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Hospital Patient Safety News

Spring 2012

A Newsletter for Hospital Staff Participating in IPRO's Patient Safety Initiative

Welcome to the Spring 2012 quarterly issue of IPRO's *Hospital Patient Safety News.* In this newsletter, we present information on upcoming events, articles of interest and educational resources related to the Centers for Medicare & Medicaid Services (CMS) Healthcare Associated Infections (HAI) Prevention Initiative. If you have a best practice, tools, or resources that you would like for us to feature in a future issue, please forward the information to Teré Dickson, MD, MPH at tdickson@nyqio.sdps.org. Subscriptions to this newsletter can be requested by email to Susan Ulmer at sulmer@nyqio.sdps.org.

Your comments are valuable for improving our newsletter. Please share your input with us in this brief questionnaire: http://www.surveymonkey.com/s/YL2RZZG

Contents

News You Can Use

Effectiveness of Early Diagnosis, Prevention, and Treatment of *Clostridium difficile* Infection

December 2011. AHRQ's network of Evidence-based Practice Centers (EPCs) issued a Comparative Effectiveness Review (CER) on the diagnosis, treatment, and prevention of *Clostridium difficile* infections (CDI) in adult patients. The systematic review of 102 clinical studies published from December 1978 to August 2011 reveals:

- Limited comparative evidence on the use of immunoassays and genetic testing to recommend a change from current detection guidelines;
- Similar efficacy found for oral vancomycin, metronidazole, and fidaxomicin. Treatment with fidaxomicin did show lower recurrence rates when compared to vancomycin for patients infected with non-NAP1 strains of C. difficile. No difference was noted for patients with NAP1 strain.

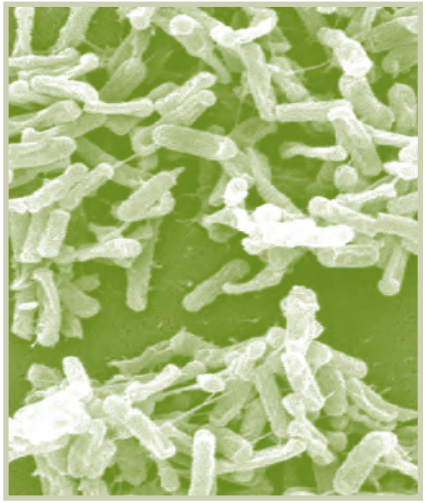

Image: Wikimedia Commons

The report (www.effectivehealthcare.ahrq.gov/index.cfm/search-for-guides-reviews-and-reports/?pageaction=displayproduct&productID=772&PCem=EN) is accompanied by clinician and consumer summaries, as well as a CME activity and faculty slides for clinicians.

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News You Can Use

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Catheter-Associated Urinary Tract Infection Prevention Falls Behind Other Anti-Infection Efforts

January 2012. *American Medical News* reported that less than half of hospitals are implementing practices aimed at reducing the incidence of catheter-associated urinary tract infections (CAUTIs), according to a study published in the *Journal of General Internal Medicine*. The study also showed that nearly all hospitals have taken action against other healthcare-associated infections, such as central-line associated blood-stream infections and ventilator-associated pneumonia. A key to preventing CAUTI, the most common nosocomial infection in the U.S., is to minimize catheter use. However, only 39 percent of hospitals surveyed said they use a portable bladder ultrasound scanner to measure urinary output as an alternative to catheterization. Similarly, less than half of the hospitals surveyed have implemented other prevention practices, such as antimicrobial urinary catheters, condom catheters for male patients, and automated reminders to remove catheters. Read more: www.ama-assn.org/amednews/2012/01/02/prsc0103.htm

FDA Approves Extended Use of Pneumococcal Conjugate Vaccine as a Single Dose to Adults 50 Years and Older

January 2012. Pneumococcal infections in adults over 50 years old account for over 300,000 hospitalizations per year and almost 200,000 emergency department visits. According to *Drug Topics,* the U.S. Food and Drug Administration (FDA) has approved Pneumococcal 13-valent Conjugate Vaccine [Diphtheria CRM197 Protein] (Prevnar 13®, Pfizer) as a single dose for use in adults aged 50 years and older. Prevnar® is indicated for the prevention of pneumococcal pneumonia and invasive disease caused by the 13 *Streptococcus pneumoniae* serotypes contained in the vaccine. Read more: www.modernmedicine.com/modernmedicine/article/articleDetail.jsp?id=754779. For more information on pneumococcal vaccination recommendations: www.cdc.gov/vaccines/vpd-vac/pneumo/default.htm. For patient information: www.healthfinder.gov/prevention/ViewTopic.aspx?topicID=23&cnt=1&areaID=0.

