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Special Points of Interest:

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P&T Update

Formulary Addition/Deletion

1. Isosorbide dinitrate sublingual tablet – manufacturer discontinued. Tablets are no longer commercially available. Motion made to remove isosorbide dinitrate sublingual tablets from the UH formulary. – Formulary deletion approved
2. Inhaled mannitol - manufacturer discontinued. Mannitol powder for inhalation (Aridol®) is no longer commercially available in US. Motion was made to delete this product from the formulary. – Formulary deletion approved
3. Methacholine – Formulary reinstatement. Methacholine is a diagnostic bronchoprovocation test – Formulary addition approved
4. Levobunolol 0.25% eye drops - manufacturer discontinued. Levobunolol 0.5% eye drops remain available. – Formulary deletion approved

Policies & Procedures/Floor Stock Update

1. 707-500-115 Standardized Infusion Concentrations of Medications – Policy Update
   The standardized infusion concentrations of medications for adults/pediatrics policy was updated to include new standard concentrations for PCA drips which are logistically/economically more compatible with the new PCA pumps. – Approved
2. Alaris Pump Library Update
   The Alaris pump module went live with the new syringe and PCA Pumps with EtCO2 monitor. The pump library was updated to accommodate these changes. – Approved

Innovations In Transition of Care

DSRIP has been talked about for some time now since its announcement in 2013 and there is a lot of anticipation for its initiation. But what exactly is DSRIP and why this strange government issued acronym? DSRIP stands for "Delivery System Reform Incentive Payment." It is a demonstration program falling under New Jersey's Comprehensive Medicaid Waiver which was approved on the federal level by CMS. "DSRIP is an innovative program that provides incentives to hospitals to improve the quality of care they provide to patients," says NJ Health Commissioner Mary E. O'Dowd. "The Department of Health worked closely with the hospital industry to develop a program that would maintain this funding for our hospitals." Its purpose is to focus on improving access to care, quality of care, and overall health outcomes. It is also part of the transition in hospital funding to be contingent on the improvement of health goals (performance driven), as opposed to number of patients treated.

University Hospital continues to receive funding, set apart by the federal government, for implementing DSRIP. A large part of how performance is judged is by the rate of readmission; the goal that is being targeted by DSRIP is a 20% reduction in the 30 day readmission rate. The Medicare Payment Advisory Commission estimates that up to 76% of readmissions may be preventable and New Jersey continues to rank among the bottom of all states in controlling readmissions. This is clearly an area that needs

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Innovations In Transition of Care

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improvement, and ultimately, has the potential to save the hospital a great deal of resources. By providing improved, multi-disciplinary care to patients, we hope to decrease readmissions for preventable reasons.

As part of the program, New Jersey hospitals can choose one of eight chronic disease states or medical conditions on which to focus improvements. These include: HIV/AIDS, cardiac care, asthma, diabetes, obesity, pneumonia, behavioral health and substance abuse. University Hospital has chosen to enroll in The Congestive Heart Failure Transition Program which is being renamed internally as Program TRUST. At UH, there are over 1,200 admissions per year that are of heart failure diagnosis. Overall, the goal is to give patients who voluntarily enroll a better, more focused multi-disciplinary team approach to managing heart failure. The team will include cardiologists, psychologists, social workers, advance nurse practitioners, and pharmacists who will collectively educate the patients on their disease state by using techniques such as the teach-back method. By doing this, the desire is to give the patient more ownership of his/her condition and to establish a closer relationship between provider and patient. While the patient is still in the hospital, the team will design a discharge plan and discuss it with the patient and ensure the patient has access to care outside of the hospital. Communication of the plan to the outpatient primary provider is also imperative so that the transition of care can be as smooth as possible, ensuring that the outpatient provider is aware of all changes to medical therapy. A follow-up appointment must be established within seven days post discharge with the patient's provider. Distribution of supplies such as pill boxes, weighing scales, medication calendars/planners, and heart failure education materials are geared to enhancing patient's self-management at home after discharge. It is imperative to teach why each medication is needed and the importance of compliance. All steps are critical for improving health outcomes and decreasing readmission rates.

