or steering committee has been established to continue the work of designing and implementing the audit. An update on clinical audit activities of each regional department/division is provided in the Department Summaries section of this report.

**Morbidity and Mortality Review – Policy, Procedures and Process**

Morbidity and Mortality Review (M & M) is a well-established quality improvement process that answers the question “How could we have prevented this?” by reviewing patient cases and generating discussion. With this process, patient cases are selected for review using established “trigger tools” or screening criteria. The process for reviewing the patient case will vary but typically will involve presentation of the patient case to a group of peers who will discuss the case and generate recommendations to prevent recurrence. Provided the process of review is conducted in a supportive collegial environment, significant learning and improvements to patient care can result.

Citing that M & M review is a well-known concept to physicians, a few departments have selected this as the initial medical quality improvement activity to pursue. Establishing appropriate case selection tools, documenting the process for conducting the review, and identifying how learnings and recommendations will be communicated have been the focus of activity.

Most M & M review is taking place at a local hospital level and appropriate medical quality committees are being established to ensure these activities are conducted in accordance with the requirements of Section 51 of the Evidence Act. This will be a continuing area of focus over the coming year.

A reporting template has also been developed to facilitate reporting by the committees to HAMAC and the Board.
Anesthesiology

Regional Department Medical Quality Committee Activities

Morbidity & Mortality Review

During the period of October 2012 to January 2013 morbidity and mortality review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided.

1 patient case that had a poor outcome was selected for review.

Learning points and recommendations for improvement arising from the case reviewed, and the status of implementation are as follows:

<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Given the complexity of perioperative management “of adrenal tumors”, and the potential for catastrophic intra and postoperative complications, it should be suggested that such surgery should be performed only at centers experienced in the management of this disorder.</td>
<td>Implemented</td>
</tr>
</tbody>
</table>

Medical Management Review

During the period of October 2012 to January 2013, 1 medical management review was conducted for the purposes of evaluating and improving the medical quality of care provided.

Learning points and recommendations for improvement arising from the case was reviewed, and the status of implementation is as follows:

<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Develop evidence-based standardized protocols/guidelines, &amp; Pre-printed order sets for Epidural Management using common language for anaesthesia and nursing staff.</td>
<td>Implemented</td>
</tr>
<tr>
<td>2. Regional Department Head of Anaesthesia to provide Continuous Medical Education re: Epidural Neuro-Axial Blockade to anaesthetists</td>
<td>In progress</td>
</tr>
</tbody>
</table>
3. Develop proposal for Clinical Nurse Specialist/ Nurse Practitioner for Acute Pain Service, provide same service model as SMH & RCH.  

Insufficient funding

4. Department of Anaesthesia to review ARHCC Acute Pain Service 24/7 coverage and the interaction of MPP on-call anaesthetist

Done

Evidence Based Practice/Medical Management Tools

- Obstructive Sleep Apnea Guidelines
  The Guideline has been developed and a pre-implementation trial completed. A trial of the equipment is needed for the implementation planned. Funding and resource issues apparent.

- Regional Conscious Sedation Policy and Procedure:
  Little progress has been made. Not seen as a problem by sedation providers.

Quality Improvement Initiatives

AIMS (Anesthesia information management system):

This system is a comprehensive Anesthesia Information Management System (AIMS) that follows a patient from first contact to discharge from the Acute Pain Service. Its core is the recording of intraoperative data from patient monitors, but it also includes a comprehensive pre-operative assessment package and post-operative monitoring package.

An earlier version of this package using only the intra-operative module has been in use in ARHCC since it opened. The surgical program is currently upgrading ARHCC to the most recent version (live April 2013), as well as installing it at SMH and JPOCSC. These two sites are due to go live in May/June 2013. It is hoped that the entire region will be live on this system by the end of fiscal year 2014/2015.

As part of the staged implementation, ARHCC will be trialing the Pre Admission module this spring, and possibly the post-operative module next spring

This system will have a considerable impact on the efficient flow of patients through the surgical program as well as a significant effect on quality care. Of particular note is the PAC module. The PAC module of CPA is designed as a cascading pop-up box model that allows significant modification. Within FHA we are currently in the midst of redesigning the PAC and have implemented a comprehensive 7 page history and decision support tool that covers the gamut from basic things like height and weight to questions regarding home
support and post-operative rehab needs. It is our intention that we will take this DSP and build it directly into the program. This will allow us to gather this information on all elective surgical patients in a digital format.

From an efficiency point of view, in Santa Barbara we were told that their pre-admission staff are completing a similar form on uncomplicated patients in under 5 minutes and on complicated patients in under 30. This in contrast to our times of 15 and 60 minutes in FHA for the same patients using the current written system. Repeat visits by the same patient in Santa Barbara are even quicker because the interviewer has access to all previous PAC visits and can quickly determine if there is “no change”. Our current system in FHA requires us to start each repeat visit as a new patient.

The cascading pop-up model within CPA allows a positive response to a question to generate other questions that further elucidate a patient’s condition. In the background it also generates appropriate lab and other required investigations depending on the information. i.e. diuretic = potassium order. The system also has the ability to then build, upload to Meditech, and then print a “consult” note from the information input. These should all have a significant impact on costs, either through savings in time spent on each patient allowing more patients to be seen by less staff, the prevention of un-needed lab testing, or decreased use of dictation services.

The overall quality of care will also be increased exponentially. Although our current system is an improvement on the unpredictable nature of information from a surgeon’s office, it does not allow us to linearly track a patient. Each visit to one of our hospitals is treated as if we are seeing the patient for the first time. The retrieval of past information is also problematic as the information is stored in varied locations. CPA will allow us to have all of this information in one location. Each visit builds on the one before so that we see the continuum and significant change whether within one hospital or many. Further, the use of a standardized comprehensive digital system provides the consistency required to prevent patient errors once the patient is in hospital. CPA allows all the information obtained from all PAC visits to be seen by the anesthesiologist in the surgical suite as the patient is progressing through their experience. We all know that anesthesia is very safe; it is the application of systems such as CPA that will allow us to continue to make incremental improvements by allowing immediate access to standardized comprehensive information.

All information within CPA is stored on a central data server, whether from the PAC or from intra operative data collection or from follow up Post Anesthesia Care and Acute pain management. This allows for data mining. Once again thankfully, anesthesia is pretty safe and problems occur rarely. Continuing improvement requires us to be able to find issues that may not be immediately visible from a high level of observation. The data mining of events such as “hypotension with induction”, or “post op nausea” and being able to correlate them with other variables such as age, ASA status, exercise tolerance and/or others will allow us to identify areas of concern, and continue to improve care in each hospital and across hospitals within our region.
CPA also allows us the ability to join NACOR (National Anesthesia Clinical Outcomes Registry). This is a registry very similar to NSQIP which is currently being used by our surgical colleagues. Joining NACOR will allow us to benchmark FHA against anesthesia providers throughout North America by providing a much larger denominator against which we can be compared. The cost is minimal as all that is required is the transfer of digital data electronically.

The AIMS project is the highest priority item for anesthesia quality assurance. While some progress has been made, implementation has been delayed at ARHCC, SMH, and JPOSC due to funding limitations. Phase 2 and phase 3 of the project is currently on hold due to funding issues.

**Supporting Professional Development**

Regional ACLS training specific to anesthesia at RCH.
Cardiology

Medical Quality Committee Activities
The Department of Cardiology has established a Regional Department Medical Quality Committee with five permanent subcommittees. The subcommittees are structured to encompass both division focused activities and hospital site locations.

Regional Department of Cardiology Medical Quality Committee

Cardiac Surgery Quality Subcommittee
Meeting dates: Combined as RCH Cardiac Quality Committee

General Cardiology Quality Subcommittee, Abbotsford Regional Hospital and Cancer Centre

General Cardiology Quality Subcommittee, Surrey Memorial Hospital

General Cardiology Quality Subcommittee, Royal Columbian Hospital
Meeting dates: Combined October 25, 2012, April 25, 2013

Interventional Cardiology Quality Subcommittee, Royal Columbian Hospital

Clinical Audits

1. Title: Clinical Audit to determine the degree of concurrence of ECG Reader Interpretations.

   Division: General Cardiology and General Internal Medicine

   Phase:
   - Planning
   - Designing
   - Data Collection
   - Analysis
   - Reporting

   Background:
   The Divisions of General Cardiology and General Internal Medicine are undertaking a collaborative clinical audit that will examine the degree of concurrence of ECG Reader interpretation between all ECG readers. The “ECG Peer Review Process” has been designed and agreed to by both Cardiologists and Internists and will be conducted in 2 phases.
Phase 1 – ECG peer review and education

**ECG Peer Review:**

1. **ECG selection:**
   - 20 abnormal ECGs from each ECG reader will be reviewed 2x per year for a total of 40 ECGs per reader per year.
   - ECGs will be selected from all sites (not just MUSE sites).
   - The ECGs for review will be "blinded" - all identifying information such as patient name and ECG reader name will be removed.

2. **ECG Review**
   - Each ECG will be reviewed by 1 member from the ECG Peer Reviewer pool. The pool will consist of 10 volunteer cardiologists who will over-read the ECG and record their determination as: "agree completely" or "agree mostly" or "disagree".
   - The "agree completely" and "agree mostly" will have no further action.
   - The "disagree" will proceed to review by the ECG Peer Review Committee.
   - The ECG Peer Review Committee will be Chaired by Dr. John Lemaitre and have as membership: Dr. Lemaitre; 1 cardiologist from SMH; 1 cardiologist from ARH; and 2 members from General Internal Medicine.
   - The entire Committee will over-read the ECGs brought forward as "disagrees" and record their determination as a Committee.
   - In reviewing the ECGs the Committee will also identify ECGs that have educational value and can be used as "seeded cases" for phase 2.

3. **Results Reporting:**
   - The results of the ECG peer review process will be submitted: for cardiologists to Dr. Kornder; for internists to Dr. Shaw.
   - Drs. Kornder and Shaw will provide feedback to their respective members of individual performance and aggregate performance.

4. **Addressing “outliers”**
   - For those individuals identified as "outliers", it is proposed that a greater number of ECGs will be over-read. No definition of “outlier” is proposed at this time as the group recommends that the anonymized and aggregate results are reviewed first to see what overall performance of FHA ECG readers is.

5. **Implementation**
   - The Cardiology program will provide the cardiac technologists to support and operationalize the ECG peer review process.

**Education:**

- To support improved practice, ECG education will be provided on a regular and continuous basis through virtual ECG meetings, circulating ECGs as "ECG of the Month" and/or having ECG rounds.
• ECGs identified by the ECG Peer Review Committee as having educational value will be one source of ECGs for presentation.

**Phase 2 – Enhanced ECG peer review**

• Once Phase 1 has been implemented successfully, an enhanced Phase 2 will be implemented.
• Phase 2 would involve seeding "control" ECGs into the workflow of ECG readers.
• The control ECGs would be selected by the ECG Peer Review Committee.

2. **Title:** Clinical audit of the medical care provided to patients presenting with Acute Coronary Syndrome (ACS)

**Division:** General Cardiology and General Internal Medicine

**Phase:**
- [ ] Planning
- [X] Designing
- [ ] Data Collection
- [ ] Analysis
- [ ] Reporting

**Background:**
The Divisions of General Cardiology and General Internal Medicine are undertaking a collaborative clinical audit that will examine the medical care provided to patients presenting with Acute Coronary Syndrome (ACS).

**Data collection strategy:**
A retrospective chart review will be conducted on 50 charts at each of the 8 sites as follows:
- For Cardiology: SMH, ARH and RCH
- For Internal Medicine: BH, RMH, ERH, DH, LMH, PADH

**Note:** The sites of MMH, Hope, and Chilliwack will not be included in this audit due to the low volume of patient cases.

Each chart will be reviewed to determine the extent to which the following criteria are met:

**History/Consult dictated and on chart within 24 hours**

**Medications within 24 hours of admission:**
- ASA
- Antiplatelets
- Beta Blockers
- RAAS Blockers
- Statins

**Medications At Discharge:**
- ASA
- Antiplatelets
- Beta Blockers
- RAAS Blockers
- Statins
Smoking Cessation discussion documented
Cardiac Rehab referral discussion documented
Discharge Summary in EMR within 24 hours of discharge
Follow up plan documented and includes:  
- Driving
- Sex
- Work
- GP appointment
- Specialist appointment

Readmission for any reason within:  
- 30 days
- 6 months

3. Title: Procedure wait times

Division: General Cardiology

Site: Surrey Memorial Hospital

☐ Planning  ☐ Designing  ☐ Data Collection  ☐ Analysis  ☒ Reporting

Background: The wait time from admission to diagnostic test or treatment (PCA/PCI, CABG, Pacemaker, ICD) is a quality indicator that we track on the cardiology unit N43 at SMH.

Objectives:
To track wait times for specific cardiac procedures

Patient Selection:
All patients at Surrey Memorial Hospital on ward N43

Time period: Jan 2013

Data collection strategy:
The Patient Care Coordinator or designate on N43 Cardiology Unit at SMH keeps a log of all the patients awaiting Cath, Cang, Pacer and ICD. This is reported to Dr. J Kornder on a monthly basis, and reflected to the cardiologists at SMH and FHA Cardiac executive.

Results:
Current Cardiac Cath Wait 2.6 Days, Coronary Artery Bypass Graft (CABG) Wait 11 days, Permanet Pacemaker (PPM) wait 2.9 days, Implantable Cardio-Defibrillator (ICD) wait 6 days

Actions:
The results indicate that the wait times are in alignment with Canadian recommendations.

Physician participation rate: 11/11 – 100%
Title: Wait time for PCA and PCI at Surrey Memorial Hospital

Background: Track the waiting time for Cardiac Catheterization (PCA) and angioplasty (PCI)

Objectives: To ensure Quality care and meet internal goal of less than 3 days and ideally one day wait.

Patient Selection: All patients on N43 Sequentially

Time period: 2007 to 2008

Data collection strategy: Log book

Results:

![Days waited at SMH for PCA 2007-2008](chart)

Actions: Historical awareness

Physician participation rate: 8/8 – 100%
Title: Wait time for PCA and PCI at Surrey Memorial Hospital

Background: Track the waiting time for Cardiac Catheterization (PCA) and angioplasty (PCI)

Objectives: To ensure Quality care and meet internal goal of less than 3 days and ideally one day wait.

Patient Selection: All patients on N43 Sequentially

Time period: Jan 2010 to Feb 2011

Data collection strategy: Log book

Results:

**SMH Cath Wait Times**
**Jan 2010 to Feb 2011**

Actions: Observations

Physician participation rate: 10/10 – 100%
Title: Wait time for PCA and PCI at Surrey Memorial Hospital

Background: Track the waiting time for Cardiac Catheterization (PCA) and angioplasty (PCI)

Objectives: To ensure Quality care and meet internal goal of less than 3 days and ideally one day wait.

Patient Selection: All patients on N43 Sequentially

Time period: After central FHA Referral March 2011 to present

Data collection strategy: Log book

Results:

![SMH Cath Wait since Central Referral March 2011](image)

Actions: Discuss at Cardiac Executive and CSBC

Physician participation rate: 11/11 – 100%
Title: Wait time after angiogram for CABG at Surrey Memorial Hospital (Inpatient)

Background: Track the waiting time for CABG after cath and decision made for CABG

Objectives: To ensure Quality care and to meet Canadian goal of less than 14 days

Patient Selection: All patients on N43 Sequentially

Time period: 2013

Data collection strategy: Log book

Results: Average (not median) days waited

Actions: Ongoing monitoring and awareness of system stress times worsened by one single 103 day outlier

Physician participation rate: 100%
Title: Wait time at Surrey Memorial Hospital for Pacemaker Insertion at JPOCSC or RCH and Wait time for Pacemaker Insertion at Surrey Memorial Hospital (Inpatient)

Objectives: To ensure Quality care and to meet Canadian goal of less than 14 days

Patient Selection: All patients on N43 Sequentially

Time period: 2013

Data collection strategy: Log book

Results: Average (no median) days waited. NOTE: RCH is FHA Program at both JPOCSC and RCH

Physician participation rate: 100%
4. Title: Weekend Handover Notes

Division: General Cardiology

Site: Surrey Memorial Hospital

Phase:
- □ Planning
- □ Designing
- □ Data Collection
- □ Analysis
- □ Reporting

Background:
Cardiac patients are complex and the transfer of care between physicians requires the exchange of appropriate information to ensure care decisions are based on a full understanding of the patient.

Objectives:
To determine the percentage of time that formalized weekend handover notes are documented in Cardiac Patient charts on ward N43.

Patient Selection: All patients on ward N43

Time period: June 2012-Jan 2013

Data collection strategy:
Retrospective review of patient charts. Dr J Kornder reviews all charts for presence or absence of a handover note whenever he is on call for a weekend or statutory holiday (approximately one per month).

Results:

Percentage of Charts with Weekend Handover Notes

![Graph showing the percentage of charts with weekend handover notes from February 2012 to July 2013. The percentage starts at 25% in February 2012 and increases to 100% by July 2013.]

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July 13, 2013 reported 100% of patient charts had a weekend handover note. 90-95% handover notes SUSTAINED over one year.

Actions: Target maintenance

Physician participation rate: 10/10

5. Title: Echo Appropriate Utilization Criteria (AUC)

Division: General Cardiology

Site: JPOCSC

Phase:
- □ Planning
- □ Designing
- □ Data Collection
- □ Analysis
- □ Reporting

Background: Imaging AUC with Nuclear Medicine in USA reported inappropriate in 30%, BC CT and MRI Inappropriate only 2%, what is our echo inappropriate rate?

Objectives:
To determine physicians’ use of appropriate utilization criteria (AUC) (ACC/AHA) when requesting echocardiography examinations.

Patient Selection:
Patients undergoing echocardiography examinations at JPOCSC

Time period: February 11-15, 2013

Data collection strategy:
This was a prospective audit of patient examination requisitions over the course of 1 week. Requisitions were reviewed by a Cardiologist, and based upon the clinical information provided on the requisitions, a determination was made as to whether the request for an echocardiography examination was appropriate by ACC/AHA AUC criteria.

Results:
- 84% (131/156) were found to be appropriate examination requests
- 6.4% (10/156) were found to be inappropriate examination requests
- 3.1% (5/136) were uncertain
- 6.4% (10/156) of examinations were performed when there was no requisition

Actions: Department informed that NO studies would be done without requisitions. Agreed at Cardiology Division SMH to ask Cardiologist at JPOCSC or on call for any repeat studies within 6 months without a clear indication for need for repeat study.
6. Title: Appropriateness of Interventional Cardiology Procedures

Division: Interventional Cardiology, Royal Columbian Hospital

Phase:
- □ Planning
- □ Designing
- □ Data Collection
- □ Analysis
- ✗ Reporting

Background: On a quarterly basis the RCH Interventional Cardiology Quality Subcommittee undertakes case reviews to ensure that the best possible care and outcomes are delivered to cardiac patients and to ensure the adherence to clinical practice guidelines for patients who undergo procedures in RCH cardiac catheterization laboratories.

Objectives:
The specific objectives for the case review include:
- to evaluate the appropriateness of the diagnostic procedure;
- to evaluate the appropriateness of the interventional procedure;
- to evaluate the procedural outcome of the interventional procedure; and,
- to review the adequacy of documentation of the interventional procedure.

Patient Selection: Patients who underwent an interventional procedure in the Cardiac Cath Lab at Royal Columbian Hospital.

Time period: Data has been collected since January 2011 for the past 8 meetings.

