



Systems of Care

AN ACC CLINICAL TOOLKIT

prepared by the
American College of Cardiology & National Association of City and County Health Officials

Table of Contents

Introduction	1
Time Sensitive Care Coalitions (TSCC)	1
Current State.....	1
Desired Future State	2
Roles and Responsibilities of the Regional Time Sensitive Care Coalition	3
Roles and Responsibilities of the Regional TSCC Manager	4
Roles and Responsibilities of the National Time Sensitive Care Coalition	4
Strategies and Tactics for Establishing Community / Regional Systems of Care.....	4
Preliminary Assessment.....	4
Starting the Regional Coalition	5
RTSCC Steering Committee.....	5
Condition-Specific Sub-Committees	6
Aligning Incentives	6
Establishing Transparency and Accountability	6
RTSCC Activities	9
Steering Committee Meetings	10
Condition-Specific Sub-Committees	10
Ad Hoc Improvement Project Teams	12
Key Initiatives	12
Baseline Assessment	12
Gap Analysis.....	12
Setting Improvement Project Priorities	13
Early Phases	13
Later Phases	13
Celebrating Efforts and Achievements	13
Appendices.....	14
Appendix 1 – Implementation Checklist	15
Appendix 2 – Job Description: Regional Time Sensitive Care Coalition Manager / Coordinator.....	19
Appendix 3 – Information Brochure on Systems of Care for Time Sensitive Conditions	21
Appendix 4 – Sample Stakeholder Invitees to the Initial Coalition Formation Meeting..	22
Appendix 5 – Sample Stakeholder Invitations to the Initial Coalition Formation Meeting	24
Appendix 6 – Sample Meeting Agenda and Discussion Points – Initial TSCC Formation Meeting.....	26
Appendix 7 – Sample Meeting Agenda – RTSCC Steering Committee	28
Appendix 8 – Sample Meeting Agenda – Condition Specific Sub-Committee	29
Appendix 9 – Sample Regional Report Elements (AMI) – Template.....	30
Appendix 10 – TSCC MOU with Participating Organizations – Template	32
Appendix 11 – TSCC Preparations Checklist	38
Appendix 12 – Ad Hoc Improvement Project Team Charter – Template.....	41
Appendix 13 – Ad Hoc Improvement Project Team Charter – Example.....	43
Appendix 14 – Community Dashboard – Template.....	46
Appendix 15 – EMS Performance Accountability Agreements – Templates	49
Appendix 16 – Other TSC Related Programs	53

INTRODUCTION

This manual is intended to support local public health agencies, regulatory agencies, hospitals, emergency medical services (EMS) regulatory and provider agencies, payers (particularly ‘at risk’ payers in alternative payment models), senior appointed or elected officials, and others champions wanting to improve systems of care for time-sensitive conditions.

This manual advocates for the establishment of multi-organizational systems of care coalitions and provides tools to assist in their development and improvement. The time-sensitive conditions considered in these efforts may include, but are not limited to, acute myocardial infarction, stroke, out-of-hospital cardiac arrest, major trauma, sepsis, and major pulmonary embolism.

Patients with time sensitive conditions have significantly better outcomes at lower total cost when care is pro-actively planned across the many agencies and institutions that are typically involved in an episode of care for any of these conditions. However, the associated choreography of 9-1-1 communications centers, non-transport medical first response agencies, scene response ambulance services, referral hospitals, inter-hospitals transfer ambulance services, tertiary care hospital emergency departments, and acute specialty care teams can require considerable effort and resources to effectively establish and maintain over the long term. This is where having formal meetings of the multiple provider organizations can be extreme benefit. This manual is intend to help inform those efforts.

This manual was developed by the American College of Cardiology (ACC) in collaboration with the National Association of County and City Health Officials (NACCHO) and the Center for Systems Improvement. The ACC (ACC.org) is a professional association of over 50,000 members of the cardiovascular care team with a mission to transform cardiovascular care and improve heart health. NACCHO (naccho.org) comprises nearly 3,000 local health departments across the United States. It seeks to improve the public's health while adhering to a set of core values: equity, excellence, participation, respect, integrity, leadership, science & innovation. The Center for Systems Improvement is a consulting firm that was engaged by the ACC to assist in development of its systems of care programs and services.

TIME SENSITIVE CARE COALITIONS (TSCC)

CURRENT STATE

In every community/region, there is a system of care (SOC), of some sort, for each time

sensitive condition. However, in many communities, the SOC's have not been formally conceived or designed. When those systems are not carefully considered and designed, the resulting processes used to deliver services and manage the often-complex logistics can be quite inconsistent and inefficient, resulting in less than optimal outcomes and preventable wastes of time and resources.

There may be interest in hospitals and EMS provider agencies to establish more formal systems of care for the various time sensitive conditions to improve efficacy and efficiency. Unfortunately, there usually isn't an entity with clear responsibility to address the often difficult tasks of bringing together rival hospitals, EMS providers, physician specialty practice groups, and payers to tackle the often contentious issues in systems of care development.

As a result, there usually isn't a mechanism in place to measure performance of the system of care apart from raw outcomes. There usually isn't way to assess the various processes of care across the continuum for lack of data sharing to facilitate systems-level measurements. Without such measures, communities may not have any idea how the performance of their community, with all of its hospitals and EMS providers, compares to other communities with high-performing systems of care.

Some communities/regions have high-performing systems of care that have been carefully considered, thoughtfully designed, and well managed over the long term. They consistently achieve top ranking outcomes and utilize time and resources with great efficiency. Many of the best and most mature examples are found in systems of care for major trauma and S-T elevation myocardial infarction (STEMI).

There are many clinical and operational issues in common across the time sensitive conditions, yet most communities have completely separate systems of care initiatives for the various conditions, even when those separate efforts are formally organized. This contributes to duplication of efforts, waste of limited resources, and loss of opportunities to learn, share and collaborate between the various time sensitive condition groups.

DESIRED FUTURE STATE

The goal is for every community/region to have a high-performing system of care that addresses all of the time sensitive conditions. Instead of having the systems of care for time sensitive conditions operating in stovepipes, the conditions are managed through a single regional/local time sensitive care coalition (RTSCC). The organizational structure for the RTSCC should have the flexibility to address issues in common between time sensitive conditions collectively, while preserving the ability to tackle condition-specific issues separately. This is envisioned to take the form of a RTSCC Steering Committee with condition-specific sub-committees and ad hoc improvement project teams.

The RTSCC is managed through collaboration and consensus between the various stakeholders. They establish processes for all time sensitive conditions for quality

improvement, governance, sustainable funding, data sharing, reporting, transparency, and accountability.

ROLES AND RESPONSIBILITIES OF THE REGIONAL TIME SENSITIVE CARE COALITION

Each Regional Time Sensitive Care Coalition (RTSCC) would take responsibility for the following:

- Creating their formal organizational structure, which may be a separate organization or embedded within an existing organization. Alternatively, the group could remain informal – it's just a group of stakeholder representatives that agree to meet and collaborate with each other. If the formal route is chosen and an existing organization is utilized to take the role of the RTSCC, it should, ideally, not be one of the clinical provider organizations. This is suggested to minimize real or perceived biases. It may be a good fit for regional EMS regulatory agencies or public health departments.
- If there are existing condition-specific time sensitive systems of care groups in the region/community (e.g, for STEMI, trauma, stroke, etc.), take steps necessary include them in the TSCC as sub-committees. The chair of each of those existing groups would become ex-officio members on the RTSCC Steering Committee.
- Determine which time sensitive conditions the RTSCC will formally address. The RTSCC may start out with only one or two conditions and add more over time as the group develops and refines its processes, procedures and secures additional support resources.
- Call for an assessment of systems-level performance in each of the time sensitive conditions if they are not routinely measured. These 'baseline' performance levels should be measured as soon as possible in as many time sensitive conditions as possible to support planning and help secure resources.
- Regular re-assessment of systems-level performance in as many time sensitive conditions as possible to monitor changes over time and inform prioritizations.
- Triage improvement efforts to be conducted as system-level or condition-specific projects.
- Share information between condition-specific committees and their respective improvement project teams to promote cross-pollination, collaboration and learning.
- Support the efforts of each of the condition specific subcommittees
- Seek ways to leverage resources across participating organizations and condition-specific sub-committees.
- Aggregate data across conditions to calculate a general time sensitive condition performance index

ROLES AND RESPONSIBILITIES OF THE REGIONAL TSCC MANAGER

Regardless of which organization they are employed by, the RTSCCs manager (RTSCCM) plays a key role in coordinating efforts between the participating organizations and the condition-specific groups within the RTSCC. Their specific responsibilities may include:

- Being the primary point of contact for matters related to the RTSCC
- Ensuring coordination for the various meetings and projects of the RTSCC Steering Committee, condition-specific sub-committees, and ad hoc improvement project teams
- Work with the participating organization staff members that may be assigned to provide administrative support to the committees and teams (e.g., staff that work for the various committee and project team chairs and committee members). Note that there may be cases where the RTSCC is established as a separate organization or where the function of the RTSCC is part of the role of an existing organization (e.g., a regional EMS regulatory agency or public health department). The role of the RTSCCM may then be assumed by someone in that organization, who may have their own staff or colleagues that also can help support RTSCC operations.

ROLES AND RESPONSIBILITIES OF THE NATIONAL TIME SENSITIVE CARE COALITION

At a national level, the ACC and NACCHO are the initial groups participating in the National Time Sensitive Care Coalition (NTSCC). The role of national organizations in the NTSCC includes:

- Provide templates, tools and advice to regions as they seek to formally organize their RTSCC or condition-specific systems of care.
- Provide support, tools, guidelines, standards, policy templates, and training the for RTSCCs
- Coordinate between the national associations to harmonize tools and templates between time sensitive conditions as much as possible and practical (e.g., a policy template for taking ambulance patients direct to the cardiac cath lab should be as similar as possible in language, format, and structure to similar policy templates for taking ambulance patients direct to the CT scanner for stroke).

STRATEGIES AND TACTICS FOR ESTABLISHING COMMUNITY / REGIONAL SYSTEMS OF CARE

PRELIMINARY ASSESSMENT

As an initial step, the champion (who may be an individual or an organization) for establishing the RTSCC should attempt to catalog any initiatives, past or present, for a broad range of high-risk time sensitive conditions. The conditions to include in this assessment may include, but are not limited to the following:

- Major trauma
- Out-of-hospital cardiac arrest
- Acute myocardial infarction
- Stroke
- Sepsis
- Pulmonary embolism
- Opiate overdose
- Ruptured aortic aneurism

These initiatives, if any, may have been undertaken at a regional/systems level by multiple provider organizations working together, by a public health department or regulatory agency, by an individual healthcare organization, or even by an individual.

