



Reliability Innovation Project

Charleston Area Medical Center



One of two Level I Trauma Centers in WV

Only Level III NICU in the region

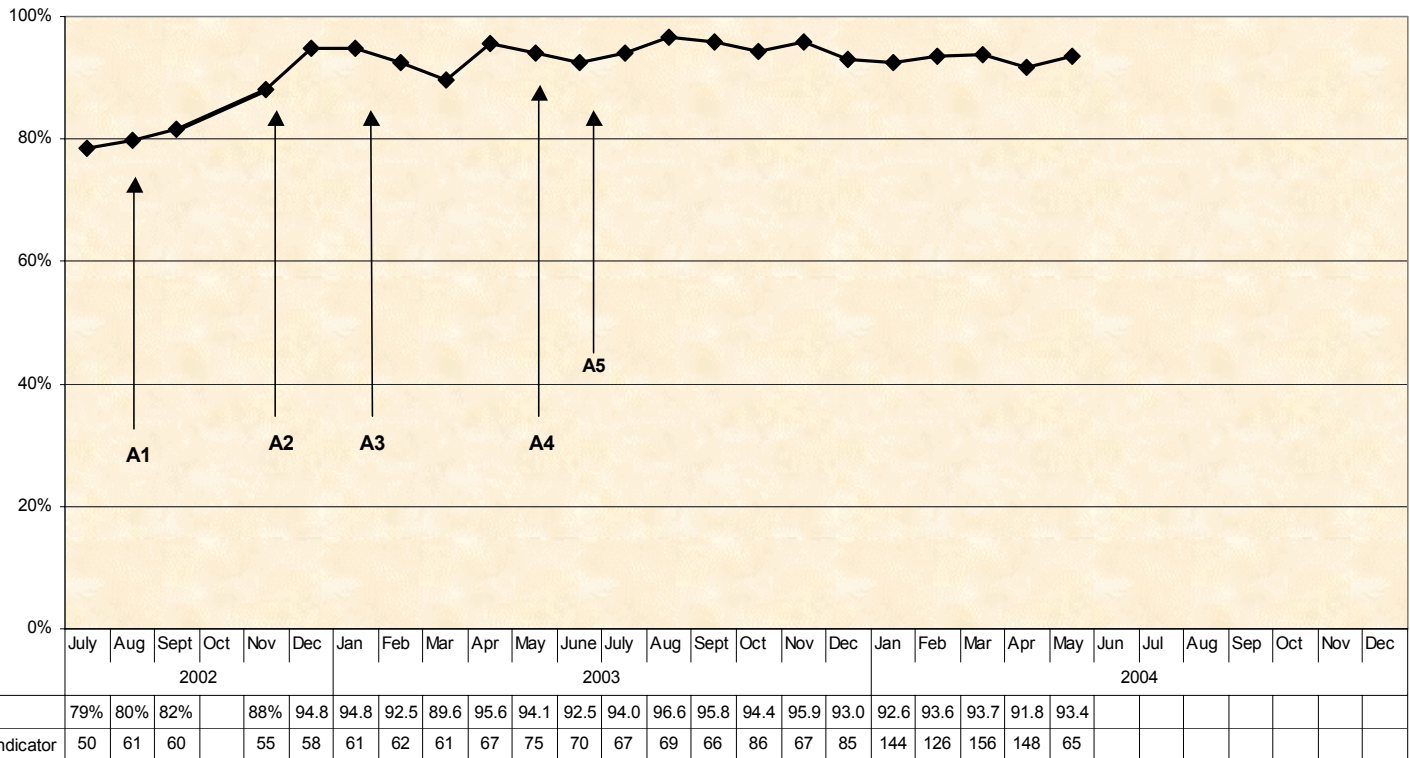
One of top ten Cardiac Centers in the nation with