Data collection strategy:
On a quarterly basis 2 cases are randomly selected for each intervention cardiologist to present at the RCH Interventional Cardiology Quality Subcommittee meeting. Representatives from general cardiology and cardiac surgery in FH are invited to attend. For each case, the following questions are asked:
1. Is the indication of the diagnostic procedure appropriate?
2. Is there a good indication for PCI?
3. Is the final outcome achieved?
4. Is the quality of the imaging adequate?
5. Is the documentation of the procedure adequate?

Members of the committee complete an evaluation form and score their agreement using a scale of 0 (disagreement) to 3 (agreement).

Results:
In general, the scores achieved in each of the categories were 90-100% in all operators. Immediate feedback was provided and benefits were derived from the discussion. Occasional cases were shared at the end of the meeting when time allowed, and opinion sought. Dr. Webb from SPH joined the May 2013 meeting and he would suggest to the VCH group to invite RCH group to attend their review meeting which has been started recently modeling the RCH IC review meeting.
Morbidity & Mortality Review

Surrey Memorial Hospital

At SMH during the period of November 2012, to February 2013, “Interesting Case” (morbidity and mortality) review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided. 5 patient cases were reviewed.

Learning points and recommendations for improvement arising from the cases reviewed, and the status of implementation are as follows:

Learning Points / Recommendations:

1. If a patient cannot afford medication that is critical such as antiplatelet for DES, the company can be contacted on a case by case basis for individual compassionate no cost release.
2. Physicians will endeavor to communicate treatment plans better at handover so miscommunications about intended treatment strategies are minimized.
3. Appropriate use of “second opinion: (i.e. EPS) by sub specialists is encouraged in difficult cases
4. Rivaroxaban Trial for P Emb may be helpful for ACS also.
5. Individual Risk/Benefit analysis with best literature knowledge. WOEST Trial discussion.
6. Recommend pacemaker and lead sticker and brief note in chart at time of pacemaker as previously done at SMH.

Royal Columbian Hospital

Formal Multidisciplinary Monthly Mortality and Morbidity rounds are conducted. Participation includes Cardiac Surgery, Interventional Cardiology, Clinical Cardiology, Cardiac Anaesthesia, CSICU staff, and nursing review all adverse outcomes of the surgical and interventional programs as well as clinical outcomes.

Weekly clinical rounds review problem and interesting cases are presented to the department for discussion of management and outcomes.
Evidence Based Practice/Medical Management Tools

Cardiology, Surrey Memorial Hospital

FHA Wide Acute Coronary Syndrome (ACS) standardized protocols have been developed and are currently under review.

Supporting Professional Development

Cardiology, Surrey Memorial Hospital

Review of EMR for specialists as a quality tool. Several members considering implementing EMR
Weekly physician lead education rounds
Quarterly echocardiography rounds
Monthly journal club

Royal Columbian Hospital

Monthly joint journal club
Critical Care

Regional Department Medical Quality Committee Activities

Clinical Audits

Title: Critical Care Physician Compliance with Rounding Checklist

Site: All sites with ICUs (RCH, SMH, ARH, BH, RMH, PAH, LMH, CGH)

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Background:
Care for the critically ill is complex and attention to detail very important. To ensure all aspects of care are considered on a regular basis, a checklist approach to daily patient rounds is proposed. This is comprised of care processes that have been demonstrated to improve patient outcomes including a daily review of sedation, ventilation plan, medication reconciliation, the need for invasive lines and a clear daily plan. In addition, it includes a review of family updates and barriers to patient transfer from the ICU.

Objectives:
Full compliance with the rounding checklist by all physicians working in the ICU

Patient Selection: All ICU patients (at community hospitals may focus only on ventilated patients)

Time period: Proposed to conduct ongoing audits ... 1-2 months in duration.

Data collection strategy: Prospective collection from rounding checklists

Results: Each process included on the checklist is important to patient care and ensuring they are discussed on rounds will also ensure patients and their families are receiving best care and appropriate treatment, respectively.

Actions: All sites are up and running, piloting their respective rounding checklists. Pilot collection of data for audit purpose is underway at most sites and some have submitted to Medical Quality Committee. Plan to review in the Fall of 2013

Physician participation rate: All physicians will participate.
Morbidity & Mortality Review

At the September 2012 Medical Quality Meeting the Committee recognized all 8 sites with ICUs as having their own formal Critical Care Morbidity and Mortality Review Committee chaired by the respective member for their hospital on the Medical Quality Committee. As such, all meetings will meet the criteria for Section 51 protection.

Abbotsford Regional Hospital and Cancer Centre

The Critical Care Department at ARHCC has been developing a process for conducting morbidity and mortality review rounds that will be piloted over the next several months. Patient cases will be selected for review using the following process and criteria.

Patient selection criteria:
- Patient death in unit – expected and unexpected
- Unexpected cardiac arrest
- Unplanned extubation
- Reintubation within 24-48 hours after planned extubation
- Readmission to unit within 48 hours after discharge from unit
- ARDS
- Complications of dialysis

Patients who meet at least one of the above criteria are recorded on the “Department of Critical Care ARH Morbidity and Mortality Identification Sheet” that is kept in an M & M Review binder in a secure location on the unit. Any member of the clinical team may record a patient in the binder. In unit deaths are classified as expected or unexpected, with an expected death defined as having occurred when the goals of the care have been changed to reflect impending patient death. On a quarterly basis, the Abbotsford Regional Hospital Department of Critical Care Morbidity & Mortality Review Committee will appoint a Reviewing Physician to conduct an initial review of the cases identified in the binder with the exception of deaths identified as expected. The Reviewing Physician will review the patients’ charts and prepare notes in preparation for presentation of the cases at the Abbotsford Regional Hospital Department of Critical Care Morbidity & Mortality Review Committee meeting. On a quarterly basis, a meeting of the Abbotsford Regional Hospital Department of Critical Care Morbidity & Mortality Review Committee will be convened.

The Reviewing Physician will present each case for the purpose of:
- discussing management decisions
- discussing severity, causality and preventability of the event(s)
- providing a learning opportunity
- identifying opportunities to improve patient safety and quality of care.
In the case discussion, consideration will be given to whether any of the following contributed to the morbidity or mortality:

- Underlying disease
- Treatments and procedures: including iatrogenic events (intrinsic to usual ICU procedures performed in accordance with standards of care) and nosocomial infections
- Human error: including judgment, knowledge and technical skills
- Equipment malfunction: including equipment failure and inadequate equipment
- Work environment: communication problems, failure to provide or enforce policy/protocol, absence of policy/protocol, understaffing, poor task prioritization, inappropriate behaviour or action, lack of supervision, high-stress situation
- Other: including lack of communication/coordination between ICU and other departments, patient’s condition (agitation, confusion), fatigue or burnout of caregivers
- Unidentified and independent of the disease process or ICU procedures

The Department of Critical Care ARH Morbidity & Mortality Meeting Notes template will be used to record any recommendations arising from the review and to classify the event.

The ARH M & M Committee met on December 12, 2012 and May 10, 2013 for the purposes of evaluating and improving the quality of patient care provided.

All deaths were reviewed and three patient cases were selected for in-depth review for the December 12th M&M meeting. All deaths were reviewed and one case was selected for in-depth review for the May 10th M&M meeting. No recommendations were made on the May 10th case reviewed.

Learning points and recommendations for improvement arising from the cases reviewed, and the status of implementation are as follows:

<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patients with chronic kidney disease on peritoneal dialysis should be switched to hemodialysis in the setting of severe sepsis</td>
<td>Accepted as future practice by all ICU physicians.</td>
</tr>
<tr>
<td>2. Need to ensure multiple chest tubes are clearly marked regarding location</td>
<td>Taken to program team to ensure RN and MD compliance with this.</td>
</tr>
</tbody>
</table>

---

Expected Death Review

On a yearly basis, 20 in unit patient deaths classified as “expected” will be randomly selected and reviewed by an appointed critical care nurse or physician. The purpose of the review will be to ensure that expected deaths have been classified appropriately. Any cases in which the reviewer does not concur with the classification of “expected” will proceed through the mortality review process. From September to November 2012, a total of 20 deaths (16% mortality) occurred. All of these were reviewed and 18 deaths were expected and confirmed as such on review with 11 of these preceded by a move to comfort measures and withdrawal of life support. From December, 2012 to February, 2013 31 patients died. Of these 30 were classified as expected, 23 of whom had goals of care changed to comfort only.

Burnaby Hospital

In July 2012, the Critical Care Department at Burnaby Hospital commenced a morbidity and mortality review process. Patient cases will be selected for review using the following process and criteria.

Patient selection criteria:
- delay in care – medication, surgery, procedure
- delay in patient transfer out for “higher level of care”
- delay in patient transfer out to medical ward
- complication of a procedure
- iatrogenic complications
- family dissatisfaction and/or complaint

Patients who meet at least one of the above criteria are recorded in an M & M Review binder that is kept in a secure location on the unit. Any member of the clinical team may record a patient in the binder. Case will be reviewed by an assigned physician and presented at quarterly meetings.

The Burnaby Hospital M & M Committee met on October 4, 2012 and March 5, 2013 for the purposes of evaluating and improving the quality of patient care provided.

All patient deaths were reviewed and other cases were selected for review using the process and criteria outlined above. At total of 13 cases were selected for review in both October and March rounds. These included both ICU and Internal Medicine cases.
Learning points and recommendations for improvement arising from the cases reviewed, and the status of implementation are as follows:

<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Need to improve communication between lab and ICU of microbiology reports</td>
<td>Discussions with lab undertaken</td>
</tr>
<tr>
<td>2. Improved handover for ICU patients</td>
<td>Mandated handover of all ICU patients whenever off site or unable to attend to the on call ICU physician</td>
</tr>
<tr>
<td>3. Early discussion with family about level of care for patients</td>
<td>Implementation of MOST augmented by local initiative to improve communication on levels of care</td>
</tr>
<tr>
<td>4. Pacemaker insertion needs to be done in a timely fashion for those meeting ACC criteria</td>
<td>Follow-up with Cardiac program regarding need to ensure timely pacemaker insertion</td>
</tr>
<tr>
<td>5. Increased availability of upper GI endoscopy at BH</td>
<td>Discussion with Division of Gastroenterology</td>
</tr>
</tbody>
</table>

**Royal Columbian Hospital**

At present, the Local Department Head is copied on all Death summaries and reviews these monthly. Those that appear to be of concern or interest are selected and the last attending physician is asked to provide a summary at the monthly business meeting for discussion. The group is considering a more formalized process, similar to that adopted by ARH and BH. To date, one M&M round has been completed in May 2013, discussing one case. No recommendations were made.

**Surrey Memorial Hospital**

At present, SMH conducts regular (monthly except summer) ICU rounds where selected cases are reviewed in a multidisciplinary setting. These rounds have been granted the status of an M&M review by the Critical Care Medical Quality Committee. The group is considering a more formalized process, similar to that adopted by ARH and BH. On June 20, 2013 the Department of Critical Care conducted M&M rounds. Two cases were selected for review, one was deferred due to lack of time.

Learning points and recommendations for improvement arising from the case reviewed, and the status of implementation is as follows:
<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Need to assess appropriate placement of femoral lines in the vein rather than artery</td>
<td>All femoral venous catheters placed will have their placement confirmed by either (1) blood gas drawn from line, (2) pressure transduction of line, or (3) confirming placement of wire by ultrasound.</td>
</tr>
</tbody>
</table>

**Community Sites - Peach Arch Hospital, Ridge Meadows Hospital, Chilliwack General Hospital and Langley Memorial Hospital**

The Internal Medicine group at 3 of 4 sites (CGH, LMH, RMH) have conducted M&M rounds in the past year. The 4th site (PAH) has a new Local Department Head and the first M&M rounds are planned for the fall with a case already selected for review. The expectation remains that these will continue to occur quarterly and that at least one will focus on a Critical Care case.

**Chilliwack General Hospital**

During the period of April 2012 to June 2012 all deaths were reviewed in the ICU at CGH. Morbidity and mortality review rounds were conducted by the Chilliwack General Hospital M & M Committee for the purposes of evaluating and improving the quality of patient care provided.

Six patients (all deaths) were selected for review.

Learning points and recommendations for improvement arising from the cases reviewed, and the status of implementation are as follows: All deaths were felt to be explainable, if not expected. No recommendations were made.

A second M&M round was conducted in the Spring 2013 with the minutes pending.

**Langley Memorial Hospital**

Morbidity and mortality review rounds were conducted by the Langley Memorial Hospital M & M Committee for the purposes of evaluating and improving the quality of patient care provided on 2 occasions in the past year. First was on February 4, 2013 and a second occurred in late spring. Minutes are pending for both meetings.
Ridge Meadows Hospital

Morbidity and mortality review rounds were conducted by the Ridge Meadows Hospital M & M Committee for the purposes of evaluating and improving the quality of patient care provided on 1 occasion in the past year. The meeting took place in the spring of 2013, and the minutes are pending.

Peace Arch Hospital

First meeting of M&M committee is planned for the fall of 2013. A case has been selected for review.

Evidence Based Practice/Medical Management Tools

Rounding Tool/Checklist

A priority for the Department has been the development and implementation of a “rounding tool/checklist” that will serve as a memory aid to the physician when conducting beside rounds. The use of this tool will ensure consistent and comprehensive information regarding the patient’s care is reviewed and communicated. Rounding tools have been developed and implemented at all sites in Fraser Health. An audit of the rounding tool/checklist’s utilization is underway at all sites and a review of the results is planned for the fall of 2013.

Handover Process

Critically ill patients are complex and transfer of care between physicians requires exchange of appropriate information to ensure care decisions are based on full understanding of patient. Handover needs to occur daily to the physician on call or first call for the night. In addition, at the 3 Tertiary sites and Burnaby Hospital with a closed ICU model, there is a weekly handover each Sunday. The processes used at each site are being reviewed locally and shared at the Medical Quality Committee Meetings. At present formal handover occurs reliably at the 3 Tertiary Sites with face-to-face handover, usually in form of bedside rounds on a daily basis late afternoon. Daily handover at Burnaby Hospital is done by phone. The community sites have variable practices with Ridge Meadows Hospital refining a protected email update, but most sites using a more ad hoc method of contacting the on call physician about patients they are most concerned about. Surrey Memorial Hospital has implemented a summary sheet that is included in all patient charts. Royal Columbian Hospital is piloting the use of a similar summary sheet. Ongoing work is underway to try to ensure consistent handover of information at all sites. Focus for the coming year will include a clearer
handover process at Burnaby Hospital and the community sites, and defining the extent of handover for different patient acuity (vent vs. non-vent).

Quality Improvement Initiatives

Follow-up of Higher Level of Care (HLOC) Transfers

At present Critical Care in Fraser Health is regionalized with published admission, discharge and transfer criteria for each site. At times, review of patients arriving at higher level of care sites by receiving sites raise concerns about pre-transfer care. While the PSLS should provide a means to address these concerns, it is not consistently used and is impersonal and at times slow to resolve concerns identified. A pilot study is almost complete at Surrey Memorial Hospital consisting of a short checklist for receiving physicians to fill out for all HLOC transfers. A lead CC physician will be responsible for following up on these and provide a means to provide feedback to the sending sites.

This feedback will include:

1) How the patient is doing at 3 days post-admission. The hope is to provide further patient outcome as well.
2) Whether any concerns were raised by the admitting physician

The lead physician will gather information to determine whether concerns were valid or not and, if so, provide feedback to sending physician and team. All this is to be accomplished in as positive a manner as possible. Gathering information on all transfers allows the occasional concern in care identified to be placed in context of all patients transferred, rather than focusing only on negative aspects of care. The process will also ensure that the sending ICUs and physicians receive information on their patients’ course in hospital and outcomes. Experience to date suggests that feedback is not occurring from receiving physicians at SMH to their colleague tasked with leading this initiative. The main barrier appears to be the heavy workload currently shared by the physicians at SMH. Formal review will occur in September, 2013 and more detailed information will be available to clearly determine barriers and potential ways to overcome them.
Supporting Professional Development

Through our Physician Education Lead for Critical Care, Neil McLean, the following were arranged:

1) CRRT Update 2012: Clinically based presentation, Dr. Noel Gibney Coza
   Tuscan Grill, Langley, Thursday, October 4, 2012
2) “An Update on Fungal Infections in the ICU”, Dr. Peter Phillips
   Medina Café, Vancouver, November 5, 2012
3) CME Accredited Webinar Series – Modern ICU Sedation: Tailoring Sedation, Analgesia and Delirium Therapy for Your Patient, November 15, 2012
4) Newly accredited Web Based educational program: Rapid CME: Anti-Bacterial Vignettes – A Focus on Pneumonia” Dates: January 23, January 24 and January 30, 2013
   Faculty: Steven Reynolds & Stuart Reynolds, Moderator Linda Dresser
5) FH Ethics Conference 2013: 7th Annual Ethics Conference: Revitalizing the Spirit of Healthcare Practice in Emergency, Trauma and Critical Care, April 9, 2013
6) Fraser Health Regional Department of Critical Care Educational Retreat – May 15 2013

In addition, there is ongoing access for all members for VGH monthly Critical Care Rounds. These can be attended in person, via video link at some sites and viewed over Web after the talk.
Emergency Medicine

Regional Department Medical Quality Committee Activities
The Department of Emergency Medicine has established a Regional Department Medical Quality Committee that meets monthly. In addition, the twelve (12) acute sites hold regular monthly department meetings that include Morbidity & Mortality rounds.

Clinical Audits

1. Title: Sepsis Management

   Site: All 12 acute care sites

   Phase:
   - Planning
   - Designing
   - Data Collection
   - Analysis
   - Reporting

   Background:
   Timely sepsis care decreases morbidity and mortality.

   Objectives:
   To maximize patient care – first antibiotics within one hour, 2 L fluid bolus within 60 minutes, blood cultures prior to antibiotic administration, second lactate ordered if first value greater than or equal to 4

   Patient Selection: Patients with septic shock or severe sepsis

   Time period: Continuous ongoing audit

   Data collection strategy: Data is collected by a RN auditor. Charts of all patients meeting the patient selection criteria are reviewed.

   Results:

   **KPI 2: First Antibiotics Within One Hour**

   ![Graph showing compliance rate of KPI 2: First Antibiotics Within One Hour](image)

   ![Graph showing average KPI 2 compliance rate by site (Period 4-9)](image)
KPI 3: Blood Culture Tests Prior to Antibiotics Administration

KPI 4: Administration of 2nd Bolus Within One Hour

KPI 5: Percent of Patients with Appropriate Lactate Within 30 Minutes and if > 4, Second Lactate Ordered Within 4 Hours
Actions:
Analysis of the data resulted in
- revisions being made to the Sepsis Pre-printed Order to highlight key patient care processes
- quarterly report cards to each site with summary data
- quarterly report card to each site outlining in depth analysis of specific sepsis patient and comparison to benchmarks

Physician participation rate: 100%

2. Title: STEMI Management

Site: All 12 acute care sites

Phase:
☐ Planning  ☑Designing  ☑Data Collection  ☑Analysis  ☑Reporting

Background:
Timely transfer for PCI decreases morbidity and mortality.

Objectives:
To optimize patient care by transferring patients to RCH for PCI within 30 minutes of arrival in the Emergency Room.

Patient Selection: Patients with STEMI that were transferred to RCH

Time period: Continuous ongoing audit

Data collection strategy: Data is collected by a RN auditor. Charts of all patients meeting the patient selection criteria are reviewed each period.

