A Clinician's Guide to Psychiatry's Section 12

In Massachusetts a person can be involuntarily hospitalized or brought in to the Emergency Department for an evaluation if (s)he is felt both to have a mental illness and to be at risk to self or others or grossly unable to care for self because of it. In this state the legal basis for this stems from Massachusetts General Laws, Chapter 123 (which deals with mental health generally), Section 12. Hospitalizing a patient in this manner is often colloquially referred to as "sectioning" someone. Idiosyncratically, by law, the original paperwork for so doing must be printed on light pink paper, presumably the root of its "pink paper" nickname.

Pink papers have two sides. The "A" side can be completed by any licensed physician (not necessarily a psychiatrist); a qualified psychologist; a licensed and certified psychiatric clinical nurse specialist; or, in emergency situations, a police officer. The "B" side is used to commit a patient for what was recently lowered to three business days into a state certified psychiatric facility if (s)he is unwilling to sign in voluntarily.

At BMC we utilize Section 12's for two purposes. The first is to send a psychiatric patient to a locked psychiatric facility after a psychiatric evaluation reveals both mental illness and significant risk to self or others. The second is to bring a person with *possible* mental illness, in the broadest terms including delirium or dementia, for medical evaluation or treatment if failure to come voluntarily for such is potentially severely dangerous to that person or others.

If a patient is admitted medically, even involuntarily, and is deemed either incapable of making an informed medical decision to leave or psychiatrically committable, a Section 12 is not needed to hold him or her in the hospital. Rather, it suffices to document lack of capacity and/or risk to self or others and/or gross inability to care for self.

For further reading, refer to *The Essentials of Massachusetts Mental Health Law: a Straightforward Guide for Clinicians of all Disciplines* written by Stephen H. Behnke and James T. Hilliard and published in 1998

Continued →

You can also find more details and updates about mental health regulations (such as the March 2005 change in the number of days for which a psychiatric patient can be held involuntarily without going before a judge) at the mass.gov website.

A Fitzgerald

THE INPATIENT TIMES

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The Inpatient Times

All the news that makes you more fit to treat

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BMC Joins Unprecidented National Campaign to Save 100,000 Lives

Boston Medical Center has joined the Institute for Healthcare Improvement's 100,000 Lives Campaign, the first-ever national campaign to save 100,000 lives by implementing proven health care improvement techniques. The Campaign aims to enlist more than 1,600 hospitals across the country in the next 18 months to reach this goal.

The Campaign was formally unveiled on December 14, 2004, and has already been endorsed by many national health care organizations as the AMA, the American Nurses Association, the Centers for Medicare & Medicaid Services, and the Joint Commission on Accreditation of Healthcare Organizations.

"We are organizing a world-class campaign to elect quality," said Dr. Donald Berwick, President and CEO of the Institute for Healthcare Improvement (IHI). "The health care organizations that join this campaign are not only demonstrating their commitment to improvement but their determination to put proven, life-saving improvement techniques into action."

By choosing to participate in the Campaign, Boston Medical Center has committed to implement all of the following six quality improvement changes (BMC "Captains" listed in bold):

- **Deploy Rapid Response Teams** – by allowing any staff member, regardless of position in the chain of command, to call upon a specialty team to examine a patient at the first sign of decline. **Patricia McCabe, RN; John Chessare MD**
- **Deliver Reliable Evidence-Based Care for Acute Myocardial Infarction** – by consistently delivering key measures - including early administration of aspirin and beta-blockers – that prevent patient deaths from heart attack. **Deb Whalen, RN; George Philippides, MD**
- **Prevent Adverse Drug Events** – by implementing medication reconciliation, which requires that a list of all of a patient's medications (even for unrelated illnesses) be compiled and reconciled to ensure that the patient is given (or prescribed) the right medications at the correct dosages - at admission, discharge and before transferring a patient to another care unit. **Denise Mehegan, RN; Jeff Greenwald, MD**
- **Prevent Central Line Infections** – by consistently delivering five interdependent, scientifically grounded steps collectively called the "Central Line Bundle." **Cheryl Merrill, RN; Carol Sulis, MD**
- **Prevent Surgical Site Infections** – by reliably delivering the correct perioperative antibiotics, maintaining glucose levels and avoiding shaving hair at the surgical site. **Gail Spinale, RN; James Becker, MD; Keith Lewis, MD**
- **Prevent Ventilator-Associated Pneumonia** – by implementing five interdependent, scientifically grounded steps collectively called the "Ventilator Bundle" – such as elevating the head of the hospital bed by 30 degrees – thereby dramatically reducing mortality and length of stay in the Intensive Care Unit. **Liz Tassinari, RN; Peter Burke, MD**

We encourage all physicians and nurses to get involved in this initiative. If you would like to participate directly on a Team, please contact one of the Captains. To learn more about the campaign go to: http://ihi.org.

J Chessare

Deep Fried Tumors:
A New Radiology Specialty

Percutaneous radiofrequency ablation (RFA) is a minimally invasive technique that is used to treat tumors. It works by using heat to generate coagulation necrosis in a controlled area. RFA has been used to treat a wide variety of tumors. Early experience of RFA was performed in the operating room following laparotomy. This has now been replaced by a percutaneous method of treating tumors with clear benefits of avoiding the morbidity and mortality associated with surgery.

Initial work in RFA was done with hepatic tumors, both primary hepatocellular carcinoma (HCC) and hepatic metastases. Results in this area suggest that RFA is challenging partial hepatectomy as the treatment of choice for patients with limited hepatic tumors. Results of RFA for HCC have exceeded those for metastatic disease primarily as a result of the underlying medical condition. With advances in probe technology, treatment of liver masses larger than 7cm is now possible. RFA may also be performed on several lesions within the liver in either lobe. This gives an alternative to patients with masses in both lobes for whom surgery would be contraindicated.