2200+ Open Heart Procedures / Year and

12,000+ Intravascular Interventions / Year



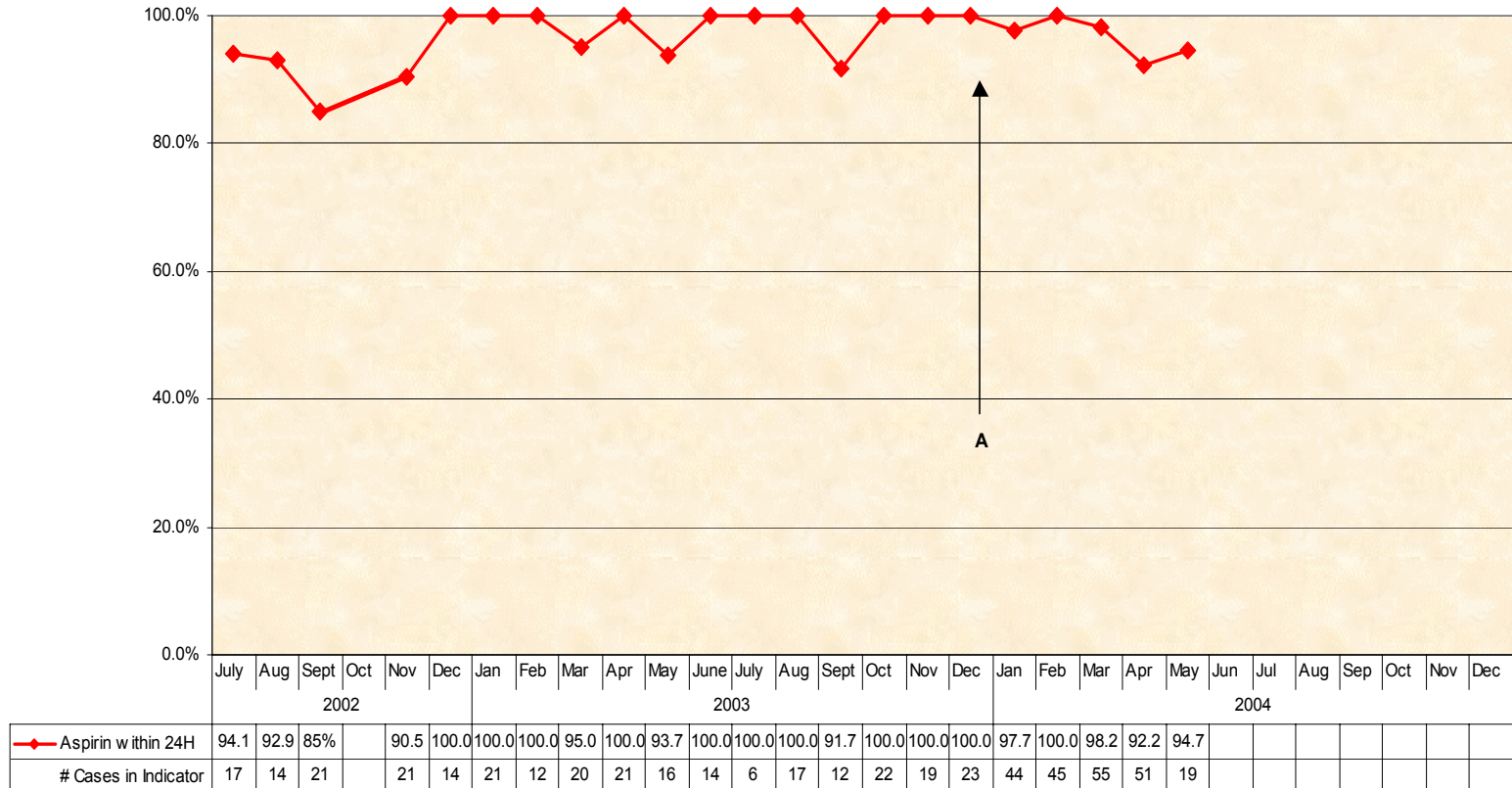
Acute Myocardial Infarction: Composite Scores



- A1 = Reminder sheets placed on charts by Case Coordination**
- A2 = Written feedback to physicians on a quarterly basis**
- A3 = Focused attention on Unit Discharge Planning Meetings**
- A4 = Written feedback to units on a bi-weekly basis**
- A5 = One on one visitation by Nurse Specialist**