Results: Range of time from arrival to transfer to RCH at 12 sites is 75 to 160 minutes, exceeding target of 30 minutes.
Actions:
1. There will be an increased focus on:
   - ensuring stat ECG orders are completed within 10 minutes of request
2. Process change
   - Activation of EHS for transfer prior to cath lab notification as EHS delays in transferring patient from sending site are large source of delay
3. Patients stay in EHS stretcher to ensure faster transfer
4. BCAS training paramedics to do ECG in the field to shorten time to STEMI diagnosis

Physician participation rate: 100%
3. Title: Stroke Management

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Background:
Timely access to thrombolytics for appropriate stroke patients may improve outcomes.

Objectives:
To optimize patient care by streamlining the process for prompt assessment of eligibility for TPA and administration within 3 hours of symptom onset.

Patient Selection: Patients with hot stroke

Time period: Continuous ongoing audit

Data collection strategy:
Data is collected by a RN auditor. Charts of all patients meeting the patient selection criteria are reviewed each period. Data collection and chart audit started in Period 10 of fiscal year 2012/13. Mission Memorial Hospital was excluded in calculation of indicators as the site does not have any CT scanners and the benchmarks do not apply (shown for count of potential cases only). “Time to CT” indicator presented here is calculated only for cases confirmed for hot stroke as per the chart audit results.

Results:

1. FHA hot stroke number of cases (potential and confirmed)

![Stroke Cases by Fiscal Period ; All Sites](chart.png)
2. KPI: Triage to CT time within 60 minutes

"Triage to CT Time" Indicator by Fiscal Period ; All Sites
3. KPI: Symptoms onset to tPA Time (periods 2013-03,04,05)

<table>
<thead>
<tr>
<th>Site</th>
<th>tPA Count</th>
<th>Average in minutes</th>
<th>% within 3 hours</th>
<th>% within 4.5 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARH</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>BH</td>
<td>1</td>
<td>195</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>CGH</td>
<td>3</td>
<td>117</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>DH</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>ERH</td>
<td>1</td>
<td>180</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>FCH</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>LMH</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>MMH</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>PAH</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>RCH</td>
<td>3</td>
<td>168</td>
<td>67%</td>
<td>100%</td>
</tr>
<tr>
<td>RMH</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>SMH</td>
<td>2</td>
<td>171</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>All FHA</td>
<td>10</td>
<td>157</td>
<td>70%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Chart Review

Chart reviews are conducted for selected patients that return to the Emergency Room within 72 hours of initial visit and are admitted to hospital. For the period April 1, 2012 – February 28, 2013, 277 charts were reviewed.

<table>
<thead>
<tr>
<th>Learning Points / Recommendations</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>be aware of diagnosis of vasovagal, especially in patient with high HR</td>
<td>complete</td>
</tr>
<tr>
<td>consider typhoid in febrile diarrhoea in patients returning from SE Asia</td>
<td>complete</td>
</tr>
<tr>
<td>get urine samples for combination of back pain, vomiting, fever.</td>
<td>complete</td>
</tr>
<tr>
<td>same day aspiration for CRP &gt;200 as high risk for periprosthetic infection</td>
<td>complete</td>
</tr>
<tr>
<td>start steroids prior to biopsy if strong suspicion of TA</td>
<td>complete</td>
</tr>
<tr>
<td>early identification of trauma patient and expedited transfer to HLOC</td>
<td>complete</td>
</tr>
<tr>
<td>watch for painless MI presentation</td>
<td>complete</td>
</tr>
<tr>
<td>consider telemetry for patients with unexplained syncope</td>
<td>complete</td>
</tr>
<tr>
<td>SLE patients: be mindful of PE risks as well as inflammatory cardiac/pulmonary conditions as cause of chest pain</td>
<td>complete</td>
</tr>
<tr>
<td>CTS better diagnostic image of liver than U/S</td>
<td>complete</td>
</tr>
<tr>
<td>consider ovarian torsion for sudden onset of mid-abdominal pain in female</td>
<td>complete</td>
</tr>
<tr>
<td>low threshold for CT head in elderly with even trivial history of head trauma</td>
<td>complete</td>
</tr>
<tr>
<td>avoid poly-pharmacy in the elderly (if possible) - weigh pros/cons/side effects</td>
<td>complete</td>
</tr>
<tr>
<td>be extra cautious of pre-syncopal episodes in previous vascular patients</td>
<td>complete</td>
</tr>
<tr>
<td>accuchecks for patients with infections is easy way to pick up hyperglycemia</td>
<td>complete</td>
</tr>
<tr>
<td>blood cultures for difficult presentations of back pain may aid diagnosis of abscess</td>
<td>complete</td>
</tr>
<tr>
<td>need for complete documentation - including consultations</td>
<td>complete</td>
</tr>
<tr>
<td>patients with periorbital cellulitis should be considered for early IV antibiotics</td>
<td>complete</td>
</tr>
<tr>
<td>BP for all peds patients, appropriate antibiotic choices, review of the SSx of TSS</td>
<td>complete</td>
</tr>
</tbody>
</table>
Morbidity & Mortality Review

During the period of April 2012 to March 2013 morbidity and mortality review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided. Cases were selected for regional review as they provide learning points and recommendations applicable to all sites and Emergency physicians. The 214 cases presented originated through Patient Safety Reviews (PSR), Patient Safety Learning System (PSLS) events, chart reviews and local site M & M Rounds. Local M & M Rounds include the communication of learning points and recommendations from the regional review but also include cases based upon individual physician experience and interest accompanied by learning points.

Learning points and recommendations for improvement arising from the cases reviewed and the status of implementation are as follows:

<table>
<thead>
<tr>
<th>Learning Points / Recommendations</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>• discussion of thoracotomy</td>
<td>learning point</td>
</tr>
<tr>
<td>• beware of hypoxia in asthmatics</td>
<td>learning point</td>
</tr>
<tr>
<td>• care in reviewing c-spine films (examples)</td>
<td>learning point</td>
</tr>
<tr>
<td>• review of periprosthetic infection</td>
<td>learning point</td>
</tr>
<tr>
<td>• reconciliation of abnormal VS s/a fever</td>
<td>complete</td>
</tr>
<tr>
<td>• start steroids prior to biopsy if strong suspicion of TA</td>
<td>complete</td>
</tr>
<tr>
<td>• review of osteomyelitis and parotid/gland swelling</td>
<td>learning point</td>
</tr>
<tr>
<td>• review of Kawasaki</td>
<td>learning point</td>
</tr>
<tr>
<td>• discharge education and atypical appendicitis</td>
<td>complete</td>
</tr>
<tr>
<td>• review of ovarian torsion and abdominal pain</td>
<td>learning point</td>
</tr>
<tr>
<td>• review need for CT head in elderly after trauma or fall</td>
<td>complete</td>
</tr>
<tr>
<td>• consider mild hepatic encephalopathy as possible diagnosis for vague, non-specific symptoms in cirrhotic patient</td>
<td>learning point</td>
</tr>
<tr>
<td>• review of accuchecks and hyperglycemia</td>
<td>learning point</td>
</tr>
<tr>
<td>• involve consultant early for patients with rare conditions</td>
<td>complete</td>
</tr>
<tr>
<td>• unrelenting biliary colic should be investigated for CBD stone</td>
<td>learning point</td>
</tr>
<tr>
<td>• value of clear instructions at discharge</td>
<td>in progress</td>
</tr>
<tr>
<td>• review of SSx endocarditis</td>
<td>learning point</td>
</tr>
</tbody>
</table>

Medical Management Reviews

During the period of April 2012 to March 2013, PSLS events were reviewed by the Head of Department (Local) and with the physicians involved. All PSRs are reviewed with the Heads of Department (Local) and the physicians involved in the PSR triggering event.
Learning points and recommendations for improvement arising from the cases reviewed and the status of implementation are as follows:

<table>
<thead>
<tr>
<th>Learning Points / Recommendations</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>appropriate management of pain</td>
<td>complete</td>
</tr>
<tr>
<td>reassess injury where unusual pain and possible evidence of neurologic compromise</td>
<td>complete</td>
</tr>
<tr>
<td>timely reassessment of pediatrics fractures with potential for displacement</td>
<td>complete</td>
</tr>
<tr>
<td>Med Rec: ask patient first and last name - ID by name band if patient confused</td>
<td>complete</td>
</tr>
<tr>
<td>frequent serum electrolyte reassessments for hypokalia</td>
<td>complete</td>
</tr>
<tr>
<td>guidelines for oral rehydration available in all EDs</td>
<td>complete</td>
</tr>
<tr>
<td>conduct mock pediatric Codes on a regular basis</td>
<td>in progress</td>
</tr>
<tr>
<td>range for pediatric vitals printed on chart</td>
<td>complete</td>
</tr>
<tr>
<td>written instructions for patients prior to delivery of narcotics - specifically, patient cannot drive after narcotics</td>
<td>complete</td>
</tr>
<tr>
<td>contact Poison Control when patient presents with alleged overdose of unknown substance - document on chart</td>
<td>complete</td>
</tr>
</tbody>
</table>

**Evidence Based Practice/Medical Management Tools**

- **Sepsis**: Pre-printed Orders (PPOs) for early identification and immediate treatment of patients with severe sepsis or shock have been implemented.

- **Pain Management**: PPOs and the sedation score assessment for management of acute pain for adults and older adult have been implemented.

**Quality Improvement Initiatives**

1. Revision of all discharge instructions to provide clear direction to patients after they arrive home. These instructions are reviewed with the patient, prior to discharge, to ensure patient understanding.
2. Design and implementation of a patient discharge package that is provided to the patient when they are discharged from the Emergency Room. Information provided in the package includes the name of the attending physician, presenting complaint, discharge diagnosis, test results and recommended follow-up. Discharge instructions specific to the discharge diagnosis are also provided.
3. Priority triage for all pediatric patients has been implemented at all sites to minimize pediatric waits for care.
4. Hand Hygiene is a new key performance indicator for the Emergency Program. Improvements in infection control in the Emergency Rooms is expected.
5. Monitoring the number of patients who register in the Emergency Room but leave without having been seen (LWBS) by a physician or nurse. Improvements in patient flow and reduced waiting times will reduce the LWBS.
Family Practice

Medical Quality Committee Activities

The Department of Family Practice has been in transition over this past year with a change in regional department leadership and the newly appointed Regional Department Head commencing in late August 2012. A meeting of the Regional and Local Department Heads took place on October 29, 2012. This was the first opportunity that the local site and regional department leaders have had to meet and discuss common issues. During the meeting the following quality items were presented and discussed:

- Medical quality improvement – what it is and how to start implementing department quality activities;
- establishing a regional department medical quality committee;
- recommending that HAMAC approve the October 19, 2012 draft of the Terms of Reference for the Department of Family Practice RDMQC;
- appointing the membership to the RDMQC;
- discussing clinical audit topics that would engage with overlapping disciplines to achieve confluence in activity where appropriate. It is likely that the clinical audit topic selected will focus on transitions in patient care.
- re-establishing M & M review processes at the local site level.

Meeting dates: October 29, 2012, February 2013, June 2013

Clinical Audits

Title: Effectiveness of Family Practitioner and Hospitalist Discharge Practices

Site: All sites

Phase:
- [ ] Planning
- [ ] Designing
- [X] Data Collection
- [ ] Analysis
- [ ] Reporting

Background:
Effective discharge practices can assist with the provision of optimal continuity of care for a patient leaving the hospital and returning to the care of a community practitioner. This clinical audit will focus on the issuance and content of a discharge letter.
Clinical audit objective:
To assess the extent to which family practitioners’ and hospitalists’ practices for patient discharge are effective and consistent with accepted good practice.

- Determine the extent to which a discharge letter is written
- Determine the extent to which the discharge letter indicates:
  - Admission reason
  - Discharge diagnosis
  - Medication changes
  - Follow-up plan

Patient Selection:
10 patients, for each physician, that were discharged from a Fraser Health hospital within the last 6-12 months.

Time period: Data collection will commence in September 2013.

Data collection strategy:
This audit will involve reviewing 10 patient charts, for each physician, and recording in a “yes” or “no” manner whether a discharge letter was written and whether it contained the items specified above. Data will be analyzed and presented to indicate, for each anonymized physician, the % of patients for which a discharge summary letter was written, and the % of time that the discharge letter contained specific content.

Evidence Based Practice/Medical Management Tools

Adoption of a standardized anticoagulation protocol took place this year. Support for the 48/6 protocol development and planned implementation has also been forthcoming. Works is being done in conjunction with the Department of Hospitalists to standardize Pre-printed Order Sets such as admission sets, where possible.

Quality Improvement Initiatives

Consultation and General Practitioner involvement alongside Divisions of Family Practice for extension of data sharing including the Physician Office Integration pilot and helping define the expansion of data carried to physician offices by Excelleris has been pursued.

Fraser Health acts as sponsor to Internal Medical Graduates (IMGs) and temporarily licensed Family Physicians coming to work in the Fraser Region. A lot of work has been done to ensure sponsored physicians are providing high quality facility based care and that this is
monitored. A new clearer application form was developed for privileging this year and has been successfully rolled out.

The GPSC Inpatient Care Initiative was rolled out in April. Physicians with privileges were educated and supported in the subsequent transition to this initiative with the attendant changes to call group and operating structures that resulted in communities around the region.

**Performance Review/Clinical Performance Appraisal**

An IMG physician in the Eastern Valley was assessed and interviewed following concerns from staff and the Head of Department (local). No action resulted but performance is being monitored and will be reassessed at six months post interview.

**Supporting Professional Development**

Heads of Departments (local) have received updates and information regarding the use of the Patient Safety Learning System. Some have now had experience in handling entries in the system.
Geriatric Medicine

The Regional Department of Geriatric Medicine was formed in June 2012, with 19 physicians having the Department of Geriatric Medicine as their primary Department. The primary sites of clinical activity for Department members are five (5) Acute Care of the Elderly (in-patient) Units, six (6) Specialized Seniors Clinics and acute hospital/Emergency Department consulting services. Particular emphasis is placed on an interdisciplinary approach and optimizing interdisciplinary assessment and care to improve outcomes.

Regional Department Medical Quality Committee Activities
Meeting Dates: 1st Wednesday bimonthly

Clinical Audit

Title: Appropriateness and Effectiveness of the medical care provided at the initial assessment/new consult appointment to outpatients referred with a suspected diagnosis of dementia.

Phase:
☐ Planning ☐ Designing ☒ Data Collection ☐ Analysis ☐ Reporting

Objectives:
1. Determine the extent to which the initial assessment is comprehensive and consistent with accepted good practice.
2. Assess the extent to which physicians’ practices for patient support and safety are consistent with recommended practice.
3. Determine the % of patients with a new diagnosis of dementia that are prescribed cholinesterase inhibitors at the initial assessment or at a subsequent follow-up appointment.

Patient Selection:
The patient population for this clinical audit is adult out-patients that received a first diagnostic workup by a dementia specialist (geriatrician) between January and September, 2012, and have been started on a cholinesterase inhibitor (donepezil (Aricept), galantamine (Reminyl), or rivastigmine (Exelon)).

Time period:
Data collection commenced in June 2013 and will continue into the fall of 2013.

Data collection strategy:
This will be a retrospective audit of Geriatric Medicine physicians’ practices’ in conducting an initial assessment/new consult of patients presenting with suspected dementia to an outpatient clinic. It is estimated that 1500 new dementia cases are referred each year of
which it is estimated that 75% are on cholinesterase inhibitors. Currently 5 clinics provide services by 19 geriatricians. Data will be collected through the review of 180 selected charts of patients initially assessed by each member of the Geriatric Medicine Department. Recommendations from the 3rd Canadian Consensus Conference on Diagnosis and Treatment of Dementia form the basis for the clinical audit criteria.

Chart Review

A mechanism and process for conducting chart review is currently under discussion.

Morbidity & Mortality Review

A mechanism and process for conducting morbidity & mortality review is currently under discussion.

Medical Management Review

During the period of December 2012 to April 2013, medical management reviews were conducted for the purposes of evaluating and improving the medical quality of care provided. PSLS reviews were conducted by the Older Adult Program Quality Committee.

Learning points and recommendations for improvement arising from the case(s) reviewed, and the status of implementation are as follows:

<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for cases where a fall may have contributed to death causality to be reported to Coroner</td>
<td>In progress</td>
</tr>
</tbody>
</table>
Evidence Based Practice/Medical Management Tools

A pre-printed order (PPO) for Geriatric Delirium was developed in conjunction with the Department of Hospitalists. This PPO has been introduced throughout Fraser Health for Hospitalist Service, associated Medicine and Older Adult patients.

The initial development of the PPO indicated improved outcomes for delirium management, with reduced length-of-stay (LOS), improved process of medication review, improved delirium awareness by all staff, and a reduction of delirium risk factors. A post-implementation clinical audit was conducted to determine the utilization of the PPO by Hospitalists at Royal Columbian and Eagle Ridge Hospitals. The results of the clinical audit are reported under the Department of Hospitalists section of the report.

Quality Improvement Initiatives

- The hand-hygiene learning module has been completed by all primary Department members. The Department is working with Infection Control to pilot methodologies for physician-specific auditing.
- Focused review of all fall patients.

Supporting Professional Development

- Videoconferencing of UBC Division of Geriatric Weekly rounds to 4 sites within Fraser Health/Older Adult Program.
- PMI courses have been offered to Department members, with uptake by three members.
Hospitalists

Regional Department Medical Quality Committee Activities
The Department of Hospitalists is currently establishing a Regional Department Medical Quality Committee. In the interim, the Hospitalist Chiefs have been meeting regularly with medical quality improvement a standing item on each agenda.

Meeting Dates: April 2013 and May 2013

Clinical Audit

1. Title: Utilization of the Regional Pre-Printed Orders for Geriatric Delirium (in acute care) by Hospitalists at the Royal Columbian and Eagle Ridge Hospitals.

   Phase:
   - Planning
   - Designing
   - Data Collection
   - Analysis
   - Reporting

   Background:
   Delirium is a common problem in hospitalized patients, occurring in 11-42% and even up to 50% of high risk patients. The one year mortality rate can be 35-40%. Patients with delirium often have longer lengths of stay and earlier admissions to nursing homes. The Delirium Quality Improvement Project (Older Adult Program January 2011 - July 2012) developed a physician model to prevent or risk stratify, identify and treat patients with delirium. The conclusion from the Delirium Quality Improvement Project was that the utilization of a delirium pre-printed order was found to standardize the care patients with delirium received, and also reduced the length of stay. Following this project, the “Regional Pre-Printed Orders for Geriatric Delirium (in acute care)” (Delirium PPO) was implemented by the Hospitalist service at the Royal Columbian Hospital (RCH) and Eagle Ridge Hospital (ERH). Dr. Irina Chorny, Hospitalist Champion-RCH, Dr. Jean Warneboldt, Hospitalist Champion-ERH, and Dr. Peter O’Connor, Regional Department Head, Geriatric Medicine and Program Medical Director – Older Adult Program, initiated a clinical audit to determine the utilization of the new Delirium PPO by Hospitalists at the RCH and ERH. Based upon the quality improvement project findings, it was expected that 25-30% of patients will be on the Delirium PPO.

   Objectives:
   Determine the extent to which the Regional Pre-Printed Orders for Geriatric Delirium (in acute care) are utilized by Hospitalists at RCH and ERH.

   Patient Selection:
   For Royal Columbian Hospital, patients under the care of the Hospitalist service on wards 5N, 5S, 6N and 6S were included in the clinical audit. For Eagle Ridge Hospital, patients under the care of the Hospitalist service on wards C2B, W2A and W2B were included in the clinical audit.
Time period:
Data was collected at Royal Columbian Hospital every two weeks commencing on April 4, 2013 and on concluding June 13, 2013. Data was collected at Eagle Ridge Hospital every two weeks commencing on April 11, 2013 and concluding on June 20, 2013.

