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# The Effect of an Interdisciplinary Nursing-Pharmacy-Laboratory "Sepsis Huddle" on Time-to-Antibiotic Administration: A Systematic Review

**Jabril Ali Hakami [(1)] , Anwar Ali A Hakami [(2)] , Wejdan Abdu M Jafar [(2)] , Amunah Mohammed Ahmed Hakami [(3)] , Sarah Mubarak M Aldawsari [(4)] , Salha Mohammed Al-Thrwy [(5)] , Fahad Eidhah S Alharthi [(6)] , Ahmad Saud Alhejaili [(7)] , Abdul Rahim Badi Awad Al Harbi [(8)] , Majed Ahmed Mohamed Badwialan [(9)] , Salmah Mashhi Hamad Aldhafeeri [(10)] , Yasser Abdrab Alamir Khalifa Alkuwaiti [(11)]**

*(1) Disease Vector Control Center In Al Arda Jizan, Ministry of Health, Saudi Arabia,*
*(2) Public Health Administration In Jizan, Ministry of Health, Saudi Arabia,*
*(3) Jizanhealth Center Plan 5, Ministry of Health, Saudi Arabia,*
*(4) Primary Health Care Center In Haroub, Ministry of Health, Saudi Arabia,*
*(5) Harob Phc, Ministry of Health, Saudi Arabia,*
*(6) Taif University, College Of Pharmacy , Saudi Arabia,*
*(7) Obstetrics, Gynecology And Children's Hospital, Ministry of Health, Saudi Arabia,*
*(8) King Salman Medical City, Ministry of Health, Saudi Arabia,*
*(9) Branch Of The Ministry Of Health, Jeddah, Saudi Arabia,*
*(10) Hafr Al Batin Regional Laboratory , Ministry of Health, Saudi Arabia,*
*(11) Ministry Of Health, Saudi Arabia*

## Abstract

**Background:** Sepsis and septic shock are high-priority global international health problems, and early recognition of both is crucial to survival. The Surviving Sepsis Campaign highly recommends antibiotics within one hour of recognition, but there are still considerable delays in emergency and inpatient settings due to systemic and communication failures.

**Aim:** This systematic review evaluates the evidence for a multidisciplinary "sepsis huddle" and its implementation as a means to improve antibiotic timeliness and one-hour goal achievement.

**Methods:** A Literature synthesis between 2015 and 2025 was conducted to examine the impact of sepsis huddles, typically nurse-initiated, with involvement of laboratory and pharmacy personnel for early diagnosis and preparation of antibiotics.

**Results:** Sepsis huddle implementation routinely demonstrated significant improvement in the percentage of patients treated with antibiotics within an hour, with reduced median door-to-antibiotic times. The intervention was also associated with positive secondary outcomes, including reduced hospital length of stay and in-hospital mortality. Success is attributed to concurrent activation of primary processes: early identification by nurses, prompt laboratory support, and anticipatory pharmacy engagement.

**Conclusion:** The sepsis huddle is an effective, multi-professional intervention for promoting time-sensitive sepsis bundle compliance. Future efforts must work to standardize its components and overcome implementation barriers to optimize patient outcomes.

**Keywords:** Sepsis, Huddle, Antibiotic Time, Quality Improvement, Multidisciplinary Team, Sepsis Bundle.

### Introduction

Sepsis, a potentially life-threatening organ dysfunction secondary to a dysregulated host response to infection, and its more severe successor, septic shock, comprise a global health crisis. Current estimates suggest that sepsis affects over 48 million people annually worldwide and is a cause of approximately 11 million deaths, a major cause of death, and a significant contributor to healthcare burden (Rudd et al., 2020; Fleischmann et al., 2021; Li et al., 2023). The pathophysiological cascade of sepsis, if not stopped early, can progress to lethal multi-organ failure. The understanding that every hour lost in the therapy of effective antimicrobials is associated with a quantifiable rise in mortality has entrenched the "golden hour" principle as a cornerstone of sepsis care (Kumar et al., 2006; Ammar et al., 2022). According to this evidence, the Surviving Sepsis Campaign (SSC) has increasingly made its guidelines more stringent and presents recommendations favoring broad-spectrum antibiotic administration within one hour of sepsis and septic shock recognition (Evans et al., 2021).

