

# CRITICAL TIMES

A q-o-monthly Newsletter

Issue No.V The Heat of Summer, 2010

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A major theme in our ICUs is optimization of care processes, first from the point of view of clinical efficacy and safety, but also with consideration of waste, educational value, and efficient use of resources. In the coming months, I anticipate that we will be talking a lot about changing practices related to invasive device placement and removal, glucose control, and use of diagnostic studies. At the same time, the hospital has created an administrative structure called the Office of Process Improvement, which will use a formal set of tools and methods to evaluate and track workflow and resource use. Since most in the ICU would think that

process improvement is inherent to what we do, I thought it might be of interest to the ICU staff to hear about the larger picture of process improvement-- first, to be better informed about what is happening in the hospital in general, and also to begin thinking about whether the newly created resources can help us achieve any of our own goals. In this issue, Larry Leung and Paul Helgerson will describe why PAVA got into this business in the first place and what we hope to achieve; then Ed Bertaccini will provide specifics on process improvement in the operating rooms and what this might mean for the ICU. As always, the backbone of the

newsletter is the contributions from practitioners in the unit. In this regard, Brad Wee-Tom from respiratory therapy has written yet another informative piece, and we also have articles on wound care and catheter use from ICU nurses, Kelly

Hautala and Lilly Liu, and an interesting summary of maggot debridement therapy by student nurse, Charlie Lee.

*Geoff Lighthall, Editor*

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**Process Improvement:  
The Chief of Staff's Perspective  
Lawrence Leung, MD**

The task of providing truly excellent healthcare is continually becoming more complex. New technologies, higher demand, and innovations in models of care challenge the adaptability of our system each year. Recognizing the need to leverage all available tools to ensure that our clinical processes are effective, efficient, and reliable, an important part of our institution's plan is the expansion of our education and practice in the science of improvement.

There is much for us to learn from inside and outside of VHA in this regard. Institutions such as Virginia Mason Medical Center in Seattle and the Mayo Clinic have made great strides in their quality and financial performance though embracing process improvement techniques adapted from industry, including *Lean*. Lean puts a huge emphasis on the insights of the front line employee as the way to best capture improvement opportunities in the work we do and to come up with innovative solutions. On a visit last fall to Virginia Mason, I was very impressed with the culture that Lean had helped create. The clarity of mission, enthusiasm for change, and deep knowledge of improvement methods were clearly evident. So,

too, was the outcome of the improved reliability and efficiency that arose from this – patients were happy and staff were able to spend time in doing the work for which they were best trained.

Within VA nationally, through the Office of Systems Redesign, we now have developed educational programs in process improvement, Lean, and hospital operations – such as methods to improve patient flow. Given his success in teaching and coaching within these programs nationally, I have asked Paul Helgerson to lead our local efforts in Process Improvement. The new Office of Process Improvement has begun to offer quarterly training in Lean techniques as well as conduct workshops that use these tools to improve practical problems that we see in the Healthcare System.

Given the high institutional importance of improving inpatient flow, our first Rapid Process Improvement Workshop focused on the disposition process from acute care to skilled nursing environments. I was impressed with the way the in-depth technique allowed the team to explore many angles of the problem, from education of families prior to admission to new, efficient means of creating extended care capacity in the community. Though I recognize that inpatient flow cannot be fixed with these measures alone, the balance of

effort towards improving quality, driving further efficiency, and highlighting service is a promising model for healthy change in the years moving forward.

I hope that you share my sense of optimism about our new Process Improvement capability, but also understand as I must that this is a multi-year effort. There are many ideas, many needs, and an ever-expanding palate of clinical services that we look forward to providing. Doing this well will require a balance that our new education will help us to find.