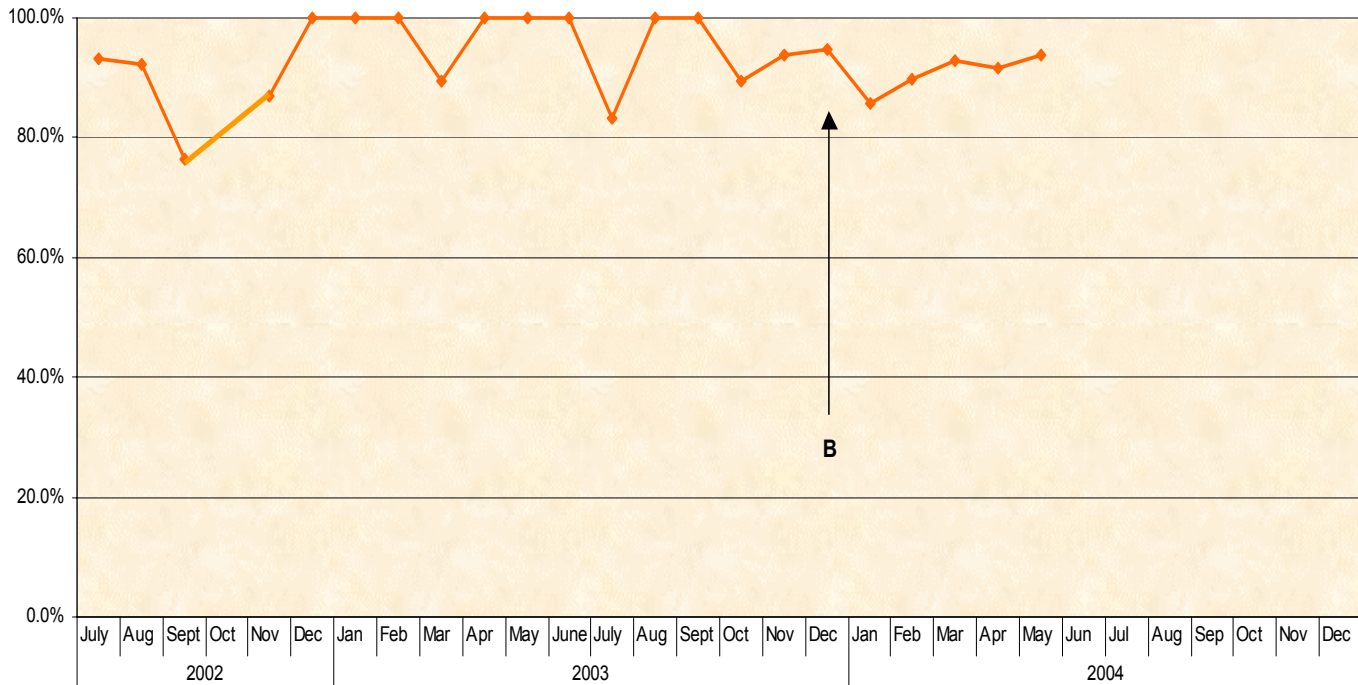


AMI: Aspirin within 24H



A = Cardiac Alert Process initiated for ED admissions

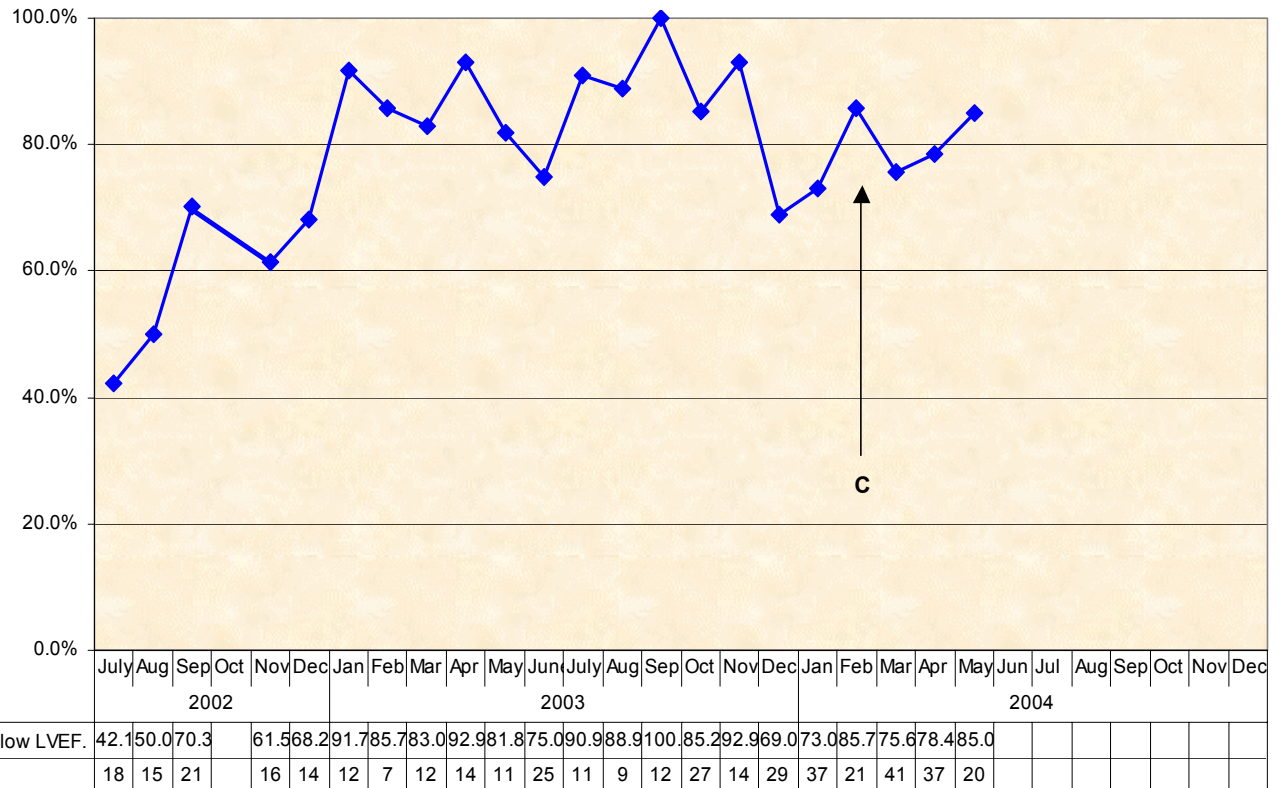
AMI: Beta Blocker within 24H



—●— Beta Blocker w within 24H	93.1	92.3	76.5		87.0	100.0	100.0	100.0	89.5	100.0	100.0	100.0	83.3	100.0	