PROJECT UPSTART

Excellence in R2R

The Use of Procedural Standardization to Reduce Recognition to Reperfusion (R2R) Time in STEMI

“A system-based, quality improvement program designed to help institutions efficiently optimize care of patients with ST-Elevation Myocardial Infarction (STEMI)”

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Welcome to the introductory manual for Project UPSTART!

Project UPSTART is a no-cost quality improvement program developed at the University of Virginia to assist hospitals and systems minimize time to reperfusion in ST-Elevation Myocardial Infarction (STEMI). It has been designed and tested by emergency providers for emergency providers and offers a systematic and practical approach to improving the entire continuum of STEMI care—from pre-hospital ECG thru final reperfusion therapy.

Each hospital that excels in the treatment of STEMI has had to address the same common difficulties. These same challenges are present in every system. At Project UPSTART we have designed and tested a flexible approach to STEMI reperfusion that carefully addresses each of this important issue. Solutions have been imbedded within the process, maximizing results while minimizing “trial and error” learning.

Consider Project UPSTART a “reperfusion toolkit” – a set of interlinked processes, forms, ideas and educational materials – carefully developed to help you “perfect the basics.” Implementation is straightforward. First, you customize the general UPSTART approach with details specific to your site. Next, you educate your providers and physicians via our internet training module. Then, you “go live” and let the process drive further improvement.

Project UPSTART will help you improve your STEMI treatment processes -regardless if you utilize on-site PCI or thrombolytics and/or transfer your patients for additional treatment. Equally as important, we have made the STEMI quality improvement process as streamlined as possible. Materials and ideas are available to help you at every step, particularly with staff training and implementation. No participation fees are charged.

The following manual provides an introduction to Project UPSTART and the concepts and ideas behind its development. It discusses many of the items that are available to support the use of Project UPSTART within your facility, including the STEMI ALERT Packet forms and templates, the project support website and our comprehensive provider education and training.

Please contact us at info@projectupstart.com or visit the project website: www.projectupstart.com for more information. We look forward to working with you.

Sincerely,

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What is Project UPSTART?

Think of it as an “All-Purpose STEMI Reperfusion Toolkit!”

UPSTART is a quality improvement tool specifically developed to minimize R2R (recognition to reperfusion) time in acute ST-Elevation MI (STEMI). It’s based on the principals of early STEMI identification, efficient decision making and the utilization of finely tuned protocols to minimize delay. It also incorporates accurate measurement of key intervals in the STEMI treatment process as a means to facilitate continued improvement.

UPSTART is a free program, available to anyone. Realizing that no two hospital systems are exactly the same, we have taken the key elements of STEMI care and integrated them into a standardized program that is expressly designed for customization to fit each hospital. Regardless of whether an institution utilizes primary PCI, thrombolytics or transfer, UPSTART focuses on minimizing time to reperfusion for each patient.

UPSTART fully integrates EMS into the STEMI treatment process -including the use of pre-hospital ECG. It directly addresses the issue of minimizing transfer times when transfer is utilized and incorporates measurement of transfer times into the overall process.

Realizing that education is extremely important, we have designed a state-of-the-art website to assist in implementation and staff training, including an efficient provider training module. UPSTART also incorporates rapid and accurate individual and group feedback as a tool in driving improvement.

UPSTART facilitates the concept of regionalized STEMI care as appropriate. By focusing on optimizing current treatment strategies and consistently measuring the results, UPSTART provides the accurate information needed to determine if current strategies can be optimized to meet reperfusion goals or if they needed to be re-evaluated.

Finding the resources and time to devote to the optimization of STEMI care can be difficult, particularly long-term. For this reason, UPSTART focuses on providing a best-practices approach to STEMI reperfusion that is easily implemented, adaptable to any system, economical and time efficient.

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Top Ten Questions:

1. **What exactly is Project UPSTART?**
   Project UPSTART is a quality improvement tool designed to help individual hospitals or systems design and implement efficient STEMI treatment programs. It provides a generalized approach that is then adapted to each institution, according to their specific needs. To facilitate this process, it also provides a large number of standardized processes, protocols and educational resources.

2. **Where was UPSTART developed?**
   Project UPSTART (in its final form) was developed at the University of Virginia as a cooperative effort between emergency medicine, cardiology, EMS and the department of quality improvement. In addition it utilizes ideas and concepts from many other systems. Our goal was to integrate as many “best practice” ideas as possible directly into the program.

3. **How much does it cost? Is it compatible with other initiatives, etc?**
   Project UPSTART is a free public service project. Any interested individual hospital, system or organization may use it. We do not charge participation fees or benefit monetarily. It is not associated with any one organization. However, it was carefully designed to complement STEMI improvement initiatives and facilitates measurement of key data points (including AMI core measures).

