

Hospital Medicine

Evidence-Based Information for Hospitalists
Intensivists, and Acute Care Physicians [ALERT]

ABSTRACT & COMMENTARY

Inpatient and Outpatient Care Providers: Why Can't We Just Work Together?

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Dr. DeWaay reports no financial relationships relevant to this field of study

SOURCE: Jones C, Vu M, O'Donnell C, Anderson M, Patel S, Wald H, Coleman E, DeWalt D. A Failure to communicate: A Qualitative Exploration of Care Coordination Between Hospitalists and Primary Care Providers Around Patient Hospitalizations. *Journal of General Internal Medicine*. 2014; 30(4): 417-24.

Many problems occur after a patient is discharged that are a direct result of poor coordination of care between hospitalists and primary care providers (PCPs). These issues include, but are not limited to, missed test results, medication errors, inadequate follow up, and harm to the patient. PCPs are frequently unaware that their patient was hospitalized and they often do not receive a copy of the discharge summary. The authors of this paper did a qualitative study to analyze the barriers and solutions to care coordination between hospitalists and PCPs in North Carolina.

This exploratory qualitative study involved both hospitalists and PCPs from North Carolina practices,

and consisted of eight focus groups between February and May 2013. Three were comprised entirely of PCPs. Four were comprised of hospitalists and one was a hybrid of both PCPs and hospitalists. Each group met and talked for 45 minutes. The discussion was taped and transcribed in its entirety.

The authors purposefully sampled practices from diverse settings. A common theme among the recruits was their active involvement in quality improvement projects regarding care transitions. Only one eligible practice declined to participate because of scheduling issues.

The interview questions were based on the Agency for Healthcare Research and Quality (AHRQ) Care

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Coordination Measurement Framework and includes the following themes: care coordination, information exchange, follow-up, medication management, and accountability. The research team developed and used a framework-based code book to code the comments made in the focus groups. A main coder coded all of the transcripts, and a group of additional team members coded portions of the transcripts. The team members and main coder would meet to reconcile any discrepancies. In addition, the members of the focus groups were able to check the key discussion themes from their group.

The eight focus groups included 58 total participants: 34 hospitalists, 22 outpatient PCPs, and two physicians who practiced equally in both settings. Academic and private practices were represented, as were rural and urban areas. All of the participants used an electronic medical record (EMR). The hospitalists were more often male, whereas the PCPs were more often female.

Both hospitalists and PCPs described having a lack of time to communicate with each other. They said that it was often difficult to get the correct phone number in order to speak with the right physician. Discharge summaries were also a stress point. The hospitalists' systems struggled to share the discharge summaries with the PCPs and to coordinate a follow-up appointment after hours or on the weekends, thus leaving patients responsible to schedule an appointment. Discharge summaries were also often incomplete, not adequately describing the expectations for the follow-up visit, leaving both PCPs and patients in a bad situation.

Both groups had concerns about missing tests with results pending. The PCPs felt that hospitalists should be accountable for hospitalist-ordered tests unless expressly described in the discharge summary or via a phone call. The hospitalists expressed that PCPs should be responsible for follow-up tests that are required after hospitalization. For example, a PCP should order the CT needed 6 months after finding a lung nodule. In addition, there was unclear accountability dispute regarding home

health services. Both groups agreed that the hospitalists should oversee the initial order set, but there was a difference of opinion regarding follow-up orders.

The hospitalists and PCPs agreed that a greater effort is needed from both sides with high-risk patients. There was a shared sentiment regarding the benefits of a personal relationship between the two physicians and sharing an EMR. The hospitalists wanted a centralized scheduling system for PCP follow-up appointments or to have a hospitalist-run follow-up clinic, while the PCPs wanted follow-up appointments to be scheduled before discharge.

This study found that both types of physicians had similar concerns regarding the important transition from inpatient to outpatient care. Often, the discrepancies in opinions had to do with issues that clinicians in the opposite setting didn't realize were a problem. Both groups envision improving personal relationships between physicians and using the EMR would be helpful. Further studies need to be performed to see if more formal accountability with pending tests, future tests, and home health would be helpful.

■ COMMENTARY

The discharge process is more complex than ever. This paper outlines some good starting places for hospitals and physicians to begin their quality improvement processes regarding inpatient to outpatient transitions of care.

