ACS DAY 2018
A Prehospital Perspective

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Presenter Disclosure

Presenter: Nicola Little and Neil McDonald

Relationships with commercial interests:

- Grants/Research Support: **NOT APPLICABLE**
- Speakers Bureau/Honoraria: **NOT APPLICABLE**
- Consulting Fees: **NOT APPLICABLE**
- Other: Employees of **Winnipeg Fire Paramedic Service**

WFPS is a customer of FIRSTWATCH

BUILDING ON SUCCESS

Success

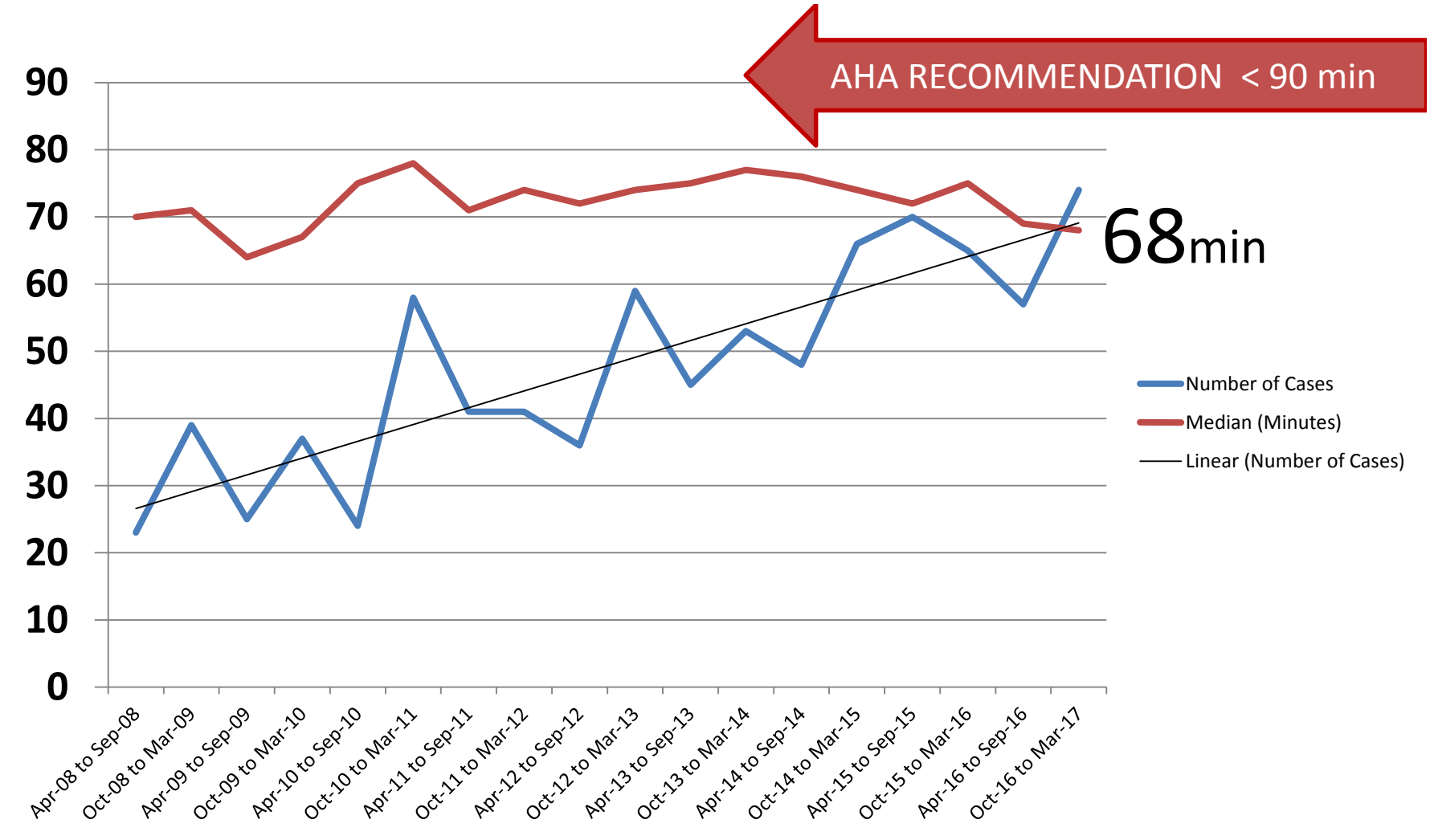
What have we accomplished so far?

Room to grow

How can we build on our accomplishments?