4. **What makes Project UPSTART unique?**
   The basic essentials of efficient STEMI management (early identification, process measurement, etc) are actually well known. The difficulty is in consistent application of these principles in a simplified, consistent manner! Project UPSTART provides a complete, systematic, proven method of incorporating these principles in the most efficient manner possible. It offers a simplified, reproducible, “modular” approach that incorporates solutions to many difficult problems directly into the process, before they even become an issue.

5. **Is it difficult to use? Will it increase our paperwork load?**
   No and no. Project UPSTART was expressly designed to simplify and streamline the STEMI treatment process, not complicate it. By providing a generalized (yet customizable) approach, UPSTART minimizes “reinventing the wheel.” By standardizing forms, protocols, and education (where possible) it increases efficiency. An emphasis is placed on minimizing paperwork while still collecting valuable quality improvement data. You can’t improve what you don’t measure!

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6. Can UPSTART be used at non-PCI sites or by multi-site systems?
The generalized UPSTART approach works equally well at PCI and non-PCI sites or those facilities that utilize inter-facility transfer of patients. Whatever particular treatment strategy a site utilizes is incorporated into the process. The project focus is on optimizing that process and measuring the results; this data is then used to facilitate ongoing improvement. An emphasis on accurate measurement of R2R (recognition to reperfusion) time for every STEMI patient facilitates regional approaches and inter-facility cooperative efforts.

7. How has this program been validated? How well does it work?
The Project UPSTART approach was developed in actual emergency departments over a several-year period of trial and error. All its major concepts and processes have been constantly “field tested” and continuously refined. Since initiation it has been utilized in multiple hospitals and systems and has been extremely effective in reducing median time to reperfusion and minimizing standard deviation. We are currently collecting additional data.

8. How difficult is implementation?
It true -any changes takes time! Project UPSTART focuses on making the implementation process as simple and efficient as possible. Not only is the entire process standardized and tested, but each site has free access to a wide variety of tools to simplify the process, including form templates, instructional manuals and videos, a state-of-the-art website, an internet-based multimedia staff education module and a complete implementation package.

9. How long is the implementation process? What is involved?
Complete implementation usually takes about 3-5 weeks. The initial steps including appointing a site coordinator and completing a short data collection sheet. Next, the basic UPSTART forms are customized to each site. Once this is done, ED staff is notified of the process and are directed to the “Provider Training Module” at www.projectupstart.com (or via DVD) for education. Finally, STEMI ALERT Packets are placed in the ED. You are now ready.

10. Where can additional information be obtained?
Please visit our project UPSTART website at www.projectupstart.com or email us at info@projectupstart.com. The website contains additional materials, provides access to the provider training module, and shows examples of the project paperwork, etc.
A standardized “Screening ECG Protocol” to simplify early STEMI detection (example A). Post copies in ED and triage areas to guide staff.

A carefully tested and proven “STEMI ALERT Process” that insures consistent and rapid response to every STEMI, minimizing error and delay.

An efficiently designed “STEMI ALERT Packet” that is customized to each site (example B). When a STEMI occurs, a packet is opened and carefully guides the treatment process. A simple yet effective solution.

A fully integrated educational website: www.projectupstart.com (example C).

An internet-based, state-of-the-art “staff education and training module.” Carefully designed to simplify staff education and implementation.

**Accurate data collection.** “Recognition to Reperfusion” time is measured for every STEMI patient –even transfers. Facilitates quality improvement.

The benefits of **standardization** - carefully developed template paperwork and processes increase efficiency and facilitate implementation.

A free quality improvement program from the University of Virginia. Contact info@projectupstart.com for more information.
I. Practical STEMI Management: An introduction

At its most basic level, optimizing acute STEMI care requires perfecting two fundamental processes within your hospital or system:

1) Early STEMI recognition

2) Emergent reperfusion

Without a systematic & efficient approach to improving these two processes, you simply will not be able to create the best possible system, nor will you be able to fully capitalize on what we call “additional opportunities” for “fine tuning” the “Recognition to Reperfusion” interval.

In other words, sustainable improvements cannot be made without first “patiently perfecting” the underlying basic processes. These basic processes must be simple enough to be understood and performed by all involved staff, all of the time, without error! Perfecting your basic STEMI care processes should receive your full attention. Only after you have these working error free (most of the time, anyways) should you focus your time and effort on more advanced concepts.

This can be a difficult lesson to learn. We often look to technology to improve the quality of medical care we offer our patients. This is rarely the case with STEMI care. The solutions to our problems lie in the improved utilization of what we already know.

Example: A PCI center funds technology for transmission of pre-hospital ECGs–hoping to improve STEMI care. However they fail to implement a standardized in-hospital “STEMI ALERT” to utilize this new data efficiently. EMS providers become frustrated as times do not appreciably improve.