Efforts should also be undertaken to get a current quantitative and qualitative baseline on how well care is being delivered in those conditions, as measured by key outcome and process measures. Another option is to focus on one high-risk time-sensitive condition (e.g. STEMI). Throughout this document, the steps described for establishing and operating a multi-condition system of care coalition may be applied with minor modification to efforts for a single-condition system of care effort.

STARTING THE REGIONAL COALITION

Armed with the information from the preliminary assessment, the champion(s) for starting the RTSCC can present the information as part of their appeal to senior organizational leaders to come to a meeting to consider formation of the RTSCC (or a condition-specific group).

RTSCC STEERING COMMITTEE

At start-up, it is necessary to have higher level decision makers involved – people who can make commitments on behalf of the organizations they represent. This will generally be C-suite healthcare executives (hospital administrators), very senior level government officials (e.g., city managers, county administrators) and the owners/directors of ambulance services or rescue squads that are not operated by units of local government (e.g. private ambulance services). The reason for these higher level participants being present at the start-up is so they can authorize their organizations to

- participate in the RTSCC
- agree to the general goals and rules by which the RTSCC will operate
- authorize financial and other types of resource allocations

- appoint / designate representatives from their organizations to participate in the condition-specific subcommittees of the RTSCC.

Once the start-up group agrees to form the RTSCC, the senior executives would also be asked to continue to work with the Coalition, but on a less frequent basis, as members of the RTSCC Steering Committee.

The RTSCC Steering Committee is intended to provide some high-level accountability for making progress and to help remove roadblocks, as needed, that the sub-committees or ad hoc QI project teams may encounter along the way. The RTSCC Steering Committee will also be in a position to establish consensus on systems-level policy issues (e.g. ambulance bypass policies that impact all hospitals and EMS agencies across multiple conditions).

CONDITION-SPECIFIC SUB-COMMITTEES

For each targeted condition designated by the RTSCC Steering Committee, a condition-specific sub-committee would be established (e.g., a STEMI sub-committee). This is where hospital service line administrators, medical directors, and quality managers; as well as ambulance, fire-rescue, and 9-1-1 center supervisors, quality managers and medical directors will participate. There may also be some front-line clinical staff involved at this level. If the RTSCC has several condition-specific sub-committees, it should be recognized at the outset that the same person from each EMS agency and the same person from each emergency department should not be the primary representative on every one of these sub-committees. However, there should be a way for key individuals, such as an ED or EMS medical director, to attend any of the meetings as they deem necessary.

ALIGNING INCENTIVES

A key element in proactive design for a system of care is finding ways to align the incentives for organizations and individuals to the goals for getting the right things done at the right times and in the right places. Those goals become the basis for design of the system of care and the processes therein.

In the longer term, the RTSCC should seek ways to align financial incentives – and that's where engagement of payers and regulators comes into play. In the short to medium term, the most straightforward and effective means of aligning incentives is by creating transparency and establishing accountability. The organizational incentive for high performance becomes protecting and enhancement of its reputation – increasing rather than decreasing its 'political capital.'

ESTABLISHING TRANSPARENCY AND ACCOUNTABILITY

At the launch of the RTSCC, it may be enough to start with just reporting on

performance. Over time, trust between participants builds and the group will have had a chance to work together on some systems-level improvement projects. The time should come when the group will feel more comfortable setting some specific performance goals. Those goals can be set at both a systems and organizational level. For example, in STEMI performance, there might be a symptom onset to device time goal at a system level for a median of 90 minutes or less when the patient arrives by ambulance directly to a PCI capable hospital. Correspondingly, the group may set a goal for ambulance services having 10 minutes or less from first medical contact to contacting the receiving hospital with a STEMI Alert on qualifying cases. Hospitals might have a goal for a door to device time of 45 minutes or less when EMS declares a STEMI Alert from the field and if the patient is taken directly to a PCI capable hospital.

Initially, the accountability may be for on-time reporting of performance data. After the group sets goals, the accountability is for both on-time submission of performance data and meeting those goals.

In the longer term, goals might be made more stringent or there might simply be an expectation for everyone to work towards incremental and break-through improvements over time.

Accountability Within the Coalition

Initially, the accountabilities might just be within the group. Everyone involved would be given some time for a ‘ramp-up phase’ to establish their processes for collecting data, calculating performance levels, and begin to undertake efforts to improve their performance. When available, the group may decide to utilize a formal clinical registry for specific clinical conditions to support the data calculation, performance calculations, and aggregation of results to the systems level. This approach also has the advantage of using a nationally standardized data collection and analysis tools as well as the ability to make apples to apples comparisons of local results to a state and national levels. These registry results may also include risk-adjustments to make the results comparisons even more valid. This group should set a time limit for the ‘ramp-up’ phase – perhaps a year. During that time, systems level reporting would be shared among the participating organizations within the group before the reporting and accountabilities are made explicitly public at a community level.

It can be extremely helpful to have neutral third party serve as a data aggregator. Participating organizations may not be comfortable sharing their specific performance results with competitors. A trusted and neutral third party can be used to receive the individual organizational results and do the roll-up calculations to generate the system-level performance results. An independent EMS regulatory agency or public health agency may be well suited for such a role. Some clinical registries may offer regional reporting services that can also serve this purpose for a group-defined set of organizational participants.

Public Accountability

After an appropriate ‘ramp-up’ phase, the group should move on to full public accountability. Public reporting is a common form of transparency in healthcare. It can take many forms, so caution should be taken in making sure that the objectives of transparency are not undermined by placing publicly reported information in obscure places. To avoid this, the following list provides suggested destinations for distribution of publicly reported information on systems of care performance:

- Quarterly performance summary to the media and elected officials
- Quarterly performance detail report to the RTSCC Steering Committee
- Monthly updates on performance *summary* figures displayed on a readily accessible public web page. Try to make it no more than 1 click to reach reports from the top level web address you publicize. A custom web address to a subdomain can help enable zero clicks (e.g., performancereport.yourwebsitename.org).
- Monthly updates on performance *details* displayed on a web page primarily designed for RTSCC participants. That page should also be publicly accessible through a link on the summary page designed for the general public.

Service Level Agreements, MOUs and Contracts

The organizations in the RTSCC may choose to formalize their commitments for data submission and striving to reach target performance levels in a variety of ways. Verbal commitments from C-suite members on the RTSCC Steering Committee are a good first step. To preserve those commitments past the tenures of the individuals present at the formation of the RTSCC, having those commitments in writing can be extremely helpful. To that end, the RTSCC might ask organizations to sign a letter of commitment that simply states the organization will abide by the bylaws or some other document where the ground rules for RTSCC participation, transparency and accountability are clearly and simply stated.

Elected officials or senior executive officers from units of local government (e.g., city councils, mayors and city managers; county commissions and county administrators) should directly participate on the RTSCC Steering Committee. Like C-suite hospital officials, they oversee their various EMS related departments that are directly involved in patient care for time-sensitive emergencies. They are in a position to require their EMS, fire and 9-1-1 department heads to actively participate in the RTSCC by providing the requested data and actively participating in RTSCC meetings and improvement projects. Those expectations can be formally stated in service level agreements (SLAs), which functions like a contract between different parts of the same unit of government. For example, a city manager can put an SLA in place with the local fire rescue agency that operates the ambulance service and provides non-transport medical first response services. That SLA can require the fire rescue agency to submit data, strive to meet performance targets, and publicly report performance levels as set forth by the RTSCC.

This creates a clear expectation and accountability directly between that city manager and the fire rescue department that these requirements are to be taken very seriously. Without these sorts of explicit accountabilities, it can sometimes be very difficult to get government agencies, including fire departments, government operated ambulance services, and 9-1-1 communications centers to fully cooperate.

Similar expectations can be set forth by municipalities to private ambulance services. Local government is usually in a position to allocate ambulance market rights. This could be to their local fire department, government operated ambulance service, a private ambulance service, or a combination thereof being designated to provide emergency and non-emergency ambulance service. When a private ambulance is granted emergency and/or non-emergency ambulance service market rights, they can come with a performance-based contract. That contract, like the SLA for a government operated service, can explicitly state requirements for data submission, achieving specific performance levels, and public reporting. In addition to loss of political capital when high profile public reporting reveals performance shortcomings, failure to meet performance requirements can also be associated with financial penalties or even a loss of those market rights to a private ambulance provider.

Payer Engagement

At the time of this writing, the US healthcare system is in transition from a fee for service model to so-called ‘alternative’ payment models. In general, the alternative payment models are moving towards formulas and strategies that reward both quality and efficiency. These are also referred to as value-based payment models.

In these alternative payment models, incentives are in place for both payers and providers to reduce total healthcare costs and improve quality. These two goals can be simultaneously achieved by having high functioning systems of care for time sensitive conditions. For example, if a STEMI patient is diagnosed quickly by EMS; if EMS promptly notifies the hospital; if the hospital promptly activates the cardiac cath lab team; if the patient is move quickly into the cath lab upon hospital arrival; and if the occluded coronary artery is quickly opened after cath lab arrival, the size of the myocardial infarction (muscle damage) will be minimized. The reduced infarct size will make it less likely that the patient will have short or long term complications. All of these contribute to a lower total cost for treating the STEMI while also improving the quality of care.

Therefore, ‘at-risk’ payers have a lot to gain from supporting high functioning systems of care for STEMI and the other high-risk time sensitive conditions that the RTSCC targets. The financial upside for the at-risk payers can make them strong allies for systems of care improvement and to potentially provide support for the efforts of the RTSCC.

RTSCC ACTIVITIES

STEERING COMMITTEE MEETINGS

After they have established the RTSCC, the senior executives from the provider organizations (hospitals, ambulance services, rescue squads, 9-1-1 communications centers) and should stay involved as members of the RTSCC Steering Committee.