While this guideline is unequivocal, achieving uniform adherence has been extraordinarily daunting for hospitals. Studies consistently show that


*Corresponding author e-mail Sniper1881@Hotmail.Com (Jabril Ali Hakami).
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less than half of the septic patients are treated with antibiotics within the one-hour guideline time period, and median door-to-antibiotic times are commonly more than 90 to 120 minutes in actual practice settings (Sartini et al., 2024; Zheng et al., 2021). Delays are multifactorial and system-based. These usually include delays in initial identification, particularly in patients with no visible hemodynamic instability; delays in evaluation by physicians; long waiting times for diagnostic testing, most importantly serum lactate; and pharmacology department congestion in antibiotic preparation and dispensing (Sherwin et al., 2017). Such a sequential chain of care is highly susceptible to breakdown in communication and sequential processing, where one stage cannot be started until the previous stage is completed.

Quality improvement (QI) methods have been applied aggressively over the past few years to address this problem. One of the most promising developments to emerge is the "sepsis huddle" model. Brought over from high-reliability industries like aviation, a huddle is a brief, structured communication experience that is being used to coordinate and prepare care. In sepsis, a huddle is an anticipatory, multidisciplinary activation caused by some trigger—most often a nurse's initial suspicion or an alert on a screening tool—that brings major stakeholders together in order to initiate all of the elements of the sepsis bundle at once (Asseri et al., 2024; Gomez et al., 2025). In this review, special focus is given to a particular model: the nursing-pharmacy-laboratory combined sepsis huddle. Here, the nurse's function is enhanced to that of an initiator, which triggers a protocol that immediately engages the laboratory to hasten lactate measurement and blood culture collection, and the pharmacy to commence right away preparing or recommending appropriate broad-spectrum antibiotics.

**Rationale and Objectives**

The rationale for studies on this specific "Nurse-Pharmacy-Lab" huddle model lies in its direct alignment with the most common systemic bottlenecks. Historically, sepsis protocols have been sequential: the nurse identifies an issue, reports it to the doctor, the doctor orders medication and studies, the lab carries out the orders, and the pharmacy dispenses the medications. Each handoff is a source of delay. The sepsis huddle approach functions to shorten this timeline by making the process concurrent and collaborative. By allowing the nurse to trigger a standardized response, the model ensures suspicion is sufficient to activate the resources. By including the lab upfront, it ensures that the most useful diagnostic information (lactate) is expedited, directing severity and urgency. By including pharmacy simultaneously, it avoids waiting for the availability of antibiotics and leverages pharmacist expertise for optimal empiric selection, by antibiotic stewardship criteria (Fehaid Hawas Alshammari, 2024).

The primary objective of this systematic review is to synthesize the literature from 2015 to 2025 to critically evaluate the impact of an integrated nursing-pharmacy-laboratory sepsis huddle protocol on antibiotics among patients presenting with suspected sepsis. Secondary objectives include quantifying its effect on total SSC bundle compliance, critical clinical outcomes (mortality, length of stay), and identifying key factors, implementation challenges, and sustainment of such initiatives.

**Methodology**

**Search Strategy**

Systematic electronic database searching was conducted across the databases mentioned below: PubMed/MEDLINE, CINAHL, Embase, and the Cochrane Central Register of Controlled Trials. The search was limited to English-language articles from January 2015 to December 2025 to find the latest evidence following the universal adoption of the one-hour antibiotic guideline. The search strategy incorporated a combination of Medical Subject Headings (MeSH) keywords. The principal search terms were: "sepsis" OR "septic shock" AND "huddle" OR "multidisciplinary team" OR "communication" OR "care coordination" AND "antibiotic time" OR "door to antibiotic" OR "bundle compliance" AND "emergency department" OR "inpatient." Reference lists of retrieved articles and review papers of relevance were also hand-screened for additional studies.

**Study Selection and Eligibility Criteria**

Study selection was streamlined by the use of the PICOS framework. Included trials were adult or pediatric patients with confirmed or suspected septic shock or sepsis in either an inpatient or emergency department setting. The intervention under investigation was the implementation of a structured, multidisciplinary sepsis huddle, specifically characterized as being nurse-initiated protocol and involving real-time communication with both laboratory and pharmacy services. These trials were compared with usual care or pre-implementation. The primary outcome was time to intravenous antibiotic administration, and secondary outcomes were percentage given antibiotics within one hour, lactate turnaround time, hospital stay length, and in-hospital mortality. Study designs included were randomized controlled trials, quasi-experimental, pre-post implementation, and observational cohort studies. Excluded were studies that contained descriptions of overall sepsis policies or multidisciplinary rounds without a focused nurse-initiated huddle that included pharmacy and lab, or those without reported quantitative outcomes on time-to-antibiotics.