Solution: Utilize all possible strategies to improve steps 1 & 2. Perfect the basics first!

- **Step 1:** Optimize your basic recognition process.
  
  Solution: A carefully monitored and efficient process for the immediate detection of STEMI must be in continuous operation at all times.

- **Step II:** Streamline your “progression to reperfusion” – regardless of the chosen reperfusion strategy of your institution.
  
  Solution: Upon recognition of STEMI, a clearly defined cascade of actions should immediately be triggered – a “STEMI ALERT” response.

Again, you must learn to walk before you can run! Concentrate first on improving the basics of STEMI care - Recognition and Reperfusion. These are your foundation for all additional improvements.

**This is the focus of Project UPSTART:** To provide an adaptable and proven approach that can be easily adjusted to optimize STEMI “Recognition and Reperfusion” in any system. Project UPSTART utilizes many mechanisms and processes that combine to incrementally improve STEMI care. Many of these are not immediately obvious since they are often subtle and directly incorporated into the basic process. Unless we point them out, you may not appreciate them or recognize their significance!
II. Day-to-day STEMI management: A systematic approach

Obviously, no two systems are exactly alike. However successful solutions in one system can often be successfully adapted to solve the same problems in another system. Why re-invent the wheel?

The following concepts appear to be absolute requirements for a sustainable, effective approach to STEMI management. We have yet to find a successful approach that fails to fully endorse these key ideas!

- **Simplicity in design is an essential.** The entire STEMI treatment pathway (from recognition thru reperfusion) must be simple and reproducible. The day-to-day recognition and treatment process must be clearly understood and executed by all levels of emergency staff and providers—not just the physician! **Lesson: Keep it simple!**

- **A carefully designed systematic approach (NOT individual provider competency) is the key to continued excellence.** The system must be designed to facilitate competence in all providers, not just highly motivated or knowledgeable individuals. It should incorporate processes that are easily learned and based on concrete decision points so as to minimize error under stress. **Lesson: Perfect your system so that your providers can provide perfect care.**

- **Performance must be continually assessed.** Ongoing measurement of reperfusion time for each STEMI case (including transfer patients) is essential. Accurate data on outcomes drives improvement. You cannot improve what you do not measure and your staff will not measure if the process is cumbersome. **Lesson: Design a process that efficiently reperfusion times for each STEMI case.**

- **Extra paperwork and unnecessary tasks must be minimized.** A properly designed process minimizes unnecessary tasks, not create more. Data collection must not interfere with patient management or contribute to confusion or delay. **Lesson: No extra or unnecessary paperwork!**

In summary, the end result must always be a simple, sustainable process that functions reliably with efficient use of resources. It should promote provider excellence but not be dependent on individual provider competence. It should involve the consistent measurement of reperfusion times for each case.

The development of such a process might appear to be difficult and time consuming. It can take a great deal of time and effort to completely understand the entire STEMI treatment process at your institution and design your “best practices” approach.

However, once the planning stage is done, the result must be a simple and efficient day-to-day process. **It cannot be emphasized enough: The day-to-day actual process of STEMI recognition and reperfusion must be clearly defined and based on simple actions and clear decision points.** When a STEMI is recognized, treatment should then be based on execution of pre-planned protocols.

It bears repeating one more time: Lack of attention to the basics of STEMI care is a common point of failure. Hospitals and systems do not spend enough time on getting key actions and concepts “exactly right” and instead concentrate more glamorous or exciting ideas. It’s analogous to building a house: A poor foundation will eventually cause problems on the second and third floors. Make sure you spend the time to complete “your foundation” before moving on to more exciting concepts.
III. Project UPSTART: An introduction to key actions

As we have discussed at length, the ideal day-to-day approach to acute STEMI management must be standardized and efficient. It should be based on simple, easily executed actions and should include accurate measurement of outcomes. Responsibility for performing key actions must be shared by all staff.

Project UPSTART addresses these important concepts with a carefully designed process that relies on just 4 key “day-to-day” actions: Notice how simple these actions truly are—not at all complicated!

- The use of rapid ECGs to constantly screen for STEMI
- The opening of a “STEMI ALERT Packet” for every STEMI
- The completion of two data sheets during each STEMI Alert
- The delivery (and use) of case-by-case data to drive continued improvement

Project UPSTART: Further explanation of these basics:

- Each site utilizes the standardized UPSTART “Screening ECG Protocol” to determine which patients need an immediate screening ECG. Use of this protocol increases compliance, leads to earlier detection of STEMI, and reduces the chances of a delayed diagnosis. We provide the protocol, you use it.