There is no doubt that DSRIP is a challenging endeavor and there will be hurdles along the way, but it will advance the quality of care for patients and decrease readmission rates in the future.

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Department of Health and Human Services Press Release
Hospital HealthQuest patient records, diagnosis code per JCAHO definition: 40201, 40211, 40291, 40401, 40403, 40411, 40413, 40491, 40493, 428, 4280, 4281, 4282, 42820, 42821, 42822, 42823, 4283, 42830, 42831, 42832, 42833, 4284, 42840, 42841, 42842, 42843, 4289.

Contributed by:
Jesse Chao, Pharm.D. Candidate 2015, Rutgers University

Teach	• Conduct patient and family counselling sessions including both written and verbal instruction focusing on correct medication administration • Implement bi-weekly patient education classes specifically tailored to patient and family needs • Inform patients of side effects and emergent symptoms to report • Create an emergency plan involving both patients and caregivers
Reconcile	• Review medications ordered pre-admission versus in-patient versus discharge • Make interventions regarding duplicate therapy, renal dosing, regimen simplification, etc. • Confirm that recommendations are congruent with current guidelines • Clearly communicate and highlight any changes to patient's therapy to ensure accurate transition of care
Utilize	• Utilize patient medication administration aids to improve compliance • Provide Med Action Plan to patients along with a daily check list, wallet planner, etc. • Utilize Med Action Plan mobile app to set up daily medication reminders • Provide compartmentalized pill boxes to patients in order to improve organization and compliance
Support	• Ensure that patient can fill/refill prescriptions and solve any issue regarding discharge medication • Set up follow up appointment with patient's PCP (preferably within 7 days of discharge) and/or follow up lab tests • Coordinate transportation to and from important appointments
Track	• Conduct follow up phone call within 48-72 hours post discharge • Track readmitted patients based on co-morbidities, literacy level, accessibility to medication, compliance habits, and barriers to medication adherence • Focus on patient populations and tailor care according to causative barrier of compliance

The Role of Rifampin in Acinetobacter Infections

What do you think of when you hear the word rifampin? Tuberculosis? Well, maybe one day people might say Multi-Drug Resistant (MDR) Acinetobacter. There have been increasing studies about the role of rifampin as a synergistic drug in the treatment of Acinetobacter infections.

In-vitro studies have shown that the combination of colistin and rifampin have a synergistic effect when it comes to killing MDR Acinetobacter. One trial observed the rates of bactericidal activity in colistin-susceptible and colistin-resistant strains of Acinetobacter. Colistin was measured at three different concentrations, 0.5 mg/L, 2 mg/L, and 5 mg/L; while rifampin remained constant at a maximum concentration of 5 mg/L. All three combination concentrations resulted in bacterial killing, which was measured by serial bacterial counts. Of note, in the colistin-resistant strain, the combination of colistin and rifampin did demonstrate a 2.5-7.5 log (10) CFU/mL decrease in bacterial colony count. Also, there was no emergence of colistin-resistant strains in the colistin-susceptible isolates.[1]

In-vitro results can be very different from in-vivo results, which leads to the question if rifampin combined with colistin would be an effective therapy for MDR Acinetobacter infections in clinical practice. From 2007 to 2009, an uncontrolled case series that took place in two medical and surgical ICUs in Italy studied the combination of rifampin and colistin in 29 critically-ill patients. Each patient received two million units (equivalent to approximately 60 mg) of colistin every eight hours along with 10 mg/kg of rifampin given every 12 hours. The mean duration of treatment was 17.7 days, the mean length of hospital stay was 33.2 days, clinical improvement was observed in 22 patients (76%), and the overall mortality rate was 21% (6 patients).[2] Based on the findings from this observational study, the combination of colistin and rifampin was safe and clinically effective. However, a major limitation with this study is the lack a comparator antibiotic regimen.

