

# D<sub>2</sub>B

DOOR-TO-BALLOON



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# What is the D2B Alliance?

- ACC quality initiative launched in partnership with the Institute for Healthcare Improvement
- Disseminating evidence-based strategies and sharing best practices among participants
- Launched in November 2006 and ongoing
- More than 1,000 participating hospitals from across the U.S. and internationally



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# Why the D2B Alliance?



Nearly  
**400,000**  
**PATIENTS**  
are admitted to  
U.S. hospitals  
with STEMI

ACC/AHA  
guidelines  
recommend  
D2B times  
of **90**  
**MINUTES**  
or less



Studies have shown  
**STRONG ASSOCIATIONS** between  
**time to primary PCI** and  
**in-hospital mortality risk**



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# D2B Alliance: Closing a Gap

## Overarching Goal

Achieve and sustain D2B times of

**$\leq 90$  minutes**  
for at least **75%**  
of non-transfer primary  
PCI patients with STEMI



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# D2B Alliance: How it Works

**Provides hospitals**  
with the key evidence  
based strategies  
and support  
tools

**Opportunities for**  
sharing findings  
and best  
practices

**Focus on**  
process improvement,  
parallel processing  
and interdisciplinary  
cooperation and  
coordination



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# D2B Alliance: Key Strategies

- ED physician activates the cath lab
- One call activates the cath lab
- Cath lab team ready in 30 minutes
- Prompt data feedback
- Pre-hospital ECG activates the cath lab (optional)



# The Team Behind the Strategies

**Pre-hospital Staff (EMS)**

**Emergency Medicine Physician**

**Initial Cardiology Care Provider**

**Registration Personnel (Clerk or Triage Nurse)**

**Cardiac Cath Lab Staff**

**Primary, Non-physician, Patient Care Provider**

**Interventional Cardiologist**

**“STEMI Alert” Activator (ED Switchboard, Hospital Operator)**

**Initial Patient Care Provider (EMT, Primary ED Nurse, ED Charge Nurse)**

**Support Staff**

- Phlebotomist,
- Radiology Tech
- Daytime Cath Lab charge person
- CV research personnel
- hospital admitting
- other-transport,
- pharmacy
- perfusionist
- etc.



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# D2B Alliance Results

Since D2B launched in **2006**, D2B times have **significantly decreased** to be **less than 90 minutes** in hospitals across the United States.



Krumholz, Herrin, Miller, et al.  
Circulation 2011



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# JACC (December 2009)

- By March 2008, over 75 percent of patients in D2B Alliance-participating hospitals had D2B times of less than 90 minutes.

[Changes in How Heart Attack Care is Delivered Saves Lives Nationwide](#)

*ACC Press Release, December 2, 2009*



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# *BMC Cardiovascular Disorders* (July 2009)

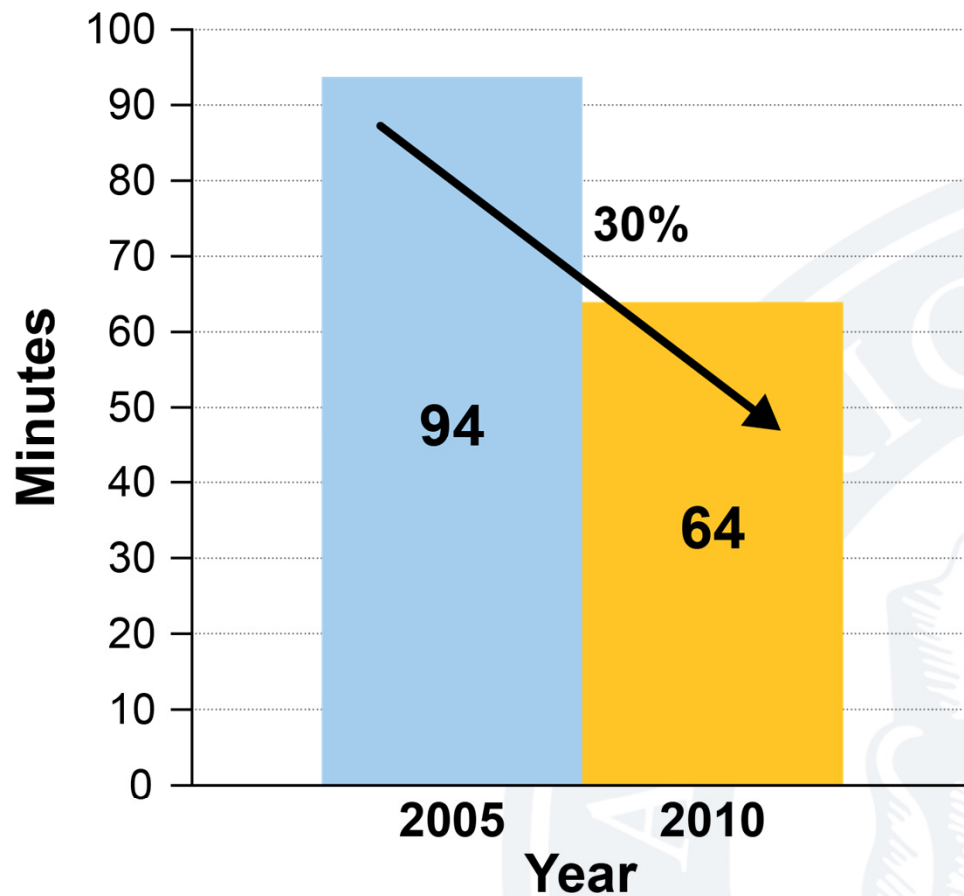
- ED physician activation of the cath lab and immediate patient transfer to the cath lab by an in-house nursing team led to a substantial reduction in D2B time and reductions in myocardial infarct size and decreased length of stay.
- With this improvement in quality, total hospital costs decreased substantially for the initial hospitalization and subsequent care within one-year post-hospital discharge