Data collection strategy:
As Hospitalists at each hospital practice as a group, the utilization of the PPO will be determined for the group as a whole. A data sampling approach of collecting data every 2 weeks on each ward, over a twelve week period, was used to optimize the likelihood of each member of the Hospitalist group being on service.

Each patient chart on the ward was reviewed by Sharmen Lee to determine the presence (yes) or absence (no) of the Delirium PPO.

For Royal Columbian Hospital: Data was collected through chart review of patients under the care of the Hospitalist service on wards 5N, 5S, 6N and 6S on April 4, April 18, May 2, May 16, May 30 and June 13, 2013.

For Eagle Ridge Hospital: Data was collected through chart review of patients under the care of the Hospitalist service on wards C2B, W2A and W2B on April 11, April 25, May 7, May 23, June 6 and June 20, 2013.

Results:

**Royal Columbian Hospital**

<table>
<thead>
<tr>
<th></th>
<th>Apr 4</th>
<th>Apr 18</th>
<th>May 2</th>
<th>May 16</th>
<th>May 30</th>
<th>Jun 16</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patient charts reviewed</td>
<td>101</td>
<td>90</td>
<td>89</td>
<td>78</td>
<td>89</td>
<td>95</td>
<td>542</td>
</tr>
<tr>
<td>Number of Patients on PPO</td>
<td>19</td>
<td>19</td>
<td>10</td>
<td>10</td>
<td>11</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Patient new to the PPO</td>
<td>19</td>
<td>9</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>54</td>
</tr>
<tr>
<td>Patient already on the PPO</td>
<td>10</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of patients on PPO</td>
<td>18.8</td>
<td>21.1</td>
<td>11.2</td>
<td>12.8</td>
<td>12.4</td>
<td>15.8</td>
<td></td>
</tr>
</tbody>
</table>

Summary of all data:
- Number of Individual Patients Reviewed 357
- Number of Individual Patients on Delirium PPO 54
- % patients on PPO 15.1
### Eagle Ridge Hospital

<table>
<thead>
<tr>
<th></th>
<th>Apr 11</th>
<th>Apr 25</th>
<th>May 7</th>
<th>May 23</th>
<th>Jun 6</th>
<th>Jun 20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patient charts reviewed</td>
<td>95</td>
<td>94</td>
<td>100</td>
<td>90</td>
<td>75</td>
<td>88</td>
<td>542</td>
</tr>
<tr>
<td>Number of Patients on PPO</td>
<td>9</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>Patient new to the PPO</td>
<td>9</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>31</td>
</tr>
<tr>
<td>Patient already on the PPO</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>% of patients on PPO</td>
<td>9.5</td>
<td>10.6</td>
<td>8.0</td>
<td>8.9</td>
<td>10.7</td>
<td>10.2</td>
<td></td>
</tr>
</tbody>
</table>

Summary of all data:
- Number of Individual Patients Reviewed: 382
- Number of Individual Patients on Delirium PPO: 31
- % patients on PPO: 8.1
Actions:
The results of this clinical audit will be presented to the Hospitalists at RCH and ERH. A facilitated discussion will follow to identify any follow-up activities to be implemented.

The Department is pleased to have been recognized nationally, winning the Quality & Safety Award, and the People’s Choice Award (Hospital Category) at the 11th Annual Canadian Society of Hospital Medicine Conference. The award compares all submitted Hospitalist QI projects across Canada.

DELIRIUM QI PROJECT - 1ST PLACE AWARD RECIPIENTS
Dr. Peter O’Connor, Older Adult Program Medical Director
Dr. Jean Warneboldt, Eagle Ridge Hospitalist
Dr. Irina Chorny, Royal Columbian Hospitalist
Ms. Sharmen Lee, Strategist Healthcare Corporation
Ms. Heidi Cumberworth, Clinical Nurse Educator
Dr. Steve Ligertwood, Royal Columbian Hospitalist QI advisor
2. Title: Hospitalist Care Processes

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Objectives:
1. Assess the extent to which hospitalists' practices for patient admission are effective and consistent with accepted good practice.
   - determine the extent to which PPOs are used by hospitalists
   - indicate the level of compliance with standards for effective and comprehensive reporting (admission notes)

2. Assess the extent to which hospitalists' practices for patient discharge are effective and consistent with accepted good practice.
   - determine the extent to which the discharge summary template is used by hospitalists
   - increase the effectiveness of communication between the hospitalists and community (GP) at time of patient discharge

Morbidity & Mortality Review

Inpatient Death Report template

An Inpatient Death Report template has been developed and each site will be establishing a case review group and procedure to conduct the reviews. Further development is required with the processes of:
- collecting and formalizing data;
- ensuring each site has a process in place of getting charts;
- formalize template;
- how to use;
- what data to collect; and
- to formalize confidential reporting process

Evidence Based Practice/Medical Management Tools

Pre-Printed Orders
New Regional PPOs for COPD, Delirium, and Stroke are in place. Members of the Department are currently reviewing all Medicine PPOs, to ensure all are updated.
Quality Improvement Initiatives

Regional Department Scope of Practice

The initiative is to guide the process of decision-making around disposition planning of all patients potentially earmarked for the Hospitalist service in Fraser Health. The preliminary work shows need for (few examples):

- Care Pathways for C-spine injuries
- Improve bedside transfers
- Need for subspecialist coverage
- CME Events – *i.e.* chest tube management, hyponatremia, COPD management.

The current phase involves discussions on how to implement and who the stakeholders are that need to be involved in the implementation phase. The expected implementation phase anticipates a 6-9 month project.

Performance Review/Clinical Performance Appraisal

The Department has been working to develop peer audit reviews at each site. Some sites have a process in place.

Supporting Professional Development

Regional Hospitalist CME Events

- June 19, 2013: Ethics Concepts Communication and Conflict Resolution for Hospitalists
- October 24, 2013: CME topics have yet to be finalized

A CME Group has been formed to gather feedback and focus on region-wide education rounds and events.
Infection Prevention and Control and Public Health

In the Fall of 2012, Fraser Health established a new Program and Department of Infection Prevention and Control (IPC) and Public Health.

Organizational Structure

Infection Control Practitioners at each site report to the Site Directors, and are responsible for day-to-day infection control activities at their sites. A team of Infection Control Consultants carry out quality improvement activities at a regional level. A new Executive Medical Director (EMD) position was created reporting to the VP Medicine. The EMD chairs the Fraser Health Infection Prevention and Control Committee and is also the Regional Department Head.

Responsibility and authority for infection control activities has been shifted from the program to the sites. Infection Prevention and Control Committees have been created at each site that are co-chaired by the Site Director and a physician. The Committees are
responsible for performing local surveillance, creating performance improvement plans for the facility and facilitating IPC best practices at the site through the engagement of local stakeholders. Physicians at the site who have an interest in infection control are encouraged to become members of their local Committee.

Quality Improvement Initiatives

**Actions taken to address C. difficile infection (CDI) rates**

The Fraser Health CDI incidence rate in fiscal 11/12 was 11.3 per 10,000 patient days. Since then a number of actions have been taken to reduce the rates:

- full facility cleans at the 6 sites with the highest rates
- implementation of a new GI cleaning protocol that ensures enhanced cleaning with a sporicidal agent for all GI cases and all units with increased CDI prevalence or evidence of transmission
- enhanced cleaning of all Emergency Departments through winter GI season
- increased attention to hand hygiene with posting of rates on each unit
- daily involvement of EMD in all GI/CDI outbreaks
- elimination of VRE screening and isolation requirements

Incidence rate for fiscal 2012/13 was 7.2 per 10,000 patient days. The national benchmark is 6.0 per 10,000 patient days. Rates for the last four fiscal years and for 2012/13 by site, are included in Figures 1 and 2.

Figure 1
1. **Vulnerable Unit Initiative**

The units where nosocomial CDI is most likely to occur, and where the highest numbers of cases are found are continuously monitored. Interventions and initiatives that will reduce the rates include:

- environmental cleaning
- changes to physical layout and workflow
- better isolation and cohorting of GI patients
- staff education
- antimicrobial stewardship
- hand hygiene

Langley Memorial Hospital is the first site where a comprehensive intervention has been put in place; work has begun with the Older Adult and Rehab Program.
2. CDI Review Tool
A review tool has been developed that will be applied to all nosocomial CDI cases, with a focus on preventable risk factors. Data will be uploaded into the IPC surveillance system and shared with the IPC Committees at each site. Cases with poor outcomes (colectomy, prolonged hospitalization and death) will be entered into the Patient Safety Learning System.

Elimination of VRE screening and isolation requirements

In November 2012 FH eliminated the requirements to screen high-risk patients for VRE, and to isolate those known to be colonized. This has freed up scarce isolation resources and eliminated over 10,000 screening tests each year. A comprehensive surveillance plan has been put in place including chart reviews on all deaths of patients known to be infected with VRE. The outcomes will be reported semi-annually to HAMAC and the Quality Performance Committee.

Antimicrobial Stewardship

Dr. Chris Wong from the Division of Infectious Diseases has been appointed Chair of the newly formed FH Antimicrobial Stewardship (AMS) Committee. The Committee will be responsible for:

- developing and implementing antimicrobial prescribing guidelines for FH
- developing a plan to provide education to physicians in AMS
- developing a team at each site to support and champion AMS
- monitoring and reporting on the use of antimicrobials and adherence to prescribing guidelines in FH

C difficile Vaccine Trial

Sanofi Pasteur is conducting a multi-centre Phase III clinical trial of a C. difficile toxoid vaccine. RCH and SMH have been selected to participate in the trial and recruitment of eligible patients has begun at both sites.
Laboratory Medicine and Pathology

The Laboratory Medicine and Pathology program in Fraser Health has comprehensive services in:

- Anatomic Pathology – all areas
- Cytology
- Cytogenetics
- Forensic Pathology
- Medical Biochemistry – all areas
- Transfusion Medicine
- Hematopathology
- Medical Microbiology
- Pre and Post Analytic
- Information Analytic

Program Quality Performance Committee

This committee meets on a monthly basis and membership includes clinical, technical, medical and administrative leaders.

Regional Department Medical Quality Committee Activities

The Department of Laboratory Medicine and Pathology has established a Regional Department Medical Quality Committee. Meetings of this committee are held jointly with the Program Quality Committee.
Anatomic Pathology

Anatomic Pathology service is provided to all of Fraser Health acute care sites through the centralized laboratories (ARHCC, BH, RCH, and SMH) and the support of twenty-nine pathologists. The service covers surgical pathology, intraoperative consultations, cytopathology (fine needle aspiration and exfoliative), molecular cytogenetics and autopsy (hospital and forensic).

The Anatomic Pathology (AP) division has a quality management program that covers multiple technical and medical quality indicators to include: competency of locums and new pathologists, intraoperative consultations review, diagnosis review at analytical and post analytic stages of report generation, pathologist and technical site competency in internal and external immunohistochemistry quality assurance programs, and second review of complex forensic autopsy reports. Collection and review of the data is completed at the site and regional level, with the site technical manager and the AP medical director reviewing data, documenting discrepancies and following up where required. Discrepancies are addressed as they occur and documentation of action taken reported quarterly with the raw data to the regional AP laboratory scientist, who compiles data from the four sites into a single statistical report. The compiled data is reviewed by the regional AP laboratory scientist and regional medical director, trends are noted and outliers are discussed with the site medical director if appropriate. A copy of the full statistical report is presented to the Laboratory Medicine and Pathology Quality Committee.

Locum and New Pathologists
A competency review is completed for locum and new pathologists who are granted privileges to work in FH. A random review of a specified number of cases (dependent on workload completed) are reviewed by the site AP director or designate. Data is collected on report clarity, if reviewing pathologist agrees or disagrees with diagnosis, and if disagreement is classified as minor or major. All major disagreements are further classified as having clinical significance or not. All major disagreements which have significant clinical impact are immediately followed up, additional testing completed if required and corrected or addendum reports issued and the most responsible physician responsible for patient care notified.

Intraoperative Consultations
Intraoperative consultations (IOC) are the preliminary diagnosis provided through the preparation and interpretation of a frozen section slide at the time of the surgical procedure. As part of the quality assurance procedure all IOC diagnoses are compared to the surgical pathology diagnosis made on the follow up preparation of the permanent tissue slides of the same tissue and any additional tissue removed.
January 1 to March 31, 2013.

<table>
<thead>
<tr>
<th>Surgical</th>
<th>FHA acceptable discrepancy rate</th>
<th>ARHCC</th>
<th>BH</th>
<th>RCH</th>
<th>SMH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of surgical cases</td>
<td>5036</td>
<td>3115</td>
<td>9729</td>
<td>7307</td>
<td></td>
</tr>
<tr>
<td>Number of IOC cases completed</td>
<td>29</td>
<td>28</td>
<td>103</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Number of major disagreements between IOC and final diagnosis</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Major discrepancy rate</td>
<td>&lt; 2%*</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

*CAP QProbe Arch Pathol Lab Med. 1996;120:804–809

**Diagnosis Review**

Review of pathology diagnoses/reports are completed and monitored internally and externally.

Consultation with other internal or external pathologists, especially with those who have a sub-specialty ensures that difficult or complex cases are being interpreted by more than one pathologist.

**PREVI** – pathology review internal: Prospective internal monitoring is completed during the analytical phase of interpretation pathologists will request a consultation from other pathologists who are on site or at another FH site prior to sign out of the final report.

**PREVO** - pathology review external: This can be a prospective or retrospective review. Prospective when sent out for consultation prior to completion of the patient report to a specialty pathologist who is not located with FH and retrospective when the signing pathologist or clinician request a review after the report has been signed out.

**PREVB** – pathology review completed by BCCA pathologist: Many patients who have been referred to BCCA for follow-up treatment will have their FH pathology report and slides reviewed to ensure primary diagnosis is correct.

**PREVP** – pathology review of previous case slides: Retrospective internal review occurs when a FH pathologist reviews slides from a patient’s related previous FH surgical or cytology case. Review of the slides ensures that the previous and current diagnoses correlate.

When, as part of the review process, a major disagreement is identified (PREVMD), the case is reviewed by multiple FH pathologists and occasionally additional external pathologists to determine which diagnosis is correct, original FH diagnosis or the reviewing pathologist. If clinically relevant a revised report will be issued and the physician most responsible for the care of the patient will be notified.
### Surgical

<table>
<thead>
<tr>
<th></th>
<th>ARHCC</th>
<th>BH</th>
<th>RCH</th>
<th>SMH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of surgical cases</td>
<td>5036</td>
<td>3115</td>
<td>9729</td>
<td>7307</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Number of cases</th>
<th>% of cases</th>
<th>Number of cases</th>
<th>% of cases</th>
<th>Number of cases</th>
<th>% of cases</th>
<th>Number of cases</th>
<th>% of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREVI Internal review</td>
<td>211</td>
<td>1.19</td>
<td>260</td>
<td>8.35</td>
<td>690</td>
<td>7.09</td>
<td>357</td>
<td>4.89</td>
</tr>
<tr>
<td>PREVO External review</td>
<td>1</td>
<td>0.02</td>
<td>31</td>
<td>1.00</td>
<td>7</td>
<td>0.07</td>
<td>3</td>
<td>0.04</td>
</tr>
<tr>
<td>PREVB BCCA review</td>
<td>28</td>
<td>0.56</td>
<td>54</td>
<td>1.73</td>
<td>99</td>
<td>1.02</td>
<td>27</td>
<td>0.37</td>
</tr>
<tr>
<td>PREVP Previous report review</td>
<td>23</td>
<td>0.46</td>
<td>100</td>
<td>3.21</td>
<td>22</td>
<td>0.23</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>PREVMD Major disagreement between final report and review report</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

### Cytology - FNA

<table>
<thead>
<tr>
<th></th>
<th>ARHCC</th>
<th>BH</th>
<th>RCH</th>
<th>SMH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of FNA cytology cases</td>
<td>119</td>
<td>103</td>
<td>376</td>
<td>314</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Number of cases</th>
<th>% of cases</th>
<th>Number of cases</th>
<th>% of cases</th>
<th>Number of cases</th>
<th>% of cases</th>
<th>Number of cases</th>
<th>% of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREVI Internal review</td>
<td>9</td>
<td>7.56</td>
<td>19</td>
<td>18.45</td>
<td>48</td>
<td>12.77</td>
<td>23</td>
<td>7.32</td>
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<tr>
<td>PREVO External review</td>
<td>10</td>
<td>0.00</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0.53</td>
<td>1</td>
<td>0.32</td>
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<tr>
<td>PREVB BCCA review</td>
<td>281</td>
<td>0.84</td>
<td>3</td>
<td>2.91</td>
<td>3</td>
<td>0.80</td>
<td>0</td>
<td>0</td>
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<tr>
<td>PREVP Previous report review</td>
<td>231</td>
<td>0.84</td>
<td>0</td>
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<td>PREVMD Major disagreement between final report and review report</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
### January 1 to March 31, 2013

<table>
<thead>
<tr>
<th>Cytology- Exfoliative</th>
<th>BH</th>
<th>RCH</th>
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</thead>
<tbody>
<tr>
<td>Total number of exfoliative cytology cases</td>
<td>256</td>
<td>1155</td>
</tr>
<tr>
<td>Number of cases</td>
<td>% of cases</td>
<td>Number of cases</td>
</tr>
<tr>
<td>PREVI Internal review</td>
<td>19</td>
<td>7.42</td>
</tr>
<tr>
<td>PREVO External review</td>
<td>1</td>
<td>0.39</td>
</tr>
<tr>
<td>PREVB BCCA review</td>
<td>3</td>
<td>1.17</td>
</tr>
<tr>
<td>PREVP Previous report review</td>
<td>1</td>
<td>0.39</td>
</tr>
<tr>
<td>PREVMD Major disagreement between final report and review report</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**External and internal QA programs – technical and professional**

FH participates in four external quality assurance programs, three of which monitor immunohistochemistry technical procedures. These programs monitor multiple antibodies but are primarily focused on the breast markers ER, PR and Her2. The fourth program has a wider focus and looks at tissue procedures required to produce high quality routine microscopic slides for diagnosis. Results from all programs for all sites are reviewed at the site level and submitted along with a proficiency sign off report to the laboratory scientist and regional medical director for review. Review of recent external quality assurance program data has resulted in FH changing the antibody clone used for estrogen receptor testing. The monoclonal rabbit antibody (SP1) that has shown improved specificity and been adopted by the majority of IHC testing sites across Canada.

Internal QA includes the capture, reporting and review of data related to the total number of breast specimens submitted to pathology, the total number of tumors tested for ER, PR and HER2. Although there are published national guidelines on how breast tissue should collected and processed there are no current benchmarks to which positivity rates can be compared, therefore in FH, the percent positivity of each marker and follow up FISH testing for Her2 is monitored and compared to previous site and region data.

Additional internal competency evaluations are performed on an ad hoc basis.
Hematopathology

A review of bone marrow findings is done by a Hematopathologist at Abbotsford, Burnaby, Royal Columbian and Surrey Memorial hospitals. All clinically relevant discrepancies are reviewed and a revised report is issued when appropriate.

The bone marrow consultation review is similar to the Anatomic Pathology Medical Peer Review program and includes intradepartmental consultations (PREVI), extra-departmental consultations (PREVO), BCCA consultations/reviews (PREVB) and reviews of previous bone results.