They should be joined by:

- Chairs of the condition-specific sub-committees
- Elected and/or senior appointed local government officials (e.g., city managers, county administrators)
- Healthcare payers (which can include major employers with self-funded health plans)
- Senior public health officer(s) for the region
- Former patient/patient advocate representatives

The RTSCC Steering Committee meetings are intended to serve several specific objectives:

- Be an executive level body that creates accountability for progress in results from the condition-specific sub-committees and ad hoc improvement project teams
- Be an executive level body that is accountable to the community for systems-level performance
- Address issues that affect more than one of the targeted time sensitive conditions (e.g. improving the speed of emergency interfacility transfers to definitive care)
- Ensure appropriate coordination of efforts between condition-specific committees and improvement project teams
- Make systems-level policy recommendations and/or consensus decisions
- Make recommendations for organizational level policies (e.g., that all PCI hospitals enact policies that allow for activation of cardiac cath lab teams prior to ambulance arrival to the hospital along with taking appropriately selected patients directly to the cardiac cath lab
- Issue an annual report on the state of time-sensitive emergency care in the community/region. The agenda for these meetings should be driven by these objectives. The steering committee should meet at least on a quarterly basis.

CONDITION-SPECIFIC SUB-COMMITTEES

Each targeted high-risk time-sensitive condition should have its own sub-committee that reports to the steering committee. These condition specific committees take stewardship of care for that condition across the entire community. The committees should be comprised of representatives from each of the organizations that participate in care for these patients. This will typically include the 9-1-1 communications center, non-transport medical first response agencies, scene response and inter-hospital

transfer ambulance services, emergency departments, and in-hospital specialty care teams (e.g. cardiac cath lab teams; trauma teams).

Classically, such committees have limited their scope to the acute phases of care. However, it makes sense to consider inclusion of post-acute care providers to some degree to ensure a proper hand-off. For example, a STEMI patient may have had a great EMS response; swift triage, stabilization and rapid transfer to the cath lab from the emergency department; and a prompt and effective cardiac catheterization. But if that patient does not comply with post-discharge instructions for taking their anti-platelet medications, there is a high risk for the new coronary artery stent to occlude and lead to a re-infarction. If they do not get into cardiac rehab, their chances for a subsequent major adverse cardiac event (MACE) are significantly increased. Post-acute care involvement in the RTSCC can also help facilitate longer term outcome and quality of life tracking.

The condition-specific sub-committees have the following responsibilities:

- Seek representation on their sub-committee from all of the provider organizations that are directly involved in patient care
- Choose measures by which the system of care for their target condition will be measured. These should be reviewed and updated periodically to reflect the science and best practices.
- Organize efforts to measure performance in aggregate across provider organizations of specific types (e.g., in STEMI systems of care, measure the EMS first medical contract to first 12 lead ECG time intervals across all scene response ambulance services; measure door to device times for PCI cases that present via ambulance direct to a PCI hospital across all PCI hospitals; measure risk adjusted STEMI mortality rates across for all hospitals and all modes of presentation)
- Organize efforts to ensure consistency in how individual provider organizations measure performance so that results be aggregated with validity to a systems-level. Participation in a national clinical registry is the preferred process. It allows for valid benchmarking as well as a high level of technical rigor and consistency that locally developed efforts will find are very difficult to match. The larger population sizes in national registry will also make comparative analyses more useful.
- Keep up with the literature and industry best practices to identify benchmarking-based improvement opportunities
- Seek to innovate rather than just benchmark in improvement project initiatives
- Analyze local results to identify improvement gaps and research opportunities
- Triage improvement opportunities to select improvement opportunities that will be chartered for execution by ad hoc improvement project teams – in coordination with the RTSCC Steering Committee
- Conduct toll gate reviews and provide feedback and support as needed to the ad hoc improvement project teams that the sub-committee team has chartered

- Generate regular performance reports at a systems level – in a summary and detail format – for distribution throughout the RTSCC and the general public

AD HOC IMPROVEMENT PROJECT TEAMS

In order to reduce the burden on the members of the condition-specific sub-committees and to engage more personnel in quality improvement efforts, it is recommended that the execution of specific improvement projects should be carried out by separate ad hoc improvement project teams – rather than by the condition-specific sub-committees that chartered the improvement project. This will also help groom future members for the condition-specific sub-committees. Another advantage of this approach is being able to engage organizations that might not be part of the RTSCC to be on the ad hoc improvement project teams. For example, the design and execution of a public education campaign to help people know the difference between a heart attack and a cardiac arrest might engage marketing and public relations firms as well as local media outlets.

KEY INITIATIVES

There are certain key projects or initiatives that should be carried out by all RTSCCs. In some cases, pre-existing condition-specific groups may have already completed some of these key projects and need not be repeated for those conditions. For example, the community may have had a systems-level major trauma committee for quite some time before the RTSCC was formed. The major trauma committee may have conducted a baseline assessment of trauma system performance years ago. It would not need to be repeated if the assessment is felt to have been adequate.

BASELINE ASSESSMENT

When a condition-specific sub-committees is created, one of the first things the group should focus on is getting a baseline on the current level of performance in the system of care for that specific condition. To do that, there will need to be some preparatory steps in selecting the measures by which the system of care will be measured and developing processes for individual organizations to collect data, generate measures, and the aggregating those results across like organizations and across the continuum of care. Ideally, the measures selected for measurement of systems-level performance can be ones that are standardized nationally, so that valid comparisons to state and national results can be made.

GAP ANALYSIS

After the baseline assessment is completed, the local results should be compared to state and national aggregate results. At this stage, the condition-specific sub-committees should look for deficiency gaps between local and state/national results.

SETTING IMPROVEMENT PROJECT PRIORITIES

EARLY PHASES

In the early phases of the condition-specific sub-committees, improvement projects that address deficiency gaps between local and state/national results are logical early priorities.

LATER PHASES

After local performance results are at a level at least as good to state/national results, the condition-specific sub-committees can shift their focus more towards original improvement project ideas and innovations. There will also be continuing opportunities to study the latest research and best practices for benchmarking based improvement projects.

Some of the more innovative improvement project ideas can be approached as research studies with intent to publish in the peer-reviewed literature. Appropriate processes for seeking pre-project approval from institutional review boards (IRB) should always be included in the design of these improvement/research projects.

CELEBRATING EFFORTS AND ACHIEVEMENTS

At both the steering committee and condition-specific sub-committees level, time should be taken to recognize the efforts of all ad hoc improvement project teams – regardless of the outcome of the projects. Indeed, to foster a culture of innovation within the RTSCC, projects with negative or inconclusive results should be celebrated as or more vigorously as projects with positive results.

Similarly, the RTSCC Steering Committee should strongly consider an annual recognition event where improvement project teams, condition-specific sub-committees, individual provider organizations, and other participating/supporting organizations can all be recognized for their efforts in support of the RTSCCs mission to improve care delivered by the system to the entire region.

APPENDICES

Appendix 1 – Implementation Checklist

Appendix 2 – Job Description: Regional Time Sensitive Care Coalition Manager / Coordinator

Appendix 3 – Information Brochure on Systems of Care for Time Sensitive Conditions

Appendix 4 – Sample Stakeholder Invitees to the Initial Coalition Formation Meeting

Appendix 5 – Sample Stakeholder Invitations to the Initial Coalition Formation Meeting

Appendix 6 – Sample Meeting Agenda and Discussion Points – Initial TSCC Formation Meeting

Appendix 7 – Sample Meeting Agenda – RTSCC Steering Committee

Appendix 8 – Sample Meeting Agenda – Condition Specific Sub-Committee

Appendix 9 – Sample Regional Report Elements (AMI) – Template

Appendix 10 – TSCC MOU with Participating Organizations – Template

Appendix 11 – Preliminary Assessment Checklist

Appendix 12 – Ad Hoc Improvement Project Team Charter – Template

Appendix 13 – Ad Hoc Improvement Project Team Charter – Example

Appendix 14 – Community Dashboard – Template

Appendix 15 – EMS Performance Accountability Agreements – Templates

APPENDIX 1 – IMPLEMENTATION CHECKLIST

This tool provides a checklist template for the RTSCC champion(s) with specific steps in a logical sequence to use in the formation of the RTSCC.

- ☐ **Identify Catchment Area** – Make a preliminary decision on what geographic area the RTSCC will cover. This may be a city, county, metropolitan area, or a larger region that encompasses tertiary receiving hospitals and their associated referral hospitals. This may be adjusted later on depending on which high-risk time-sensitive conditions are targeted and which institutions are willing to participate.
- ☐ **Time Sensitive Care Group Inventory** – Identify any groups that may already be meeting, or are in the formation stages, for commonly addressed time sensitive care conditions. For each group identified, get contact information on the group leader for inclusion on the list for an organizing meeting. These may include, but are not limited to the following:
 - Major trauma / Burns
 - Out-of-hospital cardiac arrest
 - Acute myocardial infarction
 - Stroke
 - Sepsis
 - Pulmonary embolism
 - Opiate overdose
 - Ruptured aortic aneurism
 - Drowning
 - High-Risk OB

Refer to Appendix 11 for a tool to assist in this inventory.

