2009 SENATE HUMAN SERVICES

SB 2048

2009 SENATE STANDING COMMITTEE MINUTES

Bill/Resolution No. SB 2048

Senate Human Services Committee

☐ Check here for Conference Committee

Hearing Date: 01/28/2009

Recorder Job Number: 7999

Committee Clerk Signature	*Mary K Monson*

Minutes:

Chairman Lee Opened the hearing on SB 2048 FN

Representative Porter District #34. Chaired the Public Safety Committee during the interim. Last session we had two bills in front of us 1) American College of Surgeons Study—statewide assessment of our trauma system, the first part of the 2048 and 2) Emergency Medical Services study through the National Highway Safety Institute, they looked at our emergency medical services system, section two of this bill. Section 1 makes a move from a voluntary trauma system to a mandated trauma system. Several issues came up in the interim, do we tie trauma licensure to a hospital license, if someone fails to meet the criteria set forth by the state trauma plan, do they also lose their license to be a hospital, how is that handled? 4 hospitals in the state have never been trauma certified. In the summer, we had 3 additional hospitals lose their certification. This puts a huge burden on rural systems. Even in a voluntary system the burden is on EMS. EMS is not supposed to be transporting to a non trauma certified hospital. If the hospital is not following the best trauma procedures, people will die. Trauma care is very different than normal hospital functions (enumerated those differences). We have a state trauma committee that is overseeing the certification process. The big hoop to this is training. All hospitals have the right equipment but what they lack is training. They also do not

participate in the trauma registry which would help us see what is going on. There is a huge burden on the ambulance crew to make a decision about where to take a patient. If an ambulance takes a trauma patient to a non-certified hospital, they are technically breaking the law. There are 5 levels or trauma verification.

Level 1: In house surgical system 24/7 (this will never happen in ND)

Level 2: Surgical facilities available and surgeons on call 24/7 (6 facilities in ND)

Level 3: Some surgical capabilities but may not be available 24/7

Level 4: Physician

Level 5: A mid level practitioner who has taken some classes in trauma.

The harsh reality is that a patient could end up at an ill equipped facility. Section 2 deals with quick response units. Currently we have a voluntary certification process on quick response units. The State Department of Health has very little information on where and how quick response systems are set up to deal with situation and their level of training. The EMS system includes quick response. If you do not have a quick response team you can be waiting 30-40 minutes for an ambulance. Someone may not need an ambulance but they do need someone with training to help immediately. This bill changes the system; they don't have to be available 24/7 to be licensed under this system as some responders cannot meet that requirement. It also brings helps us track their response times for statistical and data purposes.

Senator Dever Are we addressing issues dealing with delivering patients to the correct facility (ex. stroke center) as part of ambulance training in this bill?

Representative Porter We have a stroke center bill on the house side. Spoke briefly about the stroke bill.

Senator Lee In a level four system, is the physician trained in trauma?

Representative Porter Yes, they all take a course from the American College of Surgeons

Senator Lee Have you seen any resistance to this proposal?

Representative Porter Some hospitals are opposed to the concept of tying it to their license. The four that refused to join the system have some concerns. Others were concerned that they would lose their licenses and their funding. The key concern is the availability of training. Over the interim we heard that there were plenty of opportunities for training.

Senator Lee Is there a summary of this study?

Representative Porter Yes, we can provide that.

Senator Heckaman Are the four uncertified hospitals even attempting to certify?

Representative Porter There was concern on training; I would defer the question to others.

Dr. Steven Hamar A trauma surgeon at St. Alexius, Chairman of the ND Trauma Surgeon Committee and Vice Chairman of the ND Trauma Committee. Spoke in support of 2048. See attachments #1 and #2. Agreed with Representative Porter's comments. Passed out an amendment that would try to address some of the concerns of non certified hospitals. Discussed hospital certification situation in ND. ND has no level 3 hospitals. We have several hospitals that qualify for level 3 but do to staffing problems have been unable to maintain certification. Explained the certification process and the ATLS (advanced trauma life support) course work involved in training. Recertification is not the problem, people simply do not sign up early enough for coursework. This bill applies the same penalty that hospitals already have; it does not add any penalties that are not already on the books. Trauma trained surgeons save lives; most Americans believe that emergency rooms provide trauma care even when they are not. The goal of the trauma committee is not to close hospitals but to make sure that they are taking good care of their patients.

Senator Heckaman Does the trauma certification increase reimbursements to the hospital?

Hamar Yes. Explained how health insurance companies handle the reimbursements.

Senator Heckaman Are there any other states that mandate this?

Hamar Wyoming does. A lot of our information comes from Wyoming.

Chairman Lee I would think this bill would be particularly important in rural areas.

Hamar Absolutely. One of the facilities we are talking about is in Crobsy. The cost of becoming a trauma verified hospital is not onerous. Almost all the hospitals in the state have all the equipment they need. There are grants to cover the costs of ATLS. The price is $650 per course.

Chairman Lee Would the provisional year still be in statute?

Hamar That is in the rules, I believe, and we are not looking to change that.

Senator Dever If a doctor provides care that their facility is not certified to provide, it he subject to sanctions or liability issues?

Hamar That is the problem. They have to do something but they might do the wrong thing. Most of the rural places do not have surgeons. He is liable only if someone brings suit but I do not think that has happened.

Senator Dever Might the Board of Medical Examiners bring sanctions against that doctor?

Hamar There is nothing they can do. There are numerous doctors that do not need trauma certification but there must be some.

Chairman Lee In medical school and residency, is there much of an exposure to trauma training?

Hamar It depends on your residency, what specialty you choose and where you get it. They are exposed on a surgical round but they cannot certify until after they graduate, it is a little bit too early.

Arnold Thomas President of ND Health Care Association. Neutral. See attachment #3. He supports the proposed amendment but not sure about the fine for dereliction or ineptitude of

service. Thinks public notice about a hospital's certification is excellent, everyone should know the capabilities of their local hospital.

Mark Weber President ND Emergency Medical Services Association. Neutral. See attachment #4. Gave an example of what happens when an ambulance crew has to deal with an accident and decide where to take the victim. They support section 2 of the bill.