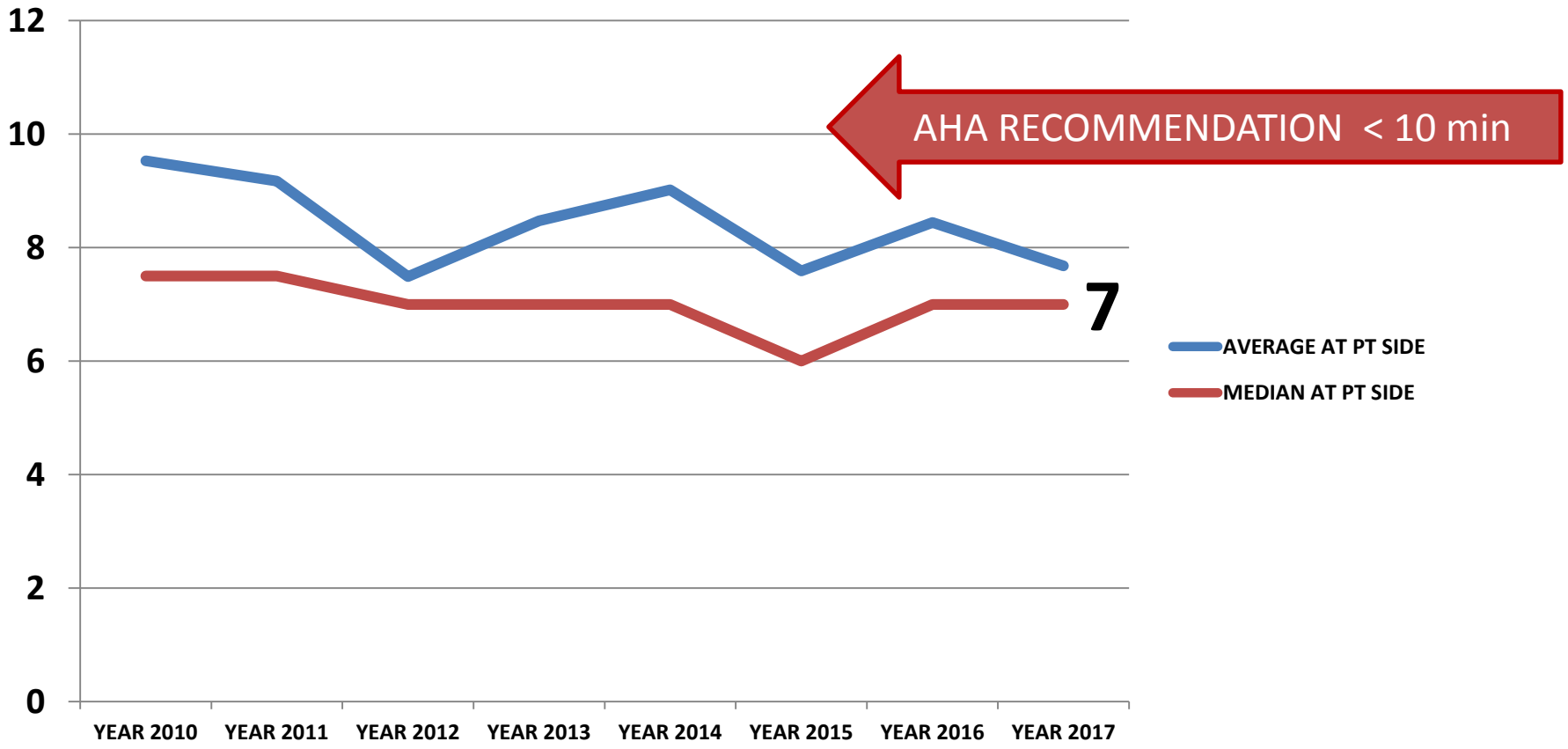
SUCCESS

EMS to DEVICE



SUCCESS

WFPS FMC to 12 lead times - STEMI



ROOM FOR IMPROVEMENT

New insight

- Patient Safety Event reporting
- First Pass surveillance

New collaboration

- Leverage the power of our data
- Improvement science and research methodology

Move the needle from good to excellent

PATIENT SAFETY EVENT REPORTING

Patient Safety Learning Summary

Lessons from PSE investigation and CIRC review

June 2017

Issue: Delay in Definitive care - ACS patients

The following incidents described are examples of actual reported events. They have been de-identified and described generically to protect the individuals involved in the incident, and the integrity of PSE reporting

Incident 1: When caring for a patient presenting with chest pain, a detailed history was taken and the patient was determined to be having chest pain related to a recent pneumonia diagnosis, no 12 lead was acquired. The patient was transported to a community hospital. On arrival at the hospital an EKG was ordered and the patient was found to be having a STEMI.

Incident 2: When caring for a patient presenting with Chest Pain, Ventricular Tachycardia was discovered in a 3 lead. The patient converted out of the lethal dysrhythmia while IV access was obtained. The chest pain was described as resolving, the patient's vitals were monitored and the patient was transported in stable condition to a community hospital. On arrival at the hospital an EKG was ordered and the patient was found to be having a STEMI.

Incident 3: When caring for a patient presenting with chest pain, a history was taken and treatment with Nitro and ASA was initiated. Upon arrival of the transporting unit, an ECG was preformed which revealed the patient was in Ventricular Tachycardia.

Event Investigation Learning: The incidents described reflect similar themes of a cluster of incidents reported in this category. The findings from the investigations into Patient Safety Events related to Delay in Definitive care had a variety of contributing factors involving human error and at risk behaviors.

Interview findings suggest there is a gap in the knowledge of providers about current AHA recommendations for First Medical Contact (FMC) to first 12 lead times of less than ten minutes.

Providers who have practiced longer may be more likely to perform a detailed history on a patient and then perform a 12 lead consecutively. They may be unaware of the new standard and less likely to hunt for a STEMI concurrently during the history taking and initial assessment with any potential ACS patient.

Interview findings suggest that history taking and assessment of a patient presenting with potential ACS is suboptimal when assessment of the cardiac rhythm, either 3 lead or 12 lead is performed consecutively rather than concurrently with the initial assessment.

Incident 1: When caring for a patient presenting with chest pain, a detailed history was taken and the patient was determined to be having chest pain related to a recent pneumonia diagnosis, no 12 lead was acquired. The patient was transported to a community hospital. On arrival at the hospital an EKG was ordered and the patient was found to be having a STEMI.

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Incident 2: When caring for a patient presenting with Chest Pain, Ventricular Tachycardia was discovered in a 3 lead. The patient converted out of the lethal dysrhythmia while IV access was obtained. The chest pain was described as resolving, the patient's vitals were monitored and the patient was transported in stable condition to a community hospital. On arrival at the hospital an EKG was ordered and the patient was found to be having a STEMI.