Encouraged by the successes in patients with liver tumors, the role of RFA was expanded and next directed towards renal cell carcinoma (RCC). The traditional treatment of RCC was nephrectomy and more recently partial nephrectomy. Both of these result in significant loss of functioning renal parenchyma. RFA can destroy a well circumscribed focal area of RCC while maintaining renal function with excellent results and complication rates lower than partial nephrectomy. Renal RFA is of great value in patients with hereditary renal tumors especially patients with von Hippel Lindau disease as these patients inevitably develop multiple RCC over time. RFA may be repeatedly used to treat each tumor as it appears while preserving renal function, an option that surgery does not permit.

Recently at Boston Medical Center, in addition to performing RFA of HCC, liver metastases and RCC, we have started to perform RFA of lung tumors, both primary non small cell lung cancer (NSCLC) and pulmonary metastases. *Continued*→

These tumors are well suited to RFA as the surrounding air in the adjacent lung parenchyma provides insulation and thus concentrates the heat within the tumor, resulting in increased tumor kill. This has opened up a whole new area for RFA as lung cancer is one of the leading causes of cancer death and the lungs are the second most frequent site of metastases. NSCLC accounts for nearly 80% of primary lung cancer. Although surgery for these patients remains the treatment of choice, many of these patients are not surgical candidates. Systemic chemotherapy and external beam radiation therapy has not resulted in satisfactory survival outcomes in these patients. In this patient group in dire need of an alternative therapy, RFA may be the answer.

We now also offer RFA of symptomatic bone metastases that are refractory to radiation therapy. Although this is an area in its infancy, preliminary results are encouraging and RFA has been shown to result in good pain control and decreased dependence on analgesics.

In short, RFA is a rapidly expanding treatment modality that is available to cancer patients. RFA is a complimentary treatment method and at present does not replace surgery when surgery is indicated. Rather it offers an alternative to patients in desperate need of an alternative. In most cases, cure is not expected but palliation is the goal. This is particularly true of patients with metastatic disease and patients with symptoms from the tumor that may be palliated by ablation such as patients with excruciating pain, recurrent cough, hemoptysis or hematuria. As techniques improve and patients come to RFA at an earlier stage in their disease, cure may well be attempted. This at present looks most promising with RCC. *B Lucey*

Has one of your patients had an ADVERSE EVENT?

Notify
RISK MANAGEMENT ASAP!
CALL 31-RISK

All About Percussion and Barrels of Wine

History:

An Austrian physician named Leopold Auenbrugger, a part time musician, invented chest percussion. He was the son of an Austrian innkeeper and as a child used to help tap barrels of wine to see whether they were full or empty. Auenbrugger thought patients' chest may well behave like barrels and suggested in 1761 that the technique of percussion could be used to predict pathology. As is often the case, he was ridiculed by many of his contemporaries. At the beginning of the nineteenth century, Baron Jean N. Corvisart, Napoleon's personal physician, rediscovered percussion and used it religiously on morning rounds to predict diseases that would otherwise have been found on autopsies. Incidentally, he taught percussion to Laennac, who, unsatisfied with the technique, developed a new diagnostic method that we all know and love.

Methods of percussion:

Direct percussion: Auenbrugger's original method, consists of striking the chest with the tips of all fingers firmly held together. It is useful as a quick screening exam.

Indirct percussion: This was developed in 1828 by the French physician Piorry. This consists of percussing the chest through a solid body applied to the chest wall known as the plessimeter. The original plessimeter was made of ivory, if used today will result in incarceration. Students of Piorry, William Stokes and James Hope started the method of using the middle finger as plessimeter.

Auscultatory percussion: This method, developed by John Guarino, consists of lightly tapping over the manubrium sterni and auscultating over the chest wall posteriorly. There is no evidence, however, to suggest that this is a useful technique.

Types of percussion notes:

1. Resonant: normal lung, pulmonary fibrosis, bronchiectasis
2. Hyperresonant / tympanic: emphysema, pneumothorax
3. Dull: consolidation, atelectasis
4. Flat or stony dull: pleural effusion

Note: One cannot predict pathology on percussion alone. The percussion findings in combination with fremitus and the intensity and character of breath sounds result in a higher diagnostic yield.

The evidence:	**Sensitivity** %	**Specificity** %	**+LR**
Percussion dullness in detecting pneumonia in patients with fever and cough	4-26	82-99	3.0
Hyperresonance in predicting COPD	33	94	3.0
Dullness in predicting pleural fluid	96	95	18.6

S Ramani

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Inpatient Nurses Are Going Wireless!!!

You may start to notice that RNs on the inpatient units are now using remote wireless phones to communicate with their patients and with other caregivers. You may have even recently been paged to a new number and when you have called the number you have gotten a RN on the line. What's this all about?

BMC is installing a new nurse call system to all the units across both campuses, including the EDs and the Transitional Care Unit. The new system is called Rauland Borg/Emergin and will replace the antiquated nurse call systems. In FY 05, BMC approved capital funding to support a major nursing-led project to replace the old nurse call systems. The new state-of- the-art nurse call system includes wireless phones and pagers.

Phase one is the installation of the system. Most of the units on Menino and several of the units on Newton now have the new basic nurse call system in place. Installation in the remaining units is expected to be completed by the end of the summer.

Phase two is the implementation of the wireless phones and beepers. Several units have already gone wireless with the phones (these are not typical cell phones and operate as a much lower frequency than your personal cell phone). The first unit to go live was 6W Menino this winter followed shortly by 5W Telemetry. Other units now live with phones and beepers include 6E MP, 7W Rehab, 4W MP, 7E MP, 4E MP, and the PICU.

BMC has partnered with Cisco Systems and the phone was specifically designed for BMC. We are their alpha site and are working as partners on bringing this technology to the bedside.

How it Works

The nurse call system has two service modes. All calls can either go to the Unit Coordinator or can be set to go to both the Unit Coordinator and the staff assigned to that patient bed. At the start of each shift, staff log into the system and pick their assigned patients for that day. Then, when the patient calls for assistance, the Unit Coordinator or RN inquires what the patient needs and then either transfers the call directly to the handheld wireless phone or sends a text message to the phone or pager (CNAs are using wireless pagers). *Continued →*

Remember to contact PCPs:

1. Within 24 hours of admission
2. With any change in the status of their patient
3. At the time of discharge.

The RN does not need to go to the desk or to the room to find out what the patient needs as the call has already been triaged.