100.0	89.5	93.8	94.7	85.7	89.7	92.9	91.5	93.8										
# Cases in Indicator	13	13	17		23	15	22	11	19	15	16	11	6	14	11	19	16	19	44	45	55	51	19										

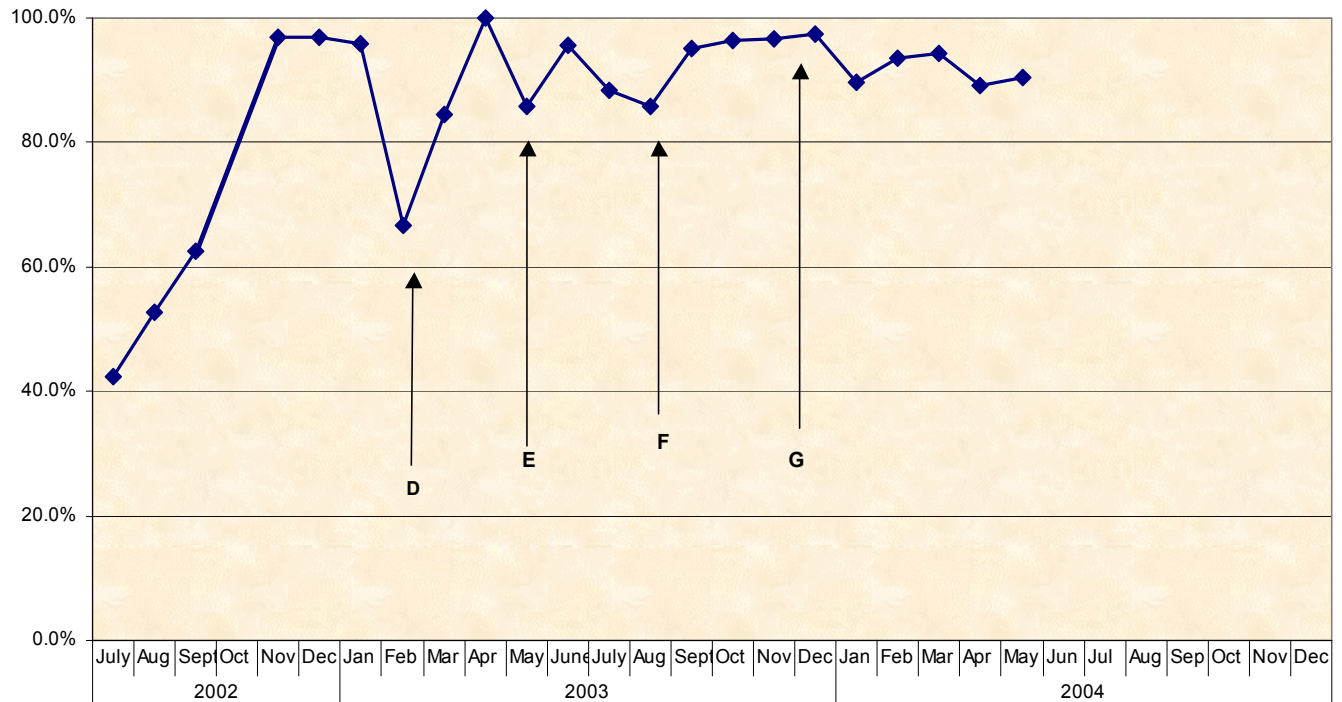
B = Cardiac Alert Process initiated for ED admissions

AMI: ACE inhibitor at discharge for low LVEF.



