Performance Improvement/Outcomes Subcommittee Recommendations
North Carolina Trauma System Five Year Tactical Plan

The mission of the Performance Improvement / Outcomes Sub-committee is to develop and monitor a trauma system-based, statewide performance improvement patient safety (PIPS) program in an effort to assure quality outcomes in the trauma patient population.

STRATEGY	TIME FRAME	LEAD	PARTNERS	FUNDING IMPLICATIONS
Develop a consistent state wide performance improvement (PI) plan for: A. Trauma Centers B. EMS Agencies C. Regional Advisory Committees D. Participating Hospitals	2008 - 2009	STAC	NCOEMS NC Hospital Assoc NCCOT NC Legislature All hospitals RACs Subcomittees: Pre-hospital Regional Systems	Funding may be required to facilitate hospital participation. Additional funding for management of data systems is necessary.

ACTION PLAN FOR IMPLEMENTATION

A. The PI plan for trauma centers is outlined in the document, "Performance Improvement Guidelines for the North Carolina Trauma System", June 2007 revision. This includes organization, steps in the PI review process, non-discretionary filters to be monitored, and examples of discretionary filters. Existing trauma centers in the state already have some form of PI process in place. Dissemination of the PI document to those trauma centers and hospitals desiring trauma center designation will be done to facilitate standardization of the trauma center PI process.

B. The PI plan for EMS agencies is also outlined in the above referenced state PI document. In conjunction with OEMS, individual EMS agencies, and the Pre-hospital subcommittee, the STAC will oversee the development statewide of individual EMS PI committees that are representative of pre-hospital trauma caregivers. Such representation might include EMS medical director, Emergency nurse liaison, EMS training officers, and EMS personnel. The state PI document outlines suggested audit filters for EMS agencies, including review of traumatic deaths for appropriateness of care, appropriateness of air medical utilization (may need to standardize across the state the triage criteria for air medical transport), appropriateness of triage, and pre-hospital airway management (including appropriate use of RSI, complications, attempted intubations). The STAC will have to work with OEMS and individual EMS agencies to standardize definitions of RSI, attempted intubation, etc. Widespread dissemination of the PI plan for EMS agencies will best be achieved via OEMS, RACs, and educational modules for individual EMS agencies via PowerPoint presentations developed and facilitated by the NCCOT PI/Outcomes Subcommittee.

C. The PI plan for Regional Advisory Committees is accomplished through individual RAC PI subcommittees. Audit filters for participating hospitals and EMS agencies are suggested and outlined in the state PI document, but additional filters may be used, depending, for example, on regional PI issues that arise. The RAC PI subcommittees, working with the NCCOT Regional Systems subcommittee, should coordinate the methodology for data collection and dissemination and provide the feedback to EMS agencies and participating hospitals. Individual RACs, working with OEMS and participating hospitals, will be responsible for facilitating education for trauma care providers and recommending any identified changes in trauma care. RACs across the state should share information and "best practices" to facilitate the standardization of RAC PI processes throughout North Carolina. Essential to the success of the RAC PI process will be funding provided by the state for the RACs, specifically for the development of data systems, as well as for the collection and management of data. The STAC, NCOEMS, the NC Hospital Association, and NCCOT will have to partner to lobby the NC Legislature for sustainable trauma funding for this purpose.

D. The PI plan for participating hospitals, at this time, is voluntary, but with the implementation of NCHESS, some basic population-based demographic and outcome data linked to diagnoses may be possible in the near future. In addition, the state PI document outlines some recommended audit filters for participating hospitals to track, including review of traumatic deaths for appropriateness of care, ED length of stay > 4 hours and timeliness of transfer to a trauma center, non-trauma center ICU admissions, and appropriateness of blood transfusion. Obtaining this information in a non-threatening manner from individual hospitals will need to be done via individual RACs to ensure the confidentiality of information and to preserve the information as part of the PI process. However, to make hospitals participate may require the buy-in and leveraging from the NC Hospital Association, as well as state funding for hospitals to collect and manage this data.

STRATEGY	TIME FRAME	LEAD	PARTNERS	FUNDING IMPLICATIONS
The PI Plan will: A. Reduce variations of care through standardization of processes	2009 - 2014	STAC	NCOEMS NC Hospital Assoc NCCOT	Potential saving for individual patients and payers, as early treatment and definitive care may