In addition, the phones can be used to dial internal hospital numbers. This is ideal to use when paging a physician or other staff member because the wireless phone number can then be entered as the call back number.. This function should ultimately reduce the waiting time for all involved.

Another goal of this new system is to also reduce the need to OVERHEAD page staff to the desk, reducing noise on the units. Now unit staff can communicate directly with the phones or via text pages to relay the necessary information.

Can I have a phone?

Right now the wireless phones work on the units that are up and running and do not work in other areas of the hospital. They also do not work outside of the hospital. Eventually both campuses should be completely wireless. Many physicians have asked if they too will be getting these devices. For now this is part of the nurse call project but the technology seems to indicate that this may be the wave of the future.

This project has been the result of a lot of hard work from many individuals and once again BMC is on the forefront of new technology and redesigning workflow.

L Guy
G Saunders

Medication reconciliation is coming!!!

Are you prepared?

Meet The Nutrition and Metabolic Support Service

Your patient has been NPO now hospital day #8 and no signs that enteral feedings will resume within the next week or more. What do you do? Who do you call? The Nutrition and Metabolic Support Service!

The Nutrition and Metabolic Support Service (NMSS) is a consult service consisting of a team of attending physicians, dietitians, pharmacists, and a nurse with expertise in the metabolic management of the parenterally and enterally fed neonate through the adult. This article will focus on the adult population.

A typical patient requiring total or peripheral parenteral nutrition (TPN or PPN) has been NPO greater than one week due to bowel obstruction, ileus, severe gastrointestinal bleed, severe pancreatitis, or other condition precluding enteral feedings. Consults may be entered in Sunrise Clinical Manager (SCM) via typing the prompt "Food & Nutrition" > "Parenteral Nutrition Consult", which also provides contact pager numbers. *A follow-up page to the nutrition support dietitian on the respective campus is essential* to ensure time for evaluation and assessment of the patient. The TPN/PPN order entry for MD approval and verification by the pharmacy deadline is 1:00 pm.

Tips the team advises to prepare your patient for TPN/PPN consult include:

1). Rationale for PN: Have all avenues to enterally feed the patient been considered? Is the patient a candidate for a bedside placement of a naso-gastric or jejunal feeding tube instead of PN, i.e. patients with mild to moderate pancreatitis, gastroparesis, or tube feeding residuals consistently $\geq$ 200 ml in a 4 hr. period? Adrienne Curtis, RN (pager 3478), the NMSS nurse, may be contacted for nasojejunal tube placement.

2). Access: Does the patient have a central access port that can be dedicated for TPN use only? If PPN is desired, will peripheral access hold out AND will the patient tolerate 2.5+ liters of fluid daily? *Continued →*

3). Labs: Have labs been checked TODAY? (NOTE: "TPN daily labs" = chem.-10, and "TPN weekly labs" = LFT's, Trig, pre-albumin, CRP, are available in SCM via typing the prompt "TPN"). Depleted serum levels especially of potassium, magnesium, and/or phosphorus, should be repleted before PN starts. Also, are blood glucose levels in reasonable control (80-150 mg/dl)? If not, are there plans for an insulin sliding scale or insulin drip in the ICU?

The NMSS assists the medical team daily in the assessment and management of the PN patient until transitioned to the enteral feeding route. If home TPN is a consideration, Lorrie Young MS, RD, CNSD, LDN, the team's home TPN expert, will follow these patients upon discharge. At any given time, 10-12 home TPN patients are followed by the NMSS for home TPN needs from several weeks to lifelong.

The primary nutrition support dietitians covering the adult patients are Sandy Schoepfel MS, RD, CNSD, LDN (pager 2022) in the Menino Pavilion, and Laurie Kearns MS, RD, CNSD, LDN (pager 9531) in the Newton Pavilion. Other clinical dietitians are trained to provide coverage 365 days per year. Overseeing the consult process are co-directors Caroline Apovian, MD, FACN, Director of The Nutrition and Weight Management Center at BMC, and Peter Burke, MD, Chief, Section of Surgical Critical Care. Nawfal Istfan MD, PhD, a member of the Nutrition and Weight Management Center, shares the role of attending physician and also provides expert advice for management of these complex patients. If you need PN, call us!

L Kearns

Don't forget to use the pathways!

CHF
ACS
Chest Pain
Community Acquired Pneumonia

Let them help you provide better care!

Inpatient Medicine and Public Health: Your Role in Disease Reporting

The Boston Public Health Commission (BPHC) is the local health authority responsible for all public health activities in Boston. The BPHC Communicable Disease Control (CDC) Division is directly responsible for the prevention and control of communicable disease in the city. The CDC Division responds to over 3,000 reports of disease each year. Division activities include surveillance, investigation, prevention, and education programs.

Communicable disease reporting is the foundation of public health surveillance and disease control activities. Prompt reporting allows the BPHC surveillance and case follow-up systems to collect additional information and analyze the data to identify communicable disease problems. With timely reporting, BPHC can implement control measures to prevent disease transmission. Also, information obtained through disease reporting is crucial to alert the public to potential health concerns, monitor disease trends and identify high-risk groups.

Both the city of Boston and state laws (Reportable Diseases and Isolation and Quarantine Requirements: 105 CMR 300.000; Boston Public Health Commission regulations, available at www.bphc.org) and regulations require the reporting of over 50 specified diseases. In addition, unusual illnesses and suspected or confirmed disease clusters or outbreaks are reportable to BPHC. Diseases are reportable to the jurisdiction where the diagnosis is made or the cluster identified, regardless of where the cases reside. In Boston, health care providers, health care facility administrators, shelter administrators, school or childcare establishment administrators, or their authorized representatives must report specified diseases or clusters of illness to BPHC. Laboratories are also required to report, but **this does not eliminate the requirement for health care providers and the others listed above to report.**

Since the HIPAA regulations were adopted in 1996, some health care providers have expressed

Continued →

concern about providing patient information to public health agencies. In the HIPAA regulations, section 164.512 (b) states that reporting of communicable diseases and immunizations to the local/state health department is exempt because it is mandated by the public health department and is used for the surveillance and prevention of communicable disease. Reporting information submitted to BPHC is used only for surveillance and control of communicable diseases. All case information submitted to BPHC is treated as confidential medical information.