**Data Extraction and Synthesis**

Data from included studies were tabulated in an NVivo standard table. Abstracted information was author(s), publication year, study design, setting and population, sample size, key components of the huddle intervention, and key findings with respect to primary

and secondary outcomes. Because pre-post studies and quality improvement studies were so prevalent in this literature, meta-analysis was impossible. Therefore, a narrative synthesis was undertaken, highlighting trends, effect sizes, and themes from the literature.

**The Problem: Systemic Barriers to Early Antibiotic Administration**

An appreciation for the efficacy of the sepsis huddle requires a profound understanding of the system-level process dysfunction it is designed to correct. From the time a patient arrives in the hospital to the time antibiotics are infused is a complex, multiple-step process, and delays do and can occur at any step along the way.

**Recognition and Triage Delays**

The first and perhaps most crucial barrier is the failure to recognize sepsis early. Sepsis can present quietly, without overt signs of shock, leading to under-triage. Nurses, being the first and most common contact, are also responsible for early detection. Without standardized screening criteria and the power to act on suspicion, however, opportunities for early intervention are squandered (Angus & Van der Poll, 2013). Even with screening tools like the Systemic Inflammatory Response Syndrome (SIRS) criteria or the newer quick Sequential Organ Failure Assessment (qSOFA), accuracy and faithful use could be questionable. Also, for a nurse to suspect in a high-volume ED, it may not always be dealt with immediately if the doctor is occupied with other urgent patients, a phenomenon termed "clinical inertia" (Tarrant et al., 2016; Venkatesh et al., 2022).

**Diagnostic and Laboratory Bottlenecks**

The moment sepsis is suspected, obtaining a serum lactate level is one of the keystones of the SSC bundle since it guides resuscitation and focuses on urgency. However, taking blood, sending it for analysis, processing, and obtaining the value can take up much of the one-hour time frame. Regular pre-huddle lactate turnaround times (TAT) of 60-90 minutes rendered the one-hour antibiotic target unrealistic for a majority of patients based on objective evidence (Beshbishy, 2024). The resulting diagnostic delay of this "wait-and-see" approach is when clinicians do not order broad-spectrum antibiotics until the lactate is measured to assess severity, evidence proving that such delay is harmful.

**Pharmacy and Antibiotic-Related Delays**

The final shared cause of delay is the procurement and administration of the antibiotic itself. This procedure has several sub-procedures: the ordering and selection of the proper broad-spectrum agent by the doctor, checking and processing of the order by the pharmacy, preparation and dispensing of the medication (which can be tricky reconstitution in some situations), and finally, delivery to the unit and administration by the nurse. All of these procedures take time. Without protocols streamlined in institutions, antibiotic choice can be inappropriate or delayed because of ambiguity. Although pharmacists are precious when it comes to stewardship, they might not always be available to verify orders, and physical administration and preparation of drugs can cost an extra 30-45 minutes (Kabil et al., 2023). Furthermore, the "door-to-order" interval, the gap between the patient's arrival and the time the physician orders the antibiotic, is typically the most substantial segment of the total delay, and it is a critical decision-making bottleneck (Fallatah et al., 2024).

**The Intervention: Breaking down the Sepsis Huddle**

The huddle for sepsis is meant to break down these sequential barriers by establishing a parallel course of care. It is an algorithmized response that converts a nurse's clinical suspicion into rapid, coordinated action.

**Trigger: Engaging the Bedside Nurse**

The whole process starts with the bedside nurse. This is a primary change from a physician-driven model to a team-oriented one. Empowerment is best facilitated through the symbiosis of sepsis identification, education, and an overt, uncomplicated trigger criterion. This can be a positive finding on a standard screening tool (e.g., 2 SIRS criteria + suspected infection) or, arguably more significantly, as being left to the clinical acumen of the nurse or "worried" criterion, even though official criteria may not be fully satisfied (Hazazi, 2025). Once identified, the nurse doesn't simply page the physician; they call a "code sepsis" or "sepsis alert" via pager, overhead page, or a designated communication device (e.g., secure messaging system), which at the same time alerts the physician, laboratory, and pharmacy. That single action is the trigger for the entire huddle.