Patient Corner

WAVE Campaign

January 2012. The U.S. Department of Health and Human Services' Partnership for Patients launched a new campaign targeting patient families and caregivers. The Do The WAVE campaign helps educate consumers about healthcare-associated infections (HAIs) and what they can do to stay safe. The educational materials teach families to:

- **W**ash their hands before, during, and after visiting a healthcare facility,
- **A**sk questions,
- Stay up to date with **V**accines, and
- **E**nsure safety by avoiding contact with medical equipment.

Download the WAVE materials at www.healthcare.gov/compare/partnership-for-patients/resources/conditions.html#wave. To obtain printer-ready files for reprinting, e-mail OHQ@hhs.gov or ann.bradley@hhs.gov.

Go to http://productordering.cms.hhs.gov to order printed copies.

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CUSP Corner

The Comprehensive Unit-based Safety Program (CUSP) offers a variety of tools and techniques to help clinical teams identify and resolve patient safety issues at the unit level. The five-step program features a structured strategic framework for safety improvement that also empowers staff to take charge and address identified safety hazards. To learn more about CUSP visit: www.onthecuspstophai.org.

New AHRQ Report Shows Patient Safety Culture Strengths and Areas for Improvement in Hospitals

February 2012. Eighty percent of hospital staff feel there is strong teamwork within units, but only 45 percent of hospital staff have positive perceptions of handoffs and transitions across hospital units, according to a new report from the U.S. Agency for Healthcare Research and Quality (AHRQ). The sixth annual *Hospital Survey on Patient Safety Culture: 2012 User Comparative Database Report* analyzes the views of 567,703 hospital staff members from over 1,000 U.S. hospitals regarding patient safety issues, medical errors, and adverse event reporting. In addition to providing comparative data for various hospital characteristics, the report reveals trends in patient safety culture over time. The survey includes items that measure 12 areas of patient safety culture, including transitions, communication, feedback, continuous improvement and teamwork. The survey also asks staff members to grade the level of patient safety within their own units and to indicate the number of adverse events they reported during the past year. Read more: www.upi.com/Health_News/2012/02/01/Study-Hospital-safety-could-be-improved/UPI-45171328154553/. Access the full report: www.ahrq.gov/qual/hospsurvey12.

Improvement Project Uses Unit-based Clinical Leadership Teams to Reduce Infections

Updated January 2012. The University of Pennsylvania Health System utilizes unit-based clinical leadership teams to address quality improvement focus areas. These teams consist of physician and nurse leaders, quality/safety improvement specialists, and other relevant specialists to identify, develop, and implement unit-specific initiatives. These teams promote better communication between doctors and nurses, an enhanced sense of shared accountability for unit performance, and greater patient satisfaction. Between 2007 and 2008, participating units had 33 fewer central line-associated bloodstream infections (CLABSIs) compared to those units that did not adopt the clinical leadership model. Cost analysis revealed $330,000 in costs for programs with unit-based leadership teams, versus $477,200 in costs for units without these teams, yielding a savings of $147,200. As of May 2011, four units had sustained a rate of zero infections for over 1,000 days. Participating units have also experienced a 30% reduction in urinary tract infection (UTI) rates and the number of days between UTIs ranged between 95 and 380 days as of May 2011. Other benefits of the clinical leadership model included reduced occurrence of pressure ulcers, improved adherence to medication reconciliation standards, and increased reporting of errors and near-misses. To learn more about the unit-based clinical leadership model go to: www.innovations.ahrq.gov/content.aspx?id=2719.