In Boston, all reportable disease cases must be reported to BPHC as soon as the diagnosis is suspected or confirmed. Some diseases must be reported to BPHC *immediately* (within 24 hours) while others must be reported within 1-2 business days. The BPHC website (www.bphc.org/cdc) and the back of the reporting card specify time frames. In addition, any suspect or confirmed cases (or carriers) of enteric disease in food handlers, nursing home caregivers, or childcare workers are reportable within 24 hours of diagnosis. Confirmed or suspected outbreaks of food borne or waterborne disease must also be reported within 24 hours.

HIV/AIDS, sexually transmitted diseases, suspect or confirmed active tuberculosis and latent tuberculosis infection are to be reported directly to the Massachusetts Department of Public Health rather than to the Boston Public Health Commission.

A health care provider or representative is required to fill out a reporting card *in full*. Reports must contain all essential information and should be faxed to BPHC at 617-534-5905. This is a confidential fax line. Reporting forms can be found online at www.bphc.org/cdc. For urgent cases, reports should be submitted by phone by calling 617-534-5611. During off hours, call 617-534-5611 and follow the instructions to contact the CDC Division manager on call.

A Barry

Got an idea for an article for The Inpatient Times? Contact Jeff Greenwald

New Palliative Care Medication Guidelines Coming Soon!

Palliative care is the management of patients with active, progressive, far-advanced disease for whom the focus is quality of life. It serves to improve relief and prevent suffering and is applicable early in the course of illness in conjunction with other therapies that are intended to prolong life. Hospice care differs from that of palliative care in that hospice is focused on caring instead of healing during the last weeks of a patients' life. Goals of hospice care, however, are consistent with those of palliative care.

A multidisciplinary palliative care medication guideline is currently being developed. This guideline is intended for use by healthcare providers of multiple disciplines in all patients suffering from any type of terminal illness. It will include a total-body approach encompassing physical, psychosocial, and spiritual components requiring thorough assessment and treatment.

Appropriate pain management is one of the most important components of end-of-life care and must be individualized for each patient. Unrelieved pain may lead to a series of other conditions, such as agitation and depression, and cause patients to give up hope and reject further treatment. As with all pain management regimens, it is important to continually reassess the level of pain on a regular basis and to adjust medications accordingly in order to allow patients to achieve the best quality of life possible. A pain medication treatment algorithm that focuses on end-of-life pain management will be included in the guideline, along with non-pharmacologic and pharmacologic symptom management of many of the most common conditions associated with end-of-life, including dyspnea, depression, anorexia, and many others.

When looking at other symptoms commonly seen in patients requiring palliative

Continued →

care, a different approach must be taken for treatment than that approach used in patients without a terminal illness. For example, patients with depression are often prescribed Selective Serotonin Reuptake Inhibitors (SSRI). In the patient with a terminal illness, the amount of time necessary for an onset of effect (at least 4 to 6 weeks) might be longer than the patient's expected duration of life. This would certainly be an important factor in choosing the appropriate regimen for the individual patient. Issues specific to this population will be addressed in the guideline.

A Comfort Measure Only (CMO) Order set is available in SCM and includes medications that are routinely used in the palliative care patient population. Medication guidelines on Adult Pain Management and Adult Patient-Controlled Analgesia (PCA) are available on the Department of Pharmacy's website. These guidelines will provide useful information for this patient population until more specific recommendations are made available in the palliative care guideline. Physicians are encouraged to utilize these resources in appropriate patients. The palliative care population requires a special level of care and these needs will be addressed in this new medication guideline, available in the upcoming months.

For additional resources, please visit: National Comprehensive Cancer Network www.nccn.org.

L Decloe

Want a patient tested for HIV?

Call the HIV Inpatient Testing Service (HITS)!

Text page: 8378 (T.E.S.T.) Monday through Friday

Obtaining Guardianship for a Patient: When Does a Patient Need a Guardian?

An adult patient is presumed to be capable of making decisions about his or her own medical care. However, if a patient is unable to make or communicate informed decisions because of physical incapacity, mental illness, or mental retardation, he or she may need to rely on relatives or friends to make decisions about medical care. In such cases the hospital usually looks first to the patient's next of kin.

Sometimes a patient believed by hospital staff to be incapable of making informed decisions has no known next of kin or health care proxy and requires an invasive treatment. In other instances, an incapacitated patient is vehemently against the proposed treatment even though the next of kin believes the treatment should occur. Still other cases involve an incapacitated patient with family members (frequently with the same degree of kinship, such as adult children) who seriously disagree on what treatment course should be taken. In all these situations, a guardian may need to be appointed. In the first case it is because written consent is required. In the second case the patient has not been declared incompetent by a court and is objecting to what is proposed. The hospital on its own cannot make the determination that the patient is incompetent and accept the consent of the next of kin. The third case presents a controversy. If family members cannot agree on a treatment, a guardian appointed by the court may be required.

How is a guardian obtained?

Sometimes families pursue guardianship and only ask the hospital to provide the medical certificate describing the patient's condition. In cases where there are no family members or where the family members are reluctant to do so, the hospital will file the petition and other documents necessary for the Probate and Family Court to determine if a guardian should be appointed. If the hospital is filing for guardianship, it is the physician's role to help hospital counsel draft the physician's affidavit, a sworn statement signed by the attending physician which tells the court why a guardian should be appointed. The affidavit is an

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alternative to in-person physician testimony in court. A data sheet giving all the criteria which courts may consider is found in the General Counsel website on the BMC Intranet. http://www.internal.bmc.org/generalcounsel/pdf/guardian_affidavit.pdf The lawyer will draft the actual affidavit but needs the help of a physician to include all the medical information, preferably using language that is understandable to lay people. Hospital policy requires that only attending physicians sign affidavits and medical certificates but residents generally play a significant role in their construction.