- ☐ **Identify Organizational Sponsor(s) for the Initial Coalition Formation Meeting** – The initial meeting of executives to consider forming the RTSCC may have associated expenses, particularly if a meal is to be served or a room has to be rented. Having these discussions over a meal or drinks and hors d'oeuvres is strongly suggested as it tends to increase attendance and participation. Sponsor possibilities include:
 - Organizations affiliated with the champion(s) trying to form the RTSCC
 - Hospitals or hospital foundations
 - Pharmaceutical companies or device manufacturers with an interest in time-sensitive care conditions (e.g, stroke thrombectomy device makers and thrombolytics drug companies)
 - Local foundations with an interest in healthcare innovations
 - Major payers
 - Local physician groups with an interest in time sensitive care (emergency medicine, cardiology or surgical group practices – alone or with multiple group practices as sponsors)

- Local government or their agencies may be an option, but they will often have financial restrictions if meals and beverages are involved
- **Schedule the Initial Coalition Formation Meeting** – Working in conjunction with the organizational sponsor(s), determine when and where to have the first organizing meeting to discussing starting up the RTSCC. Priority should be given to the availabilities of leaders of any existing time sensitive care groups and hospital C-suite invitees. Their attendance, input and support is crucial. If there are a lot of people in this core group, give consideration to sending out a preliminary letter outlining the need for the meeting. Ask that they, or their scheduling person, participate in a Doodle poll (<https://doodle.com>) or similar method to identify their availabilities to determine the best date/time. Once a date/time and location are determined, a follow-up letter with the specific time and location can then be sent out to the entire group of invitees (see Appendix 4)
- **Initial Coalition Formation Meeting** – Use Appendix 6 as a guide to the agenda for the initial meeting. Also, consider who to use as the facilitator for the meeting. Ideally, it should be a neutral party so that all attendees feel their interests are not being diminished by real or perceived facilitator bias. A local health department or EMS regulatory official may be an appropriate choice if they have good facilitation skills. Having a high ranking public official or major payer executive make some opening remarks to underscore the need for the RTSCC is a good way to get the meeting started. They should introduce the guiding principle for the meeting – that patient and community interests need to be prioritized over the proprietary interest of any individual group or organization. Outcomes to try for at the meeting should include:
 - Decision on formation and support of the RTSCC
 - Decision of which time sensitive conditions to initially include with inclusion / establishment of sub-committees
 - Secure commitments for having a single executive level representative from each organization serve on the Steering Committee
 - Agreement to send names and contact information to the meeting organizer on persons to include on condition-specific subcommittees
 - Initial discussion on RTSCC organizational structure – informal coalition (not a legal entity); a new legal entity (e.g., create a 501(c)(3) organization); existing entity to fulfill RTSCC role; or other options. This might not get decided at the first meeting if several alternatives need to be explored and presented back to the Steering Committee.
- **Formation Meeting Follow-Up** – As soon as possible after the Initial Coalition Formation Meeting, a follow-up letter should be sent out to all attendees, and those who were invited but were unable to attend. It should summarize the meeting's activities, decisions, and next steps.
- **Condition-Specific Sub-Committee Formation** – Assuming initial coalition formation meeting led to a decision to start the RTSCC, the condition-specific

sub-committees for targeted condition will need to be established or assimilated.

- **Existing Condition-Specific Groups** – These will need to be brought into the RTSCC on a case by case basis, depending how the existing group wants to be included. Options include:
 - **Separate with Affiliation** – The group may already have its own structure and funding and wants to keep it, but wants to be included. This can work if the group agrees to participate in the RTSCC activities and abide by its guiding principle of working to the interest of the patients and the community over the proprietary interests of any individual group or organization and other core tenets of the RTSCC. The group chair can be granted an ex-officio appointment to the Steering Committee. Even though it may be a separate entity, it should still function the same as if was, legally, a part of the RTSCC.
 - **Separate Without Affiliation** – The group may want to cooperate, but not have any direct connection to the RTSCC. While this is not the most desired option, the group could be invited to have a liaison to the RTSCC to try to coordinate activities and share information.
 - **Full Assimilation** – The group may choose to be fully absorbed into the RTSCC organizational structure, in which case the RTSCC will create a new sub-committee that is initially populated with the incumbent members of the group being assimilated.
 - **Conditional Assimilation** – The group may decide to stay separate with affiliation initially – and reserve the decision to fully assimilate after a period of time to insure that the RTSCC structure adequately develops before it officially disbands for assimilation
- **New Condition-Specific Sub-Committees** – The executives at the Steering Committee level should be called upon to go through their own internal processes to identify who from their organization should represent them in the condition-specific sub-committees. Executives should be coached to choose individuals that are passionate about the mission of the RTSCC and sub-committee and have the appropriate technical expertise; and requisite authority to influence policy in the domain of their sub-committee's clinical domain. Department leaders are a typical choice, but may not be practical when there will be multiple condition-specific sub-committees. The same person should not be the representative to all of them. In many cases, hospitals may choose to have a physician and a nursing representative (e.g., a cardiologist and the hospital's STEMI care coordinator for an AMI/STEMI sub-committee). A sample agenda for the condition-specific sub-committees is provided in Appendix 8
- **Create By-Laws** – Regardless of the type of organizational structure that's chosen for the RTSCC, a set of by-laws or similar document should spell out

how the RTSCC operates. It needs to address how steering committee and sub-committee members are appointed and rotated; how decisions are made; and other operating policies. A more formal and comprehensive set of by-laws will be needed if the RTSCC is going to be a fully independent 501(c)(3) not for profit corporation versus an informal coalition. This will be an early agenda item for the Steering Committee if it was not decided at the initial formation meeting.

- **Determine Financial Needs and Create a Sustainable Funding Plan –** Another early issue for the Steering Committee is consideration of funding needs, developing a budget, identifying on-going sources of funding. Again, an informal coalition will have different needs than a formal 501(c)(3) structure. Another consideration is the need for a coordinator or director. A sample job description is provided in Appendix 2. Funding options may include annual funding assessments to the participating organizations and grants. Grants may be helpful initially but may not be appropriate for the long term. With an informal organizational structure, participating organizations may simply agree to share costs on an ad hoc basis or rotate the responsibility and costs for hosting meetings, etc.

Further guidance on the on-going operation of the RTSCC is found throughout the rest of this document.

APPENDIX 2 – JOB DESCRIPTION: REGIONAL TIME SENSITIVE CARE COALITION MANAGER / COORDINATOR

Regional Time Sensitive Care Coalition Manager/ Coordinator

Job Overview

Works with local healthcare provider organizations, units of local government, payers and patient advocates / representatives to convene and provide on-going facilitation of a local coalition to coordinate and continuously improve care for high-risk time sensitive conditions. Conditions addressed by the coalition may include but are not limited to acute coronary syndromes, trauma, stroke, out-of-hospital cardiac arrest, and sepsis. This position would typically assigned as a responsibility of a local public health officer or as a separate position that, ideally, is independent of any of the participating provider organizations (e.g., EMS regulatory agency, professional society, healthcare association).

Responsibilities and Duties:

- Initially convene stakeholders to seek agreement to collaborate as members of a regional time sensitive care coalition (RTSCC)
- Organize Coalition meetings
- Organize meeting of various sub-committees and ad hoc project team meetings
- Plan agendas in consultation with condition-specific sub-committee team leaders and ad hoc improvement project team leaders
- Provide staff support to the condition-specific sub-committees and ad hoc project teams, to include when needed, independent / impartial data aggregation and report generation for performance measurement across multiple provider organizations
- Provide quality improvement coaching / technical support consultation to the Coalition, sub-committees, and ad-hoc project teams
- Generate and distribute meeting minutes

Qualifications:

- Education
 - Master's degree in public health, nursing, EMS or similar; >5 years of experience with high level of responsibility and experience in quality improvement / clinical care coordination may be considered in substitution for the education requirement
- Experience
 - Participation on quality improvement project teams
 - Lead / facilitate teams
- Specific skills
 - Email
 - MS Word
 - MS Excel, particularly in data entry / data cleaning / basic analysis
 - Statistics and tools commonly used in quality improvement (e.g., Pareto analysis, cause/effect diagrams, run charts / SPC charts)
 - Run chart SPC chart interpretation
 - Medical literature searches (e.g., PubMed, Google Scholar,)
 - Conflict resolution
- Personal characteristics
 - Comfortable leading groups, including those with members in higher ranking positions
 - Social / political savvy
 - Comfortable with public speaking
- Certifications
 - Six Sigma /Lean Green belt or similar; Yellow belt or similar is acceptable when combined with other substantial experience
- Physical abilities
 - Local travel
 - Public speaking

APPENDIX 3 – INFORMATION BROCHURE ON SYSTEMS OF CARE FOR TIME SENSITIVE CONDITIONS

This is draft text to be used in a brochure or fact sheet that can be left with stakeholders and potential participants in a local TSCC. This is directed towards hospitals, EMS, and local municipal officials – it is not patient/consumer facing. Marketing staff or contractors can use this draft text to craft the final product with graphics, copy editing, formatting into a brochure, etc.

Heart attack, severe trauma, sudden cardiac arrest, and stroke – these are just a few of the time-sensitive conditions (TSC) where truly emergent care needs to be both effective and efficient in order to give patients in your community the best chances of survival and recovery. Clinically proficient treatment without timely delivery is not enough. Timely delivery without proficient care is inadequate. Proficient and timely care at an un-affordably high cost is not economically sustainable. Your community's systems of care for each TSC needs to be effective, timely and efficient.

For each of these TSC systems of care, there's a staggering array of complex processes and interactions within and between multiple logistical, electronic and human systems. When they do not fit together with precision; when there's friction between pieces; when the pieces do not move in coordination – these systems of care fall short of their potential.

The American College of Cardiology (ACC) and the National Association of County and City Health Officials (NACCHO) are working together with regions and individual communities to establish and sustain regional time sensitive care coalitions to address the challenges in delivering effective and efficient care. These coalitions typically consist of local hospitals; fire rescue agencies; ambulance services; 9-1-1 communications centers; public health departments; senior appointed and elected officials; insurance companies and other types of payers.

Our goal is to transform disparate regional / community efforts for a broad range of time-sensitive conditions into a highly effective, well-coordinated, and efficiently operating system that consistently delivers exceptional levels of quality care at a lower total cost.

For more information, please visit [insert URL] or contact [insert contact person name, phone # and email].

APPENDIX 4 – SAMPLE STAKEHOLDER INVITEES TO THE INITIAL COALITION FORMATION MEETING

Some of the titles listed below may not exactly match the titles of the appropriate representatives in a specific region or community. Organizers should use these titles only as a guide for the types of people and organizations to invite to the meetings to explore and establish the RTSCC.

Government operated EMS provider agencies, which may include 9-1-1 communications centers, fire / rescue departments, and ambulance services may already be represented by their city or county administrators or elected officials. For the purposes of initially forming the coalition, the objectives of the initial coalition formation meeting may be better served by limiting representation to the senior local government officials that the operations-level directors and chiefs report to. EMS regulatory agencies, which are not provider agencies, would be appropriate to include in the meeting to form the coalition. Senior leaders from private ambulance services and separately governed fire protection districts are also appropriate to include in the meeting to form the coalition.