Five Steps of CUSP

1. Educate staff on the Science of Safety
2. Identify defects in the system
3. Assign an executive to adopt unit
4. Learn from one defect per specified time period
5. Implement teamwork tools

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SPECIAL ARTICLE

The Power of Antimicrobial Stewardship

Kirk J. Kwaczala, PharmD Candidate, Albany College of Pharmacy and Health Sciences

Healthcare-associated antibiotic-resistant infections claim nearly 100,000 lives a year in the U.S. health care system, and cost $21 to $34 billion.[1] The emergence and transmission of antibiotic-resistant pathogens is mainly the result of excessive or inappropriate antibiotic usage. Antimicrobials account for as much as 30% of hospital pharmacy budgets, and the usage of these medications is inappropriate 50% of the time.[2] Judicious and effective antimicrobial therapy optimizes clinical outcomes while minimizing unintended consequences of antimicrobial use, including emergence of resistance, selection of pathogenic organisms, and toxicity. Secondarily, this effort should reduce health care costs without adversely impacting quality of care.[2] To meet these goals, hospital-wide coordination must take place, emphasizing the appropriate:

- selection,
- dosing,
- route of administration, and
- duration of antimicrobial therapy, collectively called antibiotic, or antimicrobial, stewardship.[1]

The institution of Antimicrobial Stewardship Programs (ASP) in health care facilities is highly recommended by the Centers for Disease Control and Prevention (CDC), the Infectious Diseases Society of America (IDSA), and other prominent organizations.[2,3] The CDC has launched a campaign specifically focused on improving antimicrobial use in inpatient settings, called *Get Smart for Healthcare*.[3] The IDSA along with the Society for Healthcare Epidemiology of America have developed guidelines in helping create and/or enhance a hospital-based ASP.[2] Two core strategies recommended as foundations of a program are prospective audit with intervention or feedback, and formulary restriction and pre-authorization. These are not mutually exclusive and should be combined with education, antimicrobial cycling, parenteral to oral conversion, and other strategies, which are delineated in the guidelines.[2]

ASPs and other interventions have been demonstrated to:

- improve patient outcomes,
- reduce the burden of antibiotic resistance, and
- save healthcare dollars.

In 2010, Ohio State University Medical Center published results of a study looking at the impact of a newly introduced component in their ASP. To optimize antibiotic selection in patients with *Staphylococcus aureus* bacteremia, a rapid polymerase chain reaction (rPCR) blood culture test was implemented and compared to clinical and economic outcomes pre-rPCR usage. Researchers concluded that this one element of their program decreased hospital length of stay by an average of 6.2 days and lowered hospital cost by over $21,000 per patient in this population.[4] Positive results from a successful ASP have been demonstrated at the University of Kentucky Chandler Medical Center, which utilized a formulary restriction and pre-authorization approach. From 1998-2002, the resistant rates of MRSA and multi-drug resistant *P. aeruginosa* declined and antimicrobial expenditures decreased by over $600,000.[5] Antibiotic exposure is the single most important risk factor for developing a *Clostridium difficile* infection (CDI).[3] A study conducted by the CDC in a community hospital showed an absolute reduction of 22% for hospital-onset CDI caused by an epidemic strain after a 5-month restriction of fluoroquinolones was put into place.[6] A medical center in Quebec, Canada implemented a multipronged infection control approach to curtail the rate of CDI over a five-year period. Researchers were able to reduce the number of cases from 762 per 1,000 patients to 292 per 1,000 patients, a 61% decrease, from 2002 to 2007.[7] Even smaller hospitals can benefit greatly from ASPs, as shown from the findings for a 120-bed community hospital that employed a prospective audit with intervention or feedback strategy. In 2000, $177,000 was saved from decreased antibiotic costs, and although clinical outcomes were not tracked, no adverse events were reported in connection with the program.[8]

An optimal ASP team includes:

- infectious disease physicians,
- clinical pharmacists with infectious disease training,
- a clinical microbiologist,
- an information system specialist,
- an infection control professional, and
- a hospital epidemiologist.