- When a STEMI is detected, a STEMI ALERT is activated. A specially designed “STEMI ALERT Packet” is opened immediately. It provides the physician and ED staff clear and immediate “in hand” guidance on emergent management of each patient. Exact details are specific to that site. We provide you the template; you provide the details used to customize it.

- During each STEMI ALERT, two simple data collection sheets (found in the packet) are completed. These sheets quickly collect real-time data on that particular STEMI ALERT and measure reperfusion time for that particular STEMI patient. Data collection does not interfere with treatment and also helps provides cues for the caregivers. Accurate measurement: Built right into the process.

- The data collected during each STEMI ALERT is directly routed to specified quality improvement staff for quick review. This facilitates ongoing improvement. If the patient is transferred to another facility, a copy of the data sheet is sent with them and provides information vital for interfacility feedback. Real-time quality improvement data: Automatically sent wherever you want it to go.

As you can see, the above processes are simple and should be consistently achievable in any emergency environment. They are not difficult, nor are they time consuming. Equally as importantly, they directly involve all members of the care team in the quality improvement process. Everyone has an equally important role: What good is the most finely-tuned reperfusion plan if your triage person forgets that one crucial ECG?

We have developed the Project UPSTART “Basic Processes Flowchart” to visually demonstrate how the entire process functions to optimize the STEMI “R2R” interval. Please review the “Basic Processes Flowchart” on the following page. It again clearly illustrates the generalized UPSTART approach to STEMI care and the simplicity of the steps that lead to sustained success.

It’s important to appreciate the flexibly that such an approach offers. Since success is built on simple key actions (further customized by site-specific details) it is relatively easy to update your processes as adjustments are made in guidelines or as treatment options advance. However, your basic process will remain the same.
STEMI Detection & Management: 4 Keys to Improvement

1. Use ECGs to constantly screen patients for STEMI
2. Once a STEMI is detected, open a STEMI ALERT PACKET
3. During a STEMI ALERT, complete Data Sheets A and B
4. After the ALERT, follow instructions for Data Management

1. Using the UPSTART Screening ECG Protocol as a guide, ECGs are quickly presented to the ED physician for evaluation

EMS

Triage

Main ED

Chest Pain Center

ECG indicates STEMI ???

YES (STEMI Recognition)

Normal Triage and Treatment

STEMI ALERT Activated!

2. Once a STEMI is detected, a red STEMI ALERT PACKET is immediately opened. The checklists and data sheets inside are distributed. These help guide treatment and collect data.

3. Initial portions of Data Sheets A and B completed in ED during STEMI ALERT

TREATMENT (Reperfusion)

Patient receives on-site PCI or thrombolytics (or is transferred)

4. Data Management:
   - Data Sheet A and checklists collected in ED and sent to ED QI person
   - Data Sheet B transferred with patient

DATA SHEET A

Remains in ED after ALERT

DATA SHEET B

Always transfers with patient to final treatment site, i.e. PCI lab or another facility

Providers use checklists to decrease errors and minimize time to reperfusion

Data Sheet A

Data Sheet B

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IV. Project UPSTART: More detail on key points

Please note the following key points regarding the general UPSTART process: Unless you are an expert in quality improvement, you may not immediately recognize their significance........

- The process is extremely simple -dependent on basic actions and clear instructions. Do any of them appear unachievable in your emergency department?

- Many components and processes are standardized. This “modular” approach facilitates implementation. Why invent your own forms and training program etc, from scratch? Instead, utilize energy on adapting and implementing existing and proven ideas. “Mix and match” the components that fit your needs.

- The generalized UPSTART approach is easily adapted to any treatment strategy –emergent PCI, thrombolysis or interfacility transfer. Whatever the preferred strategy, optimize the details and “put them in the packet.” (We will show you how to do this later.)

- Accurate data collection is an integral strategy. We have imbedded a data collection loop within the process -assuring accurate and immediate collection of QI data on every STEMI. Two data sheets guards against data loss –just like a spare key!

- Adjustments to the process can be made easily –without altering the basic approach. This is important: The general process for your staff will always be the same, even if details change. Consistency breeds quality. For example forms are color-coded for instant identification!

- UPSTART makes it much easier for facilities to work together since each facility utilizes the same basic process. The data collection loops provide an accurate method for measuring transfer times, etc. If you are a non-PCI center that transfers STEMI patients, don’t you want to know their final outcome?

- Every action has a purpose. Each component of the process (in some manner) contributes to short and/or long-term optimization of STEMI care for your patients. The process optimizes STEMI treatment today and provides data for improving the STEMI that is going to occur tomorrow.

- Each key action is easily performed and/or understood by all levels of care providers. Thus, the same education process can be utilized for all levels of staff. If everyone understands the general process, everyone works more efficiently. We will discuss the “UPSTART Provider Training Module” in more detail later.

