

Department in Crisis:

Addressing the Critical Concerns of the Emergency Department



The *i-STAT*® System accelerates patient care decision-making by providing critical lab test results at the bedside



EDs across the nation are facing unprecedented challenges

Overcrowding¹

- The number of patients is rising as the number of facilities to treat them is decreasing
- The practice of “boarding” is the primary cause of overcrowding²
- Ambulances are being diverted

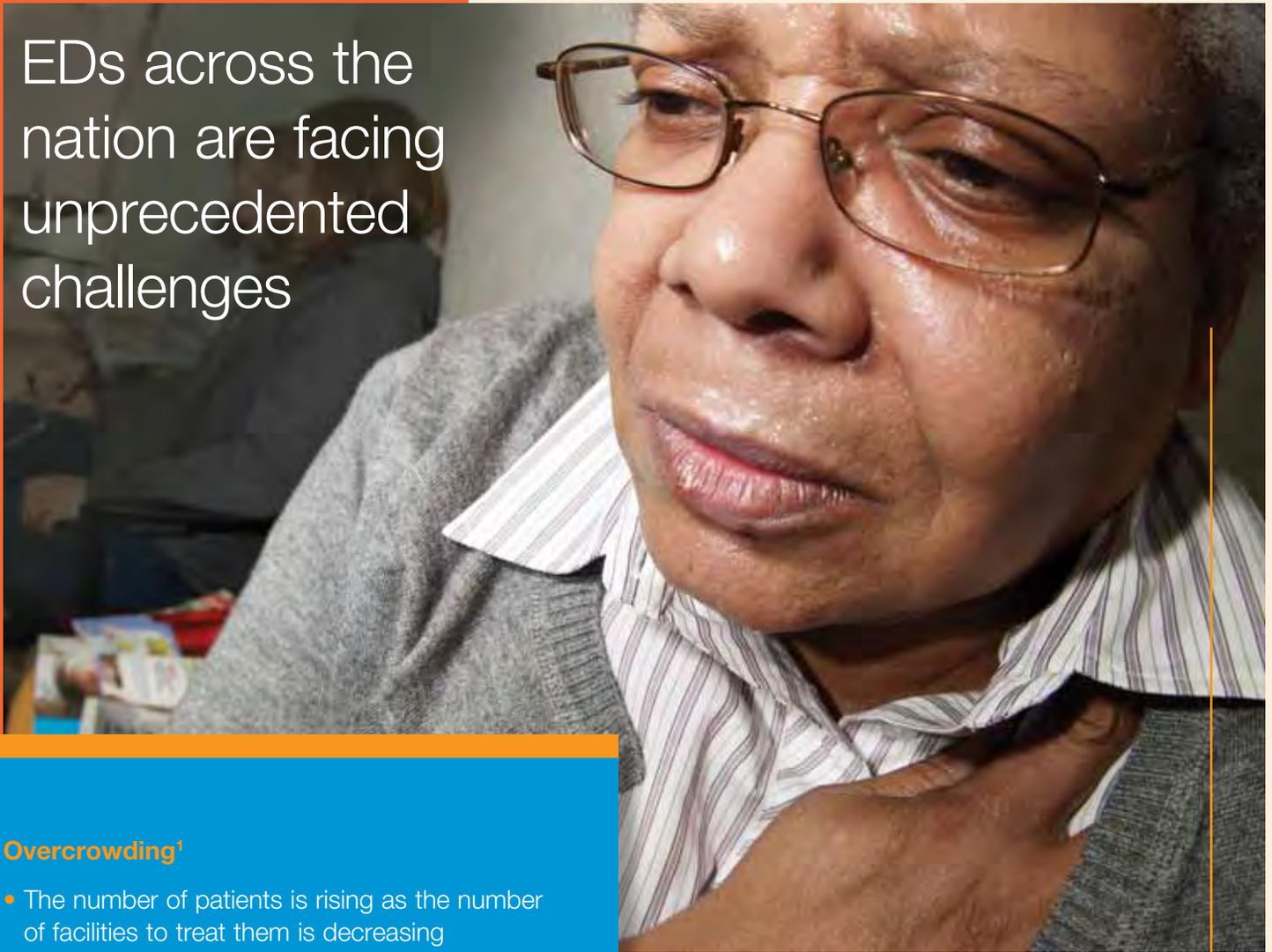
Extensive wait times

- Patients wait an average 55.8 minutes to see a physician³
- Long waits for lab results may delay treatment
- In 2006, 30% of visits to the ED lasted 4 hours or more³

Operational demands

- Need for increased system efficiency
- Supporting quality/compliance initiatives
- Limited resources and financial constraints