The following incidents described are examples of actual reported events. They have been de-identified and described generically to protect the individuals involved in the incident, and the integrity of PSE reporting

Event Investigation Learning

Interview findings suggest that history taking and assessment of a patient presenting with potential ACS is suboptimal when assessment of the cardiac rhythm, either 3 lead or 12 lead is performed consecutively rather than concurrently with the initial assessment.

This is of particular significance with patients that present atypically, with more than one chief complaint or when there is a potential lethal dysrhythmia.

At a system level, the success of the Code STEMI program suggests WFPS performance is above average for these patients. While this is true and should be acknowledged, there is evidence by a cluster of events that there are cases being missed.

Reduce the number of cases with delays in definitive care for ACS patients.

AHA recommendation for **FMC to 12 lead** targets should be communicated to WFPS paramedics.

Promotion of early cardiac monitor assessment, both 3 lead and 12 lead for all potential ACS cases is recommended.

Consideration should be given to protocol language that supports current AHA recommendations and early ECG acquisition that is performed concurrently with initial assessment for all potential ACS patients.

CIRC RECOMMENDATIONS

A Quality Improvement initiative should be launched and measured by the Service Quality Branch to leverage the success of the Code STEMI program with a goal to improve FMC to 12 lead times in all potential ACS cases.

FIRSTPASS

The WFPS Medical Quality Assurance program is administered out of the Service Quality Branch in partnership with the Medical Director's Office. The program functions to meet requirements of the Emergency Medical Response and Stretcher Transportation Act and uphold WFPS standards and ensure the provision of quality patient care to the citizens of Winnipeg. A significant component of this program is the review of patient care through evaluation of protocol and procedure compliance.

FIRSTPASS is a software tool used to monitor 100% of all electronic patient care reports for system wide and paramedic compliance to WFPS goals of care. FirstPass *will assist in the identification of relevant Quality Improvement initiatives and Training Support for WFPS paramedics*

WFPS Service Quality Branch will regularly report FirstPass system performance scores in order to acknowledge success and support quality improvement initiatives that are recommended by the Service Quality Branch

FIRSTPASS

TEST : 12 lead acquired within 10 min of patient contact

Date range: 1/1/2017-6/30/2017

Protocol	Test	Total Incidents	Overall Test %
ACS		824	74.88%
	12 lead within 10 minutes of patient contact		

Protocol	Test	Total Incidents	Overall Test %
STEMI		95	85.26%
	12 lead within 10 minutes of patient contact		

Date range : 7/1/2017-12/31/2017

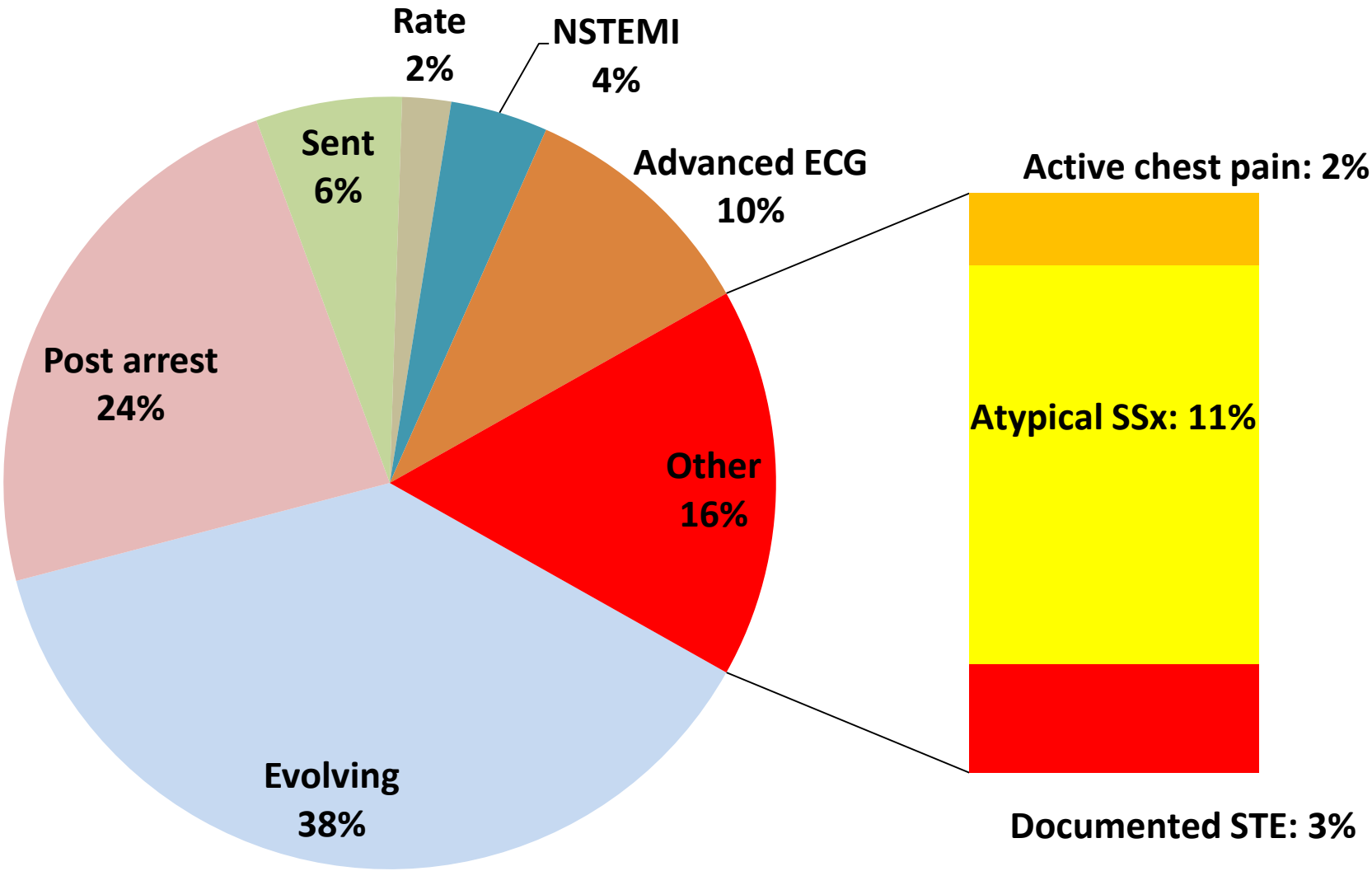
Protocol	Test	Total Incidents	Overall Test %
ACS		835	82.99%
	12 lead within 10 minutes of patient contact		

