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EMPIRIC ANTIMICROBIAL GUIDELINES (ADULT) FOR THE EMERGENCY DEPARTMENT

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Overview:
The main goal of this project is to develop and implement unified empiric antimicrobial guidelines for adult patients in the Emergency Department (ED). Because culture results are often unavailable during the initial assessment, clinicians must rely on early empiric therapy to ensure that patients receive safe and timely treatment. Baseline reviews revealed significant variation in prescribing practices, delays in selecting the most appropriate therapy, and inconsistent adherence to antimicrobial stewardship principles. Together, these issues increase the risk of preventable harm and contribute to the rise of antimicrobial resistance.
The guideline fills in these gaps by bringing together clear, evidence-based advice for the most common infectious diseases seen in the ED, such as skin and soft tissue infections, respiratoryinfections, urinary and abdominal infections, sepsis, meningitis, endocarditis, and febrile neutropenia.
The guidelines are aligned with national, international, and local standards. The guideline incorporates the hospital's antibiogram and accounts for important patient factors—such as allergies, pregnancy, and comorbidities—to ensure antimicrobial choices are safe, individualized, and clinically appropriate. Because emergency care is fast-paced, the guideline transforms complex clinical pathways into practical bedside tools, including structured tables, dosing charts, and simplified decision algorithms. Each section clearly outlines first-line and alternative empiric regimens, along with dosing and treatment-duration recommendations, helping clinicians make quick, confident decisions.
This project enhances patient safety and supports antimicrobial stewardship by standardizing antibiotic prescribing, reducing unnecessary broad-spectrum use, and helping clinicians start targeted therapy earlier. These improvements not only raise the overall quality and reliability of care but also reduce the risk of complications and promote more efficient, cost-effective antimicrobial use.
Emergency Medicine, Infectious Diseases, Pharmacy Services, Nursing Quality, and QIPS leadership all worked closely together to develop this guideline. Bringing together experts from different fields helped ensure that the recommendations are clinically accurate, practical to implement, and well-suited for long-term use in everyday ED practice.

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Detailed Description:
This project centers on developing and implementing comprehensive, standardized Empiric Antimicrobial Guidelines for adult patients in the Emergency Department (ED). Because treatment in the ED often begins before culture results are available, clinicians depend heavily on evidence-based empiric therapy to ensure that care is delivered quickly, safely, and effectively. Early assessments revealed considerable variation in prescribing habits, frequent use of broad-spectrum antibiotics, and inconsistent adherence to existing recommendations—factors that contribute to preventable complications, rising antimicrobial resistance, and uneven clinical outcomes.

To close these gaps, the project brings together national, international, and institutional best-practice recommendations into one unified guideline designed for the fast-paced environment of the Emergency Department and tailored to local antibiogram trends. The guideline covers all major infectious presentations—such as skin and soft tissue infections, respiratory infections, urinary and abdominal infections, sepsis, meningitis, endocarditis, and febrile neutropenia. It offers clear first-line and alternative empiric options, along with structured dosing pathways and recommended treatment durations. Each recommendation is thoughtfully tailored to important patient factors—Each recommendation is carefully adjusted to account for key patient factors—such as allergies, pregnancy, and underlying health conditions—so that the chosen treatment is safe, personalized, and guided by strong clinical evidence.

This streamlined design helps clinicians make quicker, more confident decisions and supports the delivery of evidence-based care, even in the busy and fast-paced environment of the Emergency Department.
The project adopts the FOCU–PDCA improvement methodology.

FOCU Phase:
The team began by reviewing current workflows and identifying the main gaps affecting antimicrobial prescribing. These challenges included limited awareness of the guideline, no real-time pharmacy oversight, and inconsistent documentation. To tackle these issues, a multidisciplinary team was formed—bringing together ED physicians, clinical pharmacists (ASP), infection control specialists, QIPS leaders, and nursing representatives—to ensure a well-rounded and collaborative approach.

PDCA Phase:
The improvement phase focused on simple, high-impact steps. All ED physicians received mandatory training, visual antimicrobial posters were introduced, and the updated guideline was shared across the department. An electronic HIS alert was added to flag off-guidelineprescriptions, helping clinicians adjust treatment in real time. Weekly pharmacy audits and feedback further supported good stewardship and consistent practice.

To measure progress, the team tracked key indicators such as adherence to the guideline, training completion, alert activation, and regular QIPS reporting.

Balance measures—such as clinician satisfaction and workflow impact—were monitored to confirm that these improvements were feasible and sustainable.

The project is expected to reduce inappropriate prescribing, increase consistency in care, and reinforce antimicrobial stewardship principles. It also strengthens collaboration between ED physicians and pharmacists, which in turn improves patient safety, streamlines workflow, supports more cost-effective antibiotic use, and helps prevent the development of resistance.