Khot UN, Johnson-Wood ML, Geddes J. [Financial impact of reducing door-to-balloon time in ST-elevation myocardial infarction: a single hospital experience.](#)  
*BMC Cardiovascular Disorders*. July 26, 2009



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# D2B Times for Patients Undergoing PCI Following Acute MI



Krumholz H, et al.

[Improvements in Door-to-Balloon Time in the United States, 2005 to 2010.](#)

Circulation. 2011; 124: 1038-1045. August 22, 2011



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# *Circulation* (August 2011)

- Over 90% of patients receiving primary percutaneous coronary intervention for ST-segment elevation myocardial infarction (STEMI) are now treated within the recommended 90 minutes after hospital arrival

Krumholz H, et al.

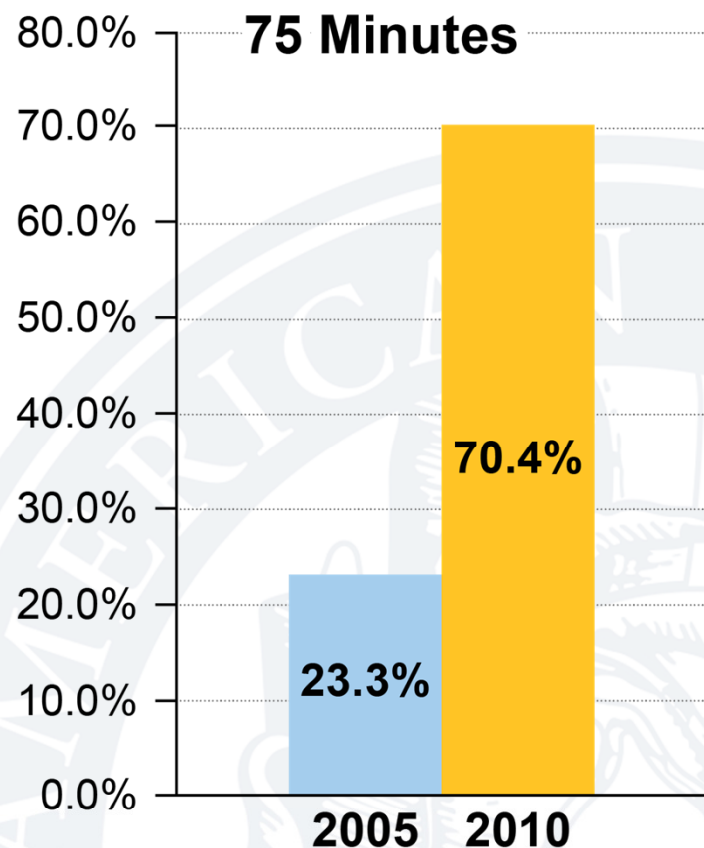
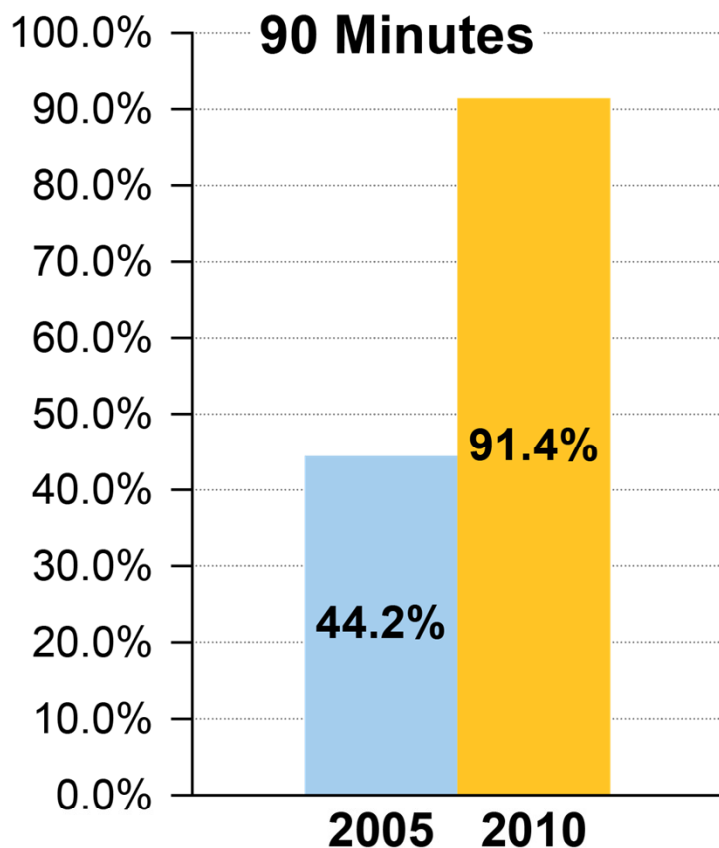
[Improvements in Door-to-Balloon Time in the United States, 2005 to 2010.](#)