Although many community hospitals may not have access to all the members of an optimal team, any combination of personnel listed in Table 1 would have positive influence on the goals of an ASP.

With the decreased emergence of new antimicrobial therapies, the importance of efficiently utilizing current treatments has never been greater. Antimicrobial stewardship is a public health imperative that all health-care facilities should engage in to improve quality of patient care and decrease costs.

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The Power of Antimicrobial Stewardship

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Table 1: Practical considerations for potential antimicrobial stewardship team resources[9]

Ideal Resources	Potential Alternative Resources
Infectious Diseases (ID) physician	Other "physician champion" • Staff physician with ID interest • P&T chair or committee member • Local thought/practice leader • Physician groups who frequently prescribe antimicrobials Residents/fellows
ID pharmacist	Non-ID-trained clinical pharmacist Staff pharmacists Residents/students Working director of pharmacy
Clinical microbiologist	Microbiology laboratory technician Pathologist
Infection control coordinator	Nursing staff Patient safety representative
Information system specialist	Information systems staff Commercial data-mining programs

References:

1. Martin C, Goff DA, Karam GH, Dombrowski SR, DeChant R. Implementing Antibiotic Stewardship Programs in Health Systems [Internet]. 2011 [cited 2012 Feb 21]. Available from: www.leadstewardship.org.
2. Dellit TH, Owens RC, McGowan, Jr. JE, et al. Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship. Clin Infect Dis. 2007 Jan 15;44(2):159-77.
3. CDC Get Smart for Healthcare: Why Inpatient Stewardship? [Internet]. 2010 [cited 2012 Feb 21]. Available from: www.cdc.gov/getsmart/healthcare/inpatient-stewardship.html.
4. Bauer KA, West JE, Balada-Llasat JM, Pancholi P, Stevenson KB, Goff DA. An antimicrobial stewardship program's impact with rapid polymerase chain reaction methicillin-resistant Staphylococcus aureus/S. aureus blood culture test in patients with S. aureus bacteremia. Clin Infect Dis. 2010 Nov 1;51(9):1074-80.
5. Martin C, Ofotokun I, Rapp R, et al. Results of an antimicrobial control program at a university hospital. *Am J Health Syst Pharm*. 2005;62(7):732-38.
6. Kallen AJ, Thompson A, Ristaino P, et al. Complete restriction of fluoroquinolone use to control an outbreak of Clostridium difficile infection at a community hospital. Infect Control Hosp Epidemiol. 2009 Mar; 30(3):264-72.
7. Weiss K, Boisvert A, Chagnon M, et al. Multipronged intervention strategy to control an outbreak of Clostridium difficile infection (CDI) and its impact on the rates of CDI from 2002 to 2007. Infect Control Hosp Epidemiol. 2009 Feb;30(2):156-62.
8. LaRocco A Jr. Concurrent Antibiotic Review Programs-A Role for Infectious Diseases Specialists at Small Community Hospitals. Clin Infect Dis. 2003 Sep 1;37(5):742-3.
9. Patel D and MacDougall C. How to make antimicrobial stewardship work: practical considerations for hospitals of all sizes. Hosp Pharm. 2010 Nov;45(11 Suppl 1):S10-S18.

Antimicrobial Stewardship Program Resources

- Centers for Disease Control and Prevention: www.cdc.gov
- Infectious Diseases Society of America: www.idsociety.org
- Society for Healthcare Epidemiology of America: www.shea-online.org
- Society of Infectious Disease Pharmacists: www.sidp.org

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Small Steps to Success

Reduction of Catheter-associated Urinary Tract Infections among Patients in a Neurological Intensive Care Unit: a Single Institution's Success

January 2012. The *Journal of Neurosurgery* published an article detailing a single-center prospective study at Shands Hospital at the University of Florida, Gainesville. The study demonstrated a reduction in catheter-associated urinary tract infections (CAUTI) in a neurological intensive care unit (neuro ICU), using a combined comprehensive UTI prevention bundle with a continuous quality improvement project. The study included patients admitted to the neuro ICU between August 2008 and December 2010, excluding patients with CAUTIs occurring less than 48 hours after admission. CAUTIs were categorized according to the National Healthcare Safety Network (NHSN) criteria. The intervention team developed an evidence-based UTI bundle and best practices in addition to a multidisciplinary team approach using the FADE2 method (focus, analyze, develop, execute, and evaluate) in order to reduce utilization of Foley catheters and subsequent CAUTIs. Best practices included:

- avoidance of insertion,
- product standardization,
- maintenance of catheter sterility, and
- promotion of timely removal of catheters.