This study's biggest limitation was its generalizability. All participants were from North Carolina and the authors chose groups that were very active in quality improvement within their systems. Thus, these findings may not represent experiences elsewhere. Discharge planning and transitions of care will continue to be a major issue that hospitals and physicians must address as payments change to be based on quality measures. The discharge process is very complex and trying to improve the transition proves daunting. Creating better phone directories and increased access to paging systems would be a great place to increase PCP/

hospitalist communications. Increased automation with respect to EMRs will be helpful, especially regarding the sending of discharge summaries and

laboratory and imaging studies. More automation and earlier arrangement of PCP appointments might also be helpful. ■

ABSTRACT & COMMENTARY

Nasal Screening for MRSA: The New Basis for De-escalation of Empiric Antibiotics?

By *Kathryn Radigan, MD, MSc*

Assistant Professor, Pulmonary Medicine, Northwestern University, Feinberg School of Medicine, Chicago

SYNOPSIS: The high negative predictive value of a negative nasal screen for methicillin-resistant *Staphylococcus aureus*.

SOURCE: Tilahun B, et al. Nasal colonization and lower respiratory tract infections with methicillin-resistant *Staphylococcus aureus*. *Am J Crit Care* 2015;24:8-12.

Although nasal screening for methicillin-resistant *Staphylococcus aureus* (MRSA) is a widely accepted method for infection control, the relationship between nasal carriage and development of MRSA lower respiratory tract infection (LRTI) is not well studied. Tilahun and colleagues sought to determine the association between MRSA nasal swab results and MRSA LRTI in a medical ICU. In this single-site, retrospective cohort study, 165 patients were diagnosed with pneumonia and had both nasal swabbing and culturing of respiratory specimens within 24 hours of admission.

Among the 28 patients who had a nasal swab positive for MRSA, eight (4.8%) patients had respiratory specimens positive for MRSA. Of the 165 patients who were involved in the study, only two (1.2%) had negative nasal swabs but positive MRSA respiratory cultures. The sensitivity and specificity for nasal MRSA colonization for subsequent infection were 80% and 87.1% and the positive and negative predictive values were 28.6% and 98.5%, respectively.

■ COMMENTARY

It has long been recognized that treating our critically ill patients with early and appropriate antibiotics is a critical determinant of survival in septic shock.¹ The Surviving Sepsis Campaign suggests that IV antimicrobials should be given within the first hour of recognition of septic shock and severe sepsis without septic shock.² The guidelines for the choice of antibiotics are complicated and based on the individual patient and the identity and susceptibility pattern of the bacteria isolated on the individual unit. With good intention, antibiotics are often overprescribed with

failure of timely de-escalation, leading to unintended adverse consequences including patient morbidity and mortality, increasing health care costs, and antimicrobial resistance. Prescribing antibiotics to cover MRSA empirically is one of the biggest culprits.³ This manuscript examined whether a correlation exists between MRSA nasal swab results and MRSA LRTI in a medical ICU. Even though researchers found that positive MRSA nasal swabs were not as helpful in guiding antibiotic therapy, they did conclude that the high predictive value of a negative nasal swab may be helpful with de-escalation of empiric antimicrobial therapy.

Although the overall message of this manuscript may be helpful, a word of caution should be exercised with these recommendations in regards to the type of specimen collected for respiratory tract culture. As described within the manuscript, only 5% of the specimens were collected by bronchoalveolar lavage; 65% of the specimens were tracheal aspirate or sputum collected by suctioning, 13% were from expectorated sputum, and 16% were collected from induced sputum. Since the majority of the specimens were not collected through bronchoalveolar lavage, the ability to differentiate upper respiratory tract colonization from lower tract pathogens is less accurate. Furthermore, the rate of pathogen detection for sputum samples can be quite poor, especially if standards of quality control for sputum culture are not followed. Taking into account these limitations, a negative nasal screen for MRSA should be an additional, but not the only, consideration to be included among a number of other important factors when deciding to de-escalate antibiotic therapy in our

critically ill patients. ■

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ABSTRACT & COMMENTARY

Post-ICU Stress Symptoms Associated with Increased Acute Care Service Utilization

By Betty Tran, MD, MSc, Editor

SYNOPSIS: In this prospective, longitudinal study of adult medical-surgical ICU patients, in-hospital substantial acute stress symptoms were associated with a greater risk of rehospitalization within 1 year post-ICU discharge; those with substantial post-traumatic stress disorder symptoms at 3 months post-ICU also had a greater risk of future emergency department visits within the year.

SOURCE: Davydow DS, et al. Psychiatric symptoms and acute care service utilization over the course of the year following medical-surgical ICU admission: A longitudinal investigation. *Crit Care Med* 2014;42:2473-2481.