Greg Stomp Administrator/CEO Cooperstown Medical Center. Neutral. See attachment #5.

Tim Meyer Director of the Division of Emergency Medical Services and Trauma for the ND Department of Health. Neutral. See attachment #6 and proposed amendment attachment #7.

Chairman Lee I am hearing no objections to Sect 2, but I think section 1 has a lot of questions and we have a lot of amendments to address.

Chairman Lee closed the hearing on SB 2048 and asked everyone involved to collaborate on the amendments.

2009 SENATE STANDING COMMITTEE MINUTES

Bill/Resolution No. SB 2048

Senate Human Services Committee

☐ Check here for Conference Committee

Hearing Date: 02/04/2009

Recorder Job Number: 8609

Committee Clerk Signature	*Mary K Monson*

Minutes:

Chairman Lee Opened the discussion on SB 2048.

Tim Meyer Spoke about proposed amendment (attachment #7). The amendment is an amalgamation of all the previous amendments proposed during the previous hearing. The hospitals feel that the version that the Health Department proposed last week is moving in the right direction and felt that was the language we should use to move this bill forward. Essentially it moves the statute from 23-16 to 23-01.2. It removes the penalties that had been in the bill and only applies to hospitals that provide emergency services, not specialty centers. The second section directs the Health Department to write rules regarding a provisional status for hospitals to become trauma certified. Hospitals did not like the penalty section but if they are in violation of state law they could have a correction issued by the Health Department for non compliance. This amendment is supported by the people who spoke during the hearing last week. This amendment will move us forward.

Senator Heckaman What did the other 3 hospitals say?

Meyer They were worried about penalties but we explained that the penalties had been removed. They all know that the trauma system is good for the patients.

Senator Heckaman You have a reasonable amount of time so that is helpful.

Meyer We are going to look at hospitals on a case by case basis in the trauma committee.

Discussion about stakeholders

Senator Pomeroy So I understand that this amendment comes from the other amendments

proposed on 01/28.

Meyer Yes.

Discussion of dates in different sections and the fiscal note.

Senator Heckaman I can support this bill now that the penalties have been removed I trust

that my hospitals will be closed.

Senator Pomeroy I move the amendment

Senator Marcellais Second.

The Clerk called the role on the amendment. **Yes: 6, No: 0, Absent: 0.**

Senator Pomeroy I move **Do Pass as Amended.**

Senator Marcellais Second

The Clerk called the role on the motion to **Do Pass as Amended. Yes: 6, No: 0, Absent: 0.**

Senator Erbele will carry the bill.

FISCAL NOTE
Requested by Legislative Council
02/09/2009

Amendment to: SB 2048

1A. State fiscal effect: *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

	2007-2009 Biennium		2009-2011 Biennium		2011-2013 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues						
Expenditures			$4,000		$4,200	
Appropriations			$4,000		$4,200	

1B. County, city, and school district fiscal effect: *Identify the fiscal effect on the appropriate political subdivision.*

2007-2009 Biennium			2009-2011 Biennium			2011-2013 Biennium		
Counties	Cities	School Districts	Counties	Cities	School Districts	Counties	Cities	School Districts

2A. Bill and fiscal impact summary: *Provide a brief summary of the measure, including description of the provisions having fiscal impact (limited to 300 characters).*

The amendments to this bill does not change the fiscal impact of the bill.

B. Fiscal impact sections: *Identify and provide a brief description of the sections of the measure which have fiscal impact. Include any assumptions and comments relevant to the analysis.*

This bill would require trauma designation for all ND licensed hospitals. Currently we have 5 hospitals that are not trauma designated. This bill also mandates licensure for quick response units.

There are currently about 60 quick response units that are not licensed by the state. The Department estimates a cost of $500 per facility to administer the trauma designation visit for a total of $2,500 and a cost of $25 to process a quick response license for a total of $1,500.

3. State fiscal effect detail: *For information shown under state fiscal effect in 1A, please:*
  A. Revenues: *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

  B. Expenditures: *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

The Department would incur travel expenses and pay honorariums to an expert team to travel to hospitals to evaluate their trauma program. Total cost is approximately $4,000.

  C. Appropriations: *Explain the appropriation amounts. Provide detail, when appropriate, for each agency and fund affected. Explain the relationship between the amounts shown for expenditures and appropriations. Indicate whether the appropriation is also included in the executive budget or relates to a continuing appropriation.*

Funds for this project are not included in the department's appropriation bill (SB 2004). The department will need these funds appropriated to carry out this project.

Name:	Kathy J. Albin	Agency:	Health Department
Phone Number:	328.4542	Date Prepared:	02/09/2009

FISCAL NOTE
Requested by Legislative Council
12/08/2008

Bill/Resolution No.:   SB 2048

1A. State fiscal effect: *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

	2007-2009 Biennium		2009-2011 Biennium		2011-2013 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues						
Expenditures			$4,000		$4,200	
Appropriations			$4,000		$4,200	

1B. County, city, and school district fiscal effect: *Identify the fiscal effect on the appropriate political subdivision.*

2007-2009 Biennium			2009-2011 Biennium			2011-2013 Biennium		
Counties	Cities	School Districts	Counties	Cities	School Districts	Counties	Cities	School Districts

2A. Bill and fiscal impact summary: *Provide a brief summary of the measure, including description of the provisions having fiscal impact (limited to 300 characters).*

This bill would require trauma designation for all ND licensed hospitals. Currently we have 5 hospitals that are not trauma designated. This bill also mandates licensure for quick response units. There are currently about 60 quick response units that are not licensed by the state.

B. Fiscal impact sections: *Identify and provide a brief description of the sections of the measure which have fiscal impact. Include any assumptions and comments relevant to the analysis.*

The Department estimates a cost of $500 per facility to administer the trauma designation visit for a total of $2,500 and a cost of $25 to process a quick response license for a total of $1,500.

3. State fiscal effect detail: *For information shown under state fiscal effect in 1A, please:*
   A. Revenues: *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

   B. Expenditures: *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

The Department would incur travel expenses and pay honorariums to an expert team to travel to hospitals to evaluate their trauma program.   Total cost is approximately $4,000.