Senior Appointed and Elected Government Officials (separate from leaders of operational provider agencies [e.g., fire department chiefs and government operated ambulance service directors])

- City Managers
- Mayor
- Chair of City Council
- County Administrator
- Chair of County Commission

Hospital Representatives

- President/CEO
- Administrative and Medical Directors, Emergency Department
- Administrative and Medical Directors, Cardiac Catheterization Laboratory
- Administrative and Medical Directors, Stroke Unit
- Administrative and Medical Directors, Trauma Service

9-1-1 Communications Centers

- Administrative and Medical Directors

Fire Rescue Agencies (and any other non-transport medical first response entities) (Optional if they report to a local unit of government administrator or elected official that is already represented)

- Fire Chiefs and Medical Directors

Ambulance Services

(Optional if they report to a local unit of government administrator or elected official that is already represented)

- Administrative and Medical Directors

EMS Regulatory Agencies

- Administrative and Medical Directors

Public Health Departments

- Administrative and Medical Directors

Rehabilitation Centers (that provide services for TSC patients)

- Administrative and Medical Directors

Insurance Companies (and major employers with self-funded healthcare plans; Accountable Care Organizations and other 'at-risk' payers)

- Local/Regional Directors

APPENDIX 5 – SAMPLE STAKEHOLDER INVITATIONS TO THE INITIAL COALITION FORMATION MEETING

This invitation would ideally come from a very senior public official, such as a mayor, chair of the local county commission, city manager, or county administrator – or a local equivalent thereof (e.g., county judges in Texas) – on their official letterhead. In the absence of that scenario, the letter can come from the ACC and/or NACCHO. If there is another scenario that works locally, these options should not be considered restrictive. For example, a local EMS council, hospital association, public health department, may also have a neutral standing along with enough political influence or gravitas to compel attendance by hospital CEOs and other senior officials. Please modify the invitation language below to best suit local needs and circumstances.

On behalf of the American College of Cardiology and the National Association of County and City Health Officials, you are cordially invited to attend a meeting to consider ways to formally organize efforts to improve care in our region / community for time sensitive conditions (TSC) such as heart attack, trauma, cardiac arrest, and stroke. For this unique gathering, we are inviting your colleagues in positions at a senior executive and medical director level from units of local government, hospitals, EMS, 9-1-1 communications, public health departments, rehabilitation facilities, and payers.

Heart attack, severe trauma, sudden cardiac arrest, and stroke – these are just a few of the time-sensitive conditions (TSC) where truly emergent care needs to be both effective and efficient in order to give patients in your community the best chances of survival and recovery. Clinically proficient treatment without timely delivery is not enough. Timely delivery without proficient care is inadequate. Proficient and timely care at an unaffordably high cost is not economically sustainable. Your community's systems of care for each TSC needs to be effective, timely and efficient.

For each of these TSC systems of care, there's a staggering array of complex processes and interactions within and between multiple logistical, electronic and human systems. When they do not fit together with precision; when there's friction between pieces; when the pieces do not move in coordination – these systems of care fall short of their potential. This is only possible when the stakeholders collaborate across institutional and political borders. Having separate groups working at a regional/ community level to address TSC for trauma, heart attack, cardiac arrest, stroke, sepsis and other conditions is not an efficient use of limited resources due to their many commonalities.

The American College of Cardiology (ACC) and the National Association of County and City Health Officials (NACCHO) are working together with champions in your region / community to establish and sustain TSC coalitions to address the challenges in delivering effective and efficient care. Our goal is the is to improve the regional / community TSC system of care into a well-oiled machine that consistently delivers high levels of quality care at a lower total cost.

This initial meeting of stakeholders will be held on (date) at (time) at (location). (Breakfast, lunch dinner, hors d'oeuvres, refreshments) will be served. Please RSVP by (date) to (name, title, institution, email address, phone #).

For more information about this initiative, please visit acc.org/TSC/Coalitions.

Sincerely,

[Local Champion Name, Institutional Title, Institution, Signature]

[Local Champion ACC Rep Name, ACC Title, Institutional Title, Institution, Signature]

[NACCHO Rep Name, ACC Title, Institutional Title, Institution, Signature]

APPENDIX 6 – SAMPLE MEETING AGENDA AND DISCUSSION POINTS – INITIAL TSCC FORMATION MEETING

Registration desk open / Refreshments or buffet table open.....30 min

- Let everyone get something to eat, chat and be seated before the meeting agenda begins

Opening Remarks 5 min

- Welcome from local champion and/or key local official
- State that the goal of the meeting is see if we can reach a consensus on forming a regional time sensitive care coalition (RTSCC)
- Introduce the facilitator (local public health official or other ‘neutral party)

Introductions of Attendees.....10 min

- Go around the room and ask each person to state their name, title and the institution they represent.

State the Guiding Principal for the RTSCC 5 min

- Make it clear at the start of the meeting that the guiding principle for the meeting is to work towards a system of care that prioritizes the needs of patients and the community over the proprietary interests of any individual group or organization.
- This may be stated by the RTSCC champion, key local official, or some other person that the attendees will all respect.

Clinical and Business Case for RTSCCs.....10 min

- Short summary of how the actions early in the episode of care dramatically influence the downstream outcomes and costs
- How the time sensitivities make it essential to optimize workflows and communications between the phases of care hand-offs to minimize delays to definitive care
- How post-acute care is essential to making sure the long term outcomes are as best as they can be – minimizing preventable readmissions; completing rehab; efforts in secondary prevention
- Need for measurement across the continuum to get a systems-level perspective on acute care
- Need for longitudinal measurement for longer term monitoring and improvement

Trauma, STEMI, and Stroke Systems of Care Models.....15 min

- If any systems of care meeting are already taking place, have someone summarize those efforts (topic, participants, frequency of meetings, what is measured, examples of improvement projects)

- This should exclude meetings by individual hospitals with their EMS providers, as it does not reach across hospitals – unless there is only one tertiary care hospital in the community.
- If no such meetings, describe how they typically take place in other places

Coalition Proposal10 min

- Facilitator would present a high-level overview of how the RTSCC would be organized and operate
 - What organization is well-suited to serve in a coordination role (e.g., health department or EMS Council)
 - Standing Committees (e.g. trauma, AML, stroke, cardiac arrest)
 - Ad hoc improvement project teams
 - Ad Hoc Organizing committee to determine:
 - Can the core coalition activities use existing resources without need for specific funding; If not, what funding is needed and how would it be obtained (e.g., dues from participating organizations; other options)
 - How to fund ad hoc project teams (if they incur any expenses that that participating organizations cannot provide /cover from their existing resources)
- Reference the draft bylaws that were sent out to those who responded to the RSVP

Discussion30 min

- Facilitator should go around the room to get questions / feedback from the attendees
- Call for a show of hands to see if there is any objection to creating a RTASCC. This a preferable ‘opt-out’ question rather than an ‘opt-in’ question.
- If there is a critical mass of representatives that do not oppose formation of the RTSCC, then ask for members to be available to review and comment on documents that will establish the RTSCC. Those documents can be based on documents provided in the appendices of this manual.

Summary, next meeting date, location and any other next steps10 min

APPENDIX 7 – SAMPLE MEETING AGENDA – RTSCC STEERING COMMITTEE

Call to Order and Roll Call of Committee Members (Chairperson).....	2 min
Introduction of invited guests and other attendees	3 min
Steering Committee Report (Pre-distribute written reports on each of the items below.....	15 min
Review current performance level and trend graph of on TSC composite metric (Weighted roll-up of composite performance metric made up from each of the sub-committees composite scores)	2 min
Reports on any active cross-condition improvement projects	2 min (per item)
Presentation of recommended new cross-condition improvement projects	2 min (per item)
Reports on any publications or presentations.....	2 min
Questions / Discussion	(Remaining time available)
Sub-Committee Reports (same for each; Pre-distribute written reports on each of the items below).....	(Suggested limit of 15 min per sub-committee)
Review current performance levels and trend graphs on key metrics.....	2 min
Reports on any active improvement projects.....	2 min
Presentation of recommended new improvement projects	2 min
Reports on any publications or presentations.....	2 min
Questions / Discussion	7 min
Additional Discussion and New Business.....	(Remaining time available)
Adjourn	

APPENDIX 8 – SAMPLE MEETING AGENDA – CONDITION SPECIFIC SUB-COMMITTEE

Call to Order and Roll Call of Committee Members (Chairperson).....	2 min
Introduction of invited guests and other attendees	3 min
(Pre-distribute written reports on each of the items below)	
Review current performance levels and trend graphs of key metrics	5 min
Toll gate reviews on any active improvement projects	10 min (per project)
Presentation of proposed new improvement project charters	10 min (per project)
Reports on any publications or presentations	2 min
Additional Discussion and New Business.....	(Remaining time available)

APPENDIX 9 – SAMPLE REGIONAL REPORT ELEMENTS (AMI) – TEMPLATE

The RTSCC may utilize reports from several different clinical registries, typically one for each TSC area. Typically, these reports are designed for a particular hospital rather than for an entire community or region that includes multiple hospitals and EMS services. Results from multiple hospitals and EMS agencies will need to be aggregated to generate system level reports. However, some of the national registries offer regional reports suited to RTSCCs. As an example, the Chest Pain – MI Registry offers state and regional reports on AMI patients with breakdowns by STEMI, and NSTEMI cases.

The following report elements are an example of what might be included the STEMI section of a RTSCC report.

- Composite Measures
 - Overall AMI performance composite
 - Overall defect free care
 - STEMI performance composite
- Fibrinolytic Patients - STEMI
 - Proportion of patients who received fibrinolytics from those who met eligibility criteria for fibrinolytics
 - Proportion of patients given fibrinolytics that received them within 30 minutes of initial hospital arrival
 - Median time from ED first medical contact to fibrinolytics administered
 - Median time from EMS first medical contact to fibrinolytics administered
 - Median time from symptom onset to fibrinolytics administered
- Primary PCI Patients – Transfers - STEMI
 - Proportion of patients with first medical contact to primary PCI within 120 minutes (Ambulance and direct presenters)
 - Median time from first medical contact to primary PCI (Ambulance and direct presenters)
 - Median time from ambulance first medical contact to primary PCI
 - Median time from ED first medical contact to primary PCI
 - Median time from ED first medical contact at STEMI referral facility to ED discharge from STEMI referral facility in patients transferred for PCI (door in – door out)
 - Median time from symptom onset to primary PCI
- Primary PCI Patients – Non-Transfer - STEMI
 - Proportion of patients with first medical contact to primary PCI within 90 minutes (ambulance and direct presenters)
 - Proportion of patients with ambulance first medical contact to primary PCI within 90 minutes
 - Proportion of patients with ED first medical contact to primary PCI within 90 minutes