Protocol	Test	Total Incidents	Overall Test %
STEMI		89	92.13%
	12 lead within 10 minutes of patient contact		

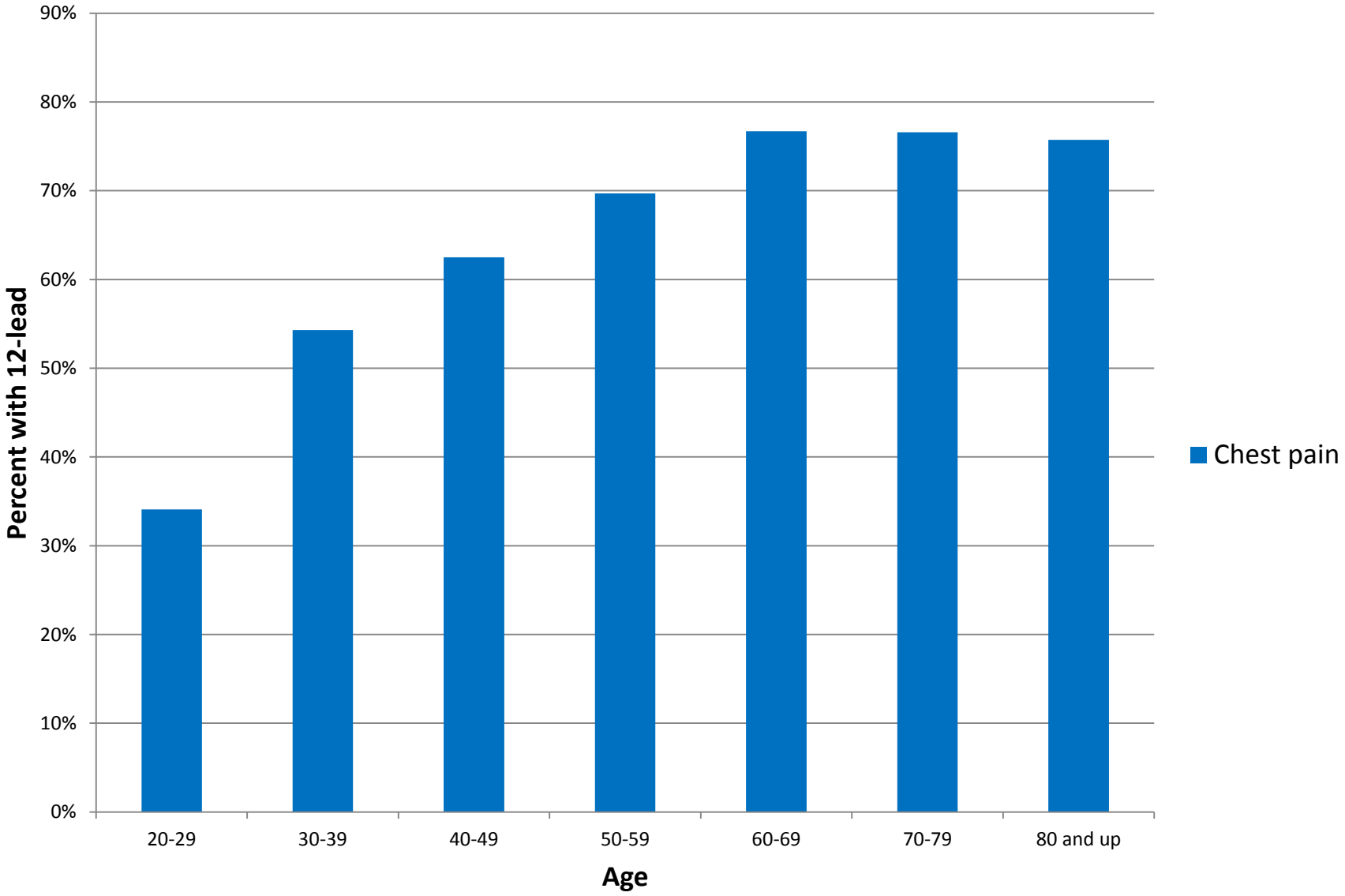
DIVE INTO THE DATA

- Stemi re-transport
- 12 lead data acquisition atypical ACS criteria