Was it really the rifampin-colistin combination that achieved those results or was it just the colistin, a drug known to have activity against those MDR Acinetobacter strains? This leads to a true clinical trial that compared the combination of colistin-rifampin to colistin alone. An article published in April 2013, called "Colistin and rifampicin compared with colistin alone for the treatment of serious infections due to extensively drug-resistant Acinetobacter baumannii," featured a multicenter, parallel, randomized, open-label clinical trial that included 210 patients with life-threatening MDR Acinetobacter from the intensive care units of five hospitals. All patients received two million units (60 mg) every eight hours intravenously of colistin, and the group randomized to the rifampin arm received rifampin 600 mg every twelve hours intravenously as well. The primary end-point was 30-day mortality with the secondary endpoints of infection-related death, microbial eradication, and length of hospitalization. The results of the trial showed that there was a significant increase in microbial eradication in the combination group, but no difference in infection-related death or length of hospitalization. Furthermore, there was no difference in the overall mortality between the treatment groups [odds ratio 0.88 (confidence interval 0.46-1.69), P = 0.71]. The trial concluded that the combination of rifampin and colistin should not be routinely combined; however the increased rate of eradication could "imply" a clinical benefit.[3]

Extensively multi-drug resistant Acinetobacter remains a serious problem in the ICUs of many hospitals and the problem is only worsening. With the lack of sufficient antibiotic research or new drugs coming into the market, medical experts are running out of options. As it stands now, we can only attempt to optimize the medications that we have. While rifampin demonstrates in-vitro synergy, safety, and faster eradication when used in combination with colistin, it has yet to show a benefit in the overall mortality. However, the synergistic ability to eradicate an infection quicker is something that needs to be further studied. One would think that the sooner an infection can be eradicated should provide some clinical benefit. But as for now, the addition of rifampin to treat a serious multi-drug resistant Acinetobacter infection should be at the discretion of the physician.

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Contributed by: Marcus Lawson, PharmD Candidate 2014, Rutgers University

A Finer Look into Antiretroviral Medication Errors

The treatment of Human Immunodeficiency Virus (HIV) is complex and involves the use of multiple drugs that have the potential for major drug-drug interactions. Hospitalized patients are at risk of serious medication errors, especially when general practitioners without HIV expertise are responsible for starting and managing antiretroviral medications. Medication errors occur throughout the entire medication-use process, including prescribing, administration and monitoring. Medication errors of omission may have negative effects as well in terms of the long-term management of HIV-infected individuals. In reality, reports of high rates of antiretroviral medication errors in hospitalized patients are not uncommon.[1,2]

Investigators at the Cleveland Clinic conducted a retrospective study and found that the rate of prescription errors relating to antiretroviral regimens was 50%, where two thirds of them were not discovered and corrected before patients were discharged. The clinic instituted new measures to reduce those rates by providing more educational training on drug interactions and adding alerts to the electronic medical record system.[2] Similarly, a prospective study was done at the University of North Carolina Hospitals which showed a high rate of antiretroviral errors upon admission and throughout the course of the patient's hospital stay. Errors were classified by their source (related to prescribing, dispensing, documentation or delay) and by severity (Class 1, 2 or 3). Class 3 errors were the worst in terms of potentially causing patient discomfort or clinical deterioration. When errors were discovered, it was the pharmacist's duty to inform the primary care team so they could be resolved. During the investigation, 49 of 68 (72%) patients experienced at least one error related to the initial antiretroviral regimen. After combining all errors from the initial regimen and throughout the patient's hospital stay, 57 (84%) patients experienced at least 1 medication error, where 44 (64%) experienced a class 1 or 2 error. Many were related to the administration of a drug that had clinically significant drug interactions with a patient's antiretroviral therapy. A remarkably common error involved the use of acid-suppressive agents with the frequently used protease inhibitor atazanavir.[1]