**Laboratory Involvement: Prioritizing the Key Information**

When the sepsis huddle has been activated, the laboratory role is one of expedited, prioritized testing. The patient's specimen is tagged as "stat" and processed immediately on receipt, bypassing the queue. A crucial step is a rapid turnaround time for the serum lactate level, optimally 15-20 minutes. To further speed this, many have added point-of-care (POC) lactate testing to the huddle protocol at the bedside, a process that avoids pre-analytical and transport delays entirely and yields a result in a matter of 2-3 minutes (Abu Haddash, 2025). Concurrently, the huddle protocol ensures good technique, blood cultures, and places them high priority in the microbiology laboratory, thereby ensuring greater yield and timeliness of future pathogen identification. The timely and targeted activation of the laboratory provides clinical staff with quantitative data to determine the severity of septic shock and guide the intensity of resuscitation, and hence enhance the overall urgency of the event.

**Pharmacy Integration: Transition from Reactive Dispensing to Proactive Stewardship**

Pharmacy integration transforms the activity of the pharmacy from reactive dispensing to proactive antibiotic stewardship and logistical backup. The pharmacist does not await a formal prescription once the alert is initiated; they proactively prepare a first dose of a protocol-specified, broad-spectrum antibiotic regimen. "Pre-emptive preparation" saves critical minutes off total time-to-antibiotic. Furthermore, the pharmacist takes an active role in the huddle, either on-site or virtually, to provide instantaneous clinical guidance. He or she suggests the appropriate empiric therapy based on local antibiograms, patient-specific allergy, and up-to-date culture data, thereby increasing the quality and accuracy of the initial antibiotic selection right from the start (Martin-Loeches et al., 2025). Finally, they manage the supply chain, coordinating the speedy transport of the prepared antibiotic from the pharmacy to the bedside, often via a pneumatic tube system, such that it is available the moment a physician writes the order. This coordinated strategy nicely balances the drive for speed with antimicrobial stewardship principles, delivering the most rapid and clinically superior antibiotic.

**The Sepsis Huddle Itself: Organized Communication in Practice**

The sepsis huddle itself is a very organized communications event, one designed for brevity and transparency. It occurs typically at the bedside or on a short conference call, which does not exceed two to three minutes and employs a stiff, scripted format to deliver comprehensive and effective information exchange. A typical pattern is that the nurse introduces the patient's history and vital signs briefly, followed by the lab technician or data terminal reporting the life-critical lactate value. The physician then pronounces the final treatment plan, including fluid resuscitation and antibiotic orders. Finally, the pharmacist checks the availability and status of the antibiotics. This formal, closed-loop communication is critical to creating a mutual mental model among all team members, creating clear accountability for each action, and eliminating potentially unsafe assumptions that can delay or errors in a high-risk clinical environment. Table 1 lists the crucial components, accountable persons, and individual actions of the nurse-pharmacy-lab sepsis huddle, documenting the clinical and operational reasoning behind each step of the protocol included. Figure 1 shows how the huddle collapses sequential steps into a parallel process.