Best practices were programmed into default order sets along with monthly physician compliance reports and updates on current infections and targets. Required online education modules for nursing competency evaluation were implemented as well as competency demonstration of sterile insertion technique. The multidisciplinary neuro ICU infection prevention team met continuously to perform root cause analysis to review adherence to best practices and implementation barriers and to influence policy modifications. The results revealed a nearly 30% drop in urinary catheter utilization rates, without an increase in skin breakdown rates. CAUTIs decreased from 13.3 to 4.0 infections per 1,000 catheter days. Cost analysis showed an estimated savings between $6,800 and $10,200 over the two year period. The abstract is available: http://thejns.org/doi/abs/10.3171/2011.11.JNS11974?prevSearch=&searchHistoryKey=

Hospital Patient Safety News welcomes stories from our readers. If you have a success story you would like to share in our newsletter, please contact Teré Dickson, MD, MPH at tdickson@nyqio.sdps.org.

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Healthcare Associated Infections and Patient Safety Research

Meddings, J., and Saint, S. (2011). "Disrupting the life cycle of the urinary catheter." (AHRQ grant HS19767). *Clinical Infectious Diseases* 52(11), pp. 1291-1293.

Tackling unnecessary urinary catheter use is the most important goal in preventing catheter-associated urinary tract infection. However, kicking the catheter habit can be difficult. The authors discuss an article by Knoll, et al. in this issue describing a 5-year hospital-wide "catheter quit program," which is similar in its successes and challenges to aspects of other habit-changing programs such as treating addiction to tobacco.

Schiff, G.D., Galanter, W.L., Duhig, J., and others (2011, July). "Principles of conservative prescribing." (AHRQ grant HS16973). *Archives of Internal Medicine* 171(16), pp. 1433-1440.

Prescribing is often driven by pharmaceutical marketing and by patients requesting drugs that are heavily promoted via advertising. To counterbalance these prescribing pressures, the authors (physicians, pharmacists, and educators) have identified principles for safer and more evidence-based prescribing.

Rattanaumpawan, P., Tolomeo, P., Bilker, W.B., and Lautenbach, E. (2011). "A clinical prediction rule for fluoroquinolone resistance in healthcare-acquired gram-negative urinary tract infection." (AHRQ grant HS10399). *Infection Control and Hospital Epidemiology* 32(11), pp. 1125-1126.

Development of a clinical prediction score to identify those patients who are most likely to be infected with a fluoroquinolone-resistant gram negative urinary tract infection would be useful for optimizing empirical antibiotic therapy. The researchers developed a clinical prediction rule which they believe is a promising tool and provides the opportunity to optimize therapy for this condition.

Sexton, J.B., Berenholtz, S.M., Goeschel, C.A., and others (2011). "Assessing and improving safety climate in a large cohort of intensive care units." (AHRQ grant HS14246). *Critical Care Medicine* 39(5), pp. 934-939.

This study evaluated the impact of a comprehensive unit-based safety program (CUSP) on safety climate in a large cohort of intensive care units across the State of Michigan. Over a 2-year period (2004-2006), mean safety climate scores significantly improved from 42.5 percent to 52.2 percent. Five of seven safety climate items significantly improved in this period.

Weingart, S.N., Zhu, J., Chiapetta, L., and others (2011). "Hospitalized patients' participation and its impact on quality of care and patient safety." (AHRQ grant HS17950). *International Journal for Quality in Health Care* 23(30), pp. 269-277.

Researchers examined the nature and extent of patient participation and its impact on care by conducting a multi-faceted study of patient safety in U.S. acute care hospitals. They found that most hospitalized patients participated in some aspects of their care, such as assessment of overall quality and identification of adverse events. Participation was strongly correlated with favorable judgments about l quality and was shown to reduce the risk of adverse events.