More and more, ED performance is being linked to clinical and financial outcomes



The i-STAT System can help you triage and treat patients faster



In clinical trials, the *i-STAT System* has been shown to:

- Expedite patient triage by accelerating the availability of critical diagnostic test information^{4,5}
- Improve patient flow, shorten door-to-disposition times, and reduce overall ED length of stay^{4,5}
- Provide lab-quality test results in minutes,⁶ which can accelerate patient care decision-making and expedite time to treatment, *when every minute counts*
- Support hospitals in maintaining compliance with evidence-based guidelines⁴

Other key benefits include:

- A comprehensive menu of tests, including those most commonly used in the ED
- An easy-to-use, four-step testing process that significantly streamlines the complexity of traditional lab processing
- Improved financial outcomes through increased efficiencies in the ED and throughout the hospital⁷

Bedside testing with the i-STAT System provides real-time, lab-quality test results that can help expedite diagnosis, treatment, and disposition of patients

The most common tests for you

Basic Metabolic Status



Application:

Fast evaluation of metabolic status and renal function of patients

Results in
2
minutes

- Chest pain, shortness of breath, fever, trauma, GI distress, and abdominal pain are among the top reasons for visits to the ED³
- The *i-STAT CHEM8+* cartridge is a basic metabolic panel that provides:
 - timely, critical BUN and creatinine measurements for evaluating renal function for the disposition of patients to radiology
 - electrolyte and potassium measurements for patients such as those with renal impairment, cardiac distress, and dehydration
 - hematocrit and hemoglobin measurements

For *in vitro* diagnostic testing only. See CTI Sheets for full details.

Acute Coronary Syndrome



Application:

Rapid triage of chest pain patients, including those with ACS

Results in
10
minutes

- The 2007 ACC/AHA UA/NSTEMI Guidelines recognize troponin as the biomarker of choice⁸
- The *i-STAT cTnI* cartridge meets the ACC/AHA guideline of 60-minute turnaround time 98% of the time, compared with 53% for the central lab⁴
- Provides lab-quality results,⁶ which can improve adoption of serial cardiac marker testing
- Use of bedside testing in the ED has been shown to reduce:
 - time to anti-ischemic therapy by approximately 45 minutes⁹
 - time to discharge by 24 minutes⁴
 - ED length of stay by 1.9 hours¹⁰

Intended Use

The *i-STAT cTnI* test is an *in vitro* diagnostic test for the quantitative measurement of cardiac troponin I (cTnI) in whole blood or plasma samples. Measurements of cardiac troponin I are used in the diagnosis and treatment of myocardial infarction and as an aid in the risk stratification of patients with acute coronary syndromes with respect to their relative risk of mortality. For *in vitro* diagnostic testing only. See CTI Sheets for full details.

our most common ED patients

Congestive Heart Failure



Application:

For quickly reaching a diagnosis in patients presenting with shortness of breath (acute dyspnea)

Results in
10
minutes

- The clinical diagnosis of heart failure may be difficult, particularly in patients presenting with acute dyspnea in the ED¹¹
- Rapid measurement of BNP is useful for quickly differentiating CHF and ADHF^{12,13} from conditions that present similarly such as ACS,¹⁴ asthma, pneumonia, and chronic obstructive pulmonary disease (COPD)¹¹
- Early diagnosis and treatment of heart failure in the ED can result in:
 - faster administration of therapy (1 hr vs. 22 hrs)¹²
 - 36% reduced length of stay for in-patients¹²
- Treatment of CHF in the ED can result in a 25% reduction in treatment costs¹

Intended Use

The *i-STAT BNP* test is an *in vitro* diagnostic test for the quantitative measurement of B-type natriuretic peptide (BNP) in whole blood or plasma samples using EDTA as the anticoagulant. BNP measurements can be used as an aid in the diagnosis and assessment of the severity of congestive heart failure.

For *in vitro* diagnostic testing only. See CTI Sheets for full details.

Lactate



Application:

Useful for the diagnosis and treatment of lactic acidosis and hyperlactatemia

Results in
2
minutes

- Elevated levels of lactate are mainly found in conditions of hypoxia, such as shock, hypovolemia, and left ventricular failure
- The *i-STAT CG4+* cartridge can be an accurate and reliable method of measuring lactate and blood gases at the patient's bedside within minutes

For *in vitro* diagnostic testing only. See CTI Sheets for full details.