Several strategies have been implemented to reduce the rate of errors associated with antiretroviral therapy. At University of North Carolina Hospitals, targeted interventions addressing general prescribing errors and drug interactions were done to prevent and reduce the high antiretroviral medication error rate. A pocket-sized card was developed and provided to physicians, pharmacists and nurses as a guide on HIV treatments. Computer alerts were added for incorrect doses and drug interactions to the pharmacy order entry system. Rather than converting a combination product into its component parts, the hospital added all commercially available combination products to the formulary. After the achievement of targeted interventions, the percentage of patients who experienced at least one antiretroviral error was reduced from 72% to 15%.[1] In a study done by Eginger et al, a clinical pharmacist was able to decrease the number of antiretroviral and opportunistic infection prophylaxis correctable errors by 89.9%. The presence of a clinical pharmacist dedicated to the review of HIV regimens and opportunistic prophylaxis regimens is likely to reduce errors as well.[3]

Medication errors associated with antiretroviral therapy have been identified at University Hospital. In response to findings from a medication usage evaluation, pharmacists and physicians have implemented numerous measures to address the common medication errors identified with antiretroviral therapy. Changes to the medication records in Epic® have been implemented to provide drug information at the time of order entry and to encourage appropriate dosing of antiretroviral medications. For example, each medication record contains information on common medication errors (need for renal dose adjustment, significant drug interactions, etc.) as well as electronic links for dosing recommendations from professional and hospital-specific drug information resources. Default doses and frequencies are set to minimize the likelihood of inappropriate dosing. Education on antiretroviral therapy has also been provided to pharmacists and physicians. Furthermore, the impact of prospective review and intervention to correct identified errors in all admitted patients receiving antiretroviral therapy is being evaluated. A quality improvement study is currently ongoing.

There is certainly a need for healthcare practitioners to be attentive and more familiar with HIV medications in order to reduce error rates in admitted patients. Having common drug dose and frequency defaults in Computerized Prescriber Order Management (CPOM) systems and an increase in prescriber and staff education may lower error rates.

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Surgical Antimicrobial Prophylaxis: Core Principles and Best Practices

With the national goal of providing patients with the best surgical care, the Surgical Care Improvement Project (SCIP) focuses on improving quality standards with respect to performance measures for patients undergoing surgery. The Joint Commission (TJC) aligns with Centers for Medicare and Medicaid Services (CMS) on these core measures in regards to the timing, selection, and duration of prophylactic antimicrobial agents in order to reduce the occurrence of surgical site infections (SSIs) and optimize patient outcomes. Selecting an antimicrobial agent involves making sure the agent has proven efficacy, a desirable duration of action, a spectrum of activity against organisms commonly encountered in surgery, reasonable safety, and cost effectiveness.[1,2]

The timing of the initial dose of an antibiotic is an essential component of surgical antimicrobial prophylaxis. The pretext for the use of antibiotics for infection prevention in surgery began with a paper published in 1961 by Dr. John Burke. The results showed that the timing of antibiotic administration affected the lesion size and Burke concluded that there is "this effective period" for when antibiotics can be given to suppress developing incisional site infections that "begins the moment that bacteria gain access to the tissue and is over in 3 hours." This study gave credence to the principle that for prophylaxis to be effective, antibiotics must be given early to establish adequate concentrations when the bacteria is lodged in the tissue.[3]

This rationale of initiating antibiotics early for surgical prophylaxis was applied in two subsequent human, placebo-controlled trials. In 1964, Bernard and colleagues published a trial of 118 patients who were scheduled for abdominal operations.[4] Three out of 55 patients (5%) in the antibiotic group contracted infection versus 16 out of 63 patients (25%) in the placebo group ($p<0.01$).[4] A few years later, Polk and colleagues conducted a trial of 181 consecutive elective operations of the gastrointestinal tract.[5] Here, 5 of 91 patients in the antibiotic group developed wound or intra-abdominal infection compared to 26 of 90 placebo patients ($p<0.001$).[5] These two trials provided evidence that antimicrobial prophylaxis does have a role in surgery and the significance for timing the initial dose preoperatively.[4,5]

The first double-blind, randomized controlled trial that directly addressed the question regarding the timing of the initial antimicrobial dose was conducted in 1976. As a result of this study, there is now an understanding that initiating antibiotics postoperatively led to similar rates of SSI as not starting any antibiotics at all. Secondly, starting antimicrobials 8 to 12 hours preoperatively or more than one hour post-operatively led to similar wound infection rates. Lastly, initiating antimicrobials preoperatively (within 1 hour of operation) was superior to starting them postoperatively or not at all ($p=0.01$). Thus, this study established credence for optimizing antimicrobial timing to within one hour prior to the incision.[6]