C = Clinical Director to Physician contact

AMI: Smoking Cessation Education



◆ Smoking Cessation Education	42.3	52.8	62.5		97.0	97.0	95.8	66.7	84.6	100	85.7	95.5	88.5	85.7	95.2	96.3	96.6	97.3	89.7	93.5	94.2	89.1	90.5								
# Cases in Indicator	26	35	24		23	24	24	27	26	2	28	23	26	28	21	27	29	37	68	62	69	55	42								

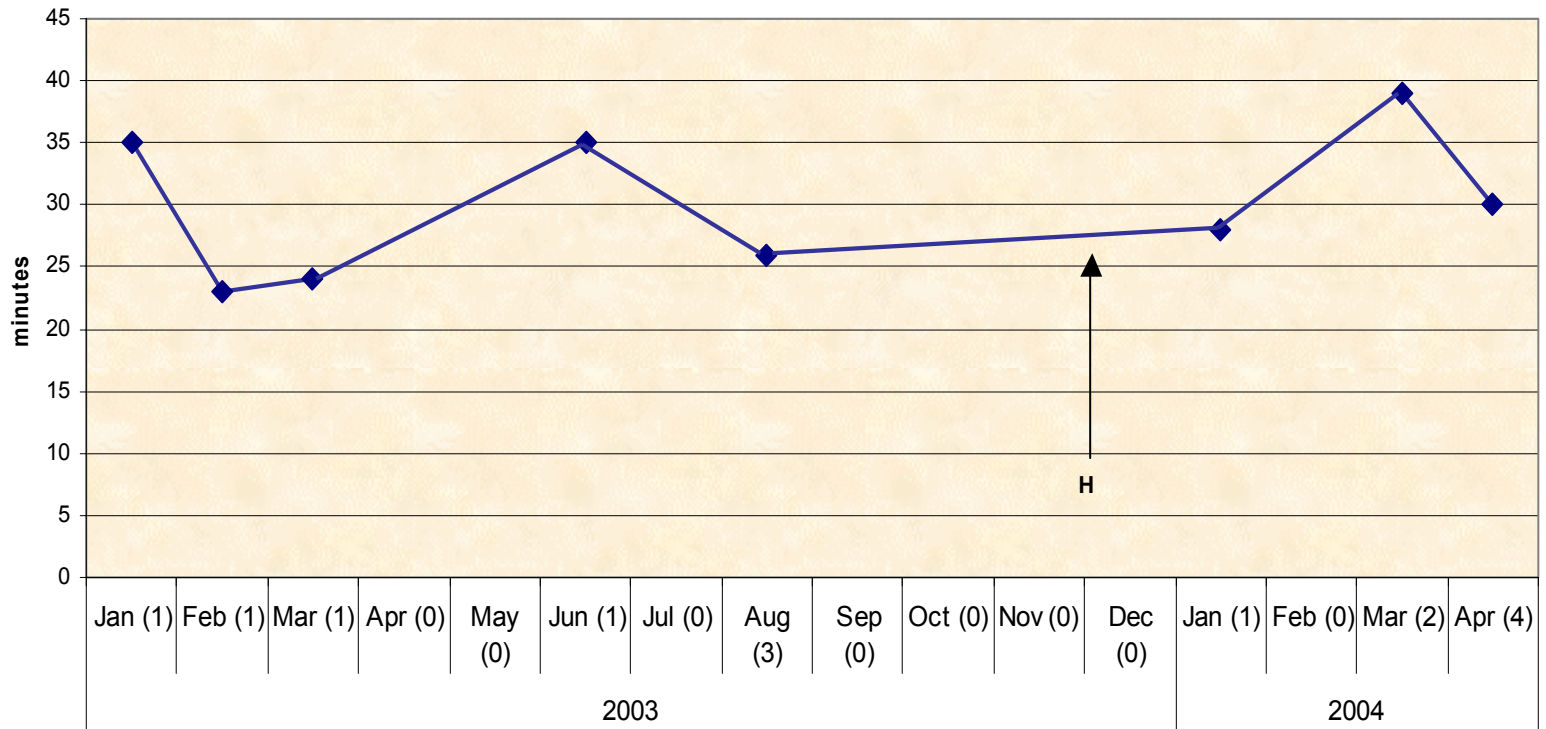
D = Consulting Service in place for tobacco cessation