   C. Appropriations: *Explain the appropriation amounts. Provide detail, when appropriate, for each agency and fund affected. Explain the relationship between the amounts shown for expenditures and appropriations. Indicate whether the appropriation is also included in the executive budget or relates to a continuing appropriation.*

The Department would incur travel expenses and pay honorariums to an expert team to travel to hospitals to evaluate their trauma program.   Total cost is approximately $4,000.

Name:	Kathy J. Albin	Agency:	Health Department
Phone Number:	328.4542	**Date Prepared:**	12/31/2008

PROPOSED AMENDMENTS TO SENATE BILL NO. 2048

Page 1, line 6 replace "23-16" with "23-01.2"

Page 1, replace lines 8 through 12 with:

"**Trauma center designation.**
1. Effective January 1, 2011, hospitals that offer emergency services to the public must meet trauma center designation standards and participate in the trauma system."
2. The state health council shall promulgate administrative rules that allow provisional trauma designation status for hospitals that are partially compliant with trauma designation standards. Issuance of a provisional trauma designation must include a reasonable amount of time determined by the department for a hospital to fully meet all trauma designation standards."

Renumber accordingly.

2-5-9

PROPOSED AMENDMENTS TO SENATE BILL NO. 2048

Page 1, line 1, replace "23-16" with "23-01.2"

Page 1, line 6, replace "23-16" with "23-01.2"

Page 1, replace lines 8 through 12 with:

"Trauma center designation.

    1.   Effective January 1, 2011, a hospital that offers emergency services to the public shall meet trauma center designation standards and participate in the trauma system.

    2.   The state health council shall adopt rules that allow provisional trauma designation status for a hospital that is partially compliant with trauma designation standards. When issuing a provisional trauma designation, the state health council shall allow a reasonable amount of time, determined by the department, for a hospital to fully meet all trauma designation standards."

Renumber accordingly

Date: 2-4-09

Roll Call Vote #: 1

2009 SENATE STANDING COMMITTEE ROLL CALL VOTES

BILL/RESOLUTION NO. SB 2048

Senate _____ Human Services _____ Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _Meyer Amendment 2-4-09_

Action Taken ☐ Do Pass ☐ Do Not Pass ☐ Amended ☐ Rerefer to Appropriations

☒ Adopt Amendment ☐ Reconsider

Motion Made By Sen. Pomeroy _____ Seconded By Sen. Marcellais

Senators	Yes	No	Senators	Yes	No
Senator Judy Lee, Chairman	✓		Senator Joan Heckaman	✓	
Senator Robert Erbele, V.Chair	✓		Senator Richard Marcellais	✓	
Senator Dick Dever	✓		Senator Jim Pomeroy	✓	

Total (Yes) 6 No 0

Absent 0

Floor Assignment _____

If the vote is on an amendment, briefly indicate intent:

Date: _2-4-09_

Roll Call Vote #: _2_

2009 SENATE STANDING COMMITTEE ROLL CALL VOTES

BILL/RESOLUTION NO. _SB 2048_

Senate   Human Services   Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _90287.0201 Title .0300_

Action Taken   ☒ Do Pass   ☐ Do Not Pass   ☒ Amended   ☐ Rerefer to Appropriations

            ☐ Adopt Amendment   ☐ Reconsider

Motion Made By   Sen. _Pomeroy_   Seconded By   Sen. _Marcellais_

Senators	Yes	No	Senators	Yes	No
Senator Judy Lee, Chairman	✓		Senator Joan Heckaman	✓	
Senator Robert Erbele, V.Chair	✓		Senator Richard Marcellais	✓	
Senator Dick Dever	✓		Senator Jim Pomeroy	✓	

Total   (Yes) _6_   No _0_

Absent _0_

Floor Assignment _Senator Erbele_

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE (410)
February 6, 2009 1:18 p.m.

Module No: SR-24-1975
Carrier: Erbele
Insert LC: 90287.0201   Title: .0300

REPORT OF STANDING COMMITTEE

SB 2048: Human Services Committee (Sen. J. Lee, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (6 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). SB 2048 was placed on the Sixth order on the calendar.

Page 1, line 1, replace "23-16" with "23-01.2"

Page 1, line 6, replace "23-16" with "23-01.2"

Page 1, replace lines 8 through 12 with:

"**Trauma center designation.**

1. Effective January 1, 2011, a hospital that offers emergency services to the public shall meet trauma center designation standards and participate in the trauma system.

2. The state health council shall adopt rules that allow provisional trauma designation status for a hospital that is partially compliant with trauma designation standards. When issuing a provisional trauma designation, the state health council shall allow a reasonable amount of time, determined by the department, for a hospital to fully meet all trauma designation standards."

Renumber accordingly

2009 HOUSE HUMAN SERVICES

SB 2048

2009 HOUSE STANDING COMMITTEE MINUTES

Bill/Resolution No. 2048

House Human Services Committee

☐ Check here for Conference Committee

Hearing Date: March 2, 2009

Recorder Job Number: 9912

Committee Clerk Signature	*Nicky Crabtree*

Minutes:

Chairman Weisz opened the hearing on SB 2048.

Rep. Porter introduced the bill: This bill came out of the interim public safety committee that I chaired. Last session we commissioned a study for the American College of Surgeons for $100,000 for them to come in and look at our (inaudible) system. We also had another study through the national Highway Safety Traffic Safety Institute in trauma) that we paid $30,000 for, but they came in and looked at our emergency medical system and both studies came to the same conclusion. In order to have a comprehensive trauma system in ND every hospital needs to participate. Currently the system has been voluntary. There has always been 2 or 3 hospitals who have chosen not to participate and throughout the course of time losing and gaining certification is done as high as 6 or 7 at any given time. The problem this poses across ND is when that happens your volunteer ambulance services are not suppose to be transporting patients that meet the trauma code criteria to those hospitals. That could mean those volunteer services will have to transport patients an additional hour or two to get to the next closest trauma center. We heard that training was an issue and there weren't enough training courses and the state trauma committee which I'm a member of has stepped up the availability of training courses to make sure that training cannot be used as one of the issues

for not complying with the certification. If you want a trauma center you get the hospital license and the Senate has changed that so that every hospital after January 2011 that has emergency services has an emergency (inaudible) has to be part of the system and that the Health Dept. then (inaudible) on the rules to make sure the facility is in compliance. The second portion of this bill is the quick response units. Up until this point we talked about QRUs and how valuable they are rural settings. Currently they are not required to be licensed by the Health Dept. and that changes with this. If you are going to be a QRU you need to be licensed, but you don't have to be available 24/7. You can have a 5-8 schedule for instance. Since the quick response unit is coordinated in with the ambulance service they will now what their schedule is.

