

## WHAT IS SEPSIS?

Sepsis is a dysregulated immune response to any acute infection.

 Current sepsis diagnostic tests are not very accurate.<sup>1</sup>



## HIGHEST HOSPITAL MORTALITY

Sepsis accounts for nearly half of in-hospital deaths and ends up killing over 250,000 in the US alone each year.\*



\* That's more deaths than breast cancer, prostate cancer and HIV/AIDS combined.

## SEPSIS COSTS THE MOST

At \$27B per year, sepsis is the most expensive diagnosis in the US healthcare system.<sup>4</sup>



## HOW IS SEPSIS TRIGGERED?

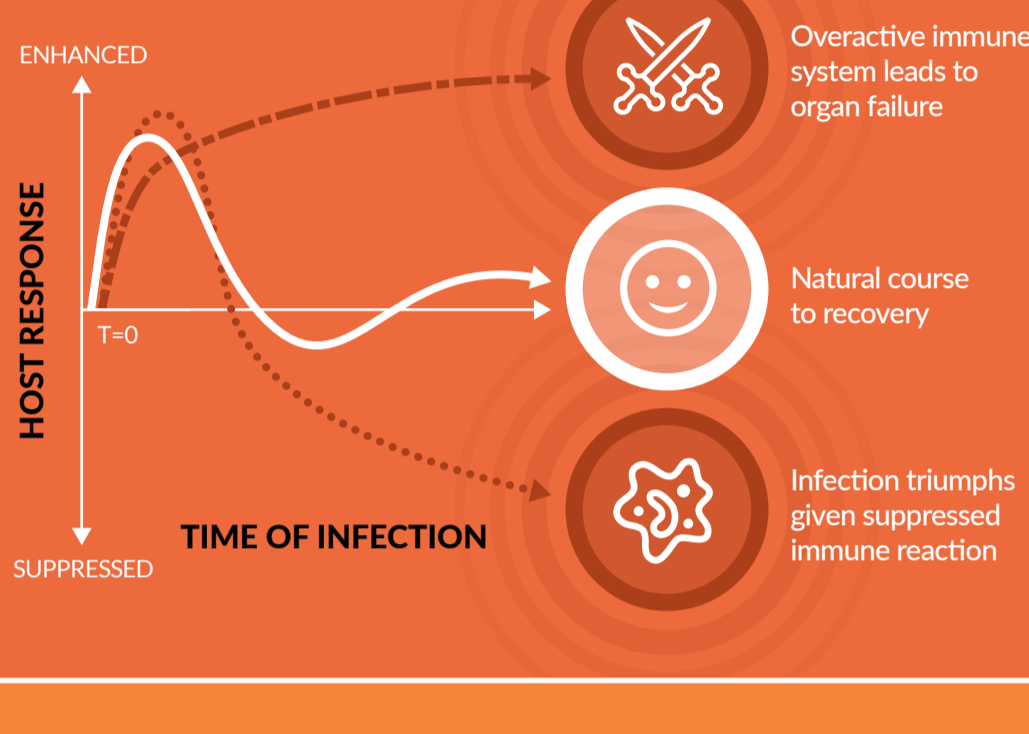
Sepsis is a dysregulated host response to infection. It can be triggered by infections in the bloodstream or not in the bloodstream.

 Tests that require the infection to be present in blood are not sensitive enough.<sup>1</sup>



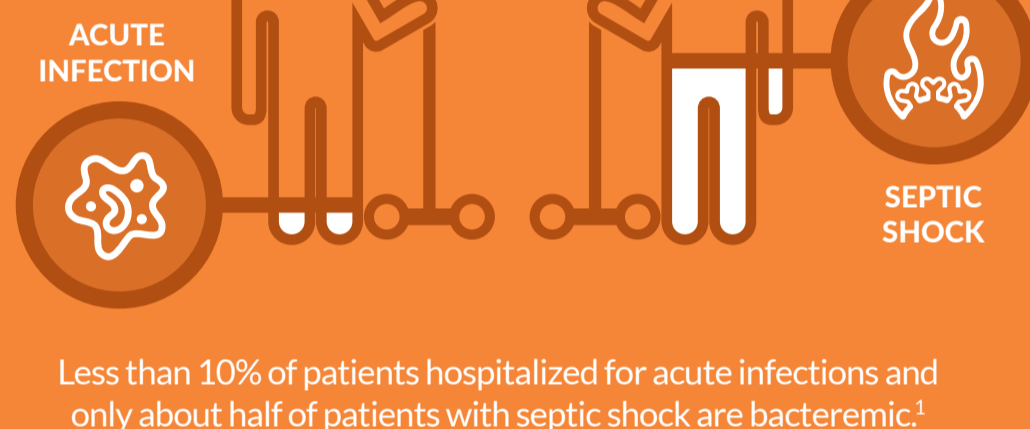
## DYSREGULATION GOES BADLY

Infection can trigger immune (host) response to go haywire in multiple forms.



## A COMMON MISCONCEPTION

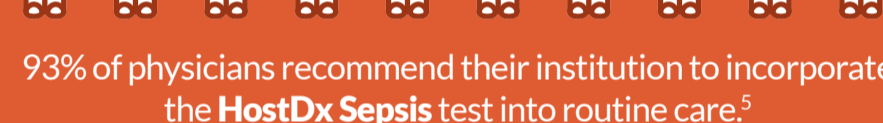
Bacteria is often not in the blood in patients with acute infections or sepsis.



Less than 10% of patients hospitalized for acute infections and only about half of patients with septic shock are bacteremic.<sup>1</sup>

## WANTED: A BETTER TOOL

Physicians are eager for a better sepsis diagnostic.