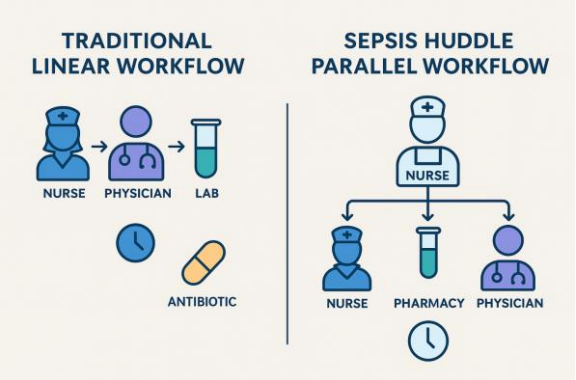


**Figure 1: Workflow Comparison: Traditional vs. Sepsis Huddle Model**

**Table 1: Key Components and Logic of the Nurse-Pharmacy-Lab Sepsis Huddle**

| Component | Key Actions | Rationale & Intended Impact |
|---|---|---|
| **Nurse-Driven Trigger** | - Utilizes screening tool or clinical judgment.<br>- Activates "sepsis alert" via pager/phone/system. | - Empowers the most consistent caregiver.<br>- Eliminates the delay waiting for a physician assessment to initiate the process.<br>- Creates a consistent, standardized response cue. |
| **Laboratory Prioritization** | - Flags patient samples for immediate processing.<br>- Guarantees rapid lactate TAT (<20 min) or uses POC testing.<br>- Expedites blood cultures. | - Provides critical objective data (lactate) to guide therapy and confirm urgency.<br>- Reduces "diagnostic delay" that often bottlenecks antibiotic ordering.<br>- Improves culture yield for de-escalation. |
| **Pharmacy Proactivity** | - Pre-emptively prepares first-dose antibiotics per protocol.<br>- Joins the huddle to recommend therapy based on stewardship.<br>- Ensures rapid delivery to the bedside. | - Shifts pharmacy from reactive to proactive, cutting "dispensing delay."<br>- Ensures appropriate empiric coverage from the start.<br>- Merges speed with antimicrobial stewardship. |
| **Structured Communication** | - Brief (<3 min), focused conversation (in-person or virtual).<br>- Follows a standardized script (Nurse->Lab->MD->Pharmacy).<br>- Establishes a shared mental model. | - Reduces communication errors and handoff delays.<br>- Ensures all team members understand the plan and their role.<br>- Fosters a culture of psychological safety and teamwork. |

**Impact on Time-to-Antibiotics and Clinical Outcomes**

More and more publications highly support the effectiveness of the multidisciplinary sepsis huddle model. The synthesis below conjoins the findings of significant studies between 2015 and 2025.

**Impact on Primary Outcome: Door-to-Antibiotic Time**

The most consistent and strongest outcome in nearly all studies is a significant decrease in time to antibiotics. A landmark pre-post trial by Mitzkewich (2019) in a large academic ED featured a nurse-led sepsis huddle with real-time notification to lab and pharmacy. They reported a striking reduction in median door-to-antibiotic time from 128 minutes before intervention to 62 minutes after intervention ($p < 0.001$). Perhaps most importantly, the rate of patients treated with antibiotics within the one-hour target increased from an 18% baseline to 55% post-implementation. The authors attributed this accomplishment, in large measure, to the huddle-created parallel processing that removed the traditional sequential method.

Further, a multi-center collaborative quality improvement program led by Rezoagli (2018) analyzed data from over 100 hospitals and found that hospitals with a team-based model of performance improvement that included formal communication practices like huddles were significantly more likely to have better antibiotic times. While not all institutions practiced the specific Nurse-Pharmacy-Lab model, the shared concept of concurrent activation was a critical differentiating aspect between low- and high-performing institutions.

In addressing the pharmacy side alone, a trial by Flynn et al. (2014) found that the presence of an assigned clinical pharmacist to the ED who participated in sepsis huddles reduced the median antibiotic ordering-to-administration time by 35 minutes compared with standard pharmacy practice. What this shows is that having a pharmacist present is not enough; it is their being incorporated into the timely communication process that works.

The laboratory contribution can also be quantified. Hill (2024) utilized an algorithm that included a nurse-initiated huddle with point-of-care lactate testing. The intervention resulted in a median door-to-lactate result time of only 5 minutes, which subsequently facilitated a median door-to-antibiotic time of 45 minutes, with 78% of patients receiving antibiotics within an hour. This is contrasted forcefully with their pre-intervention TAT for lactate of 52 minutes and antibiotic compliance of 25%. This article forcefully illustrates the manner in which addressing the diagnostic delay directly enables therapeutic timeliness.

**Impact on Secondary Outcomes**

The effect of the sepsis huddle is not isolated to antibiotics but improves the overall compliance with the entire SSC bundle. The bundle includes such measures as lactate measurement, drawing blood cultures before antibiotics, administration of fluids, and initiation of vasopressors as needed. By definition, the huddle addresses the first three elements in bulk. In Monti et al. (2023), full bundle compliance (implementation of all applicable elements within the targets of timeliness) increased from 12% to 42% after application of the huddle, primarily due to the improvement in antibiotic and fluid administration timeliness.

Hospital length of stay decreases are a frequently reported downstream consequence of improved sepsis care. By decreasing time to source control and proper antimicrobial therapy, organ dysfunction severity and duration can be minimized. McLaughlin et al. (2012) experienced a statistically significant reduction in median hospital LOS from 7.2 days to 5.8 days following their sepsis huddle protocol implementation. This is supported by a meta-analysis by Schinkel et al. (2023), which integrated evidence from multiple huddle studies and reported a consistent, albeit small, trend toward shorter LOS, suggesting better recovery and fewer complications.