E = Standardized brochures on nursing units

F = Alterations to Nursing Forms

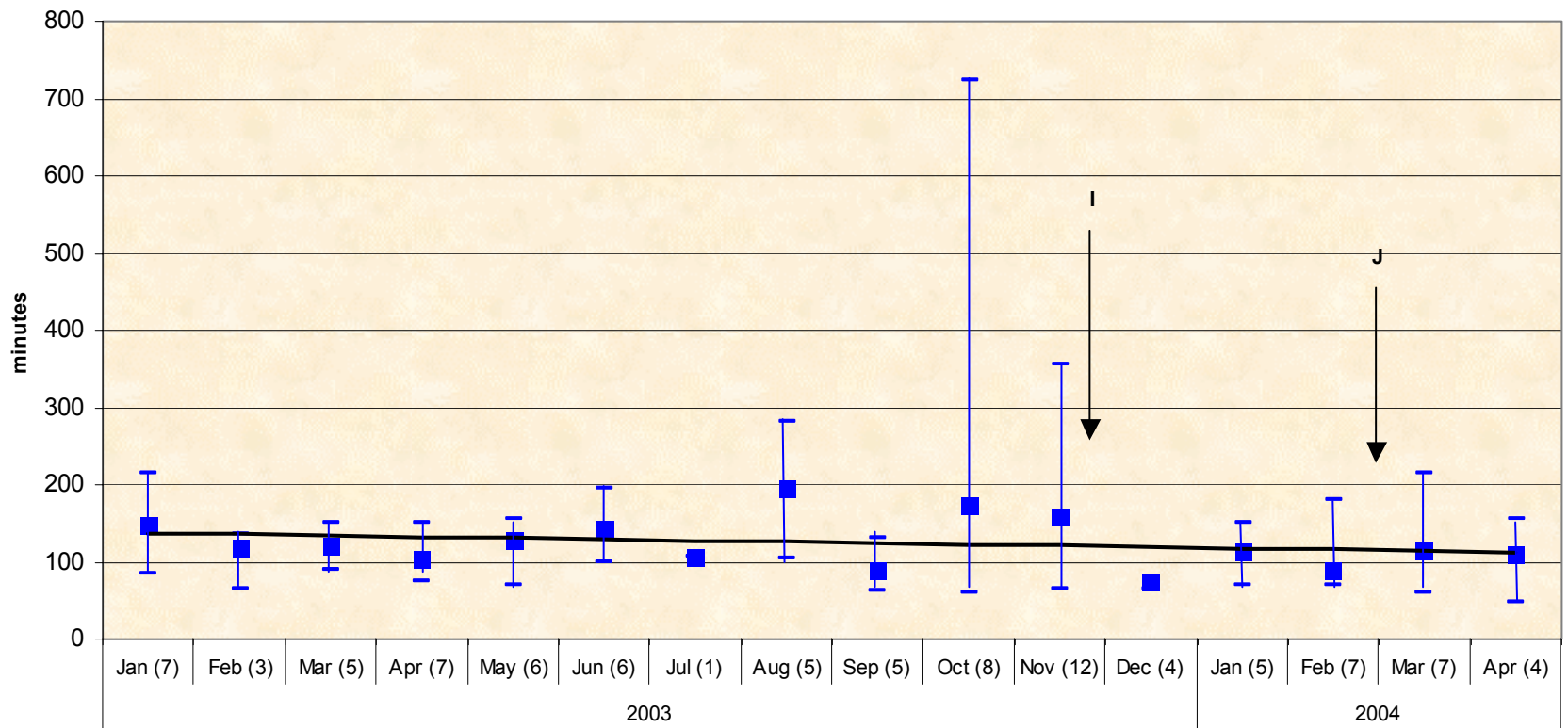
G = Formalized patient assessment for Smoking Cessation Education