How long does it take to get a guardian appointed?

Absent an emergency requiring a judicial response to the hospital, guardianships generally take several weeks. There are legal requirements for notice to the patient and the patient's next of kin. Identifying an individual or corporation to serve as guardian can also be problematic when no family member or friend is willing to act in this capacity.

What does a guardian do?

A guardian is usually appointed for the person and estate of the patient. Generally speaking, this means that the guardian can make decisions about the patient's medical treatment and determine his/her place of residence. However, a guardian needs special authority from the court to authorize treatment with anti-psychotic medications, to admit the patient to a mental health or mental retardation facility or to authorize extraordinary medical procedures.

Limitations to guardianship

Just like patients, guardians do not necessarily agree with the course of treatment the medical team may prefer. Guardians also cannot get patients admitted to other facilities if the patient does not have the appropriate coverage. Guardians are only responsible for managing the resources the patient has, not for providing independent financial support. For a more in-depth discussion of this subject please refer to the General Counsel website. http://www.internal.bmc.org/generalcounsel/legal/guardianship.html

A McDonald

Video Capsule Endoscopy

Over the past few decades, the field of gastroenterology has really seen a significant technological advancement, leading to better patient management. When endoscopy was first developed, it only provided us with a peak into the gastrointestinal tract. In recent times, we have expanded our endoscopic abilities.

Endoscopic examination of the small intestine is limited by its considerable length and distance from accessible orifices. Radiographic techniques for evaluating this area are relatively insensitive for flat, diminutive, infiltrative or inflammatory lesions. Wireless video capsule endoscopy has been developed to facilitate examination of this inaccessible portion of the gastrointestinal tract.

The capsule endoscope is a disposable plastic capsule which weighs 3.7g and measures 11mm×26mm. The activated capsule provides image accrual and transmission at a frequency of 2 frames per second until the battery expires after approximately 8 hours. The capsule is passively propelled through the intestine by peristalsis. Patients are instructed to take clear liquids the day before the test and most recommend a 4L PEG solution preparation to allow for better evaluation. Water intake can begin 2 hours after capsule ingestion and food can be ingested after 4 hours. This procedure can be performed as an outpatient and without the need for any sedation.

The most common indications for capsule endoscopy include:

1. Evaluation of obscure gastrointestinal bleeding including unexplained iron deficiency anemia
2. Suspected Crohn's disease of the small intestine and evaluation of the extent of disease
3. Surveillance in polyposis syndromes
4. Unexplained other gastrointestinal symptoms, i.e. chronic diarrhea, unexplained abdominal pain.

A potential complication of non-natural excretion is the most serious concern.

Continued →

Therefore, patients with possible anatomical abnormalities may result in the need for either endoscopic or surgical evacuation of the capsule. Patients who are suspected of having an obstruction, stricture or fistula are at a higher than expected risk. It is assumed that the risk of non-natural excretion is 0.75% of cases. Although not a desirable outcome, studies have shown that the capsule will be retained at an abnormality for which the test was being performed in the first place. Based on this principal, the capsule has been used by surgeons to identify a stricture location as well as acquire small intestinal images preoperatively. The other relative contraindication is presence of cardiac pacemakers or other implanted electromedical devices. In a recent trial using a simulator of the capsule frequency, it was documented that electromagnetic interferences does occur, but without clinical significance.

While this procedure can provide a noninvasive way to evaluate the GI lumen, it is currently not intended to evaluate the stomach and colon completely. The small intestine has a relatively small lumen and therefore will allow for almost complete 360-degree visualization, as compared to the large organs of the stomach and the colon.

With the excellent success in the small intestine, a new capsule was created to better evaluate the esophagus, the PillCam ESO. This capsule is equipped with miniature cameras on both ends and the same size as its small bowel counterpart. The patient swallows the capsule lying down, and is then raised in a series of inclinations over a total of 5 minutes. The PillCam ESO travels through the esophagus by normal peristaltic waves, flashing 14 times per second, each time capturing images of the inner lining of the esophagus. The images obtained may identify potential esophageal abnormalities, such as esophagitis, varices, and Barrett's esophagus.

Wireless video capsule endoscopy is a relatively new technology that has become the gold standard for visualizing the small bowel. The newest pillcam now allows for a non-invasive manner to visualize the esophagus which to date appears to be comparable to standard endoscopy for its diagnostic yield.

D Mishkin

Inpatient Management of Hyperglycemia

In the classic sliding scale model of insulin administration, hyperglycemia is *treated* rather than prevented. Although simple and widely used, this method is often ineffective and yields unacceptable rates of hypoglycemia. Moreover, there is increasing evidence to suggest that hyperglycemia should be *prevented* whenever possible in the hospital – for several reasons. First, the longer a patient is hyperglycemic, the more difficult it is to normalize them – which can mean more time in the hospital. Second, a hospitalization can be a "set-back" for many patients, since glucose toxicity from days of hyperglycemia can result in weeks of hyperglycemia after discharge.

Perhaps the most important reason to prevent hyperglycemia is to improve outcomes for many inpatients. There is good clinical evidence showing mortality benefit from intensive glycemic control with intravenous insulin in three groups of patients: the critically ill (van de Bergh, et al 2001; Krinsley, 2003), those admitted for myocardial infarction (Malmberg, 1999) and patients status post cardiac surgery (Furnury, 2003). This benefit extends to patients regardless of a previous diagnosis of diabetes. Although we know less about the benefits in the non-critically ill patient population, hospital-based epidemiological studies have linked poor glycemic control to a higher inpatient mortality rate and longer length of stay (Umpierrez, 2002). As we await prospective clinical data on improving control in this population, a growing literature in the basic sciences suggest that the use of insulin to lower elevated glucose levels can have many favorable effects on the metabolic abnormalities in the hyperglycemic patient. Two major conclusions are that 1) insulin has anti-inflammatory properties and 2) lowering blood glucose may prevent glycosylation of proteins that are important for immune function. After considering all available data, the American Association of Clinical Endocrinologists

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recommends that the glycemic targets in the ICU be a blood glucose (BG) of less than 110mg/dl at all times; and for floor patients a random BG of less than 180 mg/dl and preprandial less than 110 mg/dl.