**From Paul Helgerson, MD  
*ACOS, Process Improvement***

With the creation of the Office of Process Improvement (OPI), the VA Palo Alto has recently added a new tool to help identify and implement innovative ways to improve the processes we use to provide patient care. Process Improvement is about using a wide range of tools to analyze our work, improve reliability, and find efficiencies one step at a time. While it borrows ideas and a foundation from service and manufacturing industries, this methodology has been widely adopted at medical centers such as the Mayo Clinic and Virginia Mason Medical Center and has been demonstrated to be effective in helping to achieve better outcomes while conserving staff time and resources.

One set of tools that we focus on here at Palo Alto are *Lean* principles. *Lean* focuses on identifying *value* – those core steps in any process that are most critical to optimal patient care, and teaches strategies to optimize delivery of these value adding steps while minimizing those process steps that

contribute to waits, rework, or other types of inefficiency. *Lean* does not mean trying to slim down our system by cutting staff or trimming resources, but using existing resources more effectively to be able to better serve our patients.

One of the most powerful *Lean* tools is the rapid process improvement workshop, or the RPIW. An RPIW is an intense, weeklong exercise to focus on an identified problem or issue. Process improvement reasons that the people who are best able to address an issue are the ones that experience it as part of their daily work. An RPIW utilizes a trained facilitator to bring together front line staff to examine and improve a process of shared interest. This front line perspective is essential as the RPIW revolves around correctly mapping the process and identifying bottlenecks, re-work, miscommunication and anything that could be considered problematic, or in *Lean* terms, *waste*. Being able to identify waste allows for RPIW participants to identify solutions to these problems and from these solutions come up with an action plan to change, little by little, the process for the better.

The first RPIW at Palo Alto took place in April, and focused on the disposition process in acute care and how to better and more efficiently place patients who need continuing care in a skilled environment. This resulted in several meaningful changes: the creation of an advanced disposition team that meets weekly to collaborate on patients who have more challenging needs, streamlining of access to PT and OT consults, and improving patient and family education on their options for SNF and long term care.

The next RPIW in late July is examining the blood culture process. Identified by the microbiology lab as needed to help improve our false-positivity (contamination) rate, this is an opportunity to improve our quality while also reducing the burden that the 500 blood cultures done monthly place on nursing time by finding efficiencies in the way supplies are made available and specimens are handled. We to improve both the patient experience and the institutional flow by reducing unnecessary bed days of care, recultures, and empiric antibiotic use due to false positive cultures.

Process Improvement tools are designed to make problems and issues manageable by breaking them down to their smallest parts. Making these problems manageable helps staff to spend more time in patient care, find better ways of doing the work, and allows us to focus more on the reason we are here - to serve our Veterans. The OPI is always open to ideas for projects - please feel free to contact Paul Helgerson (x69309) or Jean Gurga (x62124).

***The articles above prompted a few questions, to which Dr. Helgerson kindly responds:***

***Editor:*** Why is a new office for process improvement needed? Isn't PI an inherent function to any endeavor, be it selling hot dogs or managing hemorrhage?

***PH:*** We hope to add several functions: facilitation skills, data support, coordination of in-depth workshops that embed lots of education so that participants can walk away more capable of doing PI in

other arenas. We will also prioritize the organization of larger scale efforts for which it is necessary to pull together teams that work across many disciplines or services. It would be a mistake, though, for services or units to "outsource" PI. The people who do the work have irreplaceable expertise in how it needs to be designed.

***Ed.:*** In your opinion, what are the sources or origins of waste and inefficiency?

***PH:*** There is a wide range. My belief is that it most often relates to the inherent tendency of any organization that is sizable to "sub-optimize" - in other words, solve what is best for a unit, service, or specific function rather than for the good of the organization as a whole or, ideally, the veteran. Bringing together employees from different parts of the organization to work on the system level view can have striking results in identifying inefficiency. In our meeting yesterday microbiology discovered the 45 percent of the time they spend in speciation may add little to the ultimate clinical decision making. They're going to scale back some of that and rechannel efforts into other high-value functions.