Over the past two decades, advances in critical care have resulted in more patients surviving to hospital discharge, but these successes are attenuated by several sequelae of critical illness, including depression and post-traumatic stress disorder (PTSD).¹ Risk factors for and the health care ramifications of these disorders are poorly understood. Given this, Davydow and colleagues aimed to investigate whether PTSD symptoms in the acute (< 1 month) ICU hospitalization period and PTSD and depressive symptoms at 3 months post-ICU were risk factors for future hospitalizations and emergency department (ED) visits.

Over a 12-month period (2010-2011) at Harborview Medical Center (Seattle, WA), 150 adult patients admitted to medical-surgical ICUs were prospectively recruited. The primary exposure variables were the presence of acute stress symptoms, as assessed by the PTSD Checklist-Civilian version (PCL-C) prior to hospital discharge and at 3 months post-ICU, and depressive symptoms at 3 months post-ICU, as ascertained by the Patient Health Questionnaire-9 (PHQ-9).^{2,3} Substantial acute stress symptoms were defined as scoring > 3 on at least one intrusive symptom, three avoidant symptoms, and two arousal symptoms on the PCL-C; substantial depressive symptoms were defined as a PHQ-9 score of > 10.

Baseline interviews were conducted a median of 8 days (IQR 5–15) after hospital admission. Primary

outcomes were number of hospitalizations and ED visits between discharge and 12 months post-ICU.

After adjustment for baseline patient-related (including history of major depression, alcohol/drug use, Charlson comorbidity score among other variables) and hospitalization-related (including mechanical ventilation duration, admission diagnosis, number of surgeries) characteristics, substantial PTSD symptoms in the hospital were associated with a greater risk of rehospitalizations within 1 year of ICU discharge (relative risk [RR], 3.00; 95% confidence interval [CI], 1.80-4.99); there was also a non-significant trend toward increased risk of future ED visits (RR, 1.94; 95% CI, 0.95-3.98). In addition, substantial PTSD symptoms at 3-months post-ICU were associated with a greater risk of ED visits within the year after ICU discharge (RR, 2.29; 95% CI, 1.09-4.84), even after additional adjustment for acute care service utilization in the 3 months post-ICU discharge. Depressive symptoms at 3 month follow-up were not associated with risk of rehospitalization or additional ED visits between 3 and 12 months post-ICU.

■ COMMENTARY

This study adds to the growing body of literature describing the post-discharge needs of ICU survivors as substantial. Inarguably, critical care interventions, such as low tidal volume ventilation

for acute respiratory distress syndrome and early antibiotics and fluid resuscitation in sepsis, have saved lives. However, in the same way that heart disease and cancer have replaced infection as the leading causes of death, our achievements are tempered by the generation of a growing population of patients with chronic medical problems as a result of their critical illness: psychiatric disorders, profound neuromuscular weakness, endocrinopathy, malnutrition, increased vulnerability to infection, functional disability, and symptom distress. This study highlights the need for focused attention, follow-up, interventions, and research in the post-ICU period. These efforts should not only help individual patients manage their symptoms and comorbidities, but would hopefully have beneficial effects on both preventing

further disability and complications, as well as reducing health care costs through decreasing rates of utilization of acute care services such as recurrent hospitalizations and ED visits. ■

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ABSTRACT & COMMENTARY

A Guide to When and How to Stop CPR

By Betty T. Tran, MD, MSc, Editor

SYNOPSIS: In cardiopulmonary arrest situations, the mnemonic CEASE (Clinical features, Effectiveness, Ask, Stop, Explain), provides a guide for clinicians on how to discontinue resuscitative efforts and effectively communicate with other clinicians and families.

SOURCE: Torke AM, et al. CEASE: A guide for clinicians on how to stop resuscitation efforts. *Ann Am Thorac Soc* 2015;Feb 9 [Epub ahead of print].

Although health care providers undergo hours of training and recertification to provide resuscitative efforts for patients in cardiopulmonary arrest, few are given guidance in terms of when and how to stop it. On the basis of available clinical evidence and ethical principles, Torke and colleagues aimed to provide a framework by which clinicians can organize their thinking about when to discontinue resuscitative efforts, which includes communicating effectively with families. Their proposed guide is summarized by the mnemonic CEASE (clinical features that predict survival):

- Clinical features that predict survival: Knowledge of a patient's clinical history is critical, as pre-arrest factors such as age, metastatic cancer, poor functional status, renal insufficiency, hypotension, and non-cardiac diagnosis are associated with poor neurologic and/or survival outcomes.