STEMI RE-TRANSPORTS



12-leads performed, by complaint and age range



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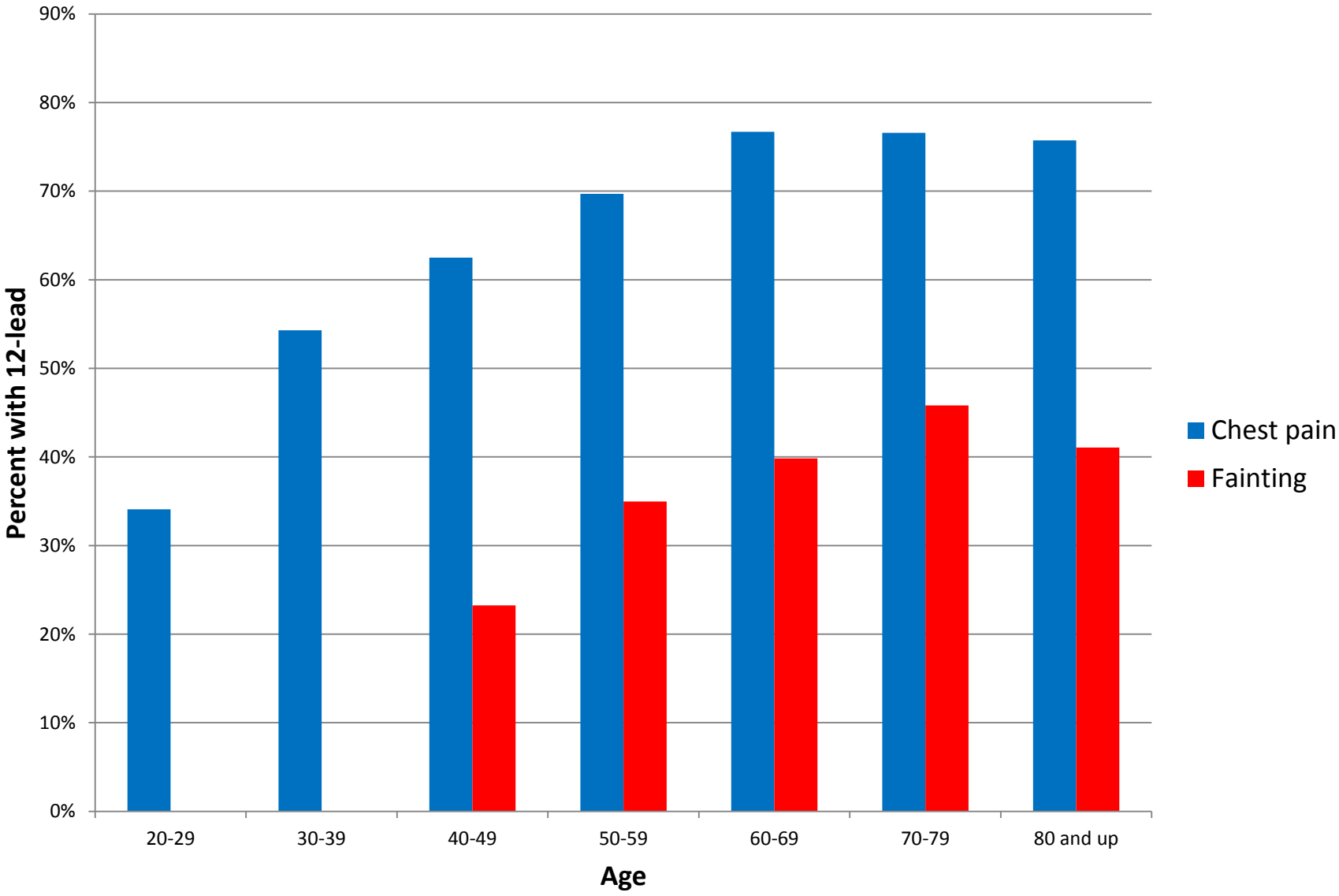

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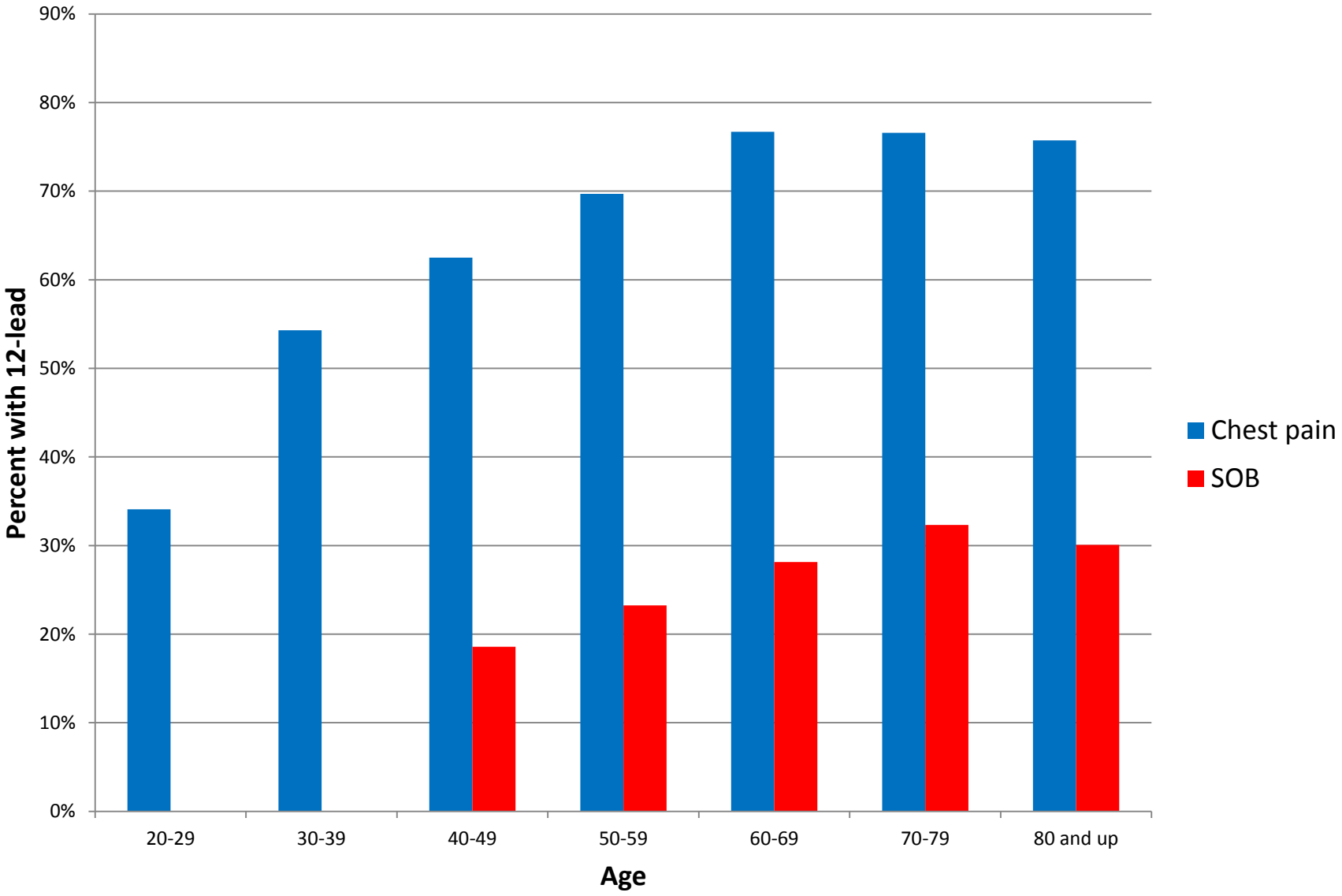