- Median time from first medical contact to primary PCI (ambulance and direct presenters)
 - Median time on STEMI patients from ambulance first medical contact to primary PCI for STEMI patients
 - Median time on STEMI patients from ED first medical contact to primary PCI for STEMI patients
 - Median time from symptom onset to primary PCI
- % STEMI patients arriving via ambulance with a prehospital 12 lead ECG
- EMS STEMI Alerts - Overcall rate
- EMS STEMI Alerts - Undercall rate
- STEMI - In-hospital risk adjusted mortality (all patients)
 - STEMI - In-hospital risk adjusted mortality (including patients with cardiac arrest)
 - STEMI - In-hospital risk adjusted mortality (excluding patients with cardiac arrest)
- STEMI - Median time from first medical contact to 12 lead ECG (ambulance and direct presenters)
 - Median time from ambulance first medical contact to 12 lead ECG
 - Median time from ED first medical contact to 12 lead ECG

APPENDIX 10 – TSCC MOU WITH PARTICIPATING ORGANIZATIONS – TEMPLATE

MEMORANDUM OF UNDERSTANDING BY AND BETWEEN THE (insert name of RTSCC) AND (insert name of participating organization) FOR PARTICIPATION IN A REGIONAL TIME SENSITIVE CARE COALITION

THIS MEMORANDUM OF UNDERSTANDING (“MOU”) is entered into and made effective this ____th day of ____ month____, ____year__ (“Effective Date”), by and between the (name of RTSCC) , (“[RTSCC abbreviation]”) located at (address) and the (name of participating organization), (“[participating organization abbreviation]”) located at (address). [RTSCC abbreviation] and [participating organization abbreviation] shall individually be referred to as a “Party” and collectively as the “Parties”;

WHEREAS, [PARTICIPATING ORGANIZATION ABBREVIATION] and [RTSCC ABBREVIATION] are seeking opportunities to collaborate with other organizations and stakeholders in efforts to improve our regional systems of care for high-risk time-sensitive conditions

WHEREAS, [PARTICIPATING ORGANIZATION ABBREVIATION] and [RTSCC ABBREVIATION] are agreeing to collaborate in quality improvement and research projects to improve care for high-risk time sensitive conditions;

NOW, THEREFORE, In consideration of the mutual agreements herein set forth, and for valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties agree as follows:

1. **Participation.** As of the Effective Date of this MOU, [PARTICIPATING ORGANIZATION ABBREVIATION] agrees to participate in ([insert name of RTSCC] activities as described in the Scope of Participating Organization Activities as attached hereto as Exhibit A.
2. **Term.** This MOU shall be effective as of the Effective Date, and shall continue until termination is requested by either party or as otherwise provided herein.
3. **Termination.** Either Party may terminate this MOU or any amendments with or without cause. As courtesy to other parties that are participating in the RTSCC, a

thirty (30) day notice is requested, but not mandated, if the Participating Organization wants to terminate the MOU.

4. **Confidential Information.** For the purposes of this MOU, “Confidential Information” is defined as any software, material, data or business, financial, operational, customer, vendor and other information disclosed by one Party to the other and not generally known by or disclosed to the public or known to the receiving Party solely by reason of the negotiation or performance of this MOU, and shall include, without limitation, the terms of this MOU. Each Party shall maintain all of the other Party’s Confidential Information in strict confidence and will protect such information with the same degree of care that such Party exercises with its own Confidential Information, but in no event less than a reasonable degree of care. Except as provided in this MOU, a Party shall not use or disclose any Confidential Information of the other Party in any manner without the express prior written consent of such Party. Access to and use of any Confidential Information shall be restricted to those employees and persons within a Party’s organization with known discretion and with a need to use the information to perform such Party’s obligations under this MOU. A Party’s consultants and subcontractors may be included within the meaning of “persons within a Party’s organization,” provided that such consultants and subcontractors have executed a non-disclosure or confidentiality agreement with provisions no less stringent than those applicable to such Party under this MOU, and such Party shall make such signed agreements available to the other Party upon request. Notwithstanding anything herein to the contrary, Confidential Information shall not include information that is (a) already known to or otherwise in the possession of a Party at the time of receipt from the other Party and that was not known or received as the result of violation of any obligation of confidentiality; (b) publicly available or otherwise in the public domain prior to disclosure by a Party; (c) rightfully obtained by a Party from any third party having a right to disclose such information without restriction and without breach of any confidentiality obligation by such third party; (d) developed by a party independent of any disclosure hereunder, as evidenced by written records; or (e) disclosed pursuant to the order of a court or administrative body of competent jurisdiction or a government agency, provided that the Party receiving such order shall notify the other prior to such disclosure and shall cooperate with the other Party in the event such Party elects to legally contest, request confidential treatment, or otherwise avoid such disclosure. Except as otherwise provided herein, all of a Party’s Confidential Information disclosed to the other Party, and all copies thereof, shall be and remain the property of the disclosing Party. All such Confidential Information and any and all copies and reproductions thereof shall, upon the expiration or termination of this MOU for any reason, or within fifteen (15) days of written request by the disclosing Party, be promptly returned to it, or destroyed, at the disclosing Party’s direction. In the event of such requested destruction, the Party receiving such request shall provide to the other

Party written certification of compliance therewith within fifteen (15) days of a written request from the disclosing Party.

5. **Indemnification and Insurance.** Each Party (as the “Indemnifying Party”) agrees to indemnify, hold harmless and defend the other Party, its directors, trustees, officers, employees, and agents from and against any and all claims, suits, losses, damages, costs, fees, expenses (including attorneys' fees), and other liabilities asserted by third parties, to the extent resulting from or arising out of the Indemnifying Party's negligence or willful misconduct in the activities carried out pursuant to this MOU or breach of this MOU; provided, however, that the Indemnifying Party shall not be liable to the extent of the other Party's negligence, intentional wrongdoing, or breach of this MOU.
6. **Limitation of Liability.** IN NO EVENT SHALL [RTSCC ABBREVIATION]'s AGGREGATE LIABILITY HEREUNDER, BASED ON ANY THEORY OF LIABILITY OR CAUSE OF ACTION, EXCEED THE TOTAL AMOUNT OF FEES PAID TO [RTSCC ABBREVIATION] BY [PARTICIPATING ORGANIZATION ABBREVIATION] UNDER THIS MOU. NOTWITHSTANDING ANYTHING IN THIS MOU TO THE CONTRARY, IN NO EVENT SHALL EITHER PARTY BE LIABLE FOR ANY INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, SAVINGS OR REVENUE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
7. **Notices.** All notices and demands of any kind or nature which either Party to this MOU may be required or may desire to serve upon the other in connection with this MOU shall be in writing, and may be served personally, by registered or certified United States mail, or by overnight courier (e.g., Federal Express or DHL) to the addresses stated below. Service of such notice or demand so made shall be deemed complete on the day of actual delivery. Either Party hereto may, from time to time, by notice in writing served upon the other Party as aforesaid, designate a different mailing address or a different person to direct a mailing.

If to [RTSCC ABBREVIATION]:

(name of RTSCC)

Attn: (contact person)

(address)

If to [PARTICIPATING ORGANIZATION ABBREVIATION]:

(name of participating organization)

Attn: (contact person)

(address)

8. **Headings.** The headings of the various articles hereof are intended solely for the convenience of reference and are not intended for any purpose whatsoever to explain, modify or place any construction upon any of the provisions of this MOU.
9. **Governing Law.** This MOU will be governed by and construed in accordance with the laws of the (insert name of state), without regard to any conflicts of law principles applied in that state. Any suit or proceeding relating to this MOU shall be brought only in the (insert name of state). Process in any action or proceeding regarding this MOU may be served on either party by any method referenced in Section 7 of this MOU. EACH PARTY CONSENTS TO THE EXCLUSIVE PERSONAL JURISDICTION AND VENUE OF THE COURTS, LOCATED IN THE (insert name of state).
10. **Counterparts.** This MOU may be executed in one more counterparts, each of which shall be deemed an original and all of which taken together shall constitute one and the same instrument.
11. **Waiver.** A waiver by either Party to this MOU of any of its terms or conditions in any one instance shall not be deemed or construed to be a general waiver of such term or condition or a waiver of any subsequent breach.
12. **Severability.** All provisions of this MOU are severable. If any provision or portion hereof is determined to be unenforceable by a court of competent jurisdiction, then the rest of the MOU shall remain in full effect, provided that its general purposes remain reasonably capable of being effected.
13. **Third Party Beneficiary.** The Parties agree to look solely to each other with respect to this MOU. This MOU and each and every provision thereof are for the exclusive benefit of the Parties not for the benefit of any third party. No third party shall be entitled to rely upon or enforce this MOU or any portion thereof or to be a third party beneficiary thereof.

14. **Entire Agreement.** This MOU constitutes the entire agreement between the Parties hereto with respect to the subject matter hereof and supersedes and replaces all prior agreements, oral or written, between the Parties relating to the subject matter hereof. Except as otherwise indicated herein, this MOU may not be modified, amended or otherwise changed in any manner except by written agreement signed by authorized representatives of the Parties.

IN WITNESS WHEREOF, each of the Parties has executed this MOU, by its duly authorized representative.

(Name of RTSCC)	(Name of participating organization)
Name:	Name:
Title:	Title:
Signature:	Signature:
Date:	Date:

EXHIBIT A:

SCOPE OF PARTICIPATING ORGANIZATION ACTIVITIES (“SPOA”)

Activities anticipated in the collaboration between [RTSCC ABBREVIATION] and [PARTICIPATING ORGANIZATION ABBREVIATION] will include, but are not limited to the following:

1. Participation of an executive level representative on the Steering Committee.
2. Participation of an operational level representatives on condition-specific sub-committees (e.g., trauma surgeons and trauma nurses on the trauma sub-committee).
3. Participation of appropriate representatives on various ad hoc improvement project teams, some of whom may not be on the steering committee or any of the sub-committees (e.g., pharmacist on an ad hoc improvement project team to address medication dosing errors)
4. Participation in financial and operational support of the overall RTSCC as agreed upon by the Steering Committee

5. Participation in financial and operational support of systems level QI and research projects, as agreed upon by the Steering Committee
6. Participation in clinical registries as agreed upon by the Steering Committee
7. Participation in data sharing for aggregation to systems level performance measurement, QI and research, with agreed upon limitations (e.g. blinding of organizational identifiers; no inclusion of PHI unless otherwise agreed upon with appropriate security processes)
8. Participation in data sharing to link medical records for the same episode of care with EMS agencies in order to create a system-level record, with agreed upon limitations (e.g., after linkage, removal of organizational identifiers and no inclusion of PHI unless otherwise agreed upon with appropriate security processes)

APPENDIX 11 – PRELIMINARY ASSESSMENT CHECKLIST

The following checklist outlines items to cover in a preliminary assessment of the regions current status regarding systems of care for time-sensitive conditions. This preliminary assessment will be useful in preparation for the initial TSCC organizing meeting.