### Bone marrow consultation review January 1, 2013 to March 31, 2013

<table>
<thead>
<tr>
<th>Bone Marrow</th>
<th>ARHCC</th>
<th>BH</th>
<th>RCH</th>
<th>SMH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of bone marrow cases</td>
<td>44</td>
<td>28</td>
<td>49</td>
<td>62</td>
</tr>
<tr>
<td>PREVI Internal review</td>
<td>4</td>
<td>12</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>PREVO External review</td>
<td>1</td>
<td>3</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>PREVB BCCA review</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>PREVMD Major disagreement between final report and review report</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In addition to bone marrow consultation reviews sites participate, twice a year, in the College of American Pathologist (CAP) external proficiency testing for bone marrow.

As well the Hematopathology participates in external proficiency testing programs and audits.

Medical Biochemistry

FH sites participate regularly in external proficiency testing, peer review and audits.

Medical Microbiology

Internal quality assurance review of reports for accuracy of reporting is done on a regular basis. As well there is participation, with a greater than 95% success rate, in external proficiency testing programs such as clinical Microbiology Proficiency Testing (CMPT) and College of American Pathologists (CAP).
Clostridium difficile testing for Fraser Health is done at medical microbiology laboratories located at Abbotsford Regional, Royal Columbian and Surrey Memorial. Changes to the testing methodology, from cell cytotoxicity assay to molecular PCR, have resulted in a reduced result turn round time of 40.75 hours or 1.7 days.

In July 2013 there was an integration of Burnaby hospital medical microbiology services with Royal Columbian Medical Microbiology. This integration has been undertaken to optimize microbiology technical and clinical resources.

Transfusion Medicine

Highlights from 2012 include:
- Blood component redistribution realignment and inventory optimization.
- Provision of on demand irradiated blood components from sites with an irradiator (SMH and ARH).
- Audits – completed or underway including, but not limited to, plasma utilization, massive transfusion trial and O negative RBC utilization.
- Identification of patients requiring irradiated cellular components using quarterly decision support tools reports.
- Quarterly and annual utilization review.
- IVig utilization management process.
- Participation in two external proficiency programs (ALEQ/CAP)

FH Transfusion Medicine participates in collaboration at a provincial level in:
- Neonatal Transfusion Practice Clinical and Technical Working Group,
- Irradition Working Group and
- Recipient notification in blood component recalls.

Within FH programs Transfusion Medicine is a member of the Blood Administration Shared Working Team for the development of regional wide administration guidelines for blood administration. Ongoing inter program collaboration also includes the development, implementation and continued revision of blood product fact sheets in collaboration with the Parental Drug Therapy Manual and Blood Administration working groups.

Tissue Bank

Quality assurance
- Allograft tissue bank procedure internal audit.
- Tissue supplier qualification and process audit.
- Utilization review – audited on a quarterly and yearly basis.
- Facilitation of Clinical Audit of Acellular Dermal Matrix for reconstructive surgery.
<table>
<thead>
<tr>
<th>Section and Specimen Type</th>
<th>Number in 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre and Post Analytic</strong></td>
<td></td>
</tr>
<tr>
<td>Blood collections (includes venous and capillary collections)</td>
<td>1,151,589</td>
</tr>
<tr>
<td><strong>Anatomic Pathology (AP)</strong></td>
<td></td>
</tr>
<tr>
<td>Surgical</td>
<td>101,222</td>
</tr>
<tr>
<td>Cytology</td>
<td>5,629</td>
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<tr>
<td>Fine Needle Aspiration</td>
<td>3,698</td>
</tr>
<tr>
<td>Cytogenetics</td>
<td>2,997</td>
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<tr>
<td>Bone Marrow</td>
<td>780</td>
</tr>
<tr>
<td>Autopsy</td>
<td>525</td>
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<tr>
<td>Referred In</td>
<td>432</td>
</tr>
<tr>
<td><strong>Total AP</strong></td>
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</tr>
<tr>
<td><strong>Clinical Laboratory</strong></td>
<td></td>
</tr>
<tr>
<td>Medical Biochemistry</td>
<td>1,200,616</td>
</tr>
<tr>
<td>Medical Biochemistry – Blood Gases</td>
<td>135,856</td>
</tr>
<tr>
<td>Medical Biochemistry – Urinalysis</td>
<td>242,608</td>
</tr>
<tr>
<td>Hematopathology</td>
<td>826,680</td>
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<tr>
<td>Hematopathology – Coagulation</td>
<td>362,830</td>
</tr>
<tr>
<td>Virology Serology</td>
<td>27,404</td>
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<tr>
<td>Body Fluids and CSF</td>
<td>7,337</td>
</tr>
<tr>
<td>Lab Special</td>
<td>359</td>
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<tr>
<td><strong>Total</strong></td>
<td>2,803,690</td>
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<tr>
<td><strong>Medical Microbiology</strong></td>
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</tr>
<tr>
<td>Urine culture</td>
<td>142,097</td>
</tr>
<tr>
<td>Blood culture</td>
<td>84,214</td>
</tr>
<tr>
<td>Wound, tissue &amp; fluid cultures</td>
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</tr>
<tr>
<td>ARO screening</td>
<td>40,242</td>
</tr>
<tr>
<td>Other culture types</td>
<td>46,865</td>
</tr>
<tr>
<td>Referred out testing</td>
<td>25,018</td>
</tr>
<tr>
<td>Microbiology tests</td>
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<tr>
<td><strong>Total</strong></td>
<td>383,928</td>
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<tr>
<td><strong>Transfusion Medicine</strong></td>
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<tr>
<td>Specimens for TM testing</td>
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</tr>
<tr>
<td>Patient order, lot # products</td>
<td>11,420</td>
</tr>
<tr>
<td>Tissue Transplantation</td>
<td>456</td>
</tr>
<tr>
<td>Tissue, Xenografts</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>79,845</td>
</tr>
</tbody>
</table>
Medicine

Medical Quality Committees
The Department of Medicine has established a Regional Department Medical Quality Committee with fifteen permanent subcommittees. The subcommittees are structured to encompass both division focused activities and hospital site locations as follows:

- **Regional Department of Medicine Medical Quality Committee**

- **Regional Division of Gastroenterology Medical Quality Committee**
- **Regional Division of Infectious Diseases Medical Quality Committee**
- **Regional Division of Neurology Medical Quality Committee**
- **Regional Division of Rehab Medicine & Physiatry Medical Quality Committee**
- **Regional Division of Endocrinology Medical Quality Committee**
- **Regional Division of General Internal Medicine Medical Quality Committee**
- **Regional Division of Nephrology Medical Quality Committee**
- **Regional Division of Oncology Medical Quality Committee**
- **Regional Division of Respirology Medical Quality Committee**

- **Abbotsford Regional Hospital, Department of Medicine, Medical Quality Committee**
- **Delta Hospital, Department of Medicine, Medical Quality Committee**
- **Eagle Ridge Hospital, Department of Medicine, Medical Quality Committee**
- **Burnaby Hospital, Department of Medicine, Medical Quality Committee**
- **Royal Columbia Hospital – Clinical Teaching Unit, Department of Medicine, Medical Quality Committee**
- **Surrey Memorial Hospital – Short Stay Unit, Department of Medicine, Medical Quality Committee**

Regional Division of Endocrinology

Clinical Audit

1. Title: Diabetes in Pregnancy Outcomes

   Phase:
   - [ ] Planning
   - [ ] Designing
   - [x] Data Collection
   - [ ] Analysis
   - [ ] Reporting

   Clinical audit objective:
   To examine maternal and neonatal outcomes in pregnant women with diabetes to determine if there is inter-hospital variation within Fraser Health.
Patient outcomes to be examined include:

**Maternal:**
- C section delivery
- Pre-eclampsia
- Ethnicity
- Insulin use
- Hypoglycemia

**Neonatal:**
- Macrosomia
- Hypocalcemia
- Hypoglycemia
- Jaundice
- Prematurity
- Shoulder dysocia

Patient population:
Babies born in a Fraser Health hospital between January 1, - December 31, 2012 to moms with a diagnosis of gestational diabetes.

Data collection strategy:
The BC Perinatal database will be used as the source of data for this clinical audit. Specific data elements within the database have been identified and communicated to Health and Business Analytics to abstract.

2. **Title:** Management of Thyroid Nodules

**Phase:**
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

**Background:**
The Division of Endocrinology has selected the management of thyroid nodules as the medical quality initiative for clinical audit. The Division is currently creating consensus guidelines for the region with the participation of Medical Imaging, Surgery and Pathology. Once the clinical practice guidelines have been established, an education session will be held within the division. A clinical audit will be undertaken in late 2013 to determine the degree of compliance to the use of the clinical practice guidelines for the management of thyroid nodules.
Evidence Based Practice/Medical Management Tools

In addition to the development of clinical practice guidelines for the management of thyroid nodules, the division has also provided suggestions to the Cardiac Catheterization pre-printed orders and the Sliding Scale Insulin protocol and pre-printed orders.

Quality Improvement Initiatives

The Division has discussed establishing specialized clinics for areas perceived to be underserviced in the region. Osteoporosis, Lipids, and Diabetics Foot clinics are among the initiatives being investigated. Collaboration with the BC Cancer Agency - Fraser Valley Cancer Centre for the management of thyroid cancer is also under consideration.

Supporting Professional Development

Efforts to participate in joint CME rounds continues to be a challenge as Fraser Health has been unsuccessful in gaining access to video-conferencing.

Division of Gastroenterology

Meeting Dates: December 4, 2012, April 8, 2013

Clinical Audit

Title: Lower GI endoscopy reporting

Division: Gastroenterology

Phase: □ Planning □ Designing □ Data Collection □ Analysis □ Reporting

Background:
The goal of the Division is to establish a program of continuous quality improvement. In this initial clinical audit, Phase 1, the audit will collect data by a prospective audit of adherence to a pre-established GI Division colonoscopy procedure reporting template. The audit will allow physicians to assess their endoscopy practices compared to their peers in Fraser Health and to establish goals for quality improvement.
Objective:
To determine the extent to which the Fraser Health GI Standard Report for Colonoscopy is used by members of the Division of Gastroenterology.

Patient Selection:
Ten (10) random operative reports for colonoscopy procedures for each GI physician performing colonoscopy procedures in Fraser Health were selected. The total number of procedures performed by each physician during the indicated time period was divided by 10 and reports selected for audit were based on multiples of these numbers. For example, if a physician performed 70 procedures during the time period, every 7th report was selected to be included in the audit. If a selected report pertained to a procedure other than colonoscopy, the next report was selected instead.

Time period: Data was collected prospectively November 12, 2012 to December 3, 2012.

Data collection strategy:
A prospective chart review examined 10 random operative reports for colonoscopy procedures for each GI Physician performing colonoscopy procedures in Fraser Health during a predetermined time period (November 12 to December 03, 2012). The operative reports were examined by a single reviewer to determine if all categories of the reporting template were present. Addition data collected through the audit included cecal intubation, withdrawal time, use of reversal agents and reporting of colon polyps.

Results:
The results on the following page are for 15 individual physicians, whose anonymity has been maintained by using a physician code. The highest possible adherence score to be achieved is 15, representing all 15 categories of the reporting template being present.
Action:
2. Confidential results will be distributed to division members.
3. The reporting template will be provided to the Physician Advisory Committee to consider having all endoscopists in Fraser Health adopt.

Morbidity & Mortality Review

The Division has discussed commencing divisional M & M review meetings citing the educational value and improvements to patient care that can result. Implementing an M & M review process will be an activity for late 2013.
Evidence Based Practice/Medical Management Tools

The Division has participated in reviewing the Fraser Health protocol for Procedural Sedation and Analgesia.

Quality Improvement Initiatives

- Members of the division are participating on the Fraser Health GI Council that discusses endoscopy quality and planning.
- GI Division is working on increasing the accessibility of out-of-hours emergency endoscopy services.
- Surrey Memorial Hospital GI physicians have established a formal 24/7 on-call service.

Supporting Professional Development

GI Rounds were conducted at the RCH site from 12:00 - 13:00 on the following dates: September 17, 2012, October 15, 2012, November 19, 2012, February 8, 2013, March 8, 2013, May 2, 2013 and May 31, 2013.

Division of General Internal Medicine


Clinical Audit

1. Title: Concurrence of ECG Reader Interpretations.
   Divisions: General Internal Medicine and General Cardiology
   Phase:  ☒Designing
   Data Collection  ☐Analysis  ☐Reporting

   Background:
The Divisions of General Internal Medicine and General Cardiology are undertaking a collaborative clinical audit that will examine the degree of concurrence of ECG Reader interpretation between all ECG readers. The “ECG Peer Review Process” has been designed and agreed to by both Cardiologists and Internists and will be conducted in 2 phases.

   Objective:
   To determine the degree of concurrence of ECG Reader Interpretations
Phase 1 – ECG peer review and education

ECG Peer Review:

1. ECG selection:
   - 20 abnormal ECGs from each ECG reader will be reviewed 2x per year for a total of 40 ECGs per reader per year.
   - ECGs will be selected from all sites (not just MUSE sites).
   - The ECGs for review will be "blinded" - all identifying information such as patient name and ECG reader name will be removed.

2. ECG Review
   - Each ECG will be reviewed by 1 member from the ECG Peer Reviewer pool. The pool will consist of 10 volunteer cardiologists who will over-read the ECG and record their determination as: "agree completely" or "agree mostly" or "disagree".
   - The "agree completely" and "agree mostly" will have no further action.
   - The "disagree" will proceed to review by the ECG Peer Review Committee.
   - The ECG Peer Review Committee will be Chaired by Dr. John Lemaitre and have as membership: Dr. Lemaitre; 1 cardiologist from SMH; 1 cardiologist from ARH; and 2 members from General Internal Medicine.
   - The entire Committee will over-read the ECGs brought forward as "disagrees" and record their determination as a Committee.
   - In reviewing the ECGs the Committee will also identify ECGs that have educational value and can be used as "seeded cases" for phase 2.

3. Results Reporting:
   - The results of the ECG peer review process will be submitted: for cardiologists to Dr. Kornder; for internists to Dr. Shaw.
   - Drs. Kornder and Shaw will provide feedback to their respective members of individual performance and aggregate performance.

4. Addressing “outliers”
   - For those individuals identified as "outliers", it is proposed that a greater number of ECGs will be over-read. No definition of “outlier” is proposed at this time as the group recommends that the anonymized and aggregate results are reviewed first to see what overall performance of FHA ECG readers is.

5. Implementation
   - The Cardiology program will provide the cardiac technologists to support and operationalize the ECG peer review process.

Education:
   - To support improved practice, ECG education will be provided on a regular and continuous basis through virtual ECG meetings, circulating ECGs as "ECG of the Month" and/or having ECG rounds.
• ECGs identified by the ECG Peer Review Committee as having educational value will be one source of ECGs for presentation.

Phase 2 – Enhanced ECG peer review

• Once Phase 1 has been implemented successfully, an enhanced Phase 2 will be implemented.
• Phase 2 would involve seeding "control" ECGs into the workflow of ECG readers.
• The control ECGs would be selected by the ECG Peer Review Committee.

2. Title: Clinical audit of the medical care provided to patients presenting with Acute Coronary Syndrome (ACS)

Division: General Internal Medicine and General Cardiology

Phase:
☐ Planning ☒Designing ☐Data Collection ☐Analysis ☐Reporting

Background:
The Divisions of General Internal Medicine and General Cardiology are undertaking a collaborative clinical audit that will examine the medical care provided to patients presenting with Acute Coronary Syndrome (ACS).

Data collection strategy:
A retrospective chart review will be conducted on 50 charts at each of the 8 sites as follows:
For Cardiology: SMH, ARH and RCH
For Internal Medicine: BH. RMH. ERH. DH, LMH, PADH
Note: The sites of MMH, Hope, and Chilliwack will not be included in this audit due to the low volume of patient cases.

Each chart will be reviewed to determine the extent to which the following criteria are met:

History/Consult dictated and on chart within 24 hours
Medications within 24 hours of admission: ASA
Antiplatelets
Beta Blockers
RAAS Blockers
Statins

Medications At Discharge:
ASA
Antiplatelets
Beta Blockers
RAAS Blockers
Statins
Smoking Cessation discussion documented
Cardiac Rehab referral discussion documented
Discharge Summary in EMR within 24 hours of discharge
Follow up plan documented and includes:
  - Driving
  - Sex
  - Work
  - GP appointment
  - Specialist appointment

Readmission for any reason within:
  - 30 days
  - 6 months

**Division of Infectious Diseases**

**Clinical Audit**

**Title:** Appropriateness and Effectiveness of the medical care provided by the Home IV Program to Patients with Diabetic Foot Infection.

**Division:** Infectious Diseases

**Phase:**
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

**Objectives:**
1. Assess the extent to which Infectious Disease Specialists are providing effective and appropriate care to diabetic patients presenting with foot ulcers as treated through the Home IV Program.
   - Determine the extent to which patients receive a consultation with an infectious disease specialist.
   - Determine if follow-up frequency is consistent with accepted good practice.
   - Determine the extent to which investigations are consistent with accepted good practice.
   - Determine the extent to which antibody selection is culture directed.

2. Assess the extent to which Infectious Disease Specialist practices for prescribing antibiotics to diabetic patients presenting with foot ulcers as treated through the Home IV Program are effective and safe.
   - Determine the extent to which antibiotic selection is consistent with accepted good practice.
- Determine the extent to which antibiotic treatment duration is consistent with accepted good practice.
- Determine the number and type of patient complications with treatment.

**Patient Selection:**
The patient population for this clinical audit is diabetic adult patients presenting with foot ulcers or osteomyelitis receiving treatment through the Home IV Program between April 1, 2011 and March 31, 2012 under the care of an Infectious Diseases specialist.

**Data collection strategy:**
This will be a retrospective baseline audit of Infectious Disease Specialists’ practices’ in treating diabetic patients presenting with foot ulcers and who were treated through the Home IV Program. Data will be collected through the review of 60 selected charts of patients treated by each member of the Infectious Diseases Division.

**Quality Improvement Initiatives**

The ID division has developed a regional call schedule for after-hours telephone advice Monday to Thursday between 5:00 and 11:00 pm.

**Supporting Professional Development**

The ID division has been working to develop region-wide rounds however this has been impeded by a lack of technical support.

**Division of Nephrology**


**Evidence Based Practice/Medical Management Tools**

- The Division is developing orders for inpatients on chronic hemodialysis.
- The Division had reviewed and provided feedback on the MOST documents. Feedback included proposing changes the MOST form to include dialysis.
- Feraheme trial at Royal Columbian Hospital. With Feraheme, patients can be given 500 mg IV in a minute with only a 30 minute observation period required prior to leaving.
Quality Improvement Initiatives

- “Renal Connect” system is being considered to improve the tracking of patients.
- Options for managing a scenario of 2 patients requiring dialysis at the same site while on call were reviewed.
- Protocols for hemodialysis patients in the new SMH tower are in development.
- Discussion of PC removal in patients with history of central stenosis. Nephrologists were asked to check medical imaging files and VA section for central stenosis at the time of ordering the PC removal and also by the nephrologist who is removing the permcath.
- Vascular access rounds – Clinical Rounds: In camera discussion was held in regards to the process of vascular access rounds including discussion of nursing and physician roles.

Supporting Professional Development

The Nephrology division has been working to develop region-wide rounds however this has been impeded by a lack of technical support.

Division of Neurology


Clinical Audit

The Division of Neurology members are considering the selection of a topic for clinical audit. The quality of EEG and EMG reporting are two topics under consideration.

Quality Improvement Initiatives

The Division is piloting a questionnaire that will allow health care teams to provide individual confidential feedback to neurologists on issues related to teamwork and safety. The “Modified Safety Attitudes Questionnaire” is based upon the JB Sexton article “The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research.” (BMC Health Serv. Res. 6, 44 (2006).)
Division of Oncology
Meeting Dates: May 21, 2013, August 20, 2013

Clinical Audit

Title: Completion of MOST

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Objective:
To determine the frequency of completion of the MOST for oncology patients at the time of admission to Fraser Health (Surrey Memorial Hospital).