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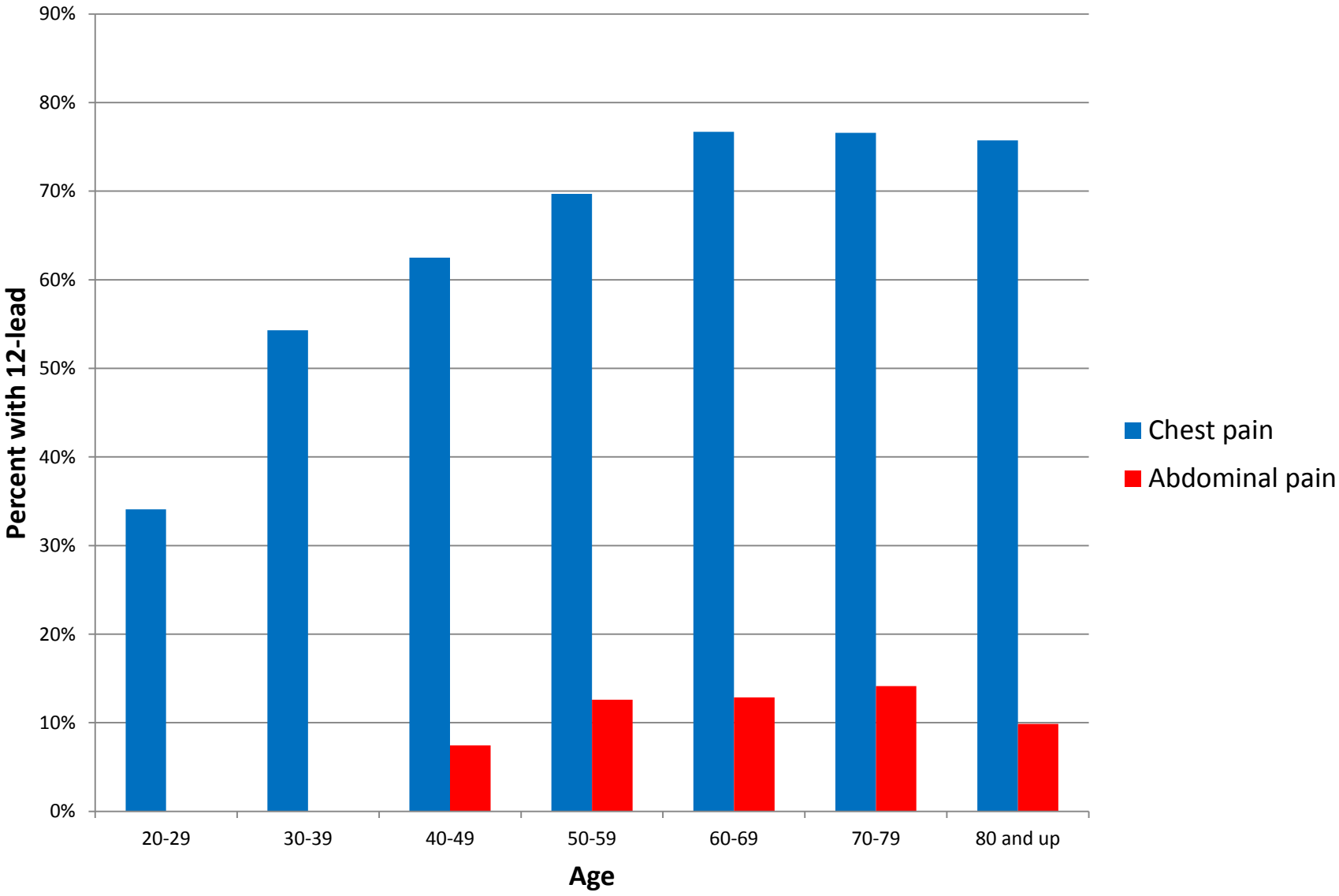