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<table>
<tr><td>B. Improve efficacy, access, and timeliness to definitive care
C. Ensure competent and current providers
D. Ensure appropriate utilization of trauma resources</td><td></td><td></td><td>NC Legislature
All hospitals
NCTR
NCHESS
RACs
Subcommittees:
Definitive Care
Pre-Hospital
Regional Systems</td><td>lead to decreased LOS and improved outcomes.
Funding needed for Trauma Centers to have the needed resources
Funding for development of more Level III Trauma Centers</td></tr>
<tr><td colspan="5">ACTION PLAN FOR IMPLEMENTATION</td></tr>
<tr><td colspan="5">A. The PI/Outcomes subcommittee will review and revise, as needed, the state PI document at least biannually. Close communication with individual RACs, and the Regional Systems, Definitive Care and Pre-Hospital subcommittees will be needed to identify “best practices” in an effort to standardize PI processes throughout the state at the level of trauma centers, RACs, EMS agencies, and participating hospitals. The PI/Outcomes subcommittee will then incorporate these “best practices” as guidelines in future revisions of the state PI document. Wherever possible, these guidelines should be validated by evidence-based practice.
B. In conjunction with the Definitive Care subcommittee, guidelines will be developed in an effort to standardize triage criteria, transport criteria and improved access to trauma centers within the state. Individual RACs, working with EMS agencies, the NCTR, and referring hospitals, will be responsible for tracking the access to trauma centers, tracking undertriage and overtriage, and tracking the timeliness to definitive care.
C. Individual RACs, with the trauma centers as the lead hospitals, as well as NCOEMS, will provide educational resources and training to trauma care providers to ensure competent and current provider status. State funding will be required, at least at the RAC or trauma center level, to develop and maintain educational and training resources on a sustainable basis. Shared resources among the various RACs and trauma centers might help reduce costs, while at the same time enhance the standardization of training of providers across the state.
D. Population-based data are badly needed to determine the entire spectrum of trauma care across North Carolina. NCHESS, to some extent, will be able to provide some of this data, but it is still unknown how much trauma goes to trauma centers vs. staying at local hospitals. This data is crucial in order to make an assessment of the appropriate utilization of trauma resources. RACs must work to encouraging local hospitals to provide this data, as well as outcome data, for trauma related injuries. The STAC, NCOEMS, and the NC Hospital Association must also seek funding from the NC Legislature to support the development of more trauma centers (particularly Level III) around the state, since the current trauma centers are frequently operating at or above their census.</td></tr>
<tr><th>STRATEGY</th><th>TIME FRAME</th><th>LEAD</th><th>PARTNERS</th><th>FUNDING IMPLICATIONS</th></tr>
<tr><td>Track outcomes of all defined benchmarks in the PI Plans:
A. Develop regional reports
B. Develop reports for the individual agencies
C. Provide feedback</td><td>2009-2014</td><td>NCTR</td><td>NCOEMS
NC Hospital Assoc
NCCOT
NC Legislature
All hospitals
RACs
Subcommittees:
Registry
Pre-hospital
Regional Systems</td><td>Need sustainable funding for the NCTR.
Funding for the Trauma Centers as facilitators for the RACs .</td></tr>
<tr><td colspan="5">ACTION PLAN FOR IMPLEMENTATION</td></tr>
<tr><td colspan="5">A., B., C.The PI/Outcomes subcommittee, working with RACs, EMS agencies, NCTR, and the Registry, Prehospital and Regional Systems subcommittees, will develop templates of reports that can be used to provide demographic and outcome data to individual EMS agencies and participating hospitals. Regional reports for each RAC should also be generated at least on an annual basis. Trauma centers likely already generate individual reports for their own institutions, but standardization of these reports could be useful in comparing demographics, patient volumes, and outcomes on a risk-adjusted basis. It is critical that sustainable funding for the NCTR, a vital function of our trauma system, is established through the NCOEMS and the state legislature so that these PI/Outcomes reports can be regularly produced.</td></tr>
<tr><th>STRATEGY</th><th>TIME FRAME</th><th>LEAD</th><th>PARTNERS</th><th>FUNDING IMPLICATIONS</th></tr>
<tr><td>Develop a mechanism for on-going assessment and accountability:
A. Time tables for reassessment
B. Methods used to hold agencies</td><td>2010 - 1014</td><td>NCOEMS</td><td>NCOEMS
NC Hospital Assoc
NCCOT
NC Legislature</td><td>Funding as described above should be sufficient.</td></tr>
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accountable			All hospitals RACs Subcommittees: Regional Systems Definitive Care Registry Pre-Hospital	

ACTION PLAN FOR IMPLEMENTATION

A. The state PI document will be reviewed and updated biannually. This includes revisions to the PI processes outlined, incorporation of PI guidelines and “best practices”, and the inclusion of report templates for EMS agencies, RACs, trauma centers, and participating hospitals. Regional reports will be collated annually to generate a yearly statewide report that focuses on access to care, standardization of care, and patient outcomes.
B. Legislation, in the form of rules and regulations, will ultimately have to be effected in order to hold agencies accountable for their PI processes. EMS agencies and all hospitals delivering trauma care in the state, as well as trauma centers and RACs, must partner together into a workable system that continually improves, through a robust PI process, the way trauma care is delivered in the state. However, the biggest obstacle facing the trauma system currently is the lack of state funding to support the activities, outlined above, that will lead to the end result of mandatory participation and an all-inclusive trauma system.

Measures of success:

- Improved trauma patient outcomes
- Improved inter-agency working relationships
- Increased standardization of processes
- Improved inter-agency communication
- Healthier state trauma system