Supporting Professional Development

The Division of Oncology holds monthly education rounds. Examples of topics include:

Morbidity and Mortality Review Rounds

The Division of Oncology held M & M rounds on July 16, 2013 for the purposes of evaluating and improving the quality of patient care provided. The focus of the discussion related to platinum analogs and thromboembolism.

Learning points and recommendations included the following:

- Patients on chemo may be at risk for thromboembolism. ASCO venous thromboembolism prophylaxis and treatment guideline 2013: VTE prophylaxis implemented for in-patients, no routine prophylaxis for out-patients recommended.
- Medical oncologists are aware of this potential toxicity.
Division of Respirology


Clinical Audit

Title: Bronchoscopy reporting

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Background:
The division has decided to focus on the performance and dictated reporting of bronchoscopy, incorporating "procedural pause" and other elements of good practice. The clinical audit involves two phases:

- Phase 1: All Respirologists will review the “Essential Bronchocopist” online tutorial to develop standardized reporting content.
- Phase 2: An audit will be undertaken to review the content of Physicians’ reports.

Phase 1 will be completed in 2013. Phase 2 will be undertaken in early 2014.

Evidence Based Practice/Medical Management Tools

The division has been fully involved in advising Fraser Health on the pre-printed orders for COPD patients in hospitals.

Quality Improvement Initiatives

The division is engaged in a quality assurance program related to wait times for outpatient spirometry.

The division is also engaged in a quality assurance project related to timeliness of pulmonary function testing reporting.

Supporting Professional Development

The Division of Respirology has been working to develop region-wide rounds however this has been impeded by a lack of technical support.

Royal Columbian and Surrey Memorial divisions of respirology have regular monthly case based rounds.
Royal Columbian Hospital Clinical Teaching Unit

Morbidity and Mortality Review

On April 5, 2013 the CTU conducted morbidity and mortality review rounds for the purpose of evaluating and improving the quality of care provided.

A total of 2 mortality and 9 morbidity cases were reviewed.

Learning points included:
1. The importance of trying to ensure a paracentesis catheter stays in place.
2. The importance of knowing what kind of tubes Radiologists insert, to ensure appropriateness for prolonged drainage.
3. Difficulty of supervising patients in hallway beds.
4. Need to assess bleeding risks patients with severe liver disease and do procedures early in the day and also closely monitor those patients at high risk of bleeding.
5. Anticipate NPO procedures and write pre-emptive insulin orders and review with RN. Do not order NPO unless reviewed with team.
7. Advocate for early decisions regarding definitive plans in immunocompromised patients requiring surgery.
8. Confusion can be an early sign of sepsis.
9. There may be other causes of fever and illness than the reason for admission.
Medical Imaging

Regional Department Medical Quality Committee Activities

Clinical Audit

1. Title: Echocardiography Report Content

   Phase:
   - Planning
   - Designing
   - Data Collection
   - Analysis
   - Reporting

   Background:
   Variation in echocardiography (echo) report content has been observed by echo report recipients. A standard for echo report content was defined by a joint departmental (Cardiology and Medical Imaging) working group in July 2011.

   Objectives:
   - To document variation in echo report content across sites.
   - To establish a baseline for follow up audits

   Patient Selection:
   Randomized selection of 5 reports per echo physician in the Department of Medical Imaging.

   Time period:
   October 16 – January 15, 2012

   Data collection strategy:
   Randomized selection of 5 reports per echo physician in the Department of Medical Imaging.

   Results:
   The follow up audit demonstrated an improvement in performance in every category across our department. In addition, for every physician there was maintained or improved performance in every category.

   Actions:
   1. Five American Society of Echocardiography (ASE) guidelines were adopted as regional department standards.
   2. Members of the Regional Department indicated their support for development of a standardized echo report template.
Physician participation rate:
Reviewee rate: 100%
Reviewer rate: 3%

2. Title: Carotid Ultrasound Report Content

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Background:
Variation in carotid ultrasound report content and classification criteria has been observed. Multidisciplinary consensus guidelines for carotid ultrasound report content were published in 2003.

Objectives:
To document variation in carotid ultrasound report content across sites, and compare report content to the 2003 consensus statement.

Patient Selection:
A clinical audit of all carotid ultrasound examinations from a single day in November 2011 was performed.

Time period:
November 2011

Data collection strategy:
A clinical audit of all carotid ultrasound examinations from a single day in November 2011 was performed. A barcode was generated for each selected examination. The barcode was scanned using a barcode reader attached to the PACS system, bringing the examination to the desktop for review on the PACS workstation.

Results:
This sample showed 39% (11/28) of reports were compliant with consensus guidelines and 61% (17/28) of reports were not compliant.

Reasons for non-compliance:
- Use of criteria other than consensus guidelines
- Erroneous technologist ‘interpretation’ referenced by radiologist in Meditech (ie ‘see worksheet’ without correcting technologist error)--- some sites use tech worksheet as a report, others don't
- Free text reports vary from radiologist to radiologist and do not follow any consistent structure sometimes referencing different sets of measurements
Actions:
1. Recommendation to the MIPAC (Medical Imaging Physician Advisory Committee – Advises the Lower Mainland Medical Imaging Program Executive Committee) that the matter of carotid ultrasound report standardization be reviewed across the Lower Mainland

Physician participation rate:
Reviewee rate: 100%
Reviewer rate: 1%

3. Title: BIRAD Category Inclusion in Radiology Reports

Phase:
☐ Planning  ☐ Designing  ☐ Data Collection  ☐ Analysis  ☒ Reporting

Background:
The FH Division of General Surgery requested through the Division Head that Members of the MI Regional Department include a BIRADs categorization in every diagnostic breast imaging report. BIRADs has been broadly adopted. Use of BIRADs categories in reports is useful to our surgical colleagues. Use of BIRADs categories reduces ambiguity in follow up recommendations. Use of BIRADs categories facilitates audit of reports for incomplete follow up (BIRADs 0), as well as correlation with outcomes and refinement of reporting processes.

Objectives:
To document the use of BIRADs categories in breast imaging report content across sites, and provide a baseline for follow up audit.

Patient Selection:
A clinical audit of all breast imaging (excluding MR) examinations from a single day in December 2011 was performed.

Time period:
December 2011

Data collection strategy:
A clinical audit of all breast imaging (excluding MR) examinations from a single day in December 2011 was performed. A barcode was generated for each selected examination. The barcode was scanned using a barcode reader attached to the PACS system, bringing the examination to the desktop for review on the PACS workstation.

Results:
40% (38/94) of reports included a BIRADs category statement.
60% (56/94) of reports did not include a BIRADs category statement.
Actions:
The Regional Department approved a policy that every diagnostic breast imaging report include a BIRADs category statement.

Physician participation rate:
Reviewee rate: 100%
Reviewer rate: 1%

4. Title: Imaging Guided Lung Biopsy Yield and Results

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Background:
Variation in lung biopsy method and biopsy yield has been observed.

Objectives:
To quantify variation in lung biopsy yield and method across all sites.

Patient Selection:
A clinical audit of all imaging guided lung biopsy procedures from April 1, 2011 to March 31, 2012 was performed. Selection of patients was performed by filtering a Meditech derived database for lung biopsy procedures.

Time period:
April 1, 2011 to March 31, 2012

Data collection strategy:
The method of biopsy and biopsy result were reviewed for each examination.

Results:

<table>
<thead>
<tr>
<th></th>
<th>% malignant lesion</th>
<th>% benign lesion</th>
<th>% benign lung tissue</th>
<th>% insuff sample</th>
<th>% positive dx obtained</th>
<th>% repeat needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARH</td>
<td>64.29%</td>
<td>8.75%</td>
<td>7.14%</td>
<td>20.00%</td>
<td>73%</td>
<td>27%</td>
</tr>
<tr>
<td>BH</td>
<td>76.19%</td>
<td>14.29%</td>
<td>0.00%</td>
<td>9.52%</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>CGH</td>
<td>37.50%</td>
<td>18.75%</td>
<td>0.00%</td>
<td>43.75%</td>
<td>56%</td>
<td>44%</td>
</tr>
<tr>
<td>LMH</td>
<td>55.56%</td>
<td>11.11%</td>
<td>11.11%</td>
<td>22.22%</td>
<td>67%</td>
<td>33%</td>
</tr>
<tr>
<td>PAH</td>
<td>62.96%</td>
<td>18.52%</td>
<td>3.70%</td>
<td>14.81%</td>
<td>81%</td>
<td>19%</td>
</tr>
<tr>
<td>SMH</td>
<td>63.56%</td>
<td>13.56%</td>
<td>8.47%</td>
<td>14.41%</td>
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</tr>
<tr>
<td>RCH</td>
<td>66.67%</td>
<td>10.00%</td>
<td>10.00%</td>
<td>13.33%</td>
<td>77%</td>
<td>23%</td>
</tr>
<tr>
<td>RMH</td>
<td>66.67%</td>
<td>0.00%</td>
<td>11.11%</td>
<td>22.22%</td>
<td>67%</td>
<td>33%</td>
</tr>
</tbody>
</table>
Was a History Provided on Path/Cytology Requisition?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARH</td>
<td>96%</td>
<td>4%</td>
</tr>
<tr>
<td>BH</td>
<td>14%</td>
<td>86%</td>
</tr>
<tr>
<td>CGH</td>
<td>88%</td>
<td>13%</td>
</tr>
<tr>
<td>LMH</td>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td>PAH</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>SMH</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>RCH</td>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td>RMH</td>
<td>100%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Type of biopsy performed (FNA or Core?)

<table>
<thead>
<tr>
<th></th>
<th>FNA</th>
<th>Core</th>
<th>FNA and Core</th>
<th>Not clearly documented</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARH</td>
<td>15%</td>
<td>76%</td>
<td>1%</td>
<td>7%</td>
</tr>
<tr>
<td>BH</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>CGH</td>
<td>31%</td>
<td>50%</td>
<td>0%</td>
<td>19%</td>
</tr>
<tr>
<td>LMH</td>
<td>11%</td>
<td>89%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>PAH</td>
<td>59%</td>
<td>37%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>SMH</td>
<td>6%</td>
<td>93%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>RCH</td>
<td>53%</td>
<td>31%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>RMH</td>
<td>22%</td>
<td>67%</td>
<td>0%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Imaging Modality Used

<table>
<thead>
<tr>
<th></th>
<th>FL</th>
<th>US</th>
<th>CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARH</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>BH</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>CGH</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>LMH</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>PAH</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>SMH</td>
<td>8%</td>
<td>0%</td>
<td>92%</td>
</tr>
<tr>
<td>RCH</td>
<td>54%</td>
<td>4%</td>
<td>42%</td>
</tr>
<tr>
<td>RMH</td>
<td>0%</td>
<td>22%</td>
<td>78%</td>
</tr>
</tbody>
</table>

Actions:
1. Repeat audit was recommended with improved methodology to compare biopsy result vs method.
2. Discussion with lab medicine recommended.

Physician participation rate:
Reviewee rate: 100%
Reviewer rate: 2%
5. Title: Hospital Congestion and Medical Imaging Examination Report Turn Around Time

Phase:
- ☑ Planning
- ☑ Designing
- ☑ Data Collection
- ☑ Analysis
- ☑ Reporting

Background:
Medical Imaging examination and report turn around time has been identified by referring physicians and staff from other departments and programs as a factor which impacts access and flow in the acute care setting.

The medical imaging report production process can be defined by 6 ‘milestones’ for every report:
1. Ordered
2. Started
3. Ended
4. Dictated
5. Transcribed
6. Signed

The Meditech Information System automatically records the ‘time stamp’ when each milestone was achieved on every examination we perform.

The time interval between two time stamps in the report production process represents the delay encountered between one step and the next.

“Ordered to Started” – The time elapsed from order entry in meditech to the technologist initiating exam acquisition at the modality.

“Started to Ended” – The time required for images to be acquired by technologist.

“Ended to Dictated” – The time taken by a radiologist to dictate a report once the images have been made available for dictation.

“Dictated to Transcribed” – The time taken for transcription to type a draft report.

“Transcribed to Finalized” – The time a radiologist takes to sign a draft report and make any required corrections to report content.

Objectives:
1. To measure the average turn around time, each month, for each step in the medical imaging report production process.
2. To deliver granular data to sites and department members demonstrating how individual sites, modalities and physicians contribute to report turn around time.
3. To increase awareness of site, modality and individual contributions to report turn around time, thereby enabling front line staff and physicians to change performance.
Patient Selection:
All patients, all examinations.

952,942 Examinations in 2011:
- 267,197 Inpatients
- 212,170 Emergency room patients
- 473,575 Outpatients

1,006,107 Examinations in 2012:
- 280,624 Inpatients
- 223,811 Emergency room patients
- 501,672 Outpatients

Time period:
January 1, 2011 – December 31, 2012

Data collection strategy:
A Meditech report is generated for each month which includes the following data fields:
- Site
- Dictating Physician
- Modality
- Meditech Procedure Mnemonic
- Patient Registration Status (Inpatient, Outpatient or Emergency room)
- 6 Time Stamps

Each month’s Meditech report data is then imported into a modern 64 bit database (Filemaker 12) with an integrated presentation layer. Data is presented in various ways to illustrate different forms of variation in the report production process (examples: by site, by registration status, by modality, by time of day, by day of week, by dictating physician)

Results:
Reporting of data commenced in March 2012. A change in performance followed which was sustained.

In the inpatient dictation time subgroup:

- Mean dictation time for inpatient exams decreased from 15 hours (2011) to 11 hours (2012), a 24% decrease across an exam volume of 280,000 exams.
- 36,589 fewer inpatient days spent waiting for an examination to be dictated in 2012 compared to 2011.
- This improvement occurred in the setting of a 5% increase in inpatient exam volume in 2012 compared to 2011.
In the inpatient ‘sign-off’ time subgroup:

- Mean report ‘sign-off’ time for inpatient exams decreased from 47 hours (2011) to 36 hours (2012), a 22% decrease across an exam volume of 280,000 exams.
- **102,597 fewer inpatient days spent waiting for a transcribed report to be signed off and corrected (if needed) in 2012 compared to 2011.**
- This improvement occurred in the setting of a 5% increase in inpatient exam volume in 2012 compared to 2011.

In the inpatient ‘ordered to started’ time subgroup:

- No significant change occurred in mean ordered to started interval in 2012 compared to 2011
- A difference in ordered to started interval between inpatients and Emergency room patients was noted across all modalities.

**Actions:**

A dedicated desktop server was resourced to maintain, automate and further build on this audit and reporting activity.

**Comment:**

A similar approach could be applied to any department or program wishing to analyze a process in which Meditech time stamps are recorded.

**Morbidity & Mortality Review**

During the period of January 2012 to May 2013 morbidity and mortality reviews were conducted during Regional Department Quality Committee meetings and during an *in camera* portion of the Regional Department Meeting September 6, 2012 for the purpose of evaluating and improving the quality of patient care provided.

7 patient cases were selected for review.

In two of the cases:

- one category 5 and one category 4 PSLS event, the availability of a radiologist performing timely after hours reporting may have been a contributing factor.
- the referring physician did not recognize the need to contact the radiologist on-call for assistance.
- the availability of an imaging examination or timely interpretation may have prevented a death or severe harm event from occurring.

Learning points and recommendations for improvement arising from the cases reviewed, and the status of implementation are as follows:
<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDMQC Recommendation:</td>
<td></td>
</tr>
<tr>
<td>“Clinicians managing acutely ill or unstable patients should communicate directly with radiologists or technologists in order to obtain prompt care”</td>
<td>Discussed with RPD/RDH Emergency Medicine. HAMAC to be advised January 2013</td>
</tr>
</tbody>
</table>

**Quality Improvement Initiatives**

**Title: 24/7 Reporting of Medical Imaging Examinations – Planning and Implementation**

Background: Fraser Health announced a decision to proceed with planning and implementation of 24/7 reporting of radiology examinations in October 2012. A draft plan for delivering 24/7 medical imaging reporting was presented to the members of the Regional Department Quality Committee in January 2013 for discussion and feedback. The draft plan was included in the agenda package for Regional Department Meetings scheduled on January 29, February 4 and February 6, 2013 for discussion and feedback. The meetings were ruled out of order by attendees. Discussion of the draft plan did not occur during the meetings. A meeting took place on May 13, 2013 at Jim Pattison Outpatient Centre which was attended by all Heads of Department (local) in Medical Imaging, the Regional Department Head / Program Medical Director, the Executive Director of the Lower Mainland Medical Imaging Program, the Vice-President responsible for Medical Imaging Operations in Fraser Health and the Chief Executive Officer of Fraser Health. Meeting attendees:

- All agreed that 24/7 reporting was required in order to improve quality of patient care
- Were advised of the concerns of site department heads
- Were advised by the CEO of organizational expectations surrounding timeline to implementation and building on the circulated draft plan through the departmental structure.
Peer Review

Title: Lower Mainland Interim Radiologist Peer Review

Background:
Since January 2012, the Department of Medical Imaging members have been actively participating in the Lower Mainland Interim Radiologist Peer Review Process. This retrospective peer review process is being implemented at all Lower Mainland medical imaging sites.

Objectives:
- To enable peers to provide each other with confidential feedback regarding reporting content.
- To improve patient care.

Case selection:
For radiologists who hold full category licensure with the CPSBC, 2% of the previous week’s reported CTs are randomly selected. For radiologists who hold provisional category licensure with the CPSBC, 5% of the previous week’s reported cases, for all modalities, are reviewed.

Methodology:
Selected cases are randomly assigned to a peer radiologists to review at their convenience within a 7 day timeframe. In reviewing the case the peer radiologist will record their opinion on the degree of concurrence with the interpretation and the clinical significance. A modified RadPeer scoring system is used to record the opinion. Any discrepancy in opinion requires a comment from the peer reviewer.