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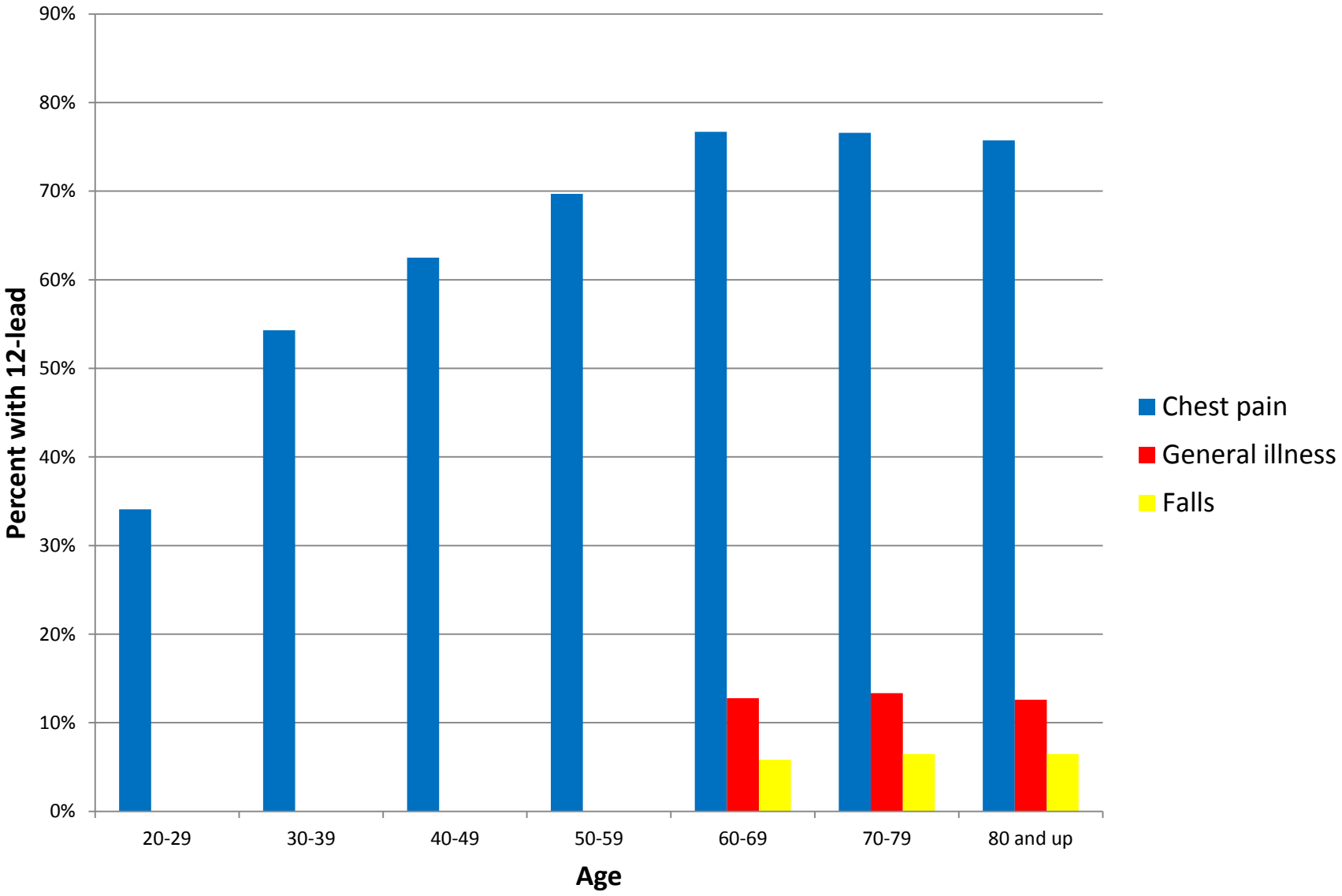


QUALITY IMPROVEMENT AIM

Improve outcomes for patients who are seen and treated by WFPS who are suffering from Acute Coronary Syndromes.

SMART QI AIM

Protocol changes

Education and Training…Explain the WHY

Monitor and Measure for improvement

PDSA

Winnipeg Fire Paramedic Service

Patient Care Protocol

Adult (17 years and greater)

Suspected Acute Coronary Syndrome (ACS)

PCP to Medical Supervisor

ICP to Medical Supervisor

ACP and Medical Supervisor

Medical Supervisor only

Confirm: Symptoms [l] suggestive of myocardial ischemia

- Obtain vital signs and perform cardiac monitoring[a], including 12 lead ECG [m]
- Low dose **ASA** [b] 160 mg PO
- If symptoms [l] consistent with ACS and blood pressure greater than 100 systolic:
  - **NITROGLYCERIN SPRAY** 0.4 mg SL [c,d] q5 min (with patient supine or sitting with legs elevated)
  - Apply **NITRO PATCH** 0.2 mg/hour [e] with 2nd **NITRO SPRAY**
- Repeat 12 lead ECG q15 min. if persistent ACS symptoms [i]

Winnipeg Fire Paramedic Service

Patient Care Protocol

Adult (17 years and greater)

Suspected Acute Coronary Syndrome (ACS)

l. In general, a 12 lead should be obtained in adults with a suspected cardiac cause. A substantial number of patients may present with complaints other than chest discomfort, in particular, older patients, women and diabetics. The following patient presentations are at high risk for STEMI or ACS related mortality and warrant timely evaluation with a 12 lead ECG.