In another landmark study, Classen and colleagues conducted a single-center observational study to determine the effect of timing variation on the occurrence of SSIs.[7] The authors found that the preoperative group (antibiotic given within 2 hours prior to incision) had statistically significantly ($p<0.0001$) lower risk of SSI than that of the early group (given 2 to 24 hours before incision) or the postoperative group (given 3 to 24 hours after incision) with rates of 0.6% vs 3.8% vs 3.3%, respectively.[7] These results further supported that the timing of the first dose of antibiotics should be pre-operative within the first couple of hours before incision. Additionally, subsequent observational studies have generally echoed these results or have suggested narrowing the window between initiation of antibiotic prophylaxis and surgical incision.[8,9,10,11,12]

Dosing of the antimicrobial is another integral part of surgical prophylaxis. In conjunction with optimal timing, proper dosing is necessary to ensure adequate antibiotic concentrations at the surgical site to effectively prevent offending agents from causing infection. Recent studies have found that elevated body mass index (BMI) is a risk factor for SSIs.[13,14] In 1989, Forse and colleagues compared how dosing may affect drug concentrations in obese patients versus non-obese patients.[15] With cefazolin doses of 1 gram, there was a significant difference in cefazolin concentrations at time of

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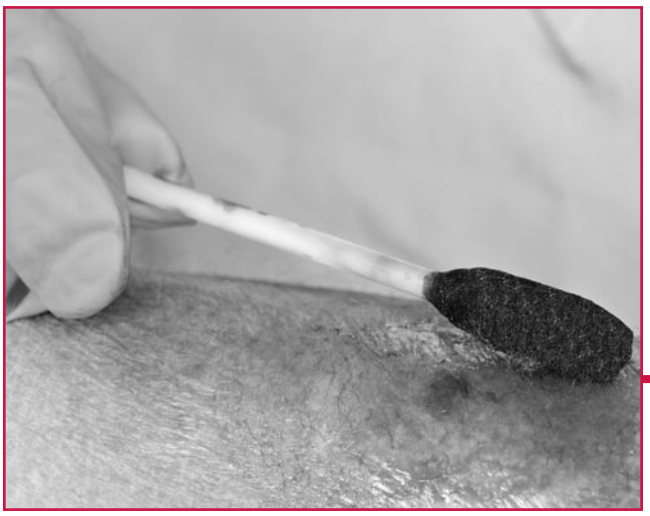
incision between normal-weight and obese patients in both serum (110.5 mcg/mL vs. 65.2 mcg/mL, respectively, $p < 0.001$) and adipose tissue (6 mcg/mL vs. 4 mcg/mL, respectively $p < 0.01$).[15] In reference to the Clinical and Laboratory Standards Institute's minimum inhibitory concentration (MIC) susceptibility breakpoints, the cefazolin breakpoint for *Staphylococcus* spp. is an MIC of 8 mcg/mL.[16] Therefore, the tissue concentrations derived from the standard 1 gram dose in obese patients are inadequate to prevent SSIs.[15,16] Following the implementation of cefazolin 2 gram dosing for obese patients, a significant reduction in the rate of SSIs was observed by the study authors (16.5% to 5.6%, $p<0.03$).

In another pharmacokinetic study of morbidly obese patients weighing over 120 kilograms, Edmiston and colleagues found similar results. Incisional serum concentrations were adequately above the MIC breakpoint while tissue concentrations were below.[17] The average levels in the skin, adipose, and omentum tissues were all below 5 mcg/mL at incision.[17] Therefore, using a standard dose might not achieve the adequate concentrations at the start for surgery that are necessary to prevent infection.[17] A more weight-based dosing standard would be optimal. Hence, the current guideline increased the standard cefazolin dose from 1 gram to 2 grams in patients less than 120 kg. For patient weighing more than 120 kilograms, the recommended cefazolin dose is 3 grams to better ensure that adequate tissue concentrations are achieved at incision site.[1,2,17]