***Ed.:*** Do all work areas (SPD, OR nursing, clinical lab) possess the autonomy to implement lean principles on their own?

***PH:*** Yes, though admittedly to varying degrees. Many Lean tools are as simple as means of physically organizing our environment to reduce the "waste" spent as time looking for things. That can be done on virtually any scale, with minimal need for leadership input or cross-service liaison.



*An RPIW session in progress—*

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**Improving Operating Room Efficiency as an example for Process Improvement. . .  
What this means for the ICU**

***Edward Bertaccini, MD***

The goals of an operating room suite are manyfold. We aim to help as many people as we can but must do it in as efficient a manner as possible. Efficiency is exemplified by the number of people we help and the acuity of their illness, relative to the resources utilized to do so. Resources are many and include monetary costs, personnel and materials. In December of last year, I was asked to formally chair the "OR Fix Committee" for our institution, in an effort to improve operating room throughput and efficiency. Within the first two months, we identified several problem areas as well as potential solutions that could have great bearing on the overall goals of our operating room functionality. These included an unfilled nurse manager position, the nonexistence of a physician medical director, suboptimal communications amongst staff at all levels, inadequate and lack of redundancy in personnel numbers, crosstraining and

equipment. Scheduling problems included the lack of a formal scheduler, completely unrealistic scheduling times for procedure types and numbers, as well as designated surgical service block times which are allocated in an unbalanced fashion. The OR regularly finished 25% of their cases after 3:30PM when it was setup to only handle considerably less, leading to great consternation on the part of all staff whether through overtime or cancelled cases. The OR committee had not met formally in over a year and there were no personnel dedicated to the gathering of OR performance measures or benchmarks. There is also a genuine lack of sufficient bed space throughout the hospital relative to the OR goals we would all like to achieve.

In answer to these issues, we have made many changes and are continuing to do so. We finally hired a new formal nurse manager for the OR. Dr. Giori and I agreed to fill the role of physician medical directors of the OR. All surgical and anesthesia staff have each others' cell phone numbers so there is no excuse for a lack of communication among physicians with regards to cases specifics for the next day. Preoperative medical workup criteria have been standardized and distributed to all physicians. There are now designated members of the nursing staff who are to receive advanced communications from surgeons regarding expected equipment requirements. We are in the process of hiring a formal scheduler now that the job has been fully defined within our Human Resources Department. Scheduling of cases for the OR is closely monitored by the OR directors with data being collected on average times spent for given types of cases. More nurses

have finally been hired and, with the addition of some registry help, we are now able to regularly run 4 OR's after 3:30PM until 5:30PM on an initial pilot basis with the hopes of making this permanent. Surgical block time allocation is being revisited for possible restructuring, though this is a very complex issue due to the constraints on surgeon's times due to clinic schedules and other academic endeavors. The OR committee will be reinitiated at the end of August or beginning of September. Designated personnel are now committed to the regular collection and reporting of OR performance benchmarks.

Even with these initial changes, we are already seeing significant improvements in case throughput and cancellation rates. Without much in the way of increased resources, the last two fiscal years have consistently seen an average increase of 200 cases more performed in the OR. We are on schedule to achieve approximately the same increase this year. Despite this increased workload and since initiating several improvement measures within the last 3 months, we have seen the case cancellation rate fall in half from about 24% to 12%. While this is a huge improvement, we still want more. In this regard, we would like to be able to perform even more cases, especially in light of the huge surgical backlogs that currently exist, while still lowering cancellation rates. One of the huge barriers to doing so is our bed capacity, a barrier with which all who work in the ICU are already familiar. While we would like to decrease our outpatient surgery backlog as a start so as to only minimally affect inpatient services, it is clear that we must expand our inpatient bed capacity so as to handle the ever greater demands of inpatient

surgical services. Though our institution may be quoted as having many hundreds of beds, we really only run a total of 90 beds for acute inpatient services as a whole, let alone surgical services. Along with this, our patients are only getting older and sicker and are going to be requiring ever more intensive monitored services in the future. It is in light of this what we hope to work closely with our institution to justify the expansion of hospital bed capacity through both increased physical bed space as well as adequate staffing on all levels to support such. The ICU will play both an integral role in this expansion process as well as hopefully feel some relief from the current and consistent backup of ward level patients.