Rep. Conrad: A quick response unit is different than an ambulance service, right?

Rep. Porter: Yes.

Rep. Conrad: How many trauma centers are we going to have?

Rep. Porter: We will have the same number as we have hospitals.

Chairman Weisz: Under the current system, it talks about licensure or certification which is now gone to certification. What is the difference currently? Now it is strictly going to be licensure and mandatory, but before it was an option either be licensed or certified.

Rep. Porter: It was a voluntary system that if you wanted training or equipment, and we have grant money laying out there, if you wanted to have access to the grant dollars, then you had to go through the licensing requirements and the personnel certification requirements. The personnel had to be certified through the level of first responder and that would get you licensure as a quick response unit and then could access the funds. You had to be available 24/7 to ask for that.

Chairman Weisz: I assume it is strictly policy that it is no longer required to be 24/7?

Rep. Porter: That's correct.

Chairman Weisz: Why are we not concerned that certification of personnel other than (inaudible) licensure?

Rep. Porter: I think some of that was redundant language on that licensure. Licensure didn't apply to the individual because they aren't under a board or under that kind of umbrella where licensure applied to the unit and certification to that individual.

Rep. Potter: What are these versions, there is 200 and 300 version? (Inaudible) talked about 2009 and the next (inaudible) is going to be in 2011. What's going on with that.

Rep. Porter: The reason behind that what the Senate did, I have absolutely no idea.

Rep. Potter: How many hospitals will have to bump up.

Rep. Porter: Two or three that have never been part of this system.

Rep. Conrad: I think there is five.

Rep. Kilichchowski: Did you say that all the quick response units have to be under ambulance service?

Rep. Porter: Yes, that is the way the system currently is designed.

Chairman Weisz: The quick response is still licensed separate.

Rep. Porter: Correct.

Tim Meyer, Director of Division of Emergency Medical Services and Trauma for ND Dept. of Health: Testified in support. **See Testimony #1.**

Rep. Potter: In licenses process, why would some not want to be licensed?

Tim Meyer: Because of the 24/7 rule.

Rep. Hofstad: The difference in the equipment that they will (inaudible) is that (inaudible) cost issue that will (inaudible) by ambulance services?

Tim Meyer: Basic equipment $500. Defibulator costs between $1500-$2000. I would guess most of them have that.

Rep. Franstvog: You say there are about 50 licensed and 50 unlicensed quick response units. How many of each of that are affiliated with an ambulance service?

Tim Meyer: All 50 licensed are affiliated. Don't know about the other 50.

Rep. Conrad: If there's an accident and the highway patrol calls a quick response unit could they not be licensed?

Tim Meyer: Currently they may or may not be licensed.

Rep. Holman: Have you communicated with the unlicensed about the potential change and what might happen with this change?

Tim Meyer: The typical complaint is the 24/7 requirement.

Rep. Hofstad: when someone calls the 911 number do they call the ambulance or quick response unit or both?

Tim Meyer: There is a list of emergency things available to the address associated by number. They would send out all the medical resources available to them. There is always an ambulance available. The entire state is not covered by quick response units.

Chairman Weisz: When you took out the certification part of the bill, the reason for taking it out was because it wasn't necessary? Requiring licensure obviously requires that the person has been certified?

Tim Meyer: Licensure and certification means the same thing.

Chairman Weisz: What are the three hospitals that currently don't meet the standards?

Tim Meyer: Crosby, Cooperstown and McVille.

Chairman Weisz: Under this bill what changes will they be required to implement to get on line?

Tim Meyer: They have to have a physician to cover their emergency room and have specific trauma training and must be current every four years. Develop an internal quality assurance process to evaluate the trauma care. And there is an equipment list.

Chairman Weisz: If the hospital doesn't meet the standards do they have to get rid of their emergency room services?

Tim Meyer: If they do become trauma designated, the will have time to work on a plan of correction.

Rep. Damschen: In your testimony you talked about license or process and it would ensure that they would have appropriate credentials. I don't see this in the bill, am I overlooking it?

Tim Meyer: In Section 2, currently for an EMS provider to have the authority to work on a patient, that is the delegated authority from the physician. The ambulance services have to have a physician medical director. Quick response units don't have all the resources available an ambulance service does. The authority comes from the physician director to the ambulance service to the quick response unit. All those people have the credentials to do medical care on patients.

Rep. Uglem: (Inaudible). Would I be a quick response unit?

Tim Meyer: Since you are part of an ambulance service that would satisfy the law and don't need to be licensed.

Rep. Frantsvog: Is there a fee for quick response unit (inaudible) ambulance service?

Tim Meyer: Not that I know of.

Ken Tupa presented testimony for Mark Weber, President of ND EMS Association: See Testimony #2.

Chairman Weisz: On these non-licensed, have your received any other issues besides the 24/7?

Ken Tupa: Haven't received any comments. Biggest issue is the 24/7 and now that it is being

removed (inaudible) problems with this.

Rep. Potter: The date in Section 9 would change from December 2009 to January 2011. Do

you know why?

Ken Tupa: I don't know.

Rep. Potter: I'd like to ask Mr. Meyer that question.

Tim Meyer: the date would change because it is too tight of a wheel to get things done.

Compromise to meet with the hospitals (inaudible).

NO OPPOSITION.

Chairman Weisz closed the hearing.

2009 HOUSE STANDING COMMITTEE MINUTES

Minutes:

Chairman Weisz: Let's take up 2048.

Rep. Porter: Motion for a DO PASS.

Rep. Hofstad: Second.

Chairman Weisz: Any discussion on this one. I assume the three hospitals, Crosby, Cooperstown and McVille are going to be able to get their house in order.