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Upcoming Events

IPRO WebEx Schedule

Monday, April 9 • 1:00PM EST: **A Hospital's Experience using CUSP**

Tuesday, June 12 • 1:00PM EST: **Use of Central Lines in Dialysis Units**

Tuesday, July 10 • 1:00PM EST: **Antimicrobial Stewardship**

Learning and Action Network Meetings (Times are approximate)

Tuesday, May 1 • 8:30AM–1:00PM EST: New Yorker Hotel, Manhattan, NY

Thursday, May 3 • 8:30AM–1:00PM EST: Rome Memorial Hospital, Rome, NY

On the CUSP Webinars

www.onthecuspstophai.org/stop-bsi/learning-sessions/national-content-and-supplemental-calls/

Tuesday, April 10 • 2:00PM EST: Closing Out Cohorts: How to Keep Units Mindful After CUSP/CLABSI Ends

Tuesday, April 17 • 2:00PM EST: A Recipe for Success: Why Nurse Leadership & Empowerment is Key to Sustaining CUSP

Tuesday, May 8 • 2:00PM EST: Sustaining Zero CLABSIs

Tuesday, May 15 • 2:00PM EST: CUSP Toolkit: How to Use the Facilitator Notes

Tuesday, June 12 • 2:00PM EST: Staff Engagement: How Leveraging CUSP Improves Staff Engagement and Communication Leading to an Improved Health Care Team and Patient Experience

Tuesday, June 19 • 2:00 PM EST: Special Needs of NICUs

IPRO 28th Annual Meeting and Quality Awards Presentations

Tuesday, June 5 • 2:00PM EST: LaGuardia Marriot, East Elmhurst, NY
To register, visit www.ipro.org/annualmeeting or call Susan Ulmer at (516) 209-5258

Conferences of Interest

April 13–16: **Advancing Healthcare Epidemiology and Antimicrobial Stewardship**
The Society for Healthcare Epidemiologists of America (SHEA)
Jacksonville, FL
http://shea2012.org/

April 18–May 3: **Infusion Nurses Society Annual Convention and Industrial Exhibition**
Infusion Nurses Society
Las Vegas, NV
https://www.eiseverywhere.com/ehome/25144/

May 15–18: **11th Annual Lean Six Sigma and Process Improvement in Healthcare Summit 2012**
Worldwide Conventions and Business Forums
New Orleans, LA
www.wcbf.com/quality/5109/

June 4-6: **Infection Prevention: Improving Outcomes, Saving Lives**
39th Annual Educational Conference & International Meeting
Association for Professionals in Infection Control and Epidemiology, Inc. (APIC)
San Antonio, TX
www.apic.org/Content/NavigationMenu/Education/APIC2012/APIC_2012.htm

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About IPRO

Through its work as the Medicare Quality Improvement Organization for New York State, IPRO targets the quality of healthcare provided to the State's more than three million Medicare beneficiaries. A not-for-profit, independent organization, IPRO supports providers across the state with evidence-based, clinical interventions and objective expertise to improve healthcare processes and patient care.

For more information about IPRO, please visit www.ipro.org.

The Hospital Patient Safety Staff at IPRO

Karline Roberts, MA, Director of Hospital Projects
kroberts@nyqio.sdps.org

Teré Dickson, MD, MPH, Medical Officer
tdickson@nyqio.sdps.org

Bill Gardiner, CPHQ, Senior Quality Improvement Specialist
wgardiner@nyqio.sdps.org

Chad Wagoner, MPH, Quality Improvement Specialist
cwagoner@nyqio.sdps.org

Crystal Isaacs, MPH, Quality Improvement Specialist
cisaacs@nyqio.sdps.org

Corporate Headquarters
1979 Marcus Avenue
Lake Success, NY 11042-1072
(516) 326-7767
www.ipro.org

Regional Office
20 Corporate Woods Blvd.
Albany, NY 12211-2370
(518) 426-3300
www.ipro.org

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