In 2004, we formed the Insulin Safety and Efficacy Group with an eye toward providing tools for a system-wide change in the administration of insulin in the hospital. In addition to the authors, the group's members include Drs. Tien-Hsin Lin, Ian Rogers and Yi (Brenda) Shu from Medicine as well as pharmacist Lindsay Arnold. Our basic tenet is that the way to achieve both effective and safe glycemic control on the floors is to use subcutaneous insulin as a combination of long-acting basal and mealtime short-acting boluses: the "basal/bolus" method. As a result of this idea, there will be new insulin order sets available soon on Sunrise Clinical Manager (SCM). Having three different orders recognizes that insulin dosing depends on a combination of factors, e.g. weight, type of diabetes, food intake, and underlying medical condition. The three sets follow a continuum of insulin requirements, from *Sensitive* to *Intermediate* to *Resistant*. The patient category determines a recommended range for basal insulin (either NPH or glargine), a premeal dose of rapid-acting insulin (lispro or regular insulin), and a correction dose that is based on the patient's BG before meals. This schema helps to match insulin dose to carbohydrate intake, which prevents both *hypo*glycemia and *hyper*glycemia at the same time. The insulin sets are recommended for patients who have both a fasting and a non-fasting glucose greater than 150mg/dl.

Simultaneous with the new order sets, there will be ongoing education of providers in several forms, including a pocket card, conferences and a pharmacy guideline. Finally, by July 1, 2005, there will be an Inpatient Diabetes Program with a dedicated MD-NP team to help all patient units improve glycemic control.

M. McDonnell
P. Smith

Family Physicians as Hospitalists: One Family Physician's Perspective

Over the past decade the care of the hospitalized patient has significantly changed. Once it was quite common for the family physician to provide both inpatient and outpatient care. Today when a patient gets admitted to the hospital increasingly it is the hospitalist and not the patient's family physician who is the attending physician for that patient.

Since the term 'hospitalist' was coined in 1996, a lot has been said and written about the hospitalist movement. By definition a hospitalist is one whose primary professional focus is the general medical care of the hospitalized patient. While general internists by virtue of their training make ideal hospitalists, there are a growing number of pediatricians and even some family physicians interested in pursuing a career in hospital medicine.

In a 1998 survey of about 500 Family Practice residency directors, almost 75% of the 350 who responded agreed that their graduates would be comfortable practicing inpatient medicine. So a residency trained board certified family physician should be able to provide quality inpatient care.

There are some skills that family physicians acquire as part of their residency training which can greatly enhance the care of the hospitalized patient. First, family physicians by virtue of their breadth of training and experience interacting with multiple caregivers would be efficient coordinators of care to a hospitalized patient. One of the most important aspects of providing good inpatient care is the ability to work collaboratively in multidisciplinary teams, such as with case managers and social workers to coordinate discharge and placement issues. This team approach to inpatient care is becoming increasingly critical given the complexity of both the medical and social issues. Nowadays patients are sicker when they get admitted and often require consultation from more than one specialist at times. In such situations, family physicians can be effective in coordinating such care and helping patients choose appropriate

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management options.

Second, as part of their behavioral medicine curriculum during their residency training, family physicians are taught appropriate patient communication and patient education skills. Between the nursing staff checking the vital signs and administering medications and the house staff rounding on patients, there is hardly a quiet moment for a hospitalized patient. Patients and their family members are anxious for someone to explain all that is being given and done to them. A family physician could play a role in educating patients and providing timely communication with other members of the healthcare team, including the patient's primary care physician.

Finally, family physicians with some practice management skills could add value to the hospitalist team in terms of cost efficiency and improving patient safety and overall quality of care.

So in a field rightfully dominated by general internists, the addition of family physicians would bring a different but certainly positive perspective to caring for hospitalized patients.

C Manasseh

Med Reconciliation Comes to 5W Tele

Starting Wednesday, May 4, MP 5West Telemetry will begin a pilot project. It will involve *medication reconciliation* and include all patients newly admitted there. This will mean that HOs will need to: a) take a thorough medication history from the patient; b) corroborate the med list from preferably at least 2 sources including Logician, prior discharge summaries, information from pharmacy, and discussions with the PCP; c) document the correct med list on the H&P; d) explain all med discontinuations and changes on the assessment and plan; and then e) the nurse admitting the patient will review the list and look to see that meds on the H&P are either all ordered for inpatient use or, if not ordered, the reason is documented in the assessment and plan. The nurses will be instructed to contact the HO if there is no explanation. This process will hopefully improve medication safety. *J Greenwald*

Sleepless On Firm C

You've been up since 6:00 am and have gone from rounds to noon lecture, back to the ward to face the afternoon commotion before taking 5 new admissions for your long call. Your head is swimming with comorbidities and medication lists that are the length of your arm. Your on-call room resembles Ritz-like accommodations to your dreary eyes. As your head hits the pillow your beeper goes off again for that all-too-common call, "Mrs. Smith needs a sleeping pill."

Insomnia is common in older adults and roughly half of the geriatric population is taking some form of sleeping medication. Age-related changes in sleep occur in older adults and affect all phases of sleep, especially after age 75. These changes include taking longer to fall asleep, decreased REM sleep, and frequent awakenings. There are several factors associated with aging that make older adults more prone to insomnia. Symptoms from comorbidities such as neuropathy, arthritis, depression or COPD can disrupt sleep. Certain drug-drug interactions may cause symptoms leading to adding even more drugs which may cause insomnia.