Rep. Porter: I would assume that Mr. Thomas sat through this whole hearing, that they worked out all the disagreements on the Senate side and everybody's in agreement with this engrossed version. I haven't heard boo about it.

Rep. Conrad: (Inaudible).

Chairman Weisz: We have to make sure (drops sentence) the hospitals get the doctors on board for additional training and that won't happen overnight. I was somewhat concerned if there was an issue with financing as far as additional equipment, but that didn't appear to be the case.

Rep. Porter: In ND trauma is a money maker for a hospital. BC/BS does a higher reimbursement for a trauma center. So the incentive to be a trauma center, is that a hospital

can make money at it. We have five levels of trauma centers. ND will never have a level 1. We have a number of 2's and some 3's, 4's and 5's.

Rep. Hofstad: The quick response units, where do they keep their equipment.

Rep. Porter: There isn't a set way it is done. We've addressed that in this committee numerous occasions where the ideal circumstance when we had the grants out there for establishing quick response units and where the ambulance service (inaudible) actually turned their license back into the health department because of the low call volume and stringent requirements. If you go out and grab the bag the highway department left for me and put it in your car, you have enough equipment to be a certified quick response unit. It functions at various levels. Some places it's the local volunteer fire department that responds with a unit. Other places it's a bag like that spread out to 15-20 people who have a pager that who's ever closest responds to the call. Contingent on area and how they want to do it.

Rep. Potter: (Inaudible).

Rep. Porter: Defibrillator isn't mandatory. Oxygen, airways, splints , bandages, blood pressure cuff, just basic first aid things.

Rep. Holman: The bill had an additional about 24 coverage with brings in (inaudible). What's the breakdown on that, as far as who has and who has not, roughly how many places have the 24 hour coverage and how many have not? What's the major difference then?

Rep. Porter: Part of the problem was that we don't know that because there is no tracking mechanism. We know that there is 50 that are meeting the 24 hour a day coverage. We have no idea how many others out there that will now have to come on board and meet the requirements.

Chairman Weisz: With the 24/7 you could have 15 members (inaudible. As long as one of them are available 24/7 can they license to be 24/7?

Rep. Porter: Under the old way it certainly could have.

Roll Call Vote: 13 yes, 0 no, 0 absent.

MOTION CARRIED DO PASS.

BILL CARRIER: Rep. Uglem

Date: _3-2-09_

Roll Call Vote #: _____

2009 HOUSE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. _2048_

House __HUMAN SERVICES__ Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken ☒ Do Pass   ☐ Do Not Pass   ☐ Amended

Motion Made By _Rep. Porter_ Seconded By _Rep. Hofstad_

Representatives	Yes	No	Representatives	Yes	No
CHAIRMAN ROBIN WEISZ	✓		REP. TOM CONKLIN	✓	
VICE-CHAIR VONNIE PIETSCH	✓		REP. KARI L CONRAD	✓	
REP. CHUCK DAMSCHEN	✓		REP. RICHARD HOLMAN	✓	
REP. ROBERT FRANTSVOG	✓		REP. ROBERT KILICHOWSKI	✓	
REP. CURT HOFSTAD	✓		REP. LOUISE POTTER	✓	
REP. MICHAEL R. NATHE	✓				
REP. TODD PORTER	✓				
REP. GERRY UGLEM	✓				

Total   (Yes) __13__   No __0__

Absent __0__

Bill Carrier __Rep Uglem__

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2048, as engrossed: Human Services Committee (Rep. Weisz, Chairman) recommends **DO PASS** (13 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). Engrossed SB 2048 was placed on the Fourteenth order on the calendar.

2009 TESTIMONY

SB 2048

PUBLIC SAFETY COMMITTEE

The Public Safety Committee was assigned the following responsibilities:

1. A study of the state's emergency medical services (EMS) system, including the funding, demographics, and impact on rural areas pursuant to Section 8 of House Bill No. 1004 (2007).
2. Receive a report from the State Health Officer before July 1, 2008, regarding the outcome and recommendations of the Health Council's study of minimum requirements of reasonable EMS coverage pursuant to subsection 1 of Section 2 of House Bill No. 1162 (2007).
3. Receive a report from the State Health Officer before July 1, 2008, on the findings and recommendations of the State Department of Health's contractor's evaluation of the state's trauma system and the department's responses and proposed responses to the recommendations pursuant to subsection 4 of Section 1 of House Bill No. 1290 (2007).
4. Receive a report from the State Department of Health by July 1, 2008, regarding the findings of the department's contractor's assessment of the state's EMS system pursuant to Section 4 of House Bill No. 1296 (2007).
5. A study of the Department of Emergency Services, including the Division of Homeland Security and the Division of State Radio, including a review of the allocation of federal homeland security funding, the operation of State Radio, and potential changes to the 911 fee structure to continue salary equity funding provided in the 2007-09 biennium pursuant to Section 8 of Senate Bill No. 2016 (2007).
6. A study of the delivery and funding of veterans' services by the state and counties pursuant to House Concurrent Resolution No. 3063 (2007).
7. Approve any agreement between a North Dakota state entity and the state of South Dakota to form a bistate authority pursuant to North Dakota Century Code (NDCC) Section 54-40-01.

Committee members were Representatives Todd Porter (Chairman), Randy Boehning, Mike Brandenburg, Ron Carlisle, Edmund Gruchalla, Pam Gulleson, James Kerzman, Joe Kroeber, Bob Martinson, Vonnie Pietsch, Clara Sue Price, and Don Vigesaa and Senators Joan Heckaman, Ralph L. Kilzer, Gary A. Lee, Elroy N. Lindaas, and John M. Warner.

The committee submitted this report to the Legislative Council at the biennial meeting of the Council in November 2008. The Council accepted the report for submission to the 61st Legislative Assembly.