- Effectiveness of resuscitation efforts: There is no standard decision aid to stop in-hospital resuscitation efforts, but the length of resuscitative efforts and the patient's physiological response in real time should be assessed as part of the decision to continue or stop resuscitative efforts. For example, initial ventricular fibrillation or pulseless ventricular tachycardia is associated with better outcomes than asystole or pulseless

electrical activity, and survival has been reported to be inversely proportional to resuscitation times.

- Ask the other clinicians present for input: Good communication among team members involved in the resuscitative effort is necessary to exchange relevant knowledge in real time; a collaborative, non-hierarchical environment should be the goal.

- Stop resuscitation efforts: It is the responsibility of the code leader to decide when to stop resuscitation efforts if the efforts are unsuccessful or the interventions needed to support circulation are unsustainable.

Although this is a clinical judgment based on objective as well as subjective information, it is important to note that it is a decision made by the team leader and not within the purview of the patient's family members.

- Explain to the family what has happened: At the end of the resuscitative efforts, the care team is obligated to inform family members what occurred, answer questions, and provide emotional support. This should be done compassionately and involve core skills that can be taught.

■ COMMENTARY

The article by Torke and colleagues provides an organized approach to discontinuing resuscitative

efforts in cardiopulmonary arrest situations. For clinicians who work in the critical care environment, the framework presented is intuitive, and done enough times, almost reflexive. In some situations, stopping CPR is not a difficult decision, especially if we know beforehand that it is unlikely to be beneficial (e.g., the patient with terminal illness who is unlikely to survive CPR, the patient admitted with septic shock who is already on maximum vasopressors). Ideally, resuscitative efforts would be avoided in these situations altogether, but this is dependent on various factors during goals of care discussions with patients and families. During the other times, resuscitative efforts may last longer, especially if we believe that the underlying cause can be reversed. Overall, I suspect many of us think through the clinical situation in our heads, view the resuscitative results and discuss with our colleagues in real time, and debrief with family afterwards, all of which

occur without having to consciously deliberate the individual steps.

On the other hand, this schema is probably most useful for physicians-in-training and other clinicians who have fewer encounters with critically ill patients and/or cardiopulmonary arrest situations. I have often witnessed residents excitedly lead code resuscitative efforts (with or without referencing their Advanced Cardiovascular Life Support pocket cards, which do not provide an endpoint), only to continue efforts to no end much to the discomfort of nursing and other ancillary staff. This is likely motivated by lack of experience, fear of stopping too soon, and as the authors note, “tremendous momentum to continue [advanced treatment interventions].” Although the CEASE mnemonic is not a decision rule to substitute for clinical judgment, it provides an organized approach to handling resuscitative efforts until more experience is gained. ■

ABSTRACT & COMMENTARY

Statins After an MI: Does it Happen?

By *Martin S. Lipsky, MD*

Adjunct Professor, Institute on Aging, School of Community Health, Portland State University; Dean Emeritus, University of Illinois College of Medicine, Rockford

Dr. Lipsky is a retained consultant for Health Solutions & Strategies.

SYNOPSIS: Following hospital discharge for a heart attack, the majority of Medicare patients do not get recommended high-intensity statin therapy.

SOURCE: Rosenson RS, Kent SJ et al. Underutilization of high-intensity statins therapy after hospitalization for coronary artery disease. *J Am Coll Cardiol* 2015;65:270-275.

Following a hospitalization for coronary heart disease (CHD) or acute coronary syndrome (ACS), randomized trials demonstrate that high-intensity atorvastatin is more effective than either placebo or low- to moderate-intensity therapy with either pravastatin or atorvastatin.¹⁻³ Based on this evidence, the American College of Cardiology and the American Heart Association guidelines recommend high-intensity therapy in cases of an acute cardiac event, and recommend therapy be initiated before discharge.

Previous studies indicate that more than 80% of patients receive a statin after a myocardial infarction (MI) or coronary revascularization.⁴⁻⁵ However, few studies examined the percentage of individuals who met guidelines and were prescribed and filled a script for high-intensity statins. One previous study

demonstrated that only about 1 in 3 patients filled a high-intensity statin script,⁶ and that the only correlation with taking a high-intensity statin after 1 year was being prescribed a high-intensity statin at discharge.

The authors used a random sample of Medicare beneficiaries between ages 65-74 who filled a statin script after being hospitalized for a MI or for bypass surgery from 2007-2009. Of the more than 8000 patients who filled a statin script, only 27% of the first post-discharge scripts were for a high-intensity statin such as 40-80 mg of atorvastatin or 80 mg of simvastatin. The percentage that filled a high-intensity statin post-discharge was 23.1%, 9.4%, and 80.7% for beneficiaries not taking statins pre-hospitalization, taking low- to moderate-intensity statins, and taking high-intensity before the CHD

event, respectively. Only 11.5% of beneficiaries whose first post-discharge statin fill was for a low- or moderate-intensity statin eventually filled a high-intensity statin within 365 days of discharge.