Being an inpatient may also result in sleepless nights. Patients may sleep poorly due to the anxiety of being in unfamiliar surroundings. In addition, patients may not sleep at night in the hospital because they sleep during the day. There are also those hourly interruptions that do not create a healthy sleep environment either.

It is ideal to avoid medication use altogether for insomnia. Convincing evidence for effective non-pharmacologic treatment of insomnia is lacking (Pallesen). For some people, simply avoiding daytime naps often does wonders. Light exposure during the day, elimination of stimulating medications, and of course treatment of medical illnesses that contribute to insomnia are examples of helpful interventions.

What about sleeping pills? Trazodone as a hypnotic is a favorite among geriatricians. At doses of 25-50 mg before bedtime, it has very few side effects besides morning drowsiness and priapism, which is very rare. While there are no

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randomized controlled trials showing its benefit over other agents in older adults, several small studies have shown efficacy in younger healthy patients and in patients with depression on other antidepressants (Schwartz, Nierenberg).

What about benzodiazepines, the drugs that were invented for sleep and anxiety disorders? Undoubtedly they can cause dependence and adversely affect both cognition and gait. Common side effects are lightheadedness, confusion, impaired reaction time, and residual daytime sleepiness all of which increase fall risk. However, low-dose intermediate-acting benzos, such as lorazepam (Ativan 0.25-1.0 mg), are quite effective. Short acting benzos such as oxazepam (Serax 10-15 mg), or alprazolam (Xanax 0.25-0.5 mg) may be preferable as they are less likely to result in morning lethargy. In addition, the older adult often responds well to zolpidem (Ambien 5-10 mg). Remember, **START LOW, GO SLOW**.

Never give long-acting benzodiazepines such as diazepam (Valium) or high doses of the shorter acting benzodiazepines for insomnia as they may cause daytime sleepiness not to mention prolonged hospitalizations! Diphenhydramine (Benadryl) should **rarely if ever** be used in older patients. Its anticholinergic side effects such as confusion, dizziness, dry mouth, constipation and urinary retention far outweigh its hypnotic benefits in older adults.

Whenever treating insomnia it is best to use pharmacologic agents, if needed, as a temporary measure to avoid dependence and adding to your patient's polypharmacy. Remember sleep improves following discharge when patients return to familiar surroundings. *J Croopnick*

L Caruso

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Introducing E2
(Effectiveness and Efficiency)

In October 2004, Boston Medical Center opened a new department called Performance Improvement. One of the goals of the department is to promote Effective and Efficient processes through out BMC…thus E2. The new department is an exciting step towards an organizational approach to Performance Improvement and Work Re-design. Our goal is to help create designs that deliver an intended result and then implement controls to ensure that the design becomes permanent.

The Department is made up of core staff, but also includes "extended team members" from various areas of the hospital. All of these individuals have undergone 120 hours of training in the GE Healthcare model of Six Sigma Performance Improvement. The training outlined the DMAIC process for the team. This process provides the framework for our process improvement.

D-Define
M- Measure
A-Analyze
I - Improve
C- Control

The **Define** Stage is where problem definition, scope and objectives are developed. This is where the team is brought together, the Project Sponsor charges the group and a Project Charter is developed and signed off.

Measure is where the data collection tools and procedures are developed, tested and then executed. This can be a very time consuming and rigorous exercise. Data collection methods, data validity, sample size and tool validation are the key issues during this phase.

Analyze is when we apply statistical tools to the data and begin to draw conclusions from it.

Improve is where we design a process change and then pilot that change. A successful pilot then results in a spread of the change.

Control is where we design the mechanism to monitor and control the new process to ensure that it remains in tact and produces the intended

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result.

The key to this process is that the changes are permanent and the results visibly clear.

Six Sigma is a way to describe the defects per million opportunities. To be truly 6- Sigma your process must have no more than 3.4 defects per million opportunities.

Currently, the department is working on 3 major projects.

1. Shipping cost reduction
2. Decreasing the turnaround time of the pre-analytical phase in the lab
3. Ophthalmology clinic flow

The goal for the shipping project is to reduce BMC shipping costs and to establish a standard process for the use of Federal Express.

The goal of the lab project is to reduce the defects in the specimens and requisitions that hit the laboratory. What we know today is that 60% of all specimens that arrive to the lab for analysis have a defect of some kind. That defect can be an incomplete requisition, a label that is placed improperly just to name two. As a result of a defect, the lab staff has to adjust their workflow and perform work-arounds to get the specimen processed correctly. Dr. Magnani is very involved and excited about this clinical project, as a co-sponsor with Ken Belcher.

The Ophthalmology project is focused on work redesign, efficiency and revenue enhancement. Dr's Fineberg and Rowe along with Maureen Hilchey-Masters have provided the Clinical leadership to this project that we expect to result in better patient flow, increased efficiency and improved revenue figures.

We have applied a very rigorous process to these projects, involved the subject matter experts and are applying our new knowledge as we collect and analyze the data. As we develop an Improve plan, we will disseminate the information across BMC and provide support in adopting the changes.

It is our vision, that E2 will be the catalyst toward improvement that will catapult BMC into a new era of Performance Improvement.

L O'Connor

Wound Care 101

When developing a wound treatment plan the first step should be to determine the etiology of the wound. A wound care product will not heal a pressure ulcer if there is continued pressure; by the same token not all wounds on the buttocks are caused by pressure. The etiology needs to be addressed along with any medical, systemic, condition that will inhibit healing. Physicians and nurses need to have a holistic approach to wound care and this includes product selection. Remember: "Treat the whole person not just the 'hole' in the person."

If the etiology of the wound and systemic factors are addressed, wounds will progress to healing when local factors are optimal. The local factors include: adequate wound bed hydration, necrotic tissue debridement, control of bacteria, thermal insulation and optimal pH.

Boston Medical Center uses about 1% of the wound care products available. It is helpful to remember the category of the product, rather than the brand name, and the basic features. Medical companies each have their own brand name and different hospitals and home care agencies may use different brands.