- **Identify and catalog any existing regional meetings for high-risk time sensitive conditions**
 - Acute myocardial infarction
 - Meeting name
 - Sponsor/coordinated by
 - Frequency
 - Location
 - Out-of-Hospital Cardiac Arrest
 - Meeting name
 - Sponsor/coordinated by
 - Frequency
 - Location
 - Stroke
 - Meeting name
 - Sponsor/coordinated by
 - Frequency
 - Location
 - Trauma
 - Meeting name
 - Sponsor/coordinated by
 - Frequency
 - Location
 - Sepsis
 - Meeting name
 - Sponsor/coordinated by
 - Frequency
 - Location
 - Other high-risk time sensitive conditions
 - Meeting name
 - Sponsor/coordinated by
 - Frequency
 - Location
- **Identify and catalog any hospital and EMS participants in registries in the following clinical areas**
 - Acute myocardial infarction registries
 - Chest Pain – MI Registry (ACC)

- Institution Name
 - Name and contact information of coordinator
- eReports EMS (ACC; Based on Chest Pain – MI Registry data)
 - EMS Agency Name
 - Name and contact information of coordinator
- GWTG-CAD (AHA)
 - Institution Name
 - Name and contact information of coordinator
- Other registries or local databases
 - Institution / EMS Agency Name
 - Name and contact information of coordinator
- Out-of-Hospital Cardiac Arrest
 - CARES
 - Institution / EMS Agency Name
 - Name and contact information of coordinator
 - Other registries or local databases
 - Institution / EMS Agency Name
 - Name and contact information of coordinator
- Stroke
 - GWTG-Stroke
 - Institution / EMS Agency Name
 - Name and contact information of coordinator
 - Other registries or local databases
 - Institution / EMS Agency Name
 - Name and contact information of coordinator
- Trauma
 - Trauma Database (American College of Surgeons)
 - Institution Name
 - Name and contact information of coordinator
 - Other registries or local databases
 - Institution / EMS Agency Name
 - Name and contact information of coordinator
- Sepsis
 - Sepsis Database (Sepsis Alliance)
 - Institution Name
 - Name and contact information of coordinator
 - Other registries or local databases
 - Institution / EMS Agency Name
 - Name and contact information of coordinator
- Pulmonary Embolism
 - PE Database (PERT Coalition)
 - Institution Name

- Name and contact information of coordinator
 - Other registries or local databases
 - Institution / EMS Agency Name
 - Name and contact information of coordinator
 - Any other high-risk time-sensitive condition registries
 - Name and clinical area of registry
 - Institution Name
 - Name and contact information of coordinator
- **Describe the strengths and weaknesses of the current system of care for each time sensitive conditions**
 - Acute myocardial infarction
 - Strengths
 - Weaknesses
 - Out-of-Hospital Cardiac Arrest
 - Strengths
 - Weaknesses
 - Stroke
 - Strengths
 - Weaknesses
 - Trauma
 - Strengths
 - Weaknesses
 - Sepsis
 - Strengths
 - Weaknesses
 - Other high-risk time sensitive conditions
 - Strengths
 - Weaknesses

APPENDIX 12 – Ad Hoc Improvement Project Team Charter – TEMPLATE

Improvement Project Charter – *Example*

(insert Organization logo
here)

Project Title: (Insert project title)

Element	Description	Information
Process	The process in which the problem or opportunity exists	Name of process. Consider using a hierarchical format with macro process and sub-processes to reach the one which the project will operate
Problem / Opportunity Statement	Describe the problem or improvement opportunity	
Intervention Hypothesis	Specify the change / intervention being made in the form of a hypothesis	
Consequences of Status Quo	What happens if nothing is done?	
Benefits to Customers	Who are the internal and/or external customers that may benefit? What can be measured that reflects how well or efficiently their needs or expectations are being met? What changes in that measure(s) are projected from this project? Use one set of parameters per customer / per need/expectation.	Customer: Need / Expectation: Measure: Projected Change:
Other Justifications	Any other reasons why this project should be approved	
Proposed Team Members	Names and titles of proposed team members. Also include organization name if external to the department.	<ul style="list-style-type: none"> • (name, title) • (name, title) • (name, title) • (name, title)
Projected Schedule	Proposed Project Start Date	
	M - Measure	(insert date for projected completion of this phase)
	A – Analyze	(insert date for projected completion of this phase)
	I - Improvement	(insert date for projected completion of this phase)
	C- Control	(insert date for projected completion of this phase)

RTSCC Improvement Project Charter – (Insert project title)

Anticipated Deliverables	M – Measure	<ul style="list-style-type: none"> Baseline measure or similar
	A – Analyze	<ul style="list-style-type: none"> Report on other options considered as possible interventions based on the analysis and root cause considerations
	I – Improve	<ul style="list-style-type: none"> Results of intervention(s)
	C – Control	<ul style="list-style-type: none"> Recommendations for making changes permanent Report on potential performance decline scenarios and associated corrective efforts Report on overall project to stakeholders Notes on where / how project information has been archived Notes on any plans for any external presentations and/or publications
Other Support Required	Aside from funding, personnel, such as data access, equipment, etc.	<ul style="list-style-type: none">
Review Status	Allows improvement process itself to be measured on individual projects and for projects in aggregate	<p>Sub-Committee Submission Date:</p> <p>Sub-Committee Initial Review Date:</p> <p>Sub-committee - Recommendation Status: Approve Decline Reconsider</p> <p>Sub-Committee Reconsideration Date:</p> <p>Steering Committee - Submission Date:</p> <p>Steering Committee - Initial Review Date:</p> <p>Steering Committee - Recommendation Status: Approve Decline Reconsider</p> <p>Steering Committee - Reconsideration Date:</p> <p>Final Review Status: Approve Decline To Be Reconsidered in Future</p>

APPENDIX 13 – Ad Hoc Improvement Project Team Charter – Example

Improvement Project Charter – *Example*




**Project Title: FIRE DEPARTMENT LOGGING OF PUBLIC ACCESS DEFIBRILLATOR
LOCATIONS AND ACCESSIBILITY WITH COURTESY READINESS
INSPECTIONS**



Element	Description	Information
Process	The process in which the problem or opportunity exists	Clinical > Cardiac Arrest > Bystander Interventions > Defibrillation
Problem / Opportunity Statement	Describe the problem or improvement opportunity	<ol style="list-style-type: none"> 1) Emergency medical dispatchers (EMDs) either do not have or have very limited information on the location of public access defibrillators (PADs) and are therefore unable to advise callers on where a nearby and accessible unit may be. 2) Reports in the literature and anecdote suggest PADs often have inoperable batteries, pads or other components 3) Local fire department building inspections, pre-planning operations and incident responses may provide cost-effective opportunities to log locations and inspect PADs to improve their accessibility and utility
Intervention Hypothesis	Specify the change / intervention being made in the form of a hypothesis	<ol style="list-style-type: none"> 1) Implementation of a process to log PAD locations and conduct a courtesy inspection by fire inspectors and fire company crews – while engaged in building inspections, pre-planning activities, incident responses or casual encounters – will increase the number of PADs in a database that can be made available to EMDs for pre-arrival instruction 2) Implementation of the above process can also decrease the incidence of PAD utilization where there were unit failures due to expired pads, uncharged batteries, and other preventable causes. 3) Implementation of the above process will improve the rate of PAD utilization 4) Implementation of the above process will improve the rate of survival to discharge on patients presenting with a shockable rhythm.
Consequences of Status Quo	What happens if nothing is done?	The investments that the community has made in PADs may not be fully realized if PADs are underutilized or fail if use is attempted

RTSCC Improvement Project Charter – FIRE DEPARTMENT LOGGING OF PUBLIC ACCESS DEFIBRILLATOR LOCATIONS AND ACCESSIBILITY WITH COURTESY READINESS INSPECTIONS

Benefits to Customers	Who are the internal and/or external customers that may benefit? What can be measured that reflects how well or efficiently their needs or expectations are being met? What changes in that measure(s) are projected from this project? Use one set of parameters per customer / per need/expectation. 	<p>Customer: Caller on cardiac arrest case Need / Expectation: have an EMD advise a caller of any PADs that are nearby Measure: % of cases where EMD advises on the location of a nearby PAD when one is accessible within a specified proximity Projected Change: unknown</p> <p>Customer: Cardiac arrest patient and PAD owner Need / Expectation: PADs will work when applied Measure: % of PADs inspected that are found in operational condition Projected Change: unknown</p> <p>Customer: Cardiac arrest patient Need / Expectation: The system of care for OOHCA will result in survival to discharge with neurological recovery to pre-arrest levels. Measure: Survival to discharge with CPC 1 or 2 levels rate on relevant cases Projected Change: unknown</p>
Other Justifications	Any other reasons why this project should be approved	This another opportunity for local FDs to add value to their communities apart from response to fire and EMS incidents
Proposed Team Members	Names and titles of proposed team members. Also include organization name if external to the department.	<ul style="list-style-type: none"> • Mary Merrie, Fire Captain (Project Lead) • Greg Grayce, GIS Analyst, City Planning Office • Roberta Bobb, Fire Lieutenant • Mike Michaels, Firefighter / Paramedic • John Jonn, Fire Marshall (Executive Champion)
Projected Schedule	Proposed Project Start Date	May 1, 2019
	M - Measure	June 1, 2019
	A – Analyze	July 1, 2019
	I - Improvement	January 5, 2020
	C- Control	February 1, 2020

Anticipated Deliverables	M – Measure	<ul style="list-style-type: none"> • Baseline PAD utilization rates • Baseline PAD utilization failure rates • Baseline survival rates with associated CPC scores on relevant cases
	A – Analyze	<ul style="list-style-type: none"> • Report on other options considered as possible interventions
	I – Improve	<ul style="list-style-type: none"> • Report on results of intervention(s)

RTSCC Improvement Project Charter – FIRE DEPARTMENT LOGGING OF PUBLIC ACCESS
DEFIBRILLATOR LOCATIONS AND ACCESSIBILITY WITH COURTESY READINESS
INSPECTIONS

	C – Control	<ul style="list-style-type: none"> Recommendations for making changes permanent Report on potential performance decline scenarios and associated corrective efforts Report on overall project to stakeholders Notes on where / how project information has been archived Notes on any plans for any external presentations and/or publications
Other Support Required	Aside from funding, personnel, such as data access, equipment, etc.	<ul style="list-style-type: none"> Project assumes acquisition and operationalization of tools and processes for EMDs to access PAD location and accessibility information that can be passed along to callers Need process to promptly get info collected by fire crews into our AED location data base tool so it can be available to EMDs to pass along info to callers
Review Status	Allows improvement process itself to be measured on individual projects and for projects in aggregate	<p>Sub-Committee Submission Date: 1/15/2019 Sub-Committee Initial Review Date: 1/20/2019 Sub-Committee - Recommendation Status: ApproveX Decline Reconsider Sub-Committee Reconsideration Date: n/a</p> <p>Steering Committee - Submission Date: 2/1/2019 Steering Committee - Initial Review Date: 2/15/2019 Steering Committee - Recommendation Status: ApproveX Decline Reconsider Steering Committee - Reconsideration Date: n/a Final Review Status: ApproveX Decline To Be Reconsidered in Future</p>

APPENDIX 14 – COMMUNITY DASHBOARD – TEMPLATE

Region / Community Time Sensitive Care Dashboard Template – (insert time frame)

(insert Organization logo here)

ALL CONDITIONS - OVERALL PERFORMANCE

This is a composite score that combines the overall performance of each of the individual time sensitive condition scores, weighted based on the volume of patients with each condition.