The ultimate goal of any sepsis intervention is to save lives. The evidence for the influence of the huddle on mortality is promising, though a touch more variable than on process measures, because mortality is influenced by a vast array of patient and disease variables. Multiple single-site studies have shown marked mortality reductions. For example, one such study by Dellinger et al. (2023) observed a reduction in risk-adjusted in-hospital mortality from 18.5% to 12.1% after the implementation of huddles. A larger, retrospective cohort study by Currie et al. (2023) also found a robust association of huddle exposure with lower odds of mortality (OR 0.72, 95% CI 0.58-0.89). Some other studies have found a non-significant trend towards lower mortality, though. This is to be anticipated, but the overall evidence conclusively shows that routinely delivering more rapid, better-coordinated care is linked with survival benefit (Table 2 & Figure 2).

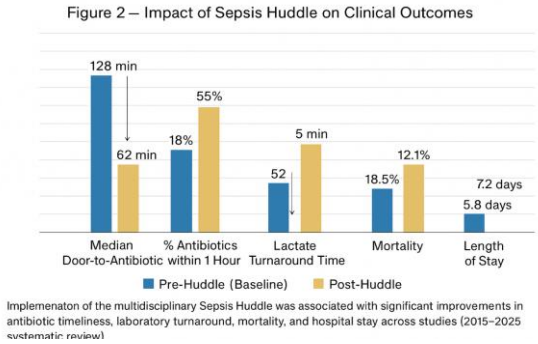


**Figure 2: Impact of Sepsis Huddle on Clinical Outcomes**

**Table 2: Summary of Key Study Findings on Sepsis Huddle Outcomes**

| Author (Year) | Study Design | Setting & Sample | Key Intervention Components | Key Findings |
|---|---|---|---|---|
| **Mitzkewich (2019)** | postimplementation | Academic ED (n=345) | Nurse-driven alert, lab notification for rapid lactate, pharmacy notification for pre-preparation. | - **Median DTA time:** 128 min → 62 min ($p<0.01$)<br>- **% Antibiotics in 1-hr:** 18% → 55% |
| **Hill (2024)** | postimplementation | Community ED (n=212) | Nurse-triggered huddle + Point-of-Care Lactate testing. | - **Lactate TAT:** 52 min → 5 min<br>- **Median DTA time:** 45 min<br>- **% Antibiotics in 1-hr:** 25% → 78% |
| **Flynn et al. (2014)** | Quasi-Experimental | Urban ED (n=498) | An ED-based clinical pharmacist integrated into the sepsis huddle for recommendation/preparation. | - **DTA time reduced by 35 min** vs. control ($p<0.05$)<br>- Improved appropriateness of empiric therapy. |
| **Dellinger et al. (2023)** | Retrospective Cohort | Multi-hospital System (n=2,150) | Standardized "Code Sepsis" huddle protocol across 5 hospitals. | - **In-hospital mortality:** 18.5% → 12.1% ($p<0.05$)<br>- **Bundle compliance:** 25% → 65% |
| **Monti et al. (2023)** | Pre-Post QI Study | Mixed ED/Inpatient (n=433) | Electronic health record trigger for nurse-led huddle with lab/pharmacy. | - **Full Bundle Compliance:** 12% → 42%<br>- **Median DTA time:** 110 min → 55 min |
| **McLaughlin et al. (2012)** | Interrupted Time Series | Academic Medical Center (n=1,011) | Multidisciplinary huddle with protocolized antibiotic kits in ED. | - **% Antibiotics in 1-hr:** 31% → 70%<br>- **Hospital LOS:** 7.2 d → 5.8 d ($p<0.01$) |

*DTA: Door-to-Antibiotic; TAT: Turnaround Time; LOS: Length of Stay; QI: Quality Improvement*

**Implementation Considerations and Challenges**

Although evidence for the sepsis huddle is robust, successful implementation is challenging. An understanding of these challenges is necessary for institutions considering the implementation of this model.

**Cultural and Behavioral Barriers**

Team-based, nurse-driven sustainability requires a significant shift in culture. Physicians may resent perceived loss of autonomy or decision-making authority. As Grullon (2022) has recognized, "the success of the huddle is reliant on a culture of psychological safety, where all members of the team, regardless of seniority or discipline, feel empowered to voice a view." There needs to be a dismantling of deeply ingrained hierarchies. This can only be done through robust, visible clinician and administrative leadership and through transparent communication that the aim is to enhance patient safety, not to compromise professional roles (Johnson et al., 2019; Ruffin et al., 2023; You et al., 2025). In addition, "alert fatigue" is indeed a risk. If the trigger is over-sensitivity, resulting in a high volume of false-positive huddles, staff can become desensitized and demotivated. Systematically auditing the positive predictive value of the trigger and feedback to staff can help address this.