V. Basic Components of the UPSTART process

Project UPSTART utilizes a standardized approach to STEMI management that focuses on ease of implementation. Most of the forms and materials utilized within the general process have been designed as “modular components” that can be adopted for instant use (i.e. the “Screening ECG Protocol”) or are designed for in-depth modification to fit individual site requirements (i.e. the STEMI ALERT Packet forms). For example, PCI centers will end up with a STEMI ALERT process that focuses on rapid notification of the cardiologist (and cath lab) and rapid preparation of the patient for the cath lab. Non-PCI sites will likely end up with a process that focuses on rapid assessment of the patient for possible thrombolytic therapy and/or activation of the transport chain.
This brings us to a good point -what separates facilities with “good” reperfusion times from those facilities with “excellent” times? At first glance, their approaches may appear very similar.

The answer is often found in the attention to detail (or lack of). If too many critical points are ignored or neglected, performance declines. This often occurs cumulatively. Project UPSTART is no different. Its success in helping institutions improve from “good” to excellent” relies on many small details to fully optimize each step of the reperfusion process. Each detail provides incremental value. Thus, results are most consistent if you fully utilize all components of the process together. Commonly encountered mistakes include:

….. ….Failure to fully educate staff prior to go-live……not posting the Screening ECG protocol in the ED…..attempting to use an electronic version of the process…..not completing the (2) data sheets……not placing the STEMI ALERT Packets in a conspicuous location……ED staff failing to open the packet…… too much (or too little) detail on the STEMI ALERT Packet checklists……not color-coding the packet forms……altering any single form too much………not emphasizing the screening ECG ……physicians failing to screen fresh ECGs…..new staff not receiving their UPSTART education……adapting only parts of the complete process….complicating the forms to collect more data….relying on the electronic record to collect QI data……not constantly adhering to the 4 key steps…… failure to follow-up on known QI issues…..

Learn from the mistakes and successes of others: For greatest improvement, implement and utilize the entire process as a carefully designed and integrated system.

The following pages list and discuss key processes and concepts that form the framework for the efficient utilization of Project UPSTART materials in designing your own best-practices approach to STEMI care. Also discussed are several important ideas (including process implementation and provider training) that are integral to success, yet are not by definition part of the core process. A familiarity with the following will enhance your understanding of the complete process:

- The UPSTART “Screening ECG Protocol”
- The STEMI ALERT Process
- The UPSTART STEMI ALERT Packet
- Individual contents of the STEMI ALERT Packet
- Auxiliary Materials (not used at every site)
- The implementation process
- The UPSTART “Provider Training Module” and project website

Note: For a more in-depth discussion of these and other materials please refer to Project UPSTART: A Comprehensive Guide. This document contains more complete information of all aspects of Project UPSTART, including further discussion of key points, the applicability of this process in developing cooperative systems of care and additional information on implementation and provider training. It is available (as are all other components, templates and materials) at www.projectupstart.com (as downloadable versions) or you can email us at info@projectupstart.com for more details.
V1. The Project UPSTART Screening ECG Protocol

The use of the Project UPSTART “Screening ECG Protocol” provides very clear guidelines in answering that crucial first question: **Does this patient require a screening ECG?**

**Question:** Why do we place so much emphasis on the screening ECG?

**Answer:** Without early recognition there can be no progress towards early reperfusion. Delayed time to recognition is time wasted!

Even though STEMI recognition is the logical first step, it’s often the most neglected part of the process. This is unfortunate, since without early recognition there can be no progress towards early reperfusion!

Please reflect on the following points regarding the screening ECG:

- The prompt recognition of ST-Elevation Myocardial Infarction (STEMI) on ECG is the crucial first step. Yet, this step usually occurs well before the ED physician is involved in the case.

- The clinical exam in STEMI is not reliable. Without a reference protocol, staff will rely on clinical judgment for determining who needs an ECG. This can be dangerous and will eventually lead to a missed or delayed diagnosis. Without a clear guide, it’s tempting to skip ECGs when it’s busy.

- The UPSTART screening ECG protocol provides clear accessible guidelines for quick staff reference. It is also easily adaptable for use by EMS.

- The Screening ECG Protocol is attractively designed and printed on durable material, suitable for posting in all areas of the emergency department.

- Utilization of an existing protocol allows shifting of your valuable time and effort to other tasks – no need to “reinvent the wheel.” Spend your efforts on implementation, not the design.

Obtaining the screening ECG is usually the role of ED and triage staff. As a result, we feel that concentrated staff education on this topic can produce impressive improvements in STEMI care. As a result the “Provider Training Module” discusses the importance of the screening ECG in great detail.

As part of the implementation process we will provide you with an “UPSTART implementation kit” that contains multiple copies of the Screening ECG Protocol. It is also available to you as a JPEG image so that you can print your own copies as needed.