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### **Getting Your Patient to Talk** ***Brad Wee-Tom, RT***

The Passy-Muir Tracheostomy Valve (PMV) is the invention of David Muir, a quadriplegic himself due to muscular dystrophy. David became vent dependent in 1985 and had an idea about a one-way valve which would enable him to talk. He and his father developed and patented the PMV which David used for several years until his death in 1990 at the age of 28. His invention lives on and helps thousands of people communicate every year.

PMV's utilize a rubber flap to create a one-way valve which attaches to the universal hub of trach tubes. They are most commonly used by non-vented patients but can also be adapted for in-line vent use. Upon inspiration, the valve opens and allows air to enter the lungs through the trach tube. Increased pressure during exhalation

closes the valve and since the air cannot go out through the trach now, it is redirected around the trach tube and up through the vocal cords which allows speech. Since the PMV is designed to stay closed (except during inspiration), air backs up against the valve, stays in the trach tube and helps to resist movement of secretions into the PMV.

Requirements for use of a PMV:

1) Speech Therapy Consult.  
Patients must be able to tolerate a deflated trach cuff (or a cuffless trach tube) and so must demonstrate that they can protect their airway and not aspirate. ST will provide the actual valve.

2) Patent Airway.

Since the patient has to be able to exhale around the trach tube with the PMV in place, there should be no known airway obstructions (tumors, stenosis, granulations). The trach tube has to be small enough to ensure sufficient airflow around it.

3) Manageable Secretions.

Thick and/or copious secretions can clog up the valve at worst and will generally increase Work of Breathing. The patient will not be able to tolerate the valve for very long and will require more monitoring as this poses a safety risk.

4) Awake and Responsive Patient.

5) Stable Medical and Cardiopulmonary Status.

### **Contraindications:**

1. Do not use with Bivona cuffed trachs because of the foam cuffs.
2. Any reason that the trach cuff should not be deflated. *Again, the cuff must be fully deflated with use of the PMV.*

### **Advantages:**

- 1) Creates a closed airway system which restores physiologic peep and a more natural positive pressure to the airways and the subglottis. This improves swallowing, makes for a stronger cough, helps secretion management and reduces the risk of aspiration.
- 2) Improves sense of smell and taste.
- 3) Enables speech.
- 4) May help progress toward trach capping and decannulation. PMV is generally better tolerated than trach capping.

### **Preparation:**

1. Put patient in a comfortable breathing position. Usually 45 degrees sitting.
2. Suction orally and via trach.
3. Inner cannula in trach.
4. Oximetry monitoring.
5. Deflate trach cuff slowly and completely. You may need to suction again.
6. Place PMV on trach with a gentle ¼ turn twist clockwise. You shouldn't have to force it.
7. Now the patient should really be able to tell you how he feels.

Monitor vitals, assess patient's vocal quality, remove valve and reinflate cuff if valve not tolerated.

### **Cleaning:**

1. Swish in soapy warm water and rinse with warm water.
2. Air dry, place in storage container.
3. Do not use hot water, peroxide, bleach or alcohol.
4. Replace valve if it sticks, starts "honking" or gets a vibrational noise that cleaning won't fix.

## **Wet-to-dry gauze for Wound Healing Goes Out to Dry**

**Kelly Hautala, MD, MA, RN**

Wound dressings are a central component of pressure ulcer care. Maintaining a moist wound bed is considered the goal when the ulcer is clean and granulating to promote healing or closure. Selection of a wound dressing is generally based on the tissue in the ulcer bed, the condition of the skin around the ulcer, and the treatment goals for the patient.