STUDY OF EMERGENCY MEDICAL SERVICES

The Public Safety Committee was assigned various responsibilities relating to EMS provided within North Dakota. These responsibilities include:

- A study of the state's EMS system, including the funding, demographics, and impact on rural areas pursuant to Section 8 of House Bill No. 1004 (2007).
- Receive a report from the State Health Officer before July 1, 2008, regarding the outcome and recommendations of the Health Council's study of minimum requirements of reasonable EMS coverage pursuant to subsection 1 of Section 2 of House Bill No. 1162 (2007).
- Receive a report from the State Health Officer before July 1, 2008, on the findings and recommendations of the State Department of Health's contractor's evaluation of the state's trauma system and the department's responses and proposed responses to the recommendations pursuant to subsection 4 of Section 1 of House Bill No. 1290 (2007).
- Receive a report from the State Department of Health by July 1, 2008, regarding the findings of the department's contractor's assessment of the state's EMS system pursuant to Section 4 of House Bill No. 1296 (2007).

Background Information

Emergency Medical Services

North Dakota Century Code Chapter 23-27 defines "emergency medical services" as the prehospital medical stabilization and transportation of individuals who are sick, injured, wounded, or otherwise incapacitated or helpless by EMS personnel with physician oversight. The term includes assessing, stabilizing, and treating life-threatening and non-life-threatening medical conditions.

Emergency Medical Services Licensing

The State Department of Health is responsible for licensing EMS operations. North Dakota Century Code Section 23-27-03 provides that the fee to operate an EMS operation or a substation ambulance services operation must be set by the Health Council at a sum not to exceed $25 annually. The current annual license fee is $25 and is used to defray the costs of administration of the licensing program. All license fees must be paid to the State Department of Health and deposited with the State Treasurer and credited to the state general fund. Emergency medical services personnel are not subject to a license fee.

The Health Council is responsible for establishing rules for licensure. These rules must include:

- Time when operator's services must be available.
- Type of motor vehicle operator's license needed for drivers of ground vehicles.

- Training standards for operating personnel.
- Equipment and ground vehicle standards.
- Number of personnel required for each run.
- Other requirements as may be found necessary.

Emergency Medical Services Training and Certification

North Dakota Century Code Section 23-27-04.2 requires the State Department of Health to assist in the training of EMS personnel and to financially assist certain EMS operations in obtaining equipment. The legislative history indicates personnel training services must be met before the department may financially assist ambulance units in obtaining equipment. This section provides:

- Assistance provided must be within the limits of legislative appropriation.
- The department is to adopt eligibility criteria for assistance in the training of EMS personnel.
- To qualify for financial assistance for equipment, an EMS operation is to certify, in the manner required by the department, that the operation has 50 percent of the amount of funds necessary for identified equipment acquisitions.
- The department is to adopt a schedule of eligibility for financial assistance for equipment.
- The department may establish minimum and maximum amounts of financial assistance to be provided to an EMS operation. If applications for financial assistance exceed the amount of allocated and available funds, the department may prorate the funds among the applicants in accordance with criteria developed by the department.
- No more than one-half of the funds appropriated by the Legislative Assembly each biennium and allocated for training assistance may be distributed in the first year of the biennium.

North Dakota Century Code Section 23-27-04.3 requires the Health Council to adopt rules prescribing minimum training, testing, certification, licensure, and quality review standards for EMS personnel, instructors, and training institutions. Rules adopted must:

- Define minimum applicable standards.
- Define EMS personnel.
- Provide for a mechanism for certifying or licensing persons who have met the required standards.
- Provide a mechanism to review and improve the quality of care rendered by EMS personnel.
- Define minimum standards for EMS training institutions.

Emergency Medical Services Funding Sources

The 2001 Legislative Assembly approved House Bill No. 1405, which increased the maximum mill levy rate for ambulance services from 5 mills to 10 mills. The Century Code references relating to property tax rates for ambulance services include:

County - Section 57-15-06.7(23) provides that a county may levy a tax of up to 10 mills for county EMS.

Township - Section 57-15-20.2(7) provides that a township may levy a tax of up to 10 mills for EMS.

Rural ambulance service districts - Pursuant to Section 57-15-26.5, a rural ambulance service district may levy a tax not exceeding 10 mills on the taxable value of property within the district.

City - Pursuant to Section 57-15-51, a city may impose a levy of up to 10 mills upon its taxable valuation for the purpose of subsidizing city EMS. Whenever a tax for county EMS is levied, any city levying a tax for EMS may be exempted from the county tax levy.

Other sources of revenues for ambulance services include donations; federal funds; state grants and user fees, including insurance; and Medicare and Medicaid reimbursement.

Quick Response Units

Quick response units are organizations that provide care to patients while an ambulance is enroute to the scene of an emergency. Quick response units may be part of a law enforcement agency, a fire department, or a stand-alone agency whose only purpose is to provide quick response services. North Dakota Century Code Section 23-27-04.6 provides that State Department of Health licensure or certification as a quick response unit is optional. The State Department of Health has established a voluntary certification program in response to requests from providers to establish standards.

North Dakota Trauma System

North Dakota Administrative Code Section 33-38-01-01 defines "trauma" as tissue damage caused by the transfer of thermal, mechanical, electrical, or chemical energy or by the absence of heat or oxygen. A "trauma center" is defined as a facility that has made a commitment to serve the trauma patient, has met the standards of the trauma system, and has obtained designation as a trauma center.

The State Department of Health, under the auspices of the Health Council, maintains the North Dakota trauma system. The North Dakota trauma system began in 1993 with the development of a trauma system plan that identified the need for an organized trauma system for the state. The 1995 Legislative Assembly approved House Bill No. 1318, which appropriated $100,000 to the State Department of Health for development of a comprehensive trauma and emergency medical system, including:

1. A State Trauma Committee and regional trauma committees.
2. A trauma designation system.
3. A statewide trauma registry system with a quality improvement process.
4. Prehospital trauma transport plans.

The North Dakota trauma system is an integrated comprehensive system designed to be inclusive to all health care providers in the state. The trauma system provides a state of readiness or a preplanned response for care of the injured victim. This response requires an entire spectrum of care delivery, from injury prevention to prehospital, hospital, and rehabilitative care.

North Dakota Administrative Code Section 33-38-01-06 provides five levels of trauma center designation for hospitals. Trauma center designations are based upon American College of Surgeons standards, with the Level I designation being the highest standard level.