93% of physicians recommend their institution to incorporate the **HostDx Sepsis** test into routine care.<sup>5</sup>

## ISSUES WITH TODAY'S TOOLS

Current sepsis diagnostics are sub-optimal.



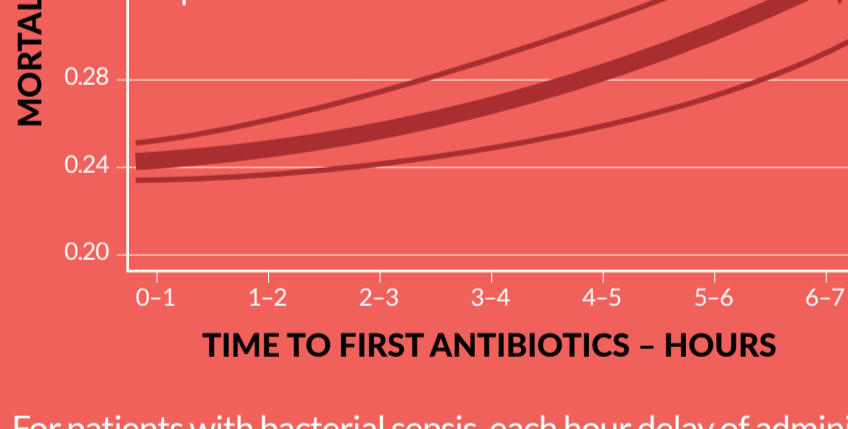
Blood cultures take too long (24-48 hours) and turn positive in ~30% of all patients with infections.<sup>1</sup> Thus, they are not effective for ruling out infections especially when initially assessing patients.

COMPARISON	USE CASE	SENSITIVITY	SPECIFICITY
Lactate $\geq$ 2 mmol/L <sup>6</sup>	Prognosis of hospital mortality	82%	22%
SIRS <sup>7</sup>	Prognosis of hospital mortality	90%	23%

Existing diagnostic modalities, whether tests like lactate or clinical measures like SIRS (Systemic Inflammatory Response Syndrome), are suboptimal in their ability to diagnose sepsis.

## WHAT'S THE PROGNOSIS?

Sepsis can progress rapidly, and can be fatal if not treated quickly.



For patients with bacterial sepsis, each hour delay of administering antibiotics increases the relative risk of mortality by ~7%.<sup>8,9</sup>

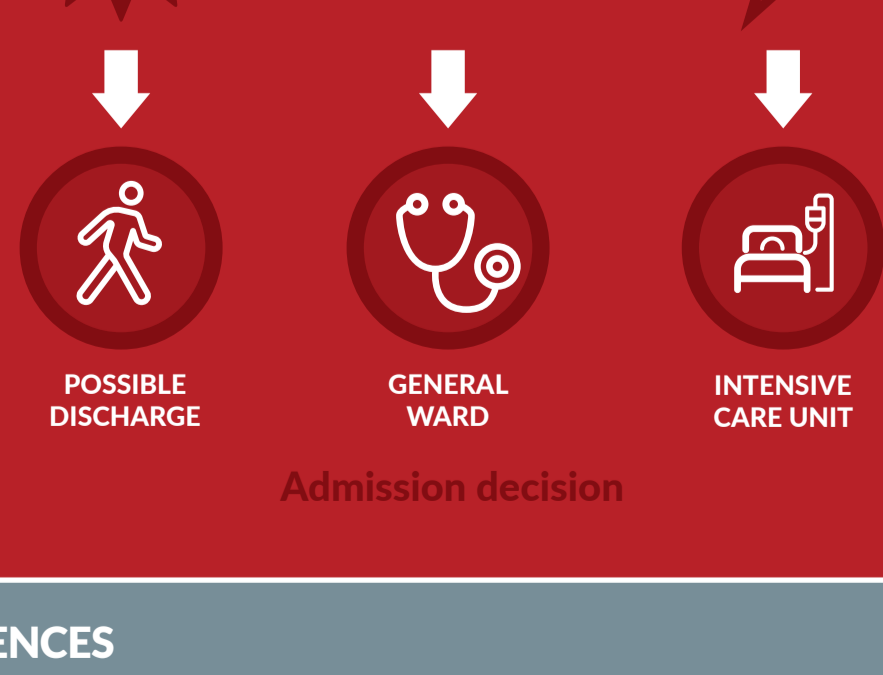
## ACTIONABLE RESULTS

Physicians will incorporate **HostDx Sepsis** results into treatment decisions.

Clinical question #1  
What type of infection is it?



Clinical question #2  
How severe is the infection?



## REFERENCES

- Colburn, et al. Does This Adult Patient With Suspected Bacteremia Require Blood Cultures?. JAMA. 2012;308(5):502-511.
- Liu, et al. Hospital Deaths in Patients With Sepsis From 2 Independent Cohorts. JAMA. 2014;312(1):90-92.
- Fleischmann C, et al. Assessment of global incidence and mortality of hospital-treated sepsis. Current estimates and limitations. Am J Respir Crit Care Med. 2015;193: 259e72.
- Statistical Brief #225. Healthcare Cost and Utilization Project (HCUP). June 2017. Agency for Healthcare Research and Quality, Rockville, MD.
- 2017 Inflammatix survey (n=84), data on file.
- Singer, et al. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). JAMA. 2016; 315(8):801-810.
- Mellhammar L, et al. Sepsis Incidence: A Population-Based Study. Open Forum Infectious Diseases. 2016;3(4):ofw207.
- Ferrer R, et al., Empiric antibiotic treatment reduces mortality in severe sepsis and septic shock from the first hour: results from a guideline-based implementation program. Crit Care Med. 2014 Aug;42(8):1749-55.
- Kumar A, et al., Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. Crit Care Med. 2006;34(6):1589-96.