*Circulation*. 2011; 124: 1038-1045. August 22, 2011



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# Percent of Patients with D2B Time Under...



Krumholz H, et al.

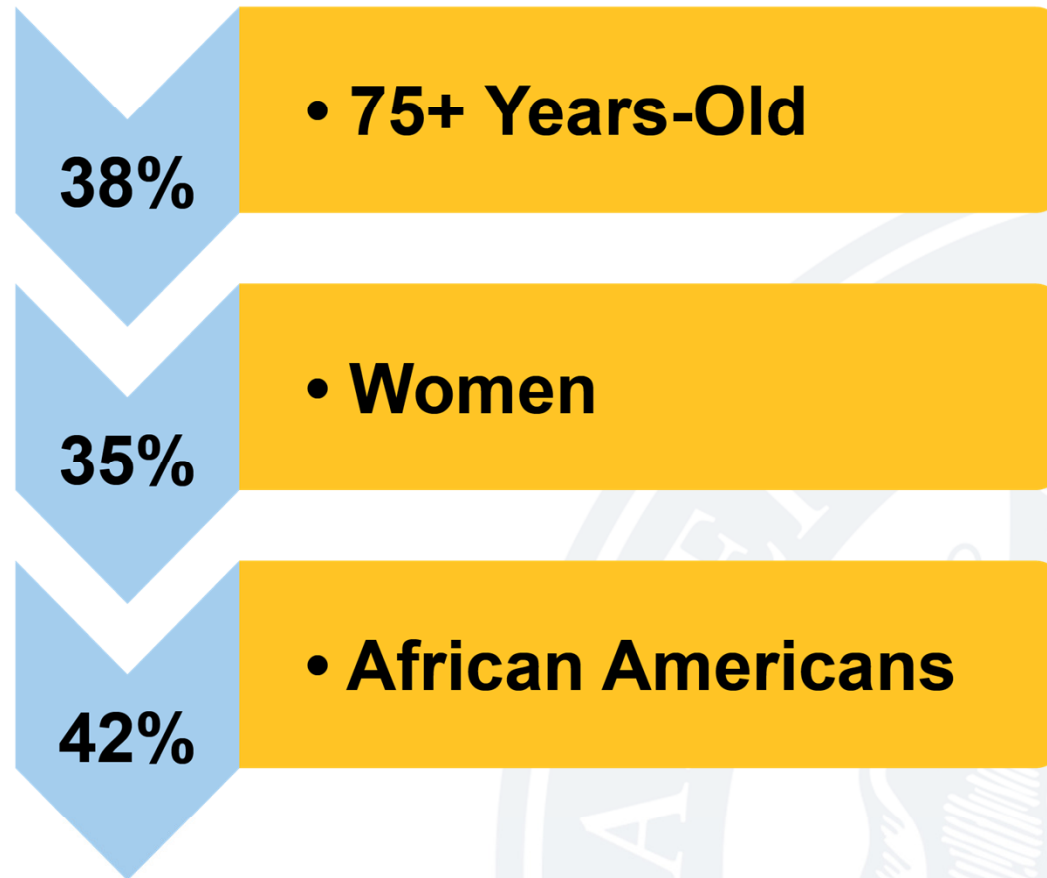
[Improvements in Door-to-Balloon Time in the United States, 2005 to 2010.](#)