Emergency Services Personnel

The committee received information from representatives of the State Department of Health regarding training and certification for emergency services personnel. The committee learned North Dakota has five levels of training for emergency services personnel--first responder, emergency medical technician (EMT), EMT intermediate '85, EMT intermediate '99, and paramedic. The state also has different scope enhancement courses that individuals may take to supplement their training, including emergency vehicle operations, emergency medical dispatch, automobile extrication, manual defibrillation, intravenous maintenance, flight medical crew, epinephrine administration, dextrose administration, bronchodilator administration, and multilumen airway insertion. The following is a summary of emergency services personnel certification or licensure requirements and recertification or relicensure requirements:

Emergency Services Personnel	Certification or Licensure Requirements	Recertification or Relicensure Requirements
First responder	Complete a 40-hour course and pass a local written test and practical test	Complete a 16-hour refresher course
EMT	Complete 110 hours of classroom instruction and pass a national written test and practical test	Option 1 - Complete a 24-hour refresher course with an additional 48 hours of continuing education
		Option 2 - Pass a cognitive knowledge test
		Option 3 (proposed) - Pass a practical test
EMT intermediate '85	Hold a valid EMT license, complete 100 training hours, and pass a national written test and practical test	Option 1 - Complete a 36-hour refresher course with an additional 36 hours of continuing education
		Option 2 - Pass a cognitive knowledge test
EMT intermediate '99	Hold a valid EMT license, complete 300 training hours, and pass a national written test and practical test	Option 1 - Complete a 36-hour refresher course with an additional 36 hours of continuing education
		Option 2 - Pass a cognitive knowledge test
Paramedic	Hold a valid EMT license, complete a 1,200-hour course, and pass a national written test and practical test	Option 1 - Complete a 48-hour refresher course with an additional 24 hours of continuing education
		Option 2 - Pass a cognitive knowledge test

Law Enforcement Personnel

The committee received information regarding law enforcement emergency medical training and learned all peace officers are required to complete first aid and cardiopulmonary resuscitation (CPR) training as part of their basic training. During the 1980s and early 1990s, peace officers were provided first responder training; however, the training was reduced to 16 hours of first aid and CPR training because of other training needs. Currently, Highway Patrol troopers receive first responder training and are certified every two years in order to maintain their first responder certification.

Emergency Medical Services Operations Grant Program

The committee learned House Bill No. 1296 (2007) appropriated $1,250,000 from the insurance tax distribution fund to the State Department of Health for providing grants for EMS operations. The funding is to provide assistance to ambulance services with staffing needs. The State Department of Health promulgated rules and developed a grant application process for 108 of the state's 141 licensed ambulance services that were identified by the department as being "access critical." The following is a summary of the grant awards for the first year of the 2007-09 biennium:

Ambulance Service	Award Amount	Project Description
New England Ambulance Services	$22,176	Hire EMT for summer months
Westhope Ambulance Service	44,176	Hire full-time EMT and paid oncall time for volunteers
Medina Ambulance Service	44,935	Paid oncall time and run pay
Maddock Ambulance Service	39,124	Contract for EMT coverage
Turtle Lake Ambulance Service	25,230	Part-time manager, paid oncall time, and run pay
Kindred Area Ambulance Service	45,000	Paid oncall time and contract for EMT coverage as needed
Grenora Ambulance Service	45,000	Contract for EMT coverage
Kidder County Ambulance	27,496	Paid oncall time and run pay
McKenzie County Ambulance	44,692	Hire two part-time EMTs for weekend coverage, paid oncall time for volunteers, and part-time office person
Divide County Ambulance District	36,522	Paid oncall time
Wilton Rural Ambulance District	31,824	Paid oncall time
Gackle Ambulance Service	37,630	Hire part-time EMT for weekend coverage, oncall pay for volunteers, and run pay
Sargent County Ambulance - Forman	43,056	Paid oncall time
Wing Rural Ambulance	20,429	Paid oncall time and part-time office staff
Napoleon Ambulance Service	24,809	Paid oncall time, run pay, and part-time office person
Lidgerwood Ambulance Service	32,440	Paid oncall time and run pay
Richardton-Taylor Ambulance Service	21,326	Paid oncall time, offer incentive pay to join service, and part-time office staff
Mohall Ambulance Service	29,458	Hire two part-time EMTs, paid oncall time for volunteers, run pay, and part-time office staff

Ambulance Service	Award Amount	Project Description
Wishek Ambulance Service	14,120	Hire part-time EMT and paid oncall time
Page Ambulance Service	10,753	Paid oncall time, run pay, and paid administrative duties
Bowdon Ambulance Service	16,488	Paid oncall time and one part-time office staff
McVille Ambulance Service	26,645	Paid oncall time and run pay
Bowman Ambulance Service	36,718	Hire two full-time paramedics
Sargent County Ambulance - Milnor	6,240	Weekend paid oncall time
Community Volunteer EMS of LaMoure	3,640	Paid oncall time
West River Ambulance	8,320	Hire full-time EMT
Velva Ambulance Service	23,088	Paid oncall time and part-time ambulance coordinator
Emmons County Advanced Life Support Ambulance	6,240	Hire full-time EMT
Northwood Ambulance Service	18,200	Hire full-time paramedic
Casselton Ambulance Service	15,725	Paid oncall time
Hillsboro Ambulance Service	14,801	Hire part-time weekend EMT and oncall time for volunteers
Rock Lake Ambulance Service	7,800	Paid oncall time
Total	$824,101	

The State Department of Health will have another grant application period in November 2008.

Study of Minimum Requirements of Reasonable Emergency Medical Services Coverage

The committee learned House Bill No. 1162 (2007) provides that the Health Council is to study the minimum requirements of reasonable EMS coverage taking into consideration the response time for EMS. In response to the study, the State Department of Health determined the following controllable factors affect reasonable EMS response coverage:

- Access to the EMS system.
- Emergency medical dispatch.
- Time from EMS notification to arrival on scene.

The committee learned the 911 system has been approved by every county in the state and is operational in all but Rolette County, which is in the process of implementing a 911 system. Not all ambulance services have updated their dispatching process over the years. Some ambulance services do not use a radio or pager dispatch system, and some ambulance services use a third party, such as a hospital or nursing home, to page the ambulance. The department's recommendations to improve access to the EMS system are:

- Require through administrative rules that EMS agencies be dispatched directly by a public safety answering point by radio or pager.
- Require through administrative rules that EMS agencies have scheduled personnel oncall at all times.