Despite the introduction of polymeric materials over the past quarter century such as polyurethane films, foams, hydrogels, and hydrocolloids, as well as calcium alginates, collagens, and other materials, gauze is still the most widely used wound care dressing and may be erroneously considered a standard of care (Ovington, 2002). The reasons for the persistence of wet-to-dry gauze as a wound management material may be related to several factors:

1. Gauze and saline are readily available and familiar. They are perceived as inexpensive and have been considered the gold standard prior to the introduction of more advanced dressings. Although advanced dressings have a higher unit cost, they require fewer changes than gauze making them more cost effective.
2. Many physicians and nurses have limited knowledge of the vast array of advanced wound care products now available and do not understand the way they work.
3. There are so many different brands of advanced dressings on the market with variable appearances and

performance that it is often confusing to know which products to use. The discrete dimensions of some of the advanced wound dressings may require that the health care system stock multiple sizes.

Advanced wound care dressings have significant benefits and should be considered over the standard wet-to-dry gauze that is frequently ordered. The National Pressure Ulcer Advisory Panel (NPUAP) recommends avoiding the use of gauze dressings altogether for clean, open pressure ulcers because "they are labor intensive, cause pain when removed if dry, and lead to desiccation of viable tissue if they dry." Increased infection rates, retained dressing particles, and pain have led some regions of the world to avoid the use of gauze dressings for any open chronic wounds such as pressure ulcers. According to the NPUAP, gauze dressings should be used primarily as surgical dressings and have limited use in the treatment of chronic wound management.

*General recommendations for wound dressings include the following according to the NPUAP:*

1. Assess pressure ulcers at every dressing change and confirm the appropriateness of the current dressing regimen.
2. Follow manufacturer recommendations related to frequency of dressing changes. Many advanced wound care dressings are designed to stay in place for 24 hours or longer. This is in contrast with wet-to-dry gauze which needs to be changed BID or TID. Studies have demonstrated that infection rates in wounds treated with gauze are higher than in wounds treated with transparent films or hydrocolloids.

3. Choose a dressing to keep the wound bed moist. Wet-to-dry gauze does not ensure a moist wound environment.
4. Choose a dressing that remains in contact with the wound bed. Keep the periwound skin dry and prevent maceration by using a barrier product such as Cavilon™ No Sting Barrier Film.

In summary, the literature does not support gauze dressings as an optimal wound care treatment. Gauze does not maximize wound healing nor has it been shown to be more cost effective. Although wet-to-dry gauze can debride necrotic tissue, it is not selective and often removes healthy tissue, causing re-injury and significant pain to the patient. Advanced wound care dressings have significant benefits over gauze and should be the standard of care for chronic wound management.

**History:**

According to the BTER, BioTherapeutics, Education, and Research Foundation, Maggots have been used in wound healing for many centuries. Military surgeons have noted that soldiers' wounds that were infested with maggots had a lower mortality rate than those who were not infested. The first modern medical clinical studies of Maggot Debridement Therapy (MDT) were in 1989 at the Veterans Affairs Medical Center in Long Beach, CA and at the University of Irvine. They found that MDT is still useful in modern times and that it shouldn't just be a last resort therapy (BioTherapeutics, Education & Research Foundation).

**Legality & Insurance:**

According to the BTER, in 2004, the FDA has allowed the production and distribution of medical grade maggots for use (BioTherapeutics, Education & Research Foundation). According to Hagerman, in November, 2008, the American Medical Association (AMA) and the Centers for Medicare and Medicaid Services (CMMS) endorsed medicinal maggots and maggot therapy as appropriate treatment for many types of non-healing wounds, and setup guidelines for patient reimbursement in filing claims for maggot treatment (Hagerman).