<table>
<thead>
<tr>
<th>Score</th>
<th>Interpretation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Concur with interpretation</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Discrepancy in interpretation/ not ordinarily expected to be made (understandable miss)</td>
<td>A – not clinically significant</td>
</tr>
<tr>
<td>3</td>
<td>Discrepancy in interpretation/should be made most of the time</td>
<td>B – clinically significant</td>
</tr>
<tr>
<td>4</td>
<td>Discrepancy in interpretation/ should be made almost every time – misinterpretation of findings</td>
<td></td>
</tr>
</tbody>
</table>

Communicating results:
All results of the case reviews are communicated to the original reporting radiologist via letter to provide feedback and to enable continuous improvement. Names of the peer reviewers are anonymized from this letter. The Regional Department Head is notified by automatic e-mail of Category 4 scores or clinically significant cases to ensure any patient follow-up that may be required takes place.
Results:

<table>
<thead>
<tr>
<th></th>
<th>Jan 2013 – April 2013</th>
<th>Jan 2012 – May 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases reviewed</td>
<td>411</td>
<td>1903</td>
</tr>
<tr>
<td>Scored as 1</td>
<td>95%</td>
<td>96%</td>
</tr>
<tr>
<td>Scored as 2</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Scored as 3</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Scored as 4</td>
<td>0.4%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Discrepancies Scored as ‘A’</td>
<td>78%</td>
<td>73%</td>
</tr>
<tr>
<td>Discrepancies Scored as ‘B’</td>
<td>22%</td>
<td>27%</td>
</tr>
<tr>
<td>Positive feedback provided</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Comments provided</td>
<td>13%</td>
<td>8%</td>
</tr>
<tr>
<td>Reviewer participation</td>
<td>96%</td>
<td>96%</td>
</tr>
<tr>
<td>Reviewee participation</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Target sampling rate</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Actual sampling rate</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>
Medical Quality Committee Activities
The Department of Mental Health and Substance Use (MHSU) has established a Regional Department Medical Quality Committee with fourteen permanent subcommittees. The subcommittees are structured to encompass both division focused activities and hospital site locations as follows:

Divisional medical quality committees:
- Regional Division of Addictions Medical Quality Committee
- Regional Division of Child, Youth and Young Adult (CYYA) Psychiatry Medical Quality Committee
- Regional Division of Geriatric Psychiatry Medical Quality Committee
- Regional Division of Tertiary Psychiatry Medical Quality Committee

Local medical quality committees:
- Delta Hospital Mental Health and Substance Use Medical Quality Committee
- Surrey Memorial Hospital Mental Health and Substance Use Medical Quality Committee
- Abbotsford Regional Hospital Mental Health and Substance Use Medical Quality Committee
- Burnaby Hospital Mental Health and Substance Use Medical Quality Committee
- Chilliwack General Hospital Mental Health and Substance Use Medical Quality Committee
- Langley Memorial Hospital Mental Health and Substance Use Medical Quality Committee
- Peace Arch Hospital Mental Health and Substance Use Medical Quality Committee
- Ridge Meadows Hospital Mental Health and Substance Use Medical Quality Committee
- Royal Columbian Hospital Mental Health and Substance Use Medical Quality Committee
- Jim Pattison Outpatient Care and Surgical Centre Mental Health and Substance Use Medical Quality Committee

Regional Department Medical Quality Committee

Clinical Audit
1. Title: MHSU & Emergency Room Cross – Program Patient Safety Review of Audit completed at SMH

   Phase:
   - Planning
   - Designing
   - Data Collection
   - Analysis
   - Reporting
Background:
To improve MHSU patient safety and quality of care while in emergency, the Regional Department Medical Quality Committee (November 4, 2012) reviewed a clinical audit report of MHSU patients in Surrey Memorial Emergency during the May 2012- Sept 2012 period. An audit tool was developed and used for this review. The audit tool was developed on themes from PSR recommendations for patient transfer process between programs.

Objectives:
To make recommendations from the audit to improve MHSU patient safety in emergency

Patient Selection:
32 audits were conducted of patients presenting in SMH emergency between the dates of May – September 2012, with the chief complaints of suicidal risk/ ideation and/or polysubstance use.

Time period: May 2012- Sept 2012

Data collection strategy: Chart review of 32 cases

Results:
The most prevalent areas of concern were:
1) medical clearance was not documented on medical clearance form
2) CTAS 1&2, were not placed on Level 1 observation
3) CTAS 1& 2 handover ER nurse to MHSU nurses not clearly documented
4) Handover of MRP from ER to psychiatry not per FH MRP policy

Actions:
1) The results of the review will be discussed at each local site
2) Work with the Emergency program to implement consistent levels of Observation
3) Maple Ridge Hospital site and Peach Arch Hospital site plan to participate in a similar review using the audit tool developed.

2. Title: MHSU Polypharmacy Audit for Tertiary Mental Health Sites:

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Background:
Antipsychotic medication is the cornerstone of therapy for patients with schizophrenia. Polypharmacy, the use of more than one antipsychotic, is frequently seen in practice. The reported incidence of polypharmacy ranges from 4% to 69%. Antipsychotic polypharmacy is a major contributing factor to high dose prescribing.
Objectives:
- To determine the prevalence of antipsychotic polypharmacy and high dose use and its rationale in the Fraser Health Tertiary Mental Health Sites.
- To identify if the polypharmacy patients were receiving regular monitoring of lab parameters and EKGs as recommended by current guidelines.

Patient Selection:
87 patient profiles were reviewed from the following adult tertiary mental health sites (Connolly, Cottonwood, and Cypress Lodges, and Memorial Cottage) and 45 geriatric patients at Oceanside and Deltaview.

Time period: June to August 2012

Data collection strategy:
Survey created to gather information for rationale for initiation and/or continuation of polypharmacy. High dose prescribing was calculated using Antipsychotic Dosage Ready Reckoner (devised by the Royal College of Psychiatrists).

Results:
- Adult tertiary polypharmacy rate = 36.8%
- Geriatric tertiary polypharmacy rate = 11.1%
- Rationale and response should be documented and reassessment of ongoing need for combination therapy should occur.
- Many of these patients have been on polypharmacy for a long duration, and concerns of deterioration and potential relapse often prevent a trial of monotherapy.
- Polypharmacy and high dose use patients should be monitored for blood work as per current guidelines.
- Annual EKGs should be considered for polypharmacy or high dose use patients.

Actions:
- The results of the review will be discussed at the Tertiary Department meeting and Regional Department Meeting.
- Carry out MHSU polypharmacy audit for other tertiary sites as well as partnership with sites in other health authorities.
Performance Review/Clinical Performance Appraisal

To improve physician performance and quality of patient care, the Department of MHSU is designing and implementing a specific performance review tool for MHSU physicians in Fraser Health. The tool will provide a structured format to guide the discussions between department/division/site leaders and individual members of the department for the purposes of practice improvement and personal development.

The performance review tool consists of 3 parts:
• Self evaluation completed by the physician
• Physician practice profile – quantitative information about the physician’s patient case load over the past year
• Feedback from Peers – online 360° tool to collect anonymous multi-source feedback

Performance Review Tool Development Process

A four step development process was adopted for the design, development, testing and implementation of the performance review tool and process.

<table>
<thead>
<tr>
<th>PREPARATION</th>
<th>INTERNAL STAKEHOLDER ENGAGEMENT</th>
<th>INITIAL PERFORMANCE TOOL DEVELOPMENT AND CONSULTATION</th>
<th>PILOT AND EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background work</td>
<td>Focus group discussion: CANMEDS and psychiatrist FITRE</td>
<td>Updates and discussions at regional meetings</td>
<td>Pilot the performance tool</td>
</tr>
<tr>
<td>Environmental scan</td>
<td>Collection of input</td>
<td>Collection of input and revisions to tool and process</td>
<td>Evaluate the performance tool and process</td>
</tr>
<tr>
<td>Collection and compilation of information</td>
<td></td>
<td></td>
<td>Make revisions</td>
</tr>
</tbody>
</table>

**Preparation**
- Literature Review - February to April 2012, a literature review was conducted
- Steering Committee - A Steering Committee was put into place to guide the design, development, testing and implementation of the performance review tool and process.
- Review of Existing Tools – Performance review tools used in Vancouver Coastal Health Authority, Intermountain Health and the College of physicians and Surgeons of BC were reviewed.
Internal Stakeholder Engagement

- Consultative Discussions - From April 17, 2012 – May 24, 2012, Focus Groups were conducted with each of the 8 local departments to obtain feedback from department members on the content and development of this tool, and the process of performance review in general.

Initial Tool Development and Consultation

- Draft Performance Review Tool - A draft performance review tool that contains both quantitative and qualitative performance measures has been developed. The tool includes collecting multi-source feedback (360° review) based on the Psychiatry Royal College FITER and CanMEDS roles. This draft tool was reviewed by members at the October 18, 2012 Regional Department meeting, and based upon feedback received, revisions have been made to the tool.
- Online Tool Development – To facilitate the collection of anonymous multi-source feedback, the draft performance review tool has been created into an online tool. The prototype online tool was reviewed at the Regional Department meeting in May 2013 and at the Regional MHSU Physician Update meeting on June 6, 2013.
- Physician Practice Profiles – To provide context to the feedback received, a physician practice profile will be provided to each MHSU physician that will provide them with individual information about their patient case load over the past year. Physician practice profiles for acute hospital work have been developed for all MHSU psychiatrists. An example of the physician practice profile was presented at the March 2013 and May 2013 Regional Department meetings and at the Regional MHSU Physician Update meeting June 6, 2013. A physician practice profile for community based work is currently being developed.

Pilot and Evaluation

- A pilot of the consisting of the 3 parts: self evaluation, physician practice profile and 360° multisource online feedback tool will take place in September and October 2013.
- Following the pilot, a formal evaluation of the performance review tool and process will take place November and December 2013.
- Based upon the evaluation feedback, revisions to the draft performance review tool and process will made.

Implementation

A tentative date for the implementation of the performance review tool across the Department has been set for Spring 2014.
Supporting Professional Development

Regional Department update meeting Oct 18, 2012: attended by over 50 MHSU physicians

Topics:
- Guest speaker Penny Washington: Health Care Law
- Review of PARIS report by consultant
- Facilitated focus groups on 1) Physician Engagement, 2) Physician Performance Review, 3) Capacity / access and flow, and 4) Quality Review

Regional Department update meeting June 6, 2013: attended by over 68 MHSU physicians
Guest speaker Dr David Bond: “Serious Health Consequences of Comorbid Obesity in People with Bipolar Disorder”

July 3, 2013: Co sponsored with VCHA rounds on DSMV which was videoconferenced to 4 FHA sites

July 4, 2013: Co sponsored with VCHA access to webinar on DSMV made available for FHA psychiatrists

Five MHSU physicians attended FHA supported PMI leadership course in December 2012.
Obstetrics & Gynecology

Medical Quality Committee Activities

Currently, medical quality improvement activities are reported to the Maternal Infant Child and Youth (MIC) Program Quality and Performance Committee and conducted through the activities of the Perinatal & Neonatal Quality Review Committee and Local Multi-disciplinary Review Committees (LMRC). Over the past year, attention has been focused to determining a quality committee structure for the Department of Obstetrics and Gynecology that will be effective and efficient, and build upon the culture of multi-disciplinary review and quality improvement. A Regional Department Medical Quality Committee (RDMQC) for the Department has recently been established. In addition to implementing a program of professional practice evaluation and structured quality improvement for the Department, the RDMQC will regularly receive and review reports from the Perinatal & Neonatal Quality Review Committee and Local Multi-disciplinary Review Committees.

MICY Quality Performance Committee (QPC)

Perinatal & Neonatal Quality Review Committee

Local Multi-disciplinary Review Committee
Meeting recurrence varies at each site. LMRC reports received and approved for this time period include:
- Royal Columbian Hospital - 5 reports
- Surrey Memorial Hospital - 1 report
- Abbotsford Regional Hospital - 1 report
- Langley Memorial Hospital - 2 reports
- Burnaby Hospital Neonatal Intensive Care Unit - 2 reports
- Ridge Meadows Hospital - 4 reports

Morbidity & Mortality Review

The Perinatal Trigger Tool and PSLS identify cases for M & M review by Local Multi-disciplinary Review Committees. Trigger tools are being implemented at all 8 maternity sites and are being modified for pediatrics and NICU. A standardized reporting template has been developed and implemented by the Local Multi-disciplinary Review Committees to report M & M activities to the MICY Quality & Performance Committee and RDMQC. Patient charts are automatically selected for review using trigger tools; as identified by PSLS events; or based upon specific criteria that may include i) Stillbirth or intrauterine death, ii)
neonatal pH < 7.0 or base excess > -12, iii) Apgars of <4 at 1 min & <6 at 5 min, iv) significant maternal morbidity.

Over the past year, 50 patient cases were selected for review using the PSLS and Trigger Tool selection criteria, and 77 recommendations for improvement arose from the cases reviewed.

Medical Management Review

Since October 1, 2012, there have been 11 reviews that were conducted for the purposes of evaluating and improving the quality of care provided.

Patient Safety Reviews:
8 Commissioned Patient Safety Reviews occurred
63 recommendations for improvement arouse from the PSR cases reviewed

External Medical Reviews:
2 patient cases were externally reviewed, of which 1 case review is still in process
5 recommendations for improvement have been received

Patient Care Quality Office Review Board:
1 case was reviewed
2 recommendations for improvement have been received

Evidence Based Practice/Medical Management Tools

Members of the Department have been involved in the development, review and/or implementation of the following clinical practice guidelines and pre-printed order sets:

- Regional nausea and vomiting of pregnancy PPO
- Epidural protocol and PPO
- Preterm labour protocol and PPO
- Algorithm for Perinatal patients presenting in Emergency Department
- Diversion policy
- Term newborn PPO
- Late preterm and SGA PPO
- 2 Postpartum PPOs – vaginal birth, post-op C/S
- PPROM protocol
- NST and ultrasound surveillance guideline
- Antepartum admission PPO
- Induction of labour policy
Department Summaries
Clinical Audit Annual Report

- 3 Hypertension PPOs – antepartum, postpartum, and antihypertensive treatment of severe hypertension in pregnancy
- 2 Diabetes PPOs – antepartum/intrapartum and postpartum

Quality Improvement Initiatives

Leadership Safety Walkabouts (LSW) took place at all sites and units within the MICY Program during Canadian Patient Safety Week, from October 29, to November 2, 2012. The MICY Program Senior Leaders appreciated the opportunity to meet with front line staff and physicians to engage in discussions related to patient safety. Unit specific feedback reports were sent to each unit manager and Head of Department (local) for their prospective areas and action plans were developed around items identified.

LSW summary reports for Perinatal, NICU and Pediatrics were reviewed at the January and February 2013, MICY QPC meetings. The 3 top regional themes identified as program priorities were:

Perinatal

- Regional action regarding timely, straightforward transfer process, and clarity on Levels of Service (LOS) for all sites: BC Bedline & BC Women’s and Children’s Hospital processes for transfer to Higher Levels of Care are complex and time-consuming, and BC Women’s and Children's Hospital may expect Fraser Health community sites to care for inappropriate patients.
- Staffing mix and staffing levels: some sites have significantly different resources and staff/patient ratios than others. No after hours unit clerk support is having a significant impact on busy Labour & Delivery units where all admission processes must be completed by nurses. PP only nurses and novice nurses on the units are making it difficult to manage emergencies and very busy shifts. Unfunded nursery spaces are causing staff shortages on maternity units.
- Delays to care: Delays to OR/anesthesia/ analgesia for maternity patients, delays to assessment and intervention as obstetrics and pediatrics medical staff are not in-house or not adequate at busy sites.

Pediatrics & Neonatal Intensive Care Unit (NICU)

- Communication and transitions in care: (Pediatrics & NICU) Incomplete or erroneous information at transfer, inconsistent staff consultation regarding new equipment and processes, inconsistent approval of overtime.
- Environment, equipment, & cleaning: (Pediatrics & NICU) Availability, appropriateness, and functioning of equipment, and timely repair or replacement of equipment is
problematic in many areas. Discussion regarding cumbersome process in new lower mainland service model. Crowded physical space, insufficient isolation space, and clutter and equipment wires are a problem in many units. Cleaning is a concern as cleaners are often rushed and not cleaning all surfaces.

- Lab interface with NICU and Pediatrics: Injuries to neonates during blood draws, incorrect reports, side rails and isolettes not always secured, clotted samples, delays in Lab response or reporting in urgent / emergent situations.

Performance Review/Clinical Performance Appraisal

- 4 physicians have undergone a performance review.
- 4 physicians have had modifications to their scope of practice.
- 1 physician has had their obstetrical privileges suspended

Supporting Professional Development

- Medical staff participate in the MoreOB program.
Pediatrics

Medical Quality Committee Activities

The Regional Department of Pediatrics is in the process of establishing a Regional Department Medical Quality Committee. Currently medical quality improvement activities are reported to the MICY Program Quality and Performance Committee and undertaken by the Child & Youth Quality Committee, and site-based committees. A goal for the coming year will be to determine a committee structure for the department that will be effective and efficient.

Medical Management Review

A Patient Safety Review was undertaken in the past year. Recommendations arising from this review include:
- Early consultation/referral to pediatrics for complicated surgical cases
- Better hand-over
- Better documentation of clinical progress
- More education in certain clinical domains

Evidence Based Practice/Medical Management Tools

Members of the Department have been involved in the development, review and/or implementation of the following clinical practice guidelines and pre-printed order sets:
- Diabetic Ketoacidosis (DKA)
- Conscious sedation
- Pre-printed orders for Neonates
- Asthma and Diabetes clinics - standardization of care
- Age definition to align with BC Children’s Hospital

Quality Improvement Initiatives

- Tiers of service, ensuring that hospitals are delivering the appropriate level of care based on what they can and cannot do
- Working with BC Children’s Hospital on subspecialty clinics and co-branding
- Pilot observation unit at Ridge Meadows Hospital, plans for Chilliwack General Hospital
- Improving access to Mental Health services
- Working with Child Health BC and conducting a self-assessment related to oncology and palliative care as part of a provincial initiative to improve the quality of care provided. Work in additional disciplines will follow.
Surgery

The Department of Surgery has established a Regional Department Medical Quality Committee. Within Fraser Health there are several surgical committees that meet. Most of these committees are site based, and at the larger institutions, these committees are also based upon sub-specialties (divisions). Goals for the coming year include:

- Inventory each surgical committee within Fraser Health that will include: purpose (Terms of Reference if available); membership; meeting frequency; and reporting relationship. This inventory will be used to organize and sanction committees of the Department of Surgery, and to determine how best to support their activities.
- Establish local medical quality committees.
- Establish regular morbidity & mortality review processes at each site.
- Establish a schedule and reporting templates for use by divisions and local medical quality committees to ensure regular reporting to the Regional Department Medical Quality Committee and HAMAC.

Regional Department Medical Quality Committee Activities

Division Meeting Activities
Several divisions within the Department of Surgery hold meetings at which quality improvement is an item for discussion.

General Surgery: January 31, 2013; September 26, 2013
Neurosurgery: February 21, 2013
Oral & Maxillofacial Surgery: October 2, 2012; April 2, 2013
Urology: September 10, 2013
Vascular Surgery: May 7, 2013

Local Site Medical Quality Committee Activities
Listed below are those site medical quality committees for which meeting dates are known:

Burnaby Hospital: May 15, 2013
Langley Memorial Hospital: April 4, 2013
Ridge Meadows Hospital: January 30, 2013
Royal Columbian Hospital/Eagle Ridge Hospital – Orthopedic Surgery: October 25, 2012; February 7, 2013; May 30, 2013
Regional Department of Surgery Initiatives

Clinical Audits

1. Title: Surgical Safety Checklist Audit

Sites: All surgical sites within Fraser Health

Phase:  
☐ Planning  ☐ Designing  ☒ Data Collection  ☐ Analysis  ☐ Reporting

Background:
The FHA Surgical Safety Checklist is based on the WHO checklist. All FH operating rooms have the Checklist mounted on the wall. Surgeons and operating room personnel are expected to conduct all 3 phases for each operation:
- Pre-induction,
- Pre-incision, and
- Debriefing.

Combined with the surgical pause and site marking, the checklist has been shown to reduce medical errors and improve engagement and morale of the nursing staff.

Over the past 2 years FH has been auditing the use of the checklist. Improvement to the auditing procedure and tool were implemented in July 2013 and will be used for future audits. This revised audit tool collects information regarding the team performance of the Surgical Safety Checklist within the surgical suites of Fraser Health.

Objective:
To assess the use of the Surgical Safety Checklist, teamwork, and to identify areas to further improve checklist implementation and improve surgical safety.

Time period:
Data collection using the revised audit tool will commence in the fall 2013. Once implemented, this will be an ongoing, routine audit.