Over time, the concentrations of antimicrobials in the serum and tissue decrease.[17] In a study by Goldmann and colleagues of 186 patients with heart valve replacement procedures, concentrations of cefazolin at wound closure and sub-sequent SSI rates were evaluated.[18] Five patients in the study suffered from serious wound infections and bacteremia from *Staphylococcus aureus.*[17,18] Three out of 11 patients who did not have a detectable level at wound closure (27.3%) versus 2 out of the 175 (1.1%) patients who did have a detectable level of cephalosporin acquired an infection, suggesting that the presence of an adequate level of cephalosporin antibiotic may be a factor in the prevention of wound infection.[18] A study by Zelenitsky and colleagues concluded that antimicrobial concentration at the time of surgical closure was one of the strongest independent risk factors for infection.[19] Furthermore, a study of 1,603 patients by Zanetti and colleagues showed that intraoperative re-dosing of antimicrobial therapy was associated with a 16% reduction in the overall risk for SSI (OR = 0.44; 95% CI 0.23 – 0.86).[20] Based on the measured pharmacokinetic values, additional doses of cefazolin should be administered when blood loss during surgery is greater than 1500 mL.[21]



According to the current guideline recommendations, intraoperative re-dosing is needed to ensure adequate serum and tissue concentrations of the antimicrobial if the procedure exceeds two half-lives of the drug, if there is a significant delay in the time to surgical incision or if there is excessive blood loss during the procedure.[1,2]

Determining the optimal duration of therapy in surgical antimicrobial prophylaxis involves weighing potential risks versus benefits. Concerns related to longer duration of prophylaxis include the risk of *Clostridium difficile* infection and antimicrobial resistance. The recommendation from the SCIP measure is to discontinue antibiotic prophylaxis within 24 hours after anesthesia end time (or within 48 hours for cardiac surgery). Several trials have looked into what length of prophylaxis would be adequate to prevent SSIs.[1,2]

Although current guideline recommendations indicate stopping antimicrobial prophylaxis within 24 hours, studies have shown that one dose of antibiotic prophylaxis is adequate.[2] In a study published in 2006 by Fonseca et al, overall SSIs were found to be similar in 12,299 patients receiving 1 dose prophylaxis (2.1%) as in those receiving 24 hour-period of prophylaxis (2%, $p = 0.67$).[22] When infection rates among subspecialties (orthopedic, gastrointestinal, urology, and vascular, etc.) were studied, the similarity among rates between the 2 groups remained consistent.[22] A trial by Bucknell and colleagues with a populations of 353 patients evaluated the rates of SSIs in patients who underwent antimicrobial prophylaxis with cefazolin for 48 hours versus 1 dose.[23] The rate of SSI for the 48 hour prophylaxis group was 2.6% and the rate of SSI was 3% in the single dose group ($p = 0.89$).[23]

In instances of cardiac surgery, the SCIP recommendation is to stop prophylaxis within 48 hours.[1] A trial by Goldmann and

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colleagues studied 2-day versus 6-day antimicrobial prophylaxis. They were concerned that prolonged prophylaxis provided no additional benefit and increased the risk of multidrug resistance.[18] As a result of the study, it was found that 2-day and 6-day prophylaxis were both effective at decreasing rates of SSIs; however, 6 day prophylaxis resulted in higher rates of nosocomial infections (8.5% versus 5.3%).[18] A trial by Harbarth and colleagues looked into the consequences of prolonged durations of antimicrobial prophylaxis and bacterial cultures were taken to study the emergence of resistant organisms.[24] A significant prevalence of resistance was seen through the identification of coagulase negative *Staphylococcus* (20%), *Candida* (19%), *Enterococcus* spp. (16%), cephalosporin-resistant Enterobacteriaceae, and vancomycin-resistent *Enterococcus* (VRE) (6%).[24] Additionally, in a retrospective case-controlled study by Kreisel and colleagues, the relationship between prophylactic antibiotic administration and the risk of developing *Clostridium difficile* infection was investigated.[25] Their analysis revealed that the odds ratio for the risk of developing *Clostridium difficile* infection in patients who received inappropriate antimicrobial prophylaxis was 5.1 (95% CI 1.1 to 23.64).[25] The study defined appropriate antibiotic prophylaxis as 48 hours prophylaxis for cardiac procedures and 24 hours for all other procedures.[25]