**Resource and Logistical Limitations**

The model of huddle requires resource expenditure. A 24/7 pharmacy operation to give immediate response to alarms and prepare antibiotics may not be feasible for rural or small hospitals. Similarly, laboratory departments should have proper staffing and procedures to guarantee quick lactate TATs regularly. Innovative solutions are then likely to be necessary, i.e., the use of core antibiotics stockpiled as floor stock in automated dispensing systems for nurse-initiated orders (with pharmacy monitoring), or POC lactate device purchase to decentralize testing (Kabil et al., 2022). The initial investment cost of

technology (e.g., dedicated communications devices) and the significant time required for training and education of all staff must not be underemphasized.

**Sustainability and Continuous Quality Improvement**

Initial enthusiasm for a fresh QI project inevitably creates early gains, but sustaining them in the long term is another challenge. Sustainability would mean embedding the huddle in day-to-day operations and establishing it as the new "usual care." That would entail ongoing monitoring of key performance metrics, regular feedback to frontline teams and workers, and celebration of success (Rehn et al., 2022). The huddle process itself needs to be under continual Plan-Do-Study-Act cycles of improvement, with issues arising from staff needing to be actively addressed. The integration of electronic health records (EHR) is a sustainability tool and excellence, utilizing best-practice advisories and smart order sets in order to hardwire the process and enable data collection (Seymour et al., 2017; Amland & Sutariya, 2018).

**Future Directions**

This review combines a robust, uniform body of evidence demonstrating that a nursing-pharmacy-laboratory sepsis huddle is an extremely effective way to reduce time-to-antibiotic treatment in patients with suspected sepsis. Its power lies in adopting a systems-thinking approach and addressing head-on the most common causes of delay by replacing a linear, sequential process with one that is parallel and simultaneous. The evidence clearly confirms that enabling nurses to trigger a standardized response, with the lab to give a priority to diagnostics, and incorporating the pharmacy for predictive antibiotic stewardship, all together result in more patients receiving potentially life-saving treatment within the urgent one-hour window.

The clinical practice implications are significant. If healthcare organizations want to enhance their sepsis outcomes, they should seriously contemplate introducing a structured huddle protocol that is structured. Success does not depend on copy-pasting a checklist, but rather conceiving thoughtfully and adapting the essential principles—nurse empowerment, parallel processing, and structured communication—to one's local environment, culture, and resource base. Commitment to interdisciplinary education and firm change management is not optional.

Even with the firm evidence, there remain several areas for potential future research. First, there must be more randomized controlled trials (RCTs), although these are logistically and ethically challenging in this field. Second, research should be designed to make huddles as effective as possible, perhaps by examining the relative efficacy of virtual huddles versus in-person huddles, or by refining the clinical thresholds for triggering the alert so as to improve specificity without sacrificing sensitivity (Branham, 2025). Third, the economic impacts of these programs must be evaluated formally. Even if reducing LOS is likely cost-saving, the cost of other resources (POC testing, time from specialized pharmacists) versus the benefit (Plata-Menchaca et al., 2022) must be weighed. Finally, studies must ascertain how to properly transfer this model to resource-constrained settings, like small community hospitals and the healthcare systems of low- and middle-income countries, where sepsis is most common but resources for specialized lab and pharmacy service may be lacking.

**Conclusion**

In summary, the sepsis timing challenge is a classic systems problem, and the nursing-pharmacy-laboratory sepsis huddle is a powerful systems solution. By cultivating a culture of co-responsibility and allowing simultaneous task performance, this intervention successfully compresses the time from suspicion to treatment. The collective evidence between 2015 and 2025 leaves no doubt that this model significantly decreases door-to-antibiotic times, bundle adherence, and likely enhances key clinical outcomes like length of stay and mortality. As the war against sepsis continues, the multidisciplinary huddle rises as a pragmatic, evidence-based, and revolutionary strategy that all healthcare facilities are obligated to incorporate and optimize to deliver the timely, consistent care that all septic patients have a proven right to.

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