As you can tell by the amount of attention we devote to the process, we feel that the initial STEMI screening process is an extremely important part of the process, yet one that is often underappreciated. Do not make this mistake. Spend the time and energy required to optimize the Recognition phase in your system.

**Carefully review the full-size copy of the UPSTART “Screening ECG Protocol” found on the following page.** Notice the clarity of detail and the “yes or no” approach to help your staff determine who does (or does not) need that initial screening ECG.
Who requires a screening ECG?

**Patients > 30 years old** experiencing any of the following:

- Chest pain or discomfort
- Chest pressure or tightness
- "Heartburn" or epigastric pain
- Complaints of "heart racing" (HR >150 or irregular and >120)
- Complaints of "heart too slow" (HR < 50 and symptomatic)
- A syncopal episode or severe weakness in patients > 45 years old
- New onset stroke symptoms (< 24 hours old)
- Difficulty breathing (with no obvious non-cardiac cause)

*These patients require an ECG immediately in any available bed or at triage. Time to ECG < 5 minutes!*

**Patients (regardless of age) with any of the above symptoms and history of:**

- Prior cardiac disease such as heart attack
- A family history of early heart disease
- Diabetes mellitus
- Severe obesity
- Recent cocaine use

*These patients require an ECG within 10 minutes!*

*Show all ECG’s immediately to a physician for signature!*

**Remember:**

- Please transport patients by wheelchair
- Women and diabetic patients are more likely to present with atypical symptoms
- Elderly patients may have symptoms such as generalized weakness, altered mental status or syncope as their only sign of acute heart attack
- When in doubt, do the ECG!

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V2. The STEMI ALERT Process: An overview

Once a STEMI is recognized, immediate and definitive progression to reperfusion must be initiated. Every effort must be made to streamline the process. The information necessary for this process must be clear and immediately available when needed.

Optimum STEMI care labors under the “the needle in the haystack” dilemma: STEMI actually occurs infrequently in most emergency departments. This makes advance preparation and training difficult. In addition, treating a STEMI patient can be very stressful for providers, who usually have multiple other patients to care for at the same time.

Consider this: Responding to a complicated, infrequent event in an already chaotic environment is a set-up for confusion and delay. Relying on provider competency (only) is not sufficient to avoid error. Anyone can make a mistake. The best solution is to plan for a STEMI in advance and develop clear plans and protocols so that when a STEMI occurs, the real-time focus is on the execution of a clear, pre-planned strategy.

To facilitate this, Project UPSTART utilizes the concept of a “STEMI ALERT”. When a STEMI is identified, a “STEMI ALERT” is called. This notifies the entire Emergency Department that a STEMI has been diagnosed and triggers a pre-planned series of events facilitating earlier reperfusion.

The exact details of a “STEMI ALERT” will vary at each institution. The important concept is that it’s developed as a carefully coordinated response that is immediately put into actions whenever a STEMI is identified, and that it clearly defines the role of each provider.

V3. The STEMI ALERT Packet: An introduction

The use of a “STEMI ALERT Packet for every STEMI” is a key strategy in the Project UPSTART approach to treating STEMI.

This use of a STEMI Alert Packet complements the use of the Screening ECG Protocol and STEMI ALERT process. ED staff continually screen for STEMI. When one is detected, a STEMI ALERT is called, mobilizing the emergency department. A STEMI ALERT Packet is immediately opened, guiding the treatment process.

Exactly what is a “STEMI ALERT Packet”?

- Each STEMI ALERT Packet contains site-customized versions of five basic forms. The information on these forms has been carefully developed (in advance) to reflect optimal management of a “typical” STEMI patient presenting to that particular facility.

- The packets are bright red and highly visible. When a STEMI is recognized, a key action is opening a STEMI ALERT Packet and distributing the contents. Any staff member can do this.

- The concise and detailed instructions contained within the packet efficiently guide the treatment process and collect data. Having this vital information instantly available when needed is the critical function of the STEMI ALERT Packet.
Note: Each hospital utilizes the same basic STEMI ALERT Packet and form templates. The details on the forms however, are completely customized to that specific site. The STEMI ALERT Packet is merely the vehicle to immediately deliver this crucial information to the provider when needed.

**V4. The STEMI ALERT Packet: Contents**

Each STEMI ALERT Packet contains site-customized versions of five basic forms:

- Physician checklist
- Nurse checklist
- STEMI ‘Scribe” checklist
- Data sheet A
- Data Sheet B

Each form is color-coded and serves a specific purpose. They have been carefully tailored to the specifics of each individual UPSTART site.

The three checklists provide the designated individuals essential and concise guidance in assessing and managing a “typical” STEMI patient presenting to that site.