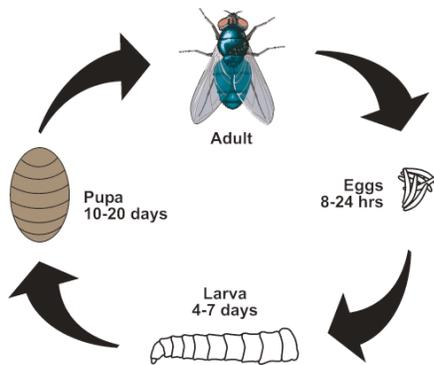
**How It Works:**

Though the mechanisms of action are still not entirely understood, what is known is: Maggots will debride the necrotic tissue by ingesting it and dissolving it, resulting in no need for surgical debridement. Secondly, they clean the wound by ridding the wound of bacteria. Lastly, they can promote healthy tissue by wriggling their bodies against the wound, thus

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**Maggot Debridement Therapy**

**Charlie Lee, Student Nurse  
De Anza College**



Fly Larvae - *Phaenicia sericata*

through stimulation it provides for wound healing.

### **What MDT Can Do:**

Through many medical trials, it is mostly used as a last resort, since maggot therapy is not a common thing. It can help with pressure ulcers, osteomyelitis, post-operative adjunct therapy for large wounds, gangrene, in cases where surgery is not possible or contraindicated, and also in nonhealing wounds. According to Sherman, Maggot-treated wounds were debrided more quickly and completely than conventionally treated wounds. Additionally, it took less than 5 weeks to treat a wound versus 5.5 weeks in non-maggot-treated wounds (Sherman, Maggot versus conservative debridement therapy for the treatment of pressure ulcers).

### **Who It Benefits:**

People who can benefit from this type of treatment are those with wounds that don't heal, despite efforts from intravenous therapy and surgical debridement of necrotic tissue. This treatment is also very suitable for diabetic patients with infected feet - as most of the documented cases seem to be those with a diabetic patient with a foot infection.

### **Conclusion:**

While using maggot therapy is not widespread, it has the potential to save lives and limbs for those who are not responding to antibiotic therapies and/or surgical intervention. However, it may be better to use as a first alternative rather than a last resort, as there have not been any studies that prove maggot therapy will cause worsening of a condition.

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### **Have You Ex-Foley-ated Today? By Lilly Liu, RN, MS, CCRN IICU Nurse Manager**

#### *Background*

Preventing Catheter Associated Urinary Tract Infection (CA-UTI) is one of the ultimate goals in our health care system. However, have you thought out how good or bad we are standing at in terms of meeting this goal? Let me tell you the benchmark numbers! According to CDC 2009 CA-UTI Guidelines, between 15% and 25% of hospitalized patients may receive short-term indwelling urinary catheters with or without appropriate indications. And a range of pooled mean CA-UTI rates of 3.1 to 7.5 infections per 1000 catheter was reported in the National data from

NHSN acute care hospitals in 2006. It is also estimated that 30 to 40% of hospital acquired infections are catheter associated UTIs and each case of CA-UTI costs about \$500 to \$3,000. CA-UTI also leads to prolonged hospital stay and increased mortality. Therefore, it is very important and urgent for us to initiate the improvement process for reducing CA-UTIs.

*Our Aim*

Fortunately, our hospital has been in line with this goal since 2009. On behalf of VAPAHCS, MSICU and IICU have been volunteered to be the participating units to the initiative of reducing catheter associated UTIs led by Bay Area Patient Safety Collaborative (BEACON) with the goal of a reduction of 30% from baseline of 2009 by Q2, 2010. A new performance measure on removing urinary catheters post op day one or two for selective surgical patients with the target of 93% was also added in 2010 aiming at reducing catheter associated UTI.