Circulation. 2011; 124: 1038-1045. August 22, 2011



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# Patient Demographics: *Decrease in D2B Times*



Krumholz H, et al.

[Improvements in Door-to-Balloon Time in the United States, 2005 to 2010.](#)

Circulation. 2011; 124: 1038-1045. August 22, 2011



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# Hospital Demographics: *Decrease in D2B Times*



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- **Overall Results:**

- National D2B times for STEMI patients have improved
- The percentage of patients meeting the guideline recommendation of 90 minutes or less has increased
- BUT in-hospital and short-term mortality has remained unchanged

Menees DS, Peterson ED, Wang Y, et al.  
[Door-to-Balloon Time and Mortality among Patients Undergoing Primary PCI.](#)  
*N Engl J Med* 2013; 369:901-909, [September 5, 2013](#)

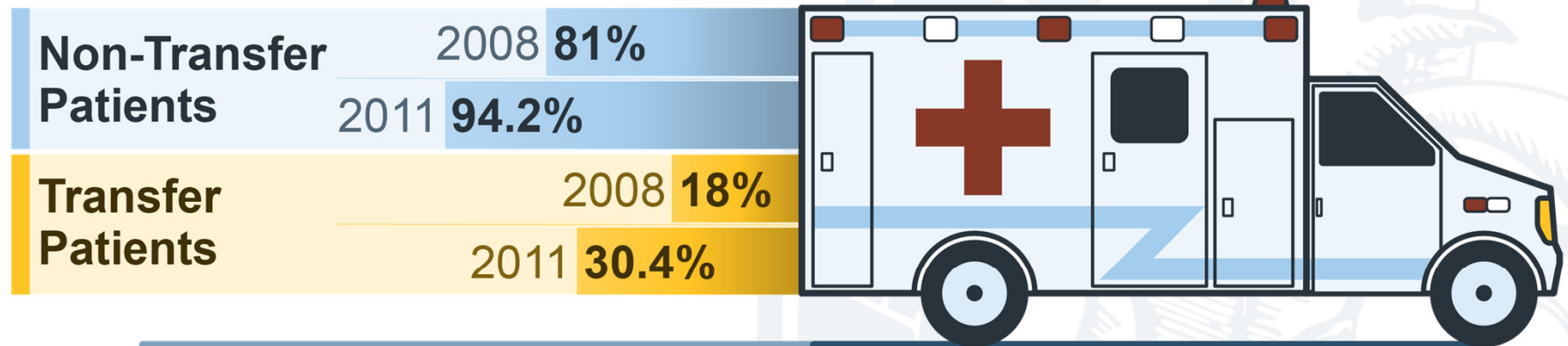


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## D2B

Continued improvements  
in meeting guideline-recommended  
**Door-to-Balloon (D2B) times**  
**of 90 minutes or less**  
for both ICD and CathPCI patients.



Masoudi FA, Ponirakis A, Yeh RW, et al. [Cardiovascular Care Facts: A Report From the National Cardiovascular Data Registry: 2011](#).  
*J Am Coll Cardiol.* 2013;62(21):1931-1947. doi:10.1016/j.jacc.2013.05.099.



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# D2B Alliance: Words of Wisdom

“ What is inspiring is how the cardiologists came together to improve care – leading change within their institutions even as it required them to work harder – because it was the right thing to do. ”

*Harlan Krumholz, MD, FACC*



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# D2B Alliance: Words of Wisdom



“ The incredible success of the D2B Alliance represents aspects of the best of health care delivery in the United States; the integration of the highest medical science, technology and our medical community through the organization and integration of systems of care leading to seamless translation of evidence based medicine into clinical practice. ”

***Ralph Brindis, MD, MACC .***



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