Essential tasks have been carefully delegated to each specific provider. This use of ‘parallel processing’ promotes efficiency and speed; the use of detailed “task lists” minimizes errors of omission.

The two data sheets (A & B) collect simple data on each STEMI case. This data is vitally important in process improvement. Once sheet stays in the ED and the other follows the patient to their final treatment destination.

**Key Point:** By now you no doubt recognize that the “STEMI ALERT Packet” (and its use) is a key concept in initiating and guiding the “Recognition to Reperfusion” cascade in a systemic and reliable manner. It’s part of a chain reaction that really begins with proper staff education:

**Staff education encourages attention (and use of) the Screening ECG Protocol >>> Use of the Screening ECG Protocol facilitates Recognition >>> Recognition triggers opening of the STEMI ALERT Packet >>> Opening the STEMI ALERT Packet: (A) Triggers the reperfusion process and (B) Provides all the details necessary to treat the patient and collect data >>> Data collected today improves the process tomorrow >>>**

As the above “chain of events” describes, the key to efficient STEMI care is refining the Recognition and Reperfusion process at your institution to the point where certain processes occur in an almost automatic and reflexive fashion -similar to a fire drill or precision military operation. Minimal thinking required!

Does this careful attention to the basics mean that excellence in STEMI care is not dependent on critical decision making by staff and physicians but rather is based on simple reflexive actions and rote reliance on checklists? Not at all! The best systems combine both. By standardizing actions and making plans in advance, the basics of care happen automatically, leaving more time to spend on the evaluation and decision making that will fine tune the process for each individual patient.
V5. “Auxiliary” forms: Customizing the process

Designed as an extremely adaptable approach to STEMI care, Project UPSTART offers many options for customizing the exact process. It utilizes many strategies for linking the various providers involved in the STEMI care pathway and for improving communication, speed of decision making and flow of information. The goal is a smoothly functioning transfer of both patient and important information through the entire STEMI treatment process—regardless of the exact endpoints. These “auxiliary” forms may or may not be applicable to your situation, depending on your needs. Obviously, facilities without a cath lab don’t really require a cath lab checklist. However that same facility may find the EMS STEMI ALERT Guide Sheet useful as a template.

Some of these additional materials include:

- Thrombolytics Assessment Worksheet
- Cath Lab Checklist
- ED Activation of the Cath Lab – Criteria
- EMS STEMI ALERT Guide Sheet

For example, the “Thrombolytics Assessment Worksheet” is utilized by non-PCI centers. It is included in the STEMI ALERT Packet at these facilities to help the ED physician quickly evaluate STEMI patients who may potentially be candidates for thrombolysis. It offers a clear pathway for assessing patients for thrombolysis.

The “Cath Lab Checklist” can be utilized at PCI centers to streamline and standardize the cath lab activation process. When a STEMI ALERT page is received, cath lab staff can utilize a checklist to streamline preparation of the cath lab.

The “ED Activation of the Cath Lab – Criteria” document can be used to guide the ED physician in those facilities that may utilize ED activation of the cath lab prior to first consulting a cardiologist. It helps guard against false activations and provides guidelines for assessing efficacy of the process.

One final example is the “EMS STEMI ALERT Guide Sheet.” This is a form designed to expedite the process of pre-hospital ECG acquisition (and possibly ECG transmission) and fully integrate EMS into the STEMI care continuum.

More information on these and other all-on components is available at our website: www.projectupstart.com. If you don’t see what you need, please email us. We (or someone else) may have what you need. In addition let us know if you think of an idea that may ultimately benefit others.

V6. Implementation: Minimal effort, maximum results!

One of the most common questions concerning Project UPSTART is: “How difficult is the implementation process?” This is an important question. Change is often difficult and attempts to institute process changes (no matter how beneficial) are often met with resistance and skepticism. This seems to be particularly true in a medically-related environment where we are continually beset with change.

The implementation of Project UPSTART is no different. It will involve some changes to your system. However, we have been told repeatedly that implementation of Project UPSTART is much easier than initially expected! Everyone likes to hear that!
In contrast to some areas of medical therapy and research, the reality is that acute STEMI management holds few secrets. We are well aware of what constitutes optimum therapy – early recognition and emergent reperfusion! The difficulty has been in designing systems to accomplish this on a wide scale. Project UPSTART has been very successful in this respect.

As a result, a major objective of Project UPSTART has been to simplify the implementation process as much as possible, making it easier to achieve maximal results with less effort. It is a great example of knowledge translation – the science of transforming sound principles and practices into a form that is user friendly.