Mean Time to Thrombolytics



H = Cardiac Alert Process initiated

Mean Time to PCI



I = Cardiac Alert process initiated

J = Cath Lab Team in-house 24/7

CARDIAC ALERT PROCESS

- ♥ EMS on scene obtain 12 lead EKG, cardiac history, prior cardiologist, thrombolytic screen and notify Med Base to INITIATE CARDIAC ALERT
- ♥ Med Base notifies ED – EKG faxed to ED physician who reviews EKG and history; notifies cardiologist and INITIATES CARDIAC ALERT
- ♥ Cardiac Alert paged. All departments involved are paged with a 5 minute response time to ED. Cath lab team goes to cath lab and sets up. Departments involved in process:

Registration

Radiology

ED staff

EKG

Cardiologist

Cath Lab

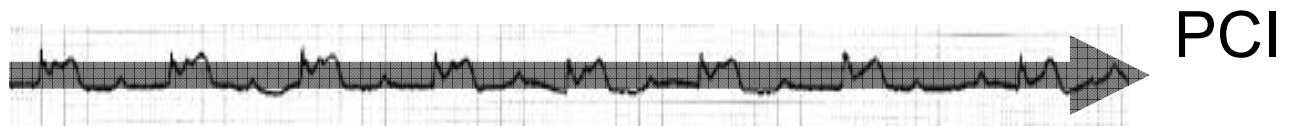
Laboratory

Access Coordinator

Security

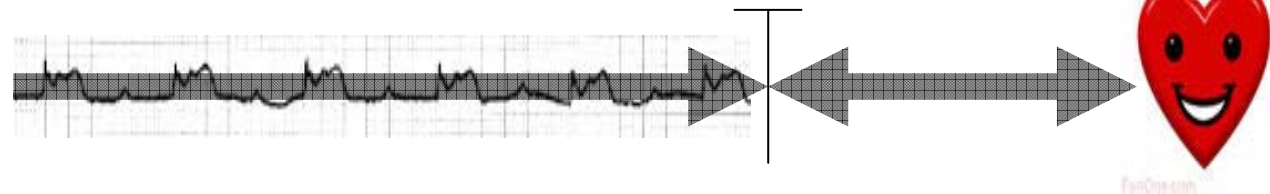
Cardiac Alert Reduces Door to PCI time

No Cardiac
Alert



110 minutes

AMI with
Cardiac Alert

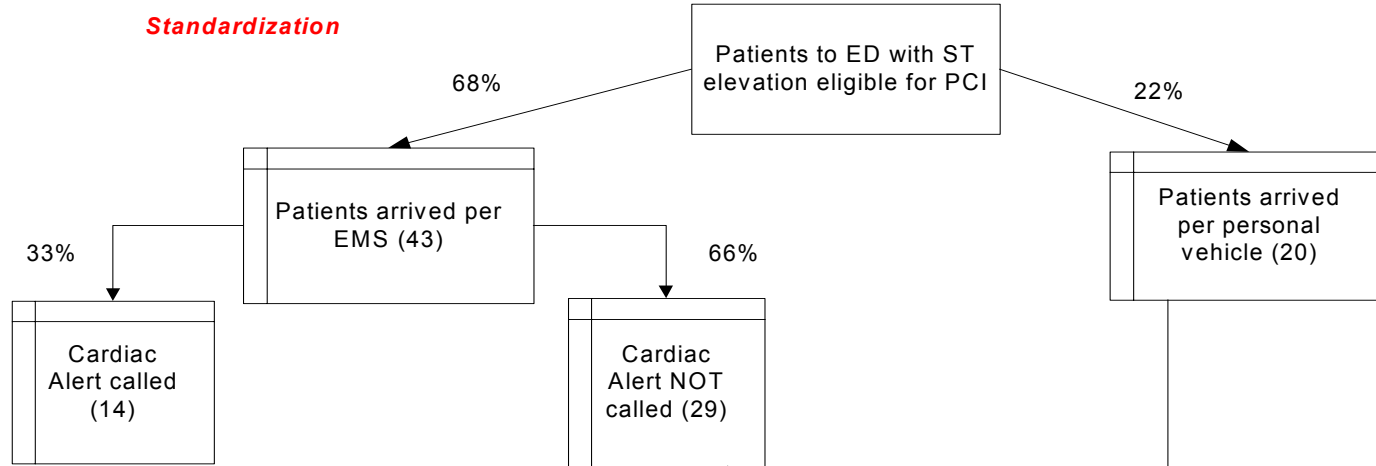


78 minutes

32 minute
difference

**AMI Reliability: Time to PCI
Sept 2003 - May 2004**

Standardization



Failure Modes
 1-Cardiac Alert not called for all patients arriving via EMS
 2-Cardiac Alert not used for patients arriving in personal; vehicles