Anticoagulation



Application:

Identifying and monitoring of patients on anticoagulant therapy

Results in
<5
minutes

- There are over 3 million patients in the U.S. on oral anticoagulant therapy, most commonly with warfarin (Coumadin®)
- Between 1999 and 2003, warfarin was associated with about 29,000 visits to the ED for bleeding complications per year¹⁵
- In the ED, PT/INR is the standard test for identifying patients on warfarin

Intended Use

The *i-STAT PT*, a prothrombin time test, is useful for monitoring patients receiving oral anticoagulation therapy such as Coumadin® or warfarin.

For *in vitro* diagnostic testing only. See CTI Sheets for full details.



The i-STAT System:

Providing lab-quality results fast when every minute counts



Accelerates patient care decision-making

- Portable, handheld system provides lab-quality results in minutes⁶
- Helps maintain compliance with guideline-recommended lab turnaround times⁴

Real-time test results improve ED efficiency

- Patients triaged quickly, improving patient flow and timeliness of care
- Shortens door-to-disposition and length-of-stay times⁵

Most comprehensive bedside testing platform available

- Tests include cardiac markers, blood gases, lactate, chemistries and electrolytes, coagulation, and hematology
- Advanced biosensor technology ensures accurate, lab-quality results

Easy-to-use four-step testing process works with you

- Reduces the time required to collect, process, and report accurate test results, allowing diagnosis and treatment at the bedside

References: 1. Committee on the Future of Emergency Care in the United States Health System. *Hospital-Based Emergency Care: At the Breaking Point*. Washington, DC; 2007; The National Academies Press. Future of Emergency Care Series. 2. ACEP Task Force Report on Boarding. *Emergency Department Crowding: High-Impact Solutions*. Irving, Tex: American College of Emergency Physicians; April 2008. 3. Pitts SR, Niska RW, Xu J, et al. National Hospital Ambulatory Medical Care Survey: 2006 Emergency Department Summary. *Natl Health Stat Rep*. 2008;7:1-40. 4. Ryan R, Lindsell C, Hollander J, et al. A multicenter randomized controlled trial comparing central laboratory and point-of-care marker testing strategies: The disposition impacted by serial point of care markers in acute coronary syndromes (DISPO-ACS) trial. *Ann Emerg Med*. 2009;53:321-328. 5. Hsiao AL, Santucci KA, Dziura J, et al. A randomized trial to assess the efficacy of point-of-care testing in decreasing length of stay in a pediatric emergency department. *Ped Emerg Care*. 2007;7:457-462. 6. Apple FS, Murakami MM, Christenson RH, et al. Analytical performance of the i-STAT cardiac troponin I assay. *Clin Chim Acta*. 2004;345:123-127. 7. Bailey TM, Topham TM, Wantz S, et al. Laboratory process improvement through point-of-care testing. *Jt Comm J Qual Improv*. 1997;23:362-380. 8. Anderson JL, Adams CD, Antman EM, et al. ACC/AHA 2007 Guidelines for the Management of Patients With Unstable Angina/Non ST-Elevation Myocardial Infarction: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines for the Management of Patients With Unstable Angina/Non ST-Elevation Myocardial Infarction). *Circulation*. 2007;116:e148-304. 9. Renaud B, Maison P, Ngako A, et al. Impact of point-of-care testing in the emergency department evaluation and treatment of patients with suspected acute coronary syndromes. *Acad Emerg Med*. 2008;15:216-224. 10. Singer AJ, Ardise J, Gulla J, et al. Point-of-care testing reduces length of stay in emergency department chest pain patients. *Ann Emerg Med*. 2005;45:587-591. 11. Mueller C, Laule-Kilian K, Schindler C, et al. Cost-effectiveness of B-type natriuretic peptide testing in patients with acute dyspnea. *Arch Intern Med*. 2006;166:1081-1087. 12. Emerman CL. Treatment of the acute decompensation of heart failure: efficacy and pharmacoeconomics of early initiation of therapy in the emergency department. *Rev Cardiovasc Med*. 2003;4(suppl 7):S13-S20. 13. Maisel AS, Krishnaswamy P, Nowak RM, et al. Rapid measurement of B-type natriuretic peptide in the emergency diagnosis of heart failure. *N Eng J Med*. 2002;347:161-167. 14. Blick KE. Economics of point-of-care (POC) testing for cardiac markers and B-natriuretic peptide (BNP). *Point Care*. 2005;4:11-14. 15. Wysowski DK, Nourjah P, Swartz L. Bleeding complications with warfarin use. *Arch Intern Med*. 2007;167:1414-1419.

Coumadin is a registered trademark of Bristol-Myers Squibb.

To learn more about how the *i-STAT System* can help you improve patient care in your ED, contact us at: www.abbottpointofcare.com

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