Once you decide to move forward with implementation, focus is placed on two parallel processes that can occur at the same time:

1) Adaptation and customization of the general STEMI ALERT Packet to carefully fit the exact requirements of your particular site. This portion of the process requires the active participation of your “major decision makers” including cardiologists, ED physicians, ED and cath lab staff, etc. Don’t worry - we can provide you with a great deal of guidance with this critical step! Please visit the “Implementation” section of our web site for more detail.

2) Completion of staff training by all involved staff and providers prior to your planned “go-live” date. This is important! Remember success will require active participation by staff at all levels. And education is the key to changing behavior. Fortunately, we have developed an excellent education module. Staff education is discussed in detail in section V6.

Let’s review the multiple tools developed to assist in the implementation process:

- A detailed implementation manual
- Educational videos and PowerPoint presentations discussing implementation
- Standardized staff education via the internet
- Templates for publicity forms, educational letters and announcements
- Hints, feedback and recommendations from existing sites
- Assistance with forms development, ordering of supplies, etc

In addition, UPSTART provides each participating site an implementation kit to assist in minimizing the workload. This kit contains:

- Professionally printed copies of the UPSTART Screening ECG Protocol and Process Flowchart suitable for posting in the ED
- Copies of the Provider Training Video for check out to staff or for your hospital system
- Pre-prepared copies of the STEMI ALERT Packet for your initial go-live
- Customizable publicity mailings, intro letters, emails, etc
- Customizable versions of all UPSTART forms including electronic templates

We are always learning! The implementation process is constantly being analyzed and evaluated. Let us know if you have any suggestions to improve the process! We will pass them on.

A properly planned implementation process is very important in the final outcome – an efficiently performing STEMI treatment plan! Project UPSTART provides extensive consultation and assistance in this process. Feel free to contact us for additional help at: info@projectupstart.com.
VI. Provider education and training: The key to success

Implementing change can be difficult, particularly when it’s necessary to educate large numbers of people with variable schedules and education levels. This is the situation present in most emergency departments.

On a day-to-day basis, successful STEMI detection and management is based on key actions (such as acquiring screening ECGs) often done by ED, EMS and triage staff, not necessarily the physician. This fact is often underappreciated. All providers are integral to the process and have important roles.

This highlights the importance of training and education; staff must understand the ultimate importance of these simple actions and the ultimate importance of their contribution to the STEMI treatment process.

Therefore, basic (but thorough) training and education of all staff, not just physicians, is especially important for successful implementation. To facilitate this education process, Project UPSTART has developed an efficient and unique “Provider Training Module.” Consider the following points:

• Once an institution decides to implement Project UPSTART, they can quickly and efficiently educate their staff via the internet or DVD. Training does not require that staff necessarily attend extra meetings, etc, and most of it can be done at home.

• The Provider Training Module consists of a short written tutorial, a professionally produced instructional video and a concise written exam – all focused on the process of STEMI detection and management. It’s very clear and concise.

• The education process is simple. First, the written tutorial is carefully reviewed. This is followed by watching a demonstration and training video. The final step is a short written exam. The exam can be turned in for scoring and/or for verification of training.

• The Provider Training Module is easily accessible at www.projectupstart.com via the “Provider Education” section. Training materials are also available on DVD and in printed format for those that don’t have internet access.

This utilization of modern technology for efficient learning greatly reduces the time and effort required for staff and physician education, making the process much easier. And remember, thorough education is essential for success!

VII. The Project UPSTART website: www.projectupstart.com

The Project UPSTART website functions as information source and training vehicle to support education and implementation. It has become an essential component to the process. Like the rest of Project UPSTART emphasis has been placed on simplicity and ease of use.

• It provides a great deal of additional information on all facets of the project.

• It is an efficiently resource for Project UPSTART forms, information and implementation advice.

• It is the access point for easy access to the “Provider Training” section discussed previously. The written tutorial, provider training video and final exam are all available on the website.
The website is divided into several easy-to-use sections, making it easy to use and navigate. Everything is easy to find and the website is continually updated with ideas and suggestions.

The website also provides links to additional internet resources, STEMI-related quality improvement initiatives, educational websites STEMI training resources and other related areas.

VIII. Conclusion:

This completes an introduction to Project UPSTART. We have attempted to design a simple, easily customized approach to acute STEMI detection and management that can be adapted to any hospital or system. It functions extremely well in small and large hospitals alike and encourages regional cooperative efforts. Project UPSTART is completely compatible with all existing STEMI quality improvement initiatives, etc.

Participation is free of charge and you are free to make use of (or duplicate) any of our processes, manuals, forms, training videos, etc. We merely request that you identify the source. Many of the forms are available as customizable templates that we can send to you upon request via the internet. We are also available to assist you with any questions.

Good luck with your efforts to optimize the “Recognition to Reperfusion” interval at your facility!

For additional information please visit the website: www.projectupstart.com
or contact us at: info@projectupstart.com.