Data collection strategy:
- 20 audits per month, per surgical site, will be completed.
- The auditor will ideally be a person who is not part of the OR team. This will provide less biased reporting and the opportunity for coaching and feedback to the team.
- Copies of the audit will be sent to FH administrative assistant for stats collection and reporting. Copies will also be kept on site for review with the Surgical Manager, Chiefs of Surgery and Anesthesia as well as surgical teams.
Morbidity & Mortality Review

At its meeting of March 26, 2013, morbidity and mortality review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided. Learning points and recommendations for improvement arising from the cases reviewed areas follows:

a. If an anesthetic block is to be performed at a site distant to the proposed incision, the site of the block is to be initialed by the anesthesiologist during the Briefing.

b. If a regional anesthetic is to be performed prior to the Briefing (outside the operating room) then the relevant components of the Briefing must be completed prior to the procedure by those present.

c. The Briefing portion of the Surgical Safety Checklist will be done before any anesthetic procedures are performed in the operating room.

Quality Improvement Initiatives

National Surgical Quality Improvement Program (NSQIP):

Fraser Health’s 11 surgical sites participate in the American College of Surgeons National Surgical Quality Improvement Program (NSQIP). NSQIP is a data-driven, risk adjusted, outcomes based surgical quality improvement program that allows participating sites to view their performance in comparison to other North American hospitals. Fraser Health participating sites provide NSQIP with specific patient clinical information, and NSQIP provides results to sites on mortality, morbidity and complication rates from which quality can be monitored and improvement opportunities identified and implemented. Each surgical site has a physician champion that is supported by a surgical case reviewer (SCR). Working together, the physician champion and SCR provide data and reports to the local surgical group to facilitate discussions about quality and to identify improvement initiatives. At many of the sites, the physician champion will also have confidential discussions with individual surgeons on their performance in comparison to peers using the NSQIP data.

Checklist Policy / Wrong Site Surgery Prevention

During October and November 2012, 4 wrong-site surgeries were reported and investigated for the purposes of evaluating and improving the quality of patient care provided. In response to recommendations arising from these reviews, a Checklist Policy/Wrong Site Surgery Prevention document has been developed. The document has been presented to the Surgical Program Council, Regional Department of Surgery Medical Quality Committee, and HAMAC for review and endorsement. The document is also currently being presented and discussed at Division meetings.
Evidence Based Practice/Medical Management Tools

A significant new initiative that is being implemented region wide is the Enhanced Recovery After Surgery (ERAS) protocols. These protocols have been shown to significantly decrease length of stay as well as morbidity & mortality rates. The ERAS protocols will be Division specific and standardized region wide.

Over the coming year, each Division will be asked to develop their own protocols for Major Surgery, Minor Surgery, and Day Care Surgery. The Regional Department is also involved in the Provincial ERAS Working Group. To date there have been 2 teleconference meetings with a full day face to face meeting planned for September 28, 2013.
Division of General Surgery

Clinical Audits

1. Title: Laparoscopic colon resection at Chilliwack General Hospital

Division: General Surgery  
Site: Chilliwack General Hospital

Published: BC Medical Journal Vol. 55 No. 1 January/February 2013

Investigators: Rana S. A. Khan, MBBS, Richard Schwarz, MD, FRCSC, Susan McDonald, MD, FRCSC, Norman D. Causton, MD, FRCSC, Marthinus Christo Wiggins, MD, FRCSC

Background:
Laparoscopic colon resection is becoming a standard of care throughout the world. In British Columbia, the procedure is gradually being introduced into surgical practice at community hospitals. In an effort to determine if community-hospital outcomes are similar to those published in the surgical literature, a study was undertaken to look at the outcomes of this procedure at the Chilliwack General Hospital.

Methods:
A retrospective analysis was conducted on data from laparoscopic colon resections performed by four surgeons at Chilliwack General Hospital from June 2005 to June 2010.

Results:
In 29 out of 136 cases (21%), it was necessary to convert to an open procedure. Operating time, duration of hospital stay, 30-day mortality/morbidity rates, and oncological outcomes were all similar to the published outcomes.

Conclusions:
Laparoscopic colon resection can be introduced and performed in community hospitals settings with outcomes similar to those found in the surgical literature.

Quality Improvement Initiatives

Breast Cancer Surgery: Reporting selected quality measures

Objectives: To define a set of quality indicators that would be routinely measured and evaluated to monitor effectiveness, and to guide improvements in surgical care.

Status: A working group of the Division is currently identifying selected breast cancer surgery quality measures. This work includes reviewing and considering the published

Division of Ophthalmology

Over the past six months, the Division has been engaged in discussions related to identifying, selecting and implementing medical quality improvement activities.

The Division has decided to focus on two quality activities for the coming year:

- Morbidity and Mortality review
- Surgical Safety Checklist – Ambulatory Cataract Surgery

Morbidity & Mortality Review

The Division will be focusing their efforts in establishing regional Morbidity & Mortality (M & M) review rounds under the leadership of Dr. H. Dhaliwal. M & M review for Ophthalmology will be conducted on a regional basis under the jurisdiction of the Regional Division of Ophthalmology. Over the next several months, work will focus on establishing:

- case selection criteria
- the process for identification of cases that meet the selection criteria
- the processes for case review: case preparation, case presentation, frequency of meetings, roles of individuals involved, etc.

Quality Improvement Initiatives

Surgical Safety Checklist – Ambulatory Cataract Surgery

VIHA has adapted the WHO Surgical Safety Checklist for use in Ambulatory Cataract Surgery. Over the coming year the Division will review and discuss whether the implementation of this checklist within Fraser Health is something they would recommend. If the recommendation by the Division is forthcoming, discussions with the Surgical Program will follow to determine the feasibility of its implementation within Fraser Health.
Division of Neurosurgery

Morbidity & Mortality Review

At its meeting of September 6, 2012, morbidity and mortality review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided. Learning points and recommendations for improvement arising from the cases reviewed areas follows:

- With respect to the management of complex cranial vascular lesions, cerebral angiography is needed in both the pre and post-operative setting.

Division of Vascular Surgery

Clinical Audit

1. Title: Effectiveness of Complex EVAR review policy

Sites: All surgical sites within Fraser Health

Phase:

- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Background:
Complex EVAR is an expensive aspect of the care of high risk patients.

Objectives: Length of stay, Mortality, MI rate and renal function

Patient Selection: Reviewed retrospectively all patients who had been approved for complex EVAR during the first 6 month 2013

Time period: 8 months

Data collection strategy: Retrospective

Results: N=8
2/8 under went surgery this year to date
6/8 have not progressed to surgery

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age</th>
<th>LOS</th>
<th>MI</th>
<th>Renal failure</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>67</td>
<td>12</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>74</td>
<td>7</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Comment: Only 25% of patients approved for complex EVAR have actually had their procedure. Electronic chart review indicates that the risk work up and assessment is lengthy placing these patients at potential risk of rupture prior to surgery.

Actions:
- Need to revise the flow pathway to expedite care.
- Need to monitor outcomes on prospective basis. Patients to be entered into VQI data basis on intention to treat basis so that we can compare the outcomes against any consequence of delay in care.

Physician participation rate: Patients selection is by all members of the division of vascular surgery.

2. Title: Effectiveness of Vollmar ring endarterectomy as an alternative to arterial bypass.

Sites: All surgical sites within Fraser Health

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Background: Vollmar ring endarterectomy offers an alternative to conventional by pass where stenting is inappropriate. Potential advantages are avoidance of prosthetic material, preservation of normal anatomy, and shorter hospital stay. This is a new technique that is not widely performed hence the importance of documenting results.

Patient Selection: Prospective data collection of all patients undergoing a Vollmar Ring endarterectomy

Data collection strategy: prospective

Results:
N = 12
- 6 iliac and 6 SFA. Excluded are 4 patients converted to bypass for technical reasons.

<table>
<thead>
<tr>
<th>Iliac = 6</th>
<th>Patient</th>
<th>LOS</th>
<th>MI</th>
<th>Mortality</th>
<th>Infection</th>
<th>Primary Patency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>
SFA = 6

<table>
<thead>
<tr>
<th>Patient</th>
<th>LOS</th>
<th>MI</th>
<th>Mortality</th>
<th>Infection</th>
<th>Primary Patency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

Comment: Vollmar ring endarterectomy is an alternative to bypass in selected patients and hence these results must be compared to Aortofemoral and fem-pop bypass surgery. In the first group of iliac reconstructions, the patient presented with a septic fem-fem x-over graft. As this was the first case a laparotomy was performed as a precaution for possible rupture during the procedure as the entire right iliac require endarterectomy. The prolong stay reflects the cautious approach to this first patient. If this LOS is excluded, all subsequent iliac reconstruction were done with an Average LOS of 3 days. For SFA reconstruction Average LOS = 3 days. The initial results are encouraging with shorter LOS. No mortality or MI and 100% primary patency. Where Vollmar ring proved technically impossible in 4 cases, conversion to conventional bypass was made.

Actions:
- Continue to monitor results as use becomes more wide spread.

Physician participation rate: Results reflect a single surgeon’s outcome of a new procedure. Other members of the Division are waiting training.

3. Title: VQI data base

Sites: All surgical sites within Fraser Health

Phase:
- Planning
- Designing
- Data Collection
- Analysis
- Reporting

Background: VQI is the most widely used vascular data base in the world. It allows for real time prospective data collection of all vascular patients and comparison to peer hospitals. The Division has championed this was a way for the FHA to gain accurate data on all aspects of vascular surgery to enhance patient care and evaluate resource allocation. The system has been approved. Funding is still needed.

Patient Selection: Prospective data collection all patients
Data collection strategy: prospective

Comment: The system will change how we do vascular surgery, change resource allocation, allow for effective pathway planning and provide research opportunities.

Morbidity & Mortality Review

At its meeting of May 7, 2013, morbidity and mortality review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided. Learning points and recommendations for improvement arising from the cases reviewed area follows:

- Perclose devices are to be used with caution in complex cases
- Care should be done to ensure that the puncture is infra inguinal and that the artery is not calcified.
- In the decision to use a Perclose device consideration needs to be given to planning rescue intervention should the device fail.
- If a total common iliac occlusion is to have angioplasty following use of a subintimal dissection techniques, suitable cover stents must be available in the OR to deal with any rupture.

Dr Toppin at RCH and Dr Lewis at ARH review site M&M. All unexpected death or major iatrogenic complications are referred to Dr. Lewis for chart review and action. Any discussion occurs at monthly division meetings.

Evidence Based Practice/Medical Management Tools

The division has implanted standardized selection
- criteria for EVAR repair
- Complex EVAR
- TEVAR

All Complex EVAR and TEVAR are subject to Divisional review
Standardised post op EVAR orders available.
Quality Improvement Initiatives

There are 4 main Quality issues that the division has been trying to get implemented.

VQI as discussed above

Vascular Lab for functional studies of arterial flow. This is essential in predicting limb loss, and assessing need for intervention.

Diabetic foot clinic. The FHA has a high amputation rate in diabetics due to a systemic lack of preventative care.

Nurse Assistant on the vascular wards to facilitate flow pathways.

All 4 of these programs have been applied for. VQI and the Vascular Lab are approved but await funding. The requests for a diabetic foot clinic and Nurse assistants are still being considered by the FHA.

Supporting Professional Development

The division discusses complex cases at regularly scheduled monthly meeting except for during summer.

Local Quality Committees

Royal Columbian Hospital and Eagle Ridge Hospital

Clinical Audit

Title: Review of surgical site infections as identified by NSQIP

Division: Department of Orthopaedics

Site: Royal Columbian Hospital and Eagle Ridge Hospital

Phase:
☐ Planning  ☐ Designing  ☐ Data Collection  ☐ Analysis  ☒ Reporting

Background: As a department, we are trying to use the NSQIP data to help improve our quality of care. Seventeen patients were identified to have surgical site infections and these patients were reviewed. A chart review was performed and various perioperative factors were identified that may have predisposed to the surgical site infections.
Patient Selection: The patients were identified by the NSQIP clinical reviewers as having surgical site infections according to the NSQIP definition.

Time period: The patients identified were in the date range from September 2011 to December 2012.

Data collection strategy: A chart review was performed on the identified patients. The factors looked at were as follows:

1. Operative procedure
2. BMI
3. Date of birth
4. Sex
5. Whether the patient was a study patient
6. Whether the patient was transferred to the treating facility
7. Wait time for surgery
8. Days postoperatively until surgical site infection diagnosed
9. Surgical priority status
10. Surgeon
11. Length of surgical procedure
12. Use of intraoperative fluoroscopy
13. Prep solution
14. Splint application
15. Dressing used
16. Drain
17. Fracture type
18. Preoperative antibiotics
19. Timing of preoperative antibiotics and intra-operative re-dosing
20. Tourniquet use
21. Postoperative antibiotics
22. Patient temperature intra-operatively as well as in the PACU
23. Use of body warmer
24. Patient glucose
25. Length of hospital stay
26. Assessment of infection depth

Results:
Although many of these patients had surgical site infections, some patients had been referred for an osteomyelitis. Therefore, this would not have been a true postoperative surgical site infection as it was a preexisting condition. There appears to be some inaccuracies with the NSQIP data which need to be further investigated. As well, the participating surgeons indicated that they knew of other patients with infections that had not been identified by NSQIP so it was unclear if this review was complete or just a sample of the cases.
Therefore, several issues have been identified with the NSQIP data. Firstly, it is unclear how the surgical site infection diagnoses are being made when the data is being collected. Although there are NSQIP criteria, the data does not appear to always accurately identify the patients with true surgical site infections.

Follow-up Action: Dr. Lemke will meet with the NSQIP staff to obtain more information on how the data is collected and reported.

It also came to the attention of the involved surgeons that many of the GP’s and ER physicians start patients on antibiotics without obtaining cultures. Some of these patients have redness due to reaction to the sutures or staples. Occasionally these patients have stitch abscesses that cause sterile drainage. These are not true surgical site infections. Therefore, emergency physicians and family physicians should be more cautious in terms of starting antibiotics prior to notifying the treating surgeon as once the antibiotics have been started and the patient is seen several days later it is very difficult to determine whether a true surgical site infection was present.

Follow-up Action: Dr. Perey will communicate with the Head of Emergency and the Hospitalists to highlight this issue for them.

As well, we had received some feedback that antibiotic timing preoperatively was not always within one hour of the surgical procedure and that post-op hypothermia may be a contributing factor to infection. On review of our data, most (14/17) patients received their antibiotic less than 60 minutes prior to starting their surgery, which is in keeping with the AAOS guidelines. We were unable to comment on the significance of patient temperature and its correlation with surgical site infections due to insufficient pre and intra-op data. Our review showed that most (15/17) patients’ temperatures in the PACU were within the normal range. The sample size was too small to make any definitive conclusions on these two factors.

Our final conclusion is that NSQIP data is important and the goal of achieving improved quality assurance should be pursued. Within our healthcare system, ways of optimizing data collection would help to more accurately report these problems and may help to decrease patient morbidity with respect to surgical site infections.

**Morbidity & Mortality Review**

Orthopedic Surgery morbidity and mortality review rounds were conducted on October 25, 2012 and February 7, 2013 for the purposes of evaluating and improving the quality of patient care provided. Themes for the M & M rounds included hip fracture collapse after gamma nail fixation, and subdural hemorrhage. 3 patient cases were selected for review and discussion.
Ridge Meadows Hospital

Morbidity & Mortality Review

At its meeting of July 5, 2012, morbidity and mortality review rounds were conducted by the Ridge Meadows Surgical Quality Committee for the purposes of evaluating and improving the quality of patient care provided. Criteria for case review include:

**Project 800 – Wound Complications**
- Field 1 – Dehiscence
- Field 2 – Evisceration
- Field 3 – Infection

**Project 820 – Surgical Complications, Other**
- Field 1 – Anastomotic Leak
- Field 2 – Return OR 14 days
- Field 3 – Transfusion Intra/Postop >=4
- Field 4 – Transferred to Other Acute Institution
- Field 5 – Expired - within 14 days of surgery
  - any admission with surgeons as MRP (no surgery)
- Field 6 – Perf/Bleed Post Endo

**Project 821 – Non-Surgical Complications**
- Field 1 – DVT
- Field 2 – Acute MI
- Field 3 – Other Serious Comp
- Field 4 – Pneumonia
- Field 5 – PE
- Field 6 – Stroke
- Field 7 – TPN > 14 days
- Field 8 – DIC
- Field 9 – Intra-abdominal Abscess

34 patient cases were selected for review using the pre-established patient selection criteria. Learning points and recommendations for improvement arising from the cases reviewed areas follows:

1. 3 of the patient cases reviewed will be discussed with radiology to determine the most appropriate test in detecting post-operative complications, especially bowel leaks.
2. Invite a Hematologist to speak to the department members about indications for blood transfusion.
At its meeting of January 30, 2013, morbidity and mortality review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided. 26 patient cases were selected for review using the pre-established patient selection criteria. Of these 26 cases, 9 were identified for further review and discussion.

**Chilliwack General Hospital**

**Morbidity & Mortality Review**

Morbidity and mortality review rounds were conducted by the Chilliwack General Hospital Surgical Audit Committee for the purposes of evaluating and improving the quality of patient care provided. 1 patient case was reviewed. Learning points and recommendations for improvement arising from the cases reviewed areas follows:

1. Surgery for pheochromocytomas should be performed in tertiary care centres with experience in the condition and the necessary supports for the patient and condition.
2. Patient with significant disease or co-morbidities should be seen in the pre-operative assessment clinic well in advance of surgery to allow adequate pre-operative assessment and management.

**Eagle Ridge Hospital**

**Morbidity & Mortality Review**

At its meeting of November 21, 2012, morbidity and mortality review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided. Learning points and recommendations for improvement arising from the cases reviewed areas follows:

1. When briefings/surgical safety checklist are performed, the focus from every individual must be on the briefing.
2. Nurses need to be empowered to speak up if they feel an error is about to occur.
3. If an error occurs, the PCC must be informed ASAP.

During the period of March 2013 to September 2013 morbidity and mortality review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided.
Five patient cases were selected for review using the following process and criteria:
- Return to operating room
- Transfer to higher level care
- Deaths in OR
- Unexpected complications

Learning points and recommendations for improvement arising from the cases reviewed, and the status of implementation are as follows:

<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Confirmation on Pediatric Policy with potential for overnight stay after OR and update staff on this policy</td>
<td>Done</td>
</tr>
<tr>
<td>2. Process of missing instrument piece and protocol for xray in the OR prior to patient leaving OR. Reminder to staff</td>
<td>Done</td>
</tr>
</tbody>
</table>

**Medical Management Review**

During the period of January 2013 to August 2013, 2 medical management reviews were conducted for the purposes of evaluating and improving the medical quality of care provided.

Learning points and recommendations for improvement arising from the case(s) reviewed, and the status of implementation are as follows:

<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communication details on contacting operating surgeon for postoperative problems</td>
<td>Implemented call list and reminder of surgeons to be available to their patients</td>
</tr>
<tr>
<td>2. Assessment of RN experience and mandate of MCU</td>
<td>Request sent and awaiting response</td>
</tr>
</tbody>
</table>
Delta Hospital

Morbidity & Mortality Review

During the period of January 2013 to September 2013 morbidity and mortality review rounds were conducted for the purposes of evaluating and improving the quality of patient care provided.

Nine patient cases were selected for review by physician self reporting and NSQIP identified cases.

Learning points and recommendations for improvement arising from the cases reviewed, and the status of implementation are as follows:

<table>
<thead>
<tr>
<th>Learning Point / Recommendation</th>
<th>Status of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chlorhexidine preparation reduces risk of a surgical site infection.</td>
<td>Chlorhexidine wipes given preoperatively to hernia repair patients.</td>
</tr>
<tr>
<td>2. Difficult to transfer patients out of Delta Hospital. Delta sees 33,000 patients per year in the ER and has 80 inpatients to care for.</td>
<td>Continuing to request inpatient surgical services at Delta.</td>
</tr>
</tbody>
</table>