*What We Have Done*

To meet the requirements, a champion team consisted of doctors, nurse managers, staff nurse champions, nurse educators, and infection control practitioners was established in June 2009 leading the initiative. This champion team meets on a monthly basis and address issues related to prevention of CA-UTIs. We have conducted the first knowledge assessment on taking care of urinary catheters in July 2009. MSICU, IICU, ED, OR, and ICU doctors, medicine doctors participated in the survey. We also developed NO-UTI bundle based on the current literature and guidelines on preventing CA-UTI. Most of MSICU and IICU staff have received the training on this bundle. Each unit champion is asked to conduct weekly/monthly/quarterly audits on how compliant we are with the bundle. We share the data including UTI rate, compliance with the bundle, and timely removal of urinary catheters with unit staff. We are currently working on developing the campaign poster on promoting the awareness of removing unnecessary catheters.

**Where We Are At Now**

**MSICU:**

Baseline Rate (fiscal year 2009): 3.28 per 1,000 catheter days (2.62 per 1,000 bed care days)

Fiscal Year 2010 Goal: 2.30 per 1,000 catheter days (1.83 per 1,000 bed care days)

<b>MSICU:</b>	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	<b>YTD</b>
# UTI	0	2	1	1	0	0	0	0	<b>4</b>
Cath days	261	248	293	247	249	310	257	273	<b>2138</b>
UTI rate (cath days)	0.0	8.06	3.41	4.05	0.00	0.00	0	0	<b>1.87</b>
Bed days	376	320	372	337	342	382	392	384	<b>2905</b>
UTI rate (bed days)	0	6.25	2.69	0	0	0	0.00	0	<b>1.38</b>

<b>IICU:</b>	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	<b>YTD</b>
# UTI	1	0	0	1	0	0	0		2
Bed days	431	393	412	408	375	410	422		2851
UTI rate	2.32	0	0	2.45	0	0	0		0.70

I would like to thank all of the champions and staff nurses from both units for your hard work on minimizing this over burning health care issue. I would also like to congratulate MSICU staff since you have been successfully meeting the target goal of 30% of reduction in CA-UTI now. Although IICU is still collecting the baseline data and has not established the target goal, IICU staff will for sure be able to meet the target next year with everyone's participation and hard work.

Lastly, I just wanted to emphasize four areas that each of us should keep in mind when we take care of the patients with indwelling urinary catheters in order to prevent CA-UTIs.

- Avoid unnecessary urinary catheters by examining the appropriate indicators/criteria Insert using aseptic technique
- Maintain catheters based on recommended guidelines (daily care): bag off floor, no dependent loops, use of secure devices like Statlock, flow unobstructed, routine perineal hygiene, etc.
- Review catheter necessity daily and remove promptly: I strongly encourage all of us to continue raising our awareness of removing unnecessary catheters by having it added to your daily plan of care. Never be afraid of questioning the doctors about the need of taking out the catheters and always ask yourself everyday "Have you Ex-Foley-Ated today?" Thanks for your hard work!

***The report on UTIs prompted a few questions, to which Lilly Liu kindly responds:***

*1. Exactly who is on the interdisciplinary UTI reduction team???*

**Lilly Liu:** Initiative champion; Harman Paintal: the physician champion, **Russell Ryono**,infection control practitioner; Nga Vo, MSICU staff champion; **Bobette Nicholl**, MSICU nurse manager, **Janet Fagan**, **Kelly Hautala** and **Vanessa Farinas**, IICU unit champions; **Jung Yoon**, 3c Nurse manager; Kristen Valente and **Fidel Tadas** 3c nurse champions; **Jenny Ellman**, ER nurse manager.

*2 When you say " appropriate indications ," what does the literature consider appropriate and inappropriate??*

Based on expert guidelines and published literature, these are the right indicators:

- Perioperative use for selected surgical procedures
- Urine output monitoring in critically ill patients
- Management of acute urinary retention and urinary obstruction
- Assistance in pressure ulcer healing for incontinent patients
- As an exception, at patient request to improve comfort (SHEA-IDSA) or for comfort during end-of-life care (CDC)