Product	Features	Change Frequency Type of wound	Disadvantages
Hydrocolloid *Duoderm CGF *Duoderm Thin	Occlusive. Protects wound bed. Only for small to moderate drainage. Debrides autolytically	Q3D at BMC. Stage II pressure ulcer. Venous ulcer. Abrasion. Donor site.	Strong adhesive can cause skin tears.
Transparent Film *Tegaderm	Protects wound bed. Debrides autolytically	Daily to Q3D. Stage I-II pressure ulcer. Abrasion. Surgical incision. Secondary dressing	Not absorptive
Hydrogel *Duoderm Hydroactive Gel	Adds moisture to wound bed	Twice daily to daily. Arterial and diabetic ulcers	Dehydrate easily if not covered
Hydrofiber *Aquacel *Aquacel Ag	Very absorptive. Good for packing wounds and tunnels. Silver for antimicrobial	Daily to QOD. Pressure ulcers with depth, tunneling. Traumatic wounds. Venous ulcers. Ag-infected wounds.	Without sufficient drainage will be to drying
Calcium Alginate *Algisite	Absorptive.The fibers create a gel when mixed with drainage	Daily. Wounds that bleed easily. Similar wounds to above.	BMC only has 2x2 size. Can dry a wound bed
Foam *Allevyn Foam	Absorptive.Wicks drainage into the foam	Daily to Q3D. Venous ulcers. Traumatic wounds. Skin tears with 3rd spacing.	Does not autolytically debride. Currently BMC does not stock foam with adhesive
Impregnated Gauze *Adaptic *Xeroform	Protects wound bed. Easily removed. Drainage passes through to gauze	Variable. Traumatic wounds. Skin tears. Grafts.	Does not debride.
Antimicrobials *Iodosorb ** *Iodoflex	Slow release of Cadexomer iodine. Absorbs exudates, pus	Twice daily –QOD. Infected or heavily colonized chronic wounds	Contraindicated with iodine sensitivity, pregnancy or breast feeding.
Chemical Debriding Agents *1/4%Dakins solution** *Accuzyme ** *Panafil **	To debride away necrotic tissue, slough Panafil will debride, heal and deodorize	Twice daily. Dakins-TID. Wounds that have necrotic tissue	Dakins should be ordered 4-7 days only. Accuzyme can sting

*BMC stocks ** Order from Pharmacy

I did not include wet to dry dressings in the chart. The current literature does not encourage the use of this dressing. The classic wet to dry dressing non-selectively debrides wounds, this is a slow and painful process. A wet to moist dressing is used when a patient will be doing the dressing and has limited resources. Gauze dressings are used on large, heavily draining or infected wounds that need to be assessed frequently.

M Corliss

Prudent Antibiotic Use for Patients Who Develop Pneumonia While in the Hospital

Appropriate use of antibiotics is an important goal. To accomplish it, some hospitals institute programs that exert extensive control over initial antibiotic choices. Other hospitals focus on streamlining antibiotic use at 72 hours or later, when the clinical situation is better understood and culture data results are available. Although the latter strategy might appear to make more sense, in practice it does not always work as well. Clinicians can be loath to change a regimen that appears to be working or they may have not have sent adequate pre-treatment culture specimens to inform a change in treatment.

It is in this context that one should review the new guidelines for treatment of nosocomial pneumonias prepared by a joint committee of the American Thoracic Society and the Infectious Disease Society of America.[1] Nosocomial pneumonia is an important cause of morbidity and mortality in the hospitalized patient. Hospital-acquired pneumonia (HAP) and ventilator-associated pneumonia (VAP) are known to comprise 15 to 20% of nosocomial infections and increase patient length of stays and hospital costs. In the new guidelines, healthcare-associated pneumonia (HCAP, patients admitted to the hospital from a healthcare setting such as a nursing home or recently hospitalized) is also included. It should be noted that little data is available for HAP or HCAP, and the guidelines have extrapolated treatment largely based on data from VAP. There is no good evidence to what degree this extrapolation is valid.

The guidelines emphasize the early, broad-spectrum coverage of possible pathogens. Patients who develop pneumonia after five or more days of hospitalization are more likely to be infected with resistant organisms such as methicillin-resistant *Staphylococcus aureus* (MRSA), *Pseudomonas aeruginosa* and other

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multi-drug-resistant gram-negative bacteria. However, the recommendations note that each hospital must assess their rates of resistant organisms and adjust their empiric treatments accordingly. We know that community-acquired MRSA is on the rise, and within our BMC inpatient population, over 50% of *S. aureus* isolates are MRSA.

Broad empiric treatment is not problematic if providers are willing to refine regimens when culture data is available and not give extended courses of treatment. This will minimize antibiotic exposure and reduce selection of resistance. Sterile cultures of sputum in the absence of a new antibiotic in the prior 72 hours "virtually rules out the presence of bacterial pneumonia." Intensifying coverage for clinically improved patients on the basis of a new sputum culture is also not indicated. Colonization can be difficult to distinguish from true infection. Data has also shown that treatment for 15 days is not associated with outcomes superior to an 8-day course of treatment.

The Antibiotic Management Team suggests, when caring for patients with VAP, HAP, or HCAP, clinicians should make every effort to obtain good sputum specimens as well as blood cultures prior to initiating antibiotic treatments. Patients hospitalized for less than five days (other than those with HCAP) who develop pneumonia can be covered more narrowly e.g. with Ceftriaxone, or levofloxacin in the case of severe penicillin allergy, and anaerobic coverage as indicated. Patients hospitalized for five days or greater must be considered to be at risk for pneumonia with gram-negative organisms and *S. aureus*, and are less likely to have community-acquired organisms and anaerobes. If the gram stain of a good pre-treatment sputum sample reveals only gram-positive cocci or only gram-negative rods, empiric treatment should be adjusted accordingly. When culture data returns, the antibiotic regimen should be refined.

In this era of increasing antibiotic resistance and decreasing development of novel antimicrobials, informed empiricism is essential as are aggressive attempts to make a definitive diagnosis and adjust treatment accordingly.

T Barlam