- Any patient over 30 with chest pain
- Any patient over 50 with chest pain, dyspnea, altered mental status, syncope, weakness or upper extremity pain
- Any patient over 70 with any of the above or abdominal pain, nausea, vomiting
- Any patient with any condition that would warrant investigation such as family history and risk factors

Providers should consider 12 lead acquisition as part of initial ACS assessment. Where there is clinical suspicion, 12 lead acquisition should be performed concurrently with vitals and history taking wherever possible.

m. AHA recommendations are that first medical contact to 12 lead acquisition occurs within 10 minutes.

The above criteria is informed by a study by G.Reeder and others.

The proposed criteria should not replace clinical judgement, clinicians are encouraged to obtain an ECG based upon clinical judgement

PROCESS MEASURE #1

INCREASE THE PERCENTAGE OF PATIENTS WHO PRESENT WITH TYPICAL AND **ATYPICAL** SYMPTOMS OF ACS THAT RECEIVE 12 LEAD ACQUISITION FROM **21%** TO **50%** IN 12 MONTHS

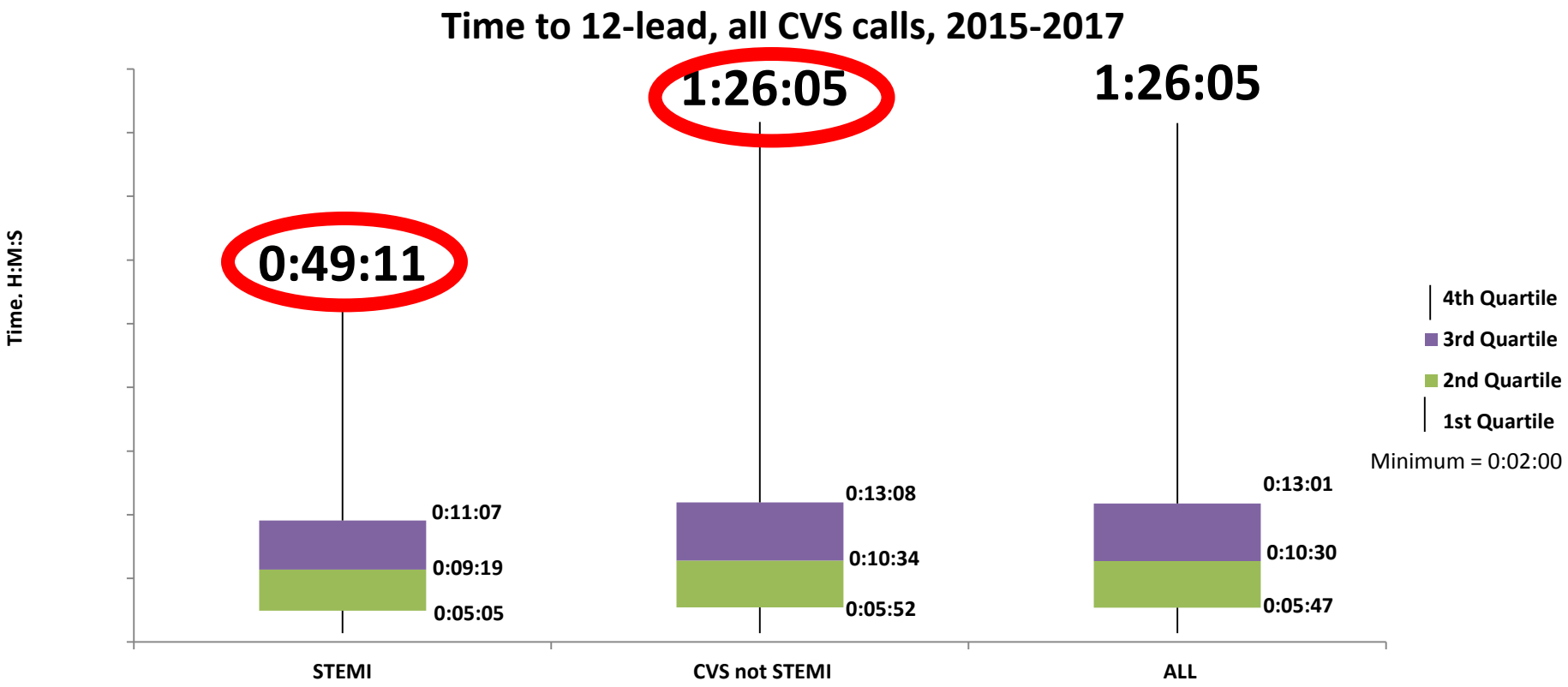
12 Lead Acquisition by Determinant

Determinant	12 Lead Conducted N	12 Lead Conducted Y
Heart Problems/A.I.C.D.	49.11%	50.89%
Back Pain (Non Traumatic)	96.33%	3.67%
Chest Pain (Non Traumatic)	33.03%	66.97%
Abdominal Pain/Problems	92.20%	7.80%
Unconscious/Fainting (Near)	70.92%	29.08%
Breathing Problems	76.41%	23.59%
Sick Person (Specific Diagnosis)	89.98%	10.02%
Falls	94.29%	5.71%
Grand Total	78.36%	21.64%

New protocol criteria applied to retrospective data shows 12 lead acquisition has room for improvement.

PROCESS MEASURE #2

Reduce outliers in FMC to 12 lead times



BALANCING MEASURES

FMC-12 lead times?

False positives?

Others ?

BUILD ON SUCCESS AND MOVE THE NEEDLE FROM GOOD TO EXCELLENT

QUESTIONS ?