In conclusion, the current surgical antimicrobial prophylaxis guidelines recommend that antibiotic prophylaxis should be initiated within 1 hour before surgical incision to achieve appropriate concentrations, dosed based on the goal of adequate serum and tissue concentrations throughout the procedure, re-dosed at appropriate intervals, and discontinued within 24 hours (48 hours in cardiac surgery) after anesthesia end time. Specifically for cefazolin, the standard dose is 2 grams in patients less than 120 kg or 3 grams if the patient weighs more than 120 kilograms. For extended procedures, it is important to re-dose the cefazolin dose every 4 hours. When using antimicrobial surgical prophylaxis, the goal is to select the optimal agent and dosing regimen that will be active against the pathogen most likely to contaminate the surgical site, and administer it for the shortest effective period to minimize adverse effects,.

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Vasopressin Formulation Change and Impact on the Code Carts

Vasopressin is now only available under the brand name Vasostrict® by PAR Pharmaceuticals. This new formulation requires refrigeration for storage. Also the price has been increased 50 fold per vial (20units/ml) compared to the older formulation. Vasopressin generic vials (20unit/ml- 2 vials) are currently stocked in the both the adult and pediatric code carts.

There is a low grade recommendation to use vasopressin to replace first or second dose of epinephrine during cardiac arrest. Please see the excerpt below from the 2010 ACLS AHA guidelines:

"Vasopressin is a non-adrenergic peripheral vasoconstrictor that also causes coronary and renal vasoconstriction. Three RCTs and a meta-analysis of the demonstrated no difference in outcomes (ROSC, survival to discharge, or neurologic outcome) with vasopressin (40 units IV) versus epinephrine (1 mg) as a first-line vasopressor in cardiac arrest. Two RCTs demonstrated no difference in outcomes (ROSC, survival to discharge, or neurologic) when comparing epinephrine in combination with vasopressin versus epinephrine alone in cardiac arrest. One RCT found that repeated doses of vasopressin during cardiac arrest did not improve survival rates compared with repeated doses of epinephrine. Because the effects of vasopressin have not been shown to differ from those of epinephrine in cardiac arrest, 1 dose of vasopressin 40 units IV/IO may replace either the first or second dose of epinephrine in the treatment of cardiac arrest. (Class IIb, LOE A)".

Considering the issues with the new product storage and current evidence, the Combined Critical Care Committee has approved to remove vasopressin from the code carts (12/2014). The Pharmacy Dept. will start removing the vasopressin vials from the code carts and ER trauma trays as the carts/ trays rotate through Pharmacy for replenishment starting 12/08/14. A sticker indicating that vasopressin has been removed from the trays will be placed in the empty vasopressin slots. The code cart policy and content list have been updated accordingly. Also the Code Blue PI, P&T and RN Steering Committees have been informed of this update. Vasopressin will remain available to be dispensed from Pharmacy and select Pyxis machines on the floors.

Contributed by: N. Faruqui, Pharm. D., Clinical Pharmacy Specialist, University Hospital

Rutgers University New Jersey Medical School Pre-Medical Honors Program: High School Students' Experience at University Hospital Pharmacy

The Pre-Medical Honors program at Rutgers University-New Jersey Medical School has been in existence for 14 years. It is an eight week program in which highly qualified high school students are invited to participate. Part of the program involves visiting the University Hospital Pharmacy Department to give the students a glimpse into the role pharmacists play inside and outside of the hospital.

Picture from left to right: Dr. Shiao Wang, Dr. Mina Malaak and Mr. Michael Grabow, Program Administrator for Pre–Medical Honors Program, welcomed the students, described the responsibilities of a pharmacist, and gave a tour of the Pharmacy Department.