To ensure long-term success, the guideline will be fully incorporated into everyday practice once adherence becomes consistent. If performance begins to drop at any point, targeted steps—such as refresher training, improving the alert system, or carrying out focused audits—will be put in place to keep antimicrobial prescribing safe and reliable.

Topic Alignment :
This project addresses one of the most pressing patient safety challenges worldwide:
antimicrobial resistance. Emergency Departments work under constant pressure, where clinicians often must make rapid decisions with limited diagnostic information.

As the guideline shows, inconsistent empiric antibiotic prescribing can lead to preventable harm, slower recovery, longer hospital stays, and the emergence of resistant organisms.

By standardizing empiric antimicrobial therapy using evidence-based, locally adapted recommendations, the project greatly enhances patient safety and reduces unnecessary variationin practice. It improves the appropriateness of antimicrobial selection, decreases medication-related errors, and directly supports national antimicrobial stewardship goals—key components of modern patient safety frameworks.

In addition, the project strengthens multidisciplinary collaboration among ED physicians, clinical pharmacists, nursing teams, and quality leaders.

This collaborative approach is vital for maintaining safe prescribing practices and ensuring a reliable, stewardship-aligned system of care.

The use of HIS electronic alerts, clear dosing guidance, and ongoing pharmacy review plays a major role in improving the safety of care. These measures help prevent unnecessary antimicrobial use and support more thoughtful, responsible prescribing. Altogether, they reflect practices that are closely aligned with national patient safety standards.

Impact :
This project has the potential to make a real, positive difference in patient care by ensuring that antimicrobial therapy is provided both promptly and accurately. With the current adherence rate at 55.8%, it's clear that there is a valuable opportunity to enhance the way antibiotics are prescribed. By supporting clinicians in following standardized guidelines more consistently, reducing unnecessary use of broad-spectrum antibiotics, and improving dosing accuracy for common infections, the project aims to provide care that is safer, more dependable, and truly grounded in the best available evidence.
These improvements are also expected to make the daily workflow in the Emergency Department smoother and more efficient. When clinical practice becomes more unified and predictable, decision-making naturally becomes smoother and better coordinated—especially between emergency physicians and clinical pharmacists. As we work toward raising adherence to 85% through focused interventions and ongoing monitoring, the confidence and consistency behind treatment decisions are expected to grow even further.

More broadly, this project helps slow the rise of antimicrobial resistance and supports the goals of the Antimicrobial Stewardship Program. By guiding clinicians toward the most appropriate therapy from the very beginning, it reduces avoidable risks, promotes more thoughtful and responsible use of healthcare resources, and helps build a strong, lasting culture of patient safety throughout the Emergency Department.

Sustainability Plan:
Sustainability is ensured by making the guideline a fully integrated part of everyday ED workflow.

These consist of real-time use of HIS-based pop-up alerts to direct prescribers, weekly clinical pharmacy audits, regular training refreshers, and continuous QIPS monitoring. If adherence levels are ≥85%, then the guideline will be formalized into an official departmental policy. If performance begins to decline, the sustainability plan calls for targeted actions such as focused retraining, more frequent audits, and system adjustments to help reinforce compliance. With continued oversight from the multidisciplinary team, the project can remain reliable over time, fully adopted across the department, and consistently aligned with antimicrobial stewardship goals.

Value & Innovation :
This project delivers meaningful value by introducing an antimicrobial guideline built specifically for the Emergency Department and adapted to local resistance patterns and real-time clinical needs. It brings forward several practical innovations, such as electronic alerts in the HIS thatguide clinicians at the point of care, clear visual decision-support tools, simplified dosing pathways, and a standardized approach that moves prescribing away from individual variation toward consistent, evidence-based practice. These features make antimicrobial decisions faster, safer, and more reliable for both clinicians and patients. Together, these enhancements make daily workflow more efficient, strengthen antimicrobial stewardship, lower the risk of medication errors, and support a high-reliability model of care through technology, structured monitoring, and strong multidisciplinary collaboration.

Engagement :
This project is strengthened by the close collaboration of everyone involved in emergency care. Emergency physicians are deeply engaged—they attend structured training sessions, use the guideline in their daily decisions, and share valuable insights from the bedside that help refine the process. Clinical pharmacists, through the Antimicrobial Stewardship Program (ASP), also play a major role. They help fine-tune the guideline, keep an eye on adherence, and offer ongoing support to the team.

Nursing teams play an important role by ensuring accurate data collection and supporting improvements in documentation practices. The Quality Improvement and Patient Safety (QIPS) team guides the improvement approach, follows progress closely, and makes sure the project stays aligned with the hospital's goals.

The IT Department has been essential in creating and optimizing the electronic alert system within the hospital information system (HIS), ensuring it works smoothly for frontline staff. At the same time, the ID team makes sure that stewardship principles are built into every step and that all regulatory requirements are met.