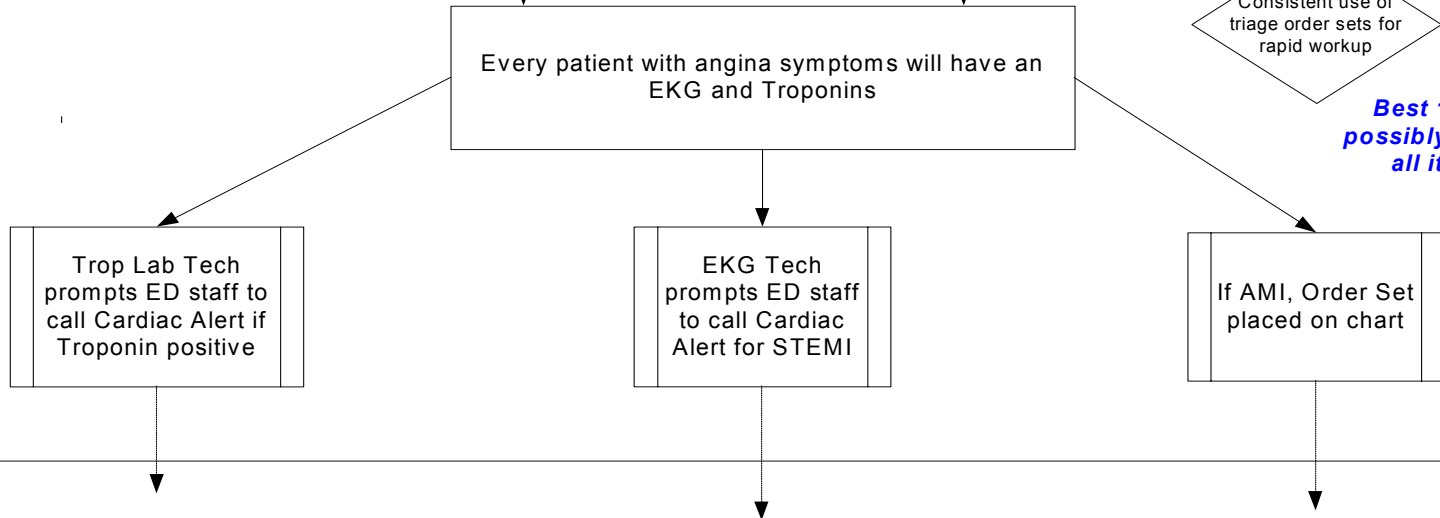
Best 10⁻¹ for all items

Reminder built into system

Consistent use of triage order sets for rapid workup

Best 10⁻¹ to possibly 10⁻² for all items

Desired action is the default



Future Steps



BARRIERS	SOLUTIONS
Delay in arrival of on-call cath lab team	In-house cath lab team
Delay in EKG	Cross training with ED RN's
Lack of 100% physician buy-in	Further education and individual physician feedback
Delay in diagnosis of patients with atypical presentation	Better use of triage order sets to exclude other diagnoses Automated analysis of EKG
Delay in PCI due to unavailability of cath lab	Assessment of patients scheduled for elective cath; these cases held in lieu of emergent cath



PAIN...

Triage Order Set requested and approved by ED Collaborative Practice but lack of physician buy-in when initiated

Lack of coordinated efforts as multiple groups responsible for same piece of process; poor delineation of responsibilities

Assurance of aspirin and Beta-blocker administration within 24 hours with use of positive Troponin's as a trigger. Pharmacy unable to continue review of Troponin results.



...AND SUCCESS

Cardiac Alert to decrease time to intervention

Initial dose of aspirin within 24 hours by adding this to AMI Order Set

Use of Case Coordination to review and obtain old Echo results as necessary

In-house Cath Team at night to decrease time to PCI

Global test of change re: smoking cessation education



What we've learned...

It is difficult to accomplish rapid tests of change in current formal committee structures.

You need to coordinate work and tests of change; analyze the effectiveness of the process and move toward standardization to effect sustainable improvement.





OUR ADVICE TO OTHERS

When looking for a fix try to understand how it will fit into the general workload – it cannot be burdensome to those who must perform the task

Try to get the most ‘bang for your buck’ with the change (i.e., global tests of change as with tobacco cessation education)

Multiple reminders can be more of an irritant than an assist

Remember to track all the cases where all indicators were met

You are not in this alone – shared learnings can advance the common good