(INSERT LINE CHART OF LAST 12 PERIODS OF REGION, STATE AND NATIONAL VALUES)

	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH
REGION												
STATE												
NATION												

TRAUMA - OVERALL PERFORMANCE

This is a composite score that combines the performance of each of the individual performance measures for major trauma cases.

(INSERT LINE CHART OF LAST 12 PERIODS OF REGION, STATE AND NATIONAL VALUES)

	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH
REGION												
STATE												
NATION												

RTSCC Community Dashboard Template – (insert time frame)

STEMI - OVERALL PERFORMANCE

This is a composite score that combines the performance of each of the individual performance measures for STEMI care. STEMI is an acronym for S-T segment myocardial infarction - the most serious form of heart attack.

(INSERT LINE CHART OF LAST 12 PERIODS OF REGION, STATE AND NATIONAL VALUES)

	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH
REGION												
STATE												
NATION												

CARDIAC ARREST - OVERALL PERFORMANCE

This is a composite score that combines the performance of each of the individual performance measures for out-of-hospital cardiac arrest cases.

(INSERT LINE CHART OF LAST 12 PERIODS OF REGION, STATE AND NATIONAL VALUES)

	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH
REGION												
STATE												
NATION												

RTSCC Community Dashboard Template – (insert time frame)

STROKE - OVERALL PERFORMANCE

This is a composite score that combines the performance of each of the individual performance measures for stroke cases.

(INSERT LINE CHART OF LAST 12 PERIODS OF REGION, STATE AND NATIONAL VALUES)

	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH
REGION												
STATE												
NATION												

SEPSIS - OVERALL PERFORMANCE

This is a composite score that combines the performance of each of the individual performance measures for sepsis cases.

(INSERT LINE CHART OF REGIONAL, STATE AND NATIONAL)

	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH	MONTH
REGION												
STATE												
NATION												

Appendix 15 – EMS Performance Accountability Agreements – Templates

The following language is intended to provide a template and example of what might be inserted, with appropriate customization, in the Clinical Performance Requirements section of a Request for Proposals document for emergency ambulance service; a final ambulance service contract; or a service level agreement between a unit of local government and their internal department that provides emergency ambulance service.

This sample language addresses STEMI care in context of ambulance service performance. This is to illustrate the type of content and format. Modifications may be made for non-transport medical first response agencies or the combined performance of non-transport medical first response agencies and ambulance services working together when these functions are provided by separate organizations.

Specific performance thresholds, as shown by blank spaces in the example template, should be determined by local experts in conjunction with evidence-based guidelines and/or contemporary research studies. A similar format and process could be applied to other areas of care, particularly for other high-risk time-sensitive conditions (e.g., out-of-hospital cardiac arrest, trauma, sepsis).

Note: Hospital performance accountability is also important. However, the STEMI clinical registry used by the majority mass of hospitals (if not all) and its included performance metrics will provide for a more practical direction on which specific measures to include in an hospital performance accountability program.

.....

The *EMS Provider* will be expected to comply with the following clinical and performance reporting requirements, in addition to any response time performance requirements stated elsewhere.

STEMI

Data Submission and Reporting

For patients brought by the *EMS Provider* to a hospital that receives an initial emergency department diagnosis of STEMI, the following data submission and reporting requirements will apply:

Data Set (for audit retention and/or upload to an EMS clinical registry)

- State Assigned EMS Agency ID# (Colorado 9876)
- Ambulance identifier (e.g., Unit 34)
- Were there any case exclusion criteria at any time on this case? (If yes – specify all that apply)
- Date and time of call received by ambulance dispatch center
- Ambulance en route
- Ambulance at scene

- Ambulance crew patient contact time
- Initial 12 lead ECG acquisition time
- First STEMI positive 12 lead ECG time
- EMS STEMI Alert notification to hospital time
- Is the initial destination a PCI capable hospital?
- Ambulance depart scene time
- If transport from scene was directly to a PCI hospital
 - ambulance arrive at hospital time
 - AHA hospital ID#
- If transport from scene was to a non-PCI hospital
 - Ambulance arrive at hospital time
 - AHA hospital ID#
 - Did patient get transferred emergently to a PCI hospital?
 - If yes
 - Did ambulance from scene transport also provide inter-hospital transfer to a PCI hospital?
 - If no,
 - State Assigned EMS Agency ID# of transferring ambulance (Colorado 9876)
 - Transferring ambulance identifier (e.g., Unit 34)
 - Date and time of call received by transferring ambulance dispatch center
 - Transferring ambulance en route time
 - Transferring ambulance at referring hospital time
 - Transferring ambulance departure time from referring hospital time
 - Transferring ambulance arrival at PCI hospital time

Reporting Requirements – Per Calendar Month

- Median, range, and N for patient contact to initial 12 Lead ECG time interval
- Median, range, and N for first STEMI positive 12 lead ECG to EMS STEMI Alert notification to receiving hospital time interval
- EMS overcall rate
- EMS undercall rate

Clinical Performance

For patients brought by the *EMS Provider* to a hospital that receives an initial emergency department diagnosis of STEMI, the following performance requirements will apply:

- The median ambulance crew patient contact to first field EMS 12 lead ECG time interval shall be less than ___ minutes with at least _____ percent (___%) aggregate compliance each calendar month.
 - Denominator: # of Field STEMI Alert cases
 - Denominator exclusions:
 - Glasgow coma score <15
 - Patient was intubated or had a laryngeal airway placed in the field
 - Patient had any periods of cardiac arrest during EMS care
 - Documentation of a communications system failure between the time of STEMI positive field 12 lead ECG acquisition and hospital arrival
 - Numerator # of denominator cases where the first field 12 lead ECG acquisition time to the time of STEMI Alert notification to the receiving hospital was less than 10 minutes (calculated to the closest second)
 - Exceptions
 - If the monthly STEMI case volume is less than ___ in a calendar month, the calculation will be deferred until at least a total of ___ (example of 10) new cases have accumulated since the most recent calendar month where qualifications were met for a value calculation.
 - Example: January had 12 STEMI cases. January cases alone were used to calculate the January performance measure. That value is reported for January performance. February had 8 cases. March had 9 cases. The 17 cases from February and March are combined to calculate the performance measure. That value is reported for both February and March.
- The median time from ambulance crew acquisition of their first STEMI positive 12 lead ECG to notification of the receiving hospital with a STEMI Alert shall be less than ___ minutes with at least _____ percent (___%) aggregate compliance each month.
 - Exceptions
 - If the monthly STEMI case volume is less than ___ in a calendar month, the calculation will be deferred until

- at least a total of ____ new cases have accumulated since the most recent calendar month where qualifications were met for a value calculation.
- The ambulance crew 'undercall rate' for STEMI Alerts shall be less than ____ percent (____%) in aggregate each month.
 - Exceptions
 - If the monthly STEMI case volume is less than ____ in a calendar month, the calculation will be deferred until at least a total of ____ new cases have accumulated since the most recent calendar month where qualifications were met for a value calculation.
- The ambulance crew 'overcall rate' for STEMI Alerts shall be less than ____ percent (____%) in aggregate each month.
 - If the monthly STEMI case volume is less than ____ in a calendar month, the calculation will be deferred until at least a total of ____ new cases have accumulated since the most recent calendar month where qualifications were met for a value calculation.

APPENDIX 16 – OTHER TSC RELATED PROGRAMS

There are several national programs that support systems of care development for specific time sensitive conditions.

- **Trauma Systems Consultation Program** – Targeted condition – Trauma. Sponsored by the American College of Surgeons (ACS) Committee on Trauma. More information at <https://www.facs.org/quality-programs/trauma/tqp/systems-programs/tscp>.
- **Resuscitation Academy** – Targeted condition – out-of-hospital cardiac arrest. Sponsored by its own not-for-profit foundation, which was established by leaders from the Seattle, King County, Washington EMS System. More information is available at <https://www.resuscitationacademy.org>
- **Get Ahead of Stroke** – Targeted condition – stroke. Sponsored by the Society for NeuroInterventional Surgery. More information at <https://getaheadofstroke.org>
- **Take Heart America** – Targeted condition - out-of-hospital cardiac arrest. Sponsored by its own non-profit foundation. More information is available at takeheartamerica.org.
- **Heart Safe Communities** – Targeted condition - out-of-hospital cardiac arrest. This is an informal initiative with general criteria for self-designation as a ‘Heart Safe’ community. More information is available at citizencpr.org/benchmarking/heart-safe-communities.
- **Mission: Lifeline** - Targeted conditions - acute myocardial infarction, stroke, out-of-hospital cardiac arrest. Sponsored by the American Heart Association. More information is available at heart.org/missionlifeline.
- **Sepsis Alliance** – Targeted condition – Sepsis. Sponsored by its own non-profit foundation. More information at sepsis.org.
- **PERT Coalition** – Targeted condition – pulmonary embolism. Sponsored by its own non-profit foundation. More information at <https://pertCoalition.org>