The authors conclude that the majority of Medicare beneficiaries do not fill high-intensity statin scripts after hospitalization for CHD.

■ COMMENTARY

Despite evidenced-based guidelines supporting the use of high-intensity statins in a high-risk population, Rosenson and colleagues found that only about 1 in 4 individuals hospitalized for a coronary event receive high-dose statins. To no great surprise, the greatest predictor of who fills a high-intensity statin was being on one before hospitalization. Even though one might argue that physicians are reluctant to use a high dose initially and prefer to titrate the dose up if tolerated, by years end, the percentage on high-intensity therapy only increased to about 35%. Unfortunately, the Medicare dataset used did not allow for an analysis of characteristics such as liver disease, dose intolerance, or renal disease that may account for such low compliance with the guidelines.

So why are doctors reluctant to use these medicines as recommended? One explanation may be that physicians are unaware of the recommendation, although physicians participating in the care of patients with MIs or bypass surgery likely would be familiar with this recommendation. It is possible that despite their physician's recommendation, patients might be reluctant to fill these scripts. However, in the face of a significant cardiac event, most patients will at least follow their physician's initial advice.

So what explains such a low level of compliance with a recommended guideline? It likely relates to concerns about the risk of using high-dose statins in an older population who are the most vulnerable to side effects. Statins may have gotten a bad rap early on, with some early studies reporting the risk of adverse effects as high as 20%; however, a recent Johns Hopkins study reviewing 20 years of research concluded that the risks linked to statins, including muscle toxicity, diabetes, and dementia, are very low and far outweighed by a statin's benefits. The authors found little evidence of significant myalgias and only a modest increase in myositis. Rhabdomyolysis was primarily associated with regimens that are no longer recommended. Regarding blood sugar elevations, this evidence-based review found only a modest increase in the

risk of type 2 diabetes with statins.

This association was found only among people with other risk factors for diabetes, raising the question of whether diabetes might have inevitably developed even without statin use. Another meta-analysis by Macedo et al found an increase in muscle complaints and creatine phosphokinase levels with statin use, but also concluded that the absolute excess risk of side effects with statins is very small compared to its beneficial effects in patients whose risks exceed a certain threshold of cardiovascular risk. The findings by Rosenson suggest that physicians might be underestimating the benefit:risk ratio for high-intensity statins in those with a coronary event.

So what is the take home message for the primary care physician? Consider reviewing how well you adhere to the guidelines regarding high-dose statin therapy. If you are not prescribing these medications as recommended, then perhaps the next step is to determine why not. If it is because of the concern about adverse effects, then I would encourage you to review the cited meta-analyses and decide if you agree with their assessments. If it is because you want to use the strategy in older patients of "start low, go slow," then consider a tracking system to allow you to remember to increase the dose in patients without significant side effects. ■

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CME QUESTIONS

1. In the study by Jones et al., both PCPs and hospitalists think that all of the following are barriers to smooth patient transitions from the inpatient to the outpatient setting except:
 - a. A lack of clarity as to which provider should follow up test results
 - b. A lack of time for communication
 - c. Difficulty finding the appropriate phone number for the appropriate doctor to discuss the case
 - d. A lack pertinent information in the discharge summary
 - e. A lack of personal relationship between PCPs and hospitalists
2. The study by Tilahun and colleagues suggests that using nasal screening for MRSA may help with de-escalation of antibiotics because the study showed:
 - a. A high positive predictive value for MRSA infection
 - b. A high negative predictive value for MRSA infection
 - c. Both a high positive predictive value and negative predictive value for MRSA infection
 - d. No potential benefit to MRSA nasal screening
3. In a study of Medicare beneficiaries by Rosenson, et al., what percentage of patients who were not previously on a statin filled a prescription for a high-intensity statin after hospitalization for a coronary heart disease event?
 - a. 7.5%
 - b. 23.1%
 - c. 68.2%
 - d. 80%

CME OBJECTIVES

Upon completion of this educational activity, participants should be able to:

- discuss pertinent safety, infection control and quality improvement practices;
- explain diagnosis and treatment of acute illness in the hospital setting; and;
- discuss current data on diagnostic and therapeutic modalities for common inpatient problems.

[IN FUTURE
ISSUES]

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