The committee learned NDCC Section 57-40.6-10(9) requires that every person who answers emergency 911 calls be trained in emergency medical dispatch and that every public safety answering point offer prearrival instructions. The department's recommendations to improve emergency medical dispatch are:

- Establish in statute or rule a requirement that ambulance services have affirmative communications (hand-held radios) capable of communicating with each other and dispatch if they intend to respond with a fragmented crew.
- Require public safety answering points to automatically dispatch the local EMS that serves the area. If the local ambulance provided is licensed at the basic life support level, the public safety answering points must also dispatch an advanced life support ambulance service if the patient has major trauma, cardiac chest pain or acute myocardial infarction, cardiac arrest, or severe respiratory distress or respiratory arrest.
- Require a helicopter air ambulance to be dispatched if the incident occurs more than 20 miles from a helicopter air ambulance base of operations but not more than 100 miles, and if the following conditions exist: prolonged extrication time, multiple victims, ejection from vehicle, pedestrian or bicycle struck by a vehicle traveling more than 20 miles per hour, burns covering more than 10 percent of the victim's body, or stroke symptoms.
- Provide statutory authority to the State Department of Health to establish these regulations for public safety answering points through administrative rules.
- Study the issue of dispatching multiple ground transporting agencies to determine an equitable process to alleviate "unfunded" ambulance transports.

The committee learned the department has determined that the response time measurement should be divided into two segments--time from dispatch to time of EMS en route and time en route to time on scene. Standards for the response time need to consider population density and hospital location. The department's recommendations in the area of response time are:

- Cities with a hospital must have an ambulance service.
- Cities with a population of at least 1,000 that are more than 15 miles from another city of 1,000 must have an ambulance. Cities with a population of 500 to 999 and that are fewer than 25 miles from an ambulance must have an EMS agency. Gaps in coverage will need to be addressed on an individual basis by using the "access critical" ambulance service criteria.
- Establish in administrative rules that urban ambulance services must have a response time standard of arriving on scene in less than nine minutes 90 percent of the time.
- Establish in administrative rules that rural and transportation corridor ambulance services must

have an en route time of 10 minutes or less 90 percent of the time and an overall response time of less than 20 minutes 90 percent of the time.

- Establish in administrative rules that frontier ambulance services must have an en route time of 10 minutes or less 90 percent of the time and an overall response time of less than 30 minutes 90 percent of the time.

Evaluation of the State's Trauma System

The committee learned the 2007 Legislative Assembly approved House Bill No. 1290, which appropriated $100,000, of which $75,000 was from the health care trust fund and $25,000 was from gifts, grants, or donations, to the State Department of Health for contracting with a professional organization to perform an evaluation of the trauma system in the state. The evaluation was to include a comprehensive onsite review by a multidisciplinary team, a critical analysis of the current state trauma system, the state trauma system's interrelationship with the state's emergency management system and with homeland security all-hazard planning and program efforts, and recommendations for improvements and enhancements.

The committee learned the department contracted with the American College of Surgeons to perform the evaluation. The American College of Surgeons conducted an evaluation of the state's trauma system in April 2008. The assessment team focused on 18 essential components involved in a trauma system and held dialogues and briefings with key trauma stakeholders across the state. The evaluation team developed a report with numerous recommendations. The following is a summary of the recommendations:

Area	Recommendations
Injury epidemiology	Seek legislation to establish a statewide collection of hospital discharge data with E-codes
	Identify resources to increase the availability of epidemiology support for a statewide injury program
	Develop a comprehensive approach to injury assessment
	Provide funding for the injury prevention program director to seek additional injury prevention and control education
Statutory authority and administrative rules	Modify Level V trauma center criteria to ensure that all facilities can legitimately achieve and maintain verification at this level
	Include trauma system participation at a level consistent with their resources and capabilities for all primary care or general acute hospitals as a condition of state licensure
	Task a committee comprised of representatives of both the State Trauma Committee and the EMS Advisory Committee to conduct a detailed review of all regulations pertaining to trauma and EMS, to consider the rules changes recommended, and to identify any additional regulation modifications that might be necessary
	Conduct a periodic review of all statutes, rules, and regulations pertaining to trauma and EMS to ensure that they are current
System leadership	Strengthen the State Trauma Committee to enable it to assume its role as the lead advisory body for the trauma system
	In absence of a state medical director, provide medical direction through a technical advisory group comprised of trauma center directors
	Structure and empower regions to lead implementation of the state trauma plan at a regional level
Coalition building and community support	Review the membership of the State Trauma Committee and consider partnering with other community leaders representing the media, health plans, payers, and industry who can further advocate for injury prevention and control and ongoing trauma system development
	Expand opportunities for stakeholders to participate in trauma system development by creating technical advisory groups that function under the direction of the State Trauma Committee
	Obtain a rules change to convert ad hoc members to voting members
Lead agency and human resources within the lead agency	The State Department of Health, Division of Emergency Medical Services, and State Trauma Committee should evaluate the recommendations contained in this report and the National Highway Traffic Safety Administration recommendations to identify focus areas for attention and develop a funding and staffing plan.
	Acquire personnel and additional funding for the state office to support the current staff needs to implement the North Dakota trauma system
	Identify a state EMS medical director
	Consider renaming the Division of Emergency Medical Services to incorporate trauma into the division title
	Create strong ties with the injury prevention program within the State Department of Health and support each other's programs within the state system of resource allocation
	Create stronger ties with the Center for Rural Health to support research and data analysis in addition to the current use of flex grants for hospital training
	Work more closely with the University of North Dakota and North Dakota State University to maximize data analysis efforts as well as training opportunities
Trauma system plan	Update and modify the state trauma plan bringing it up to current standards

Area	Recommendations
System	Develop a process for integration with the disaster preparedness infrastructure, including reciprocal committee membership and mutual plan development
	Develop a process for integration with the injury and violence coalition and develop a shared vision integration and plan
	Develop a process for integration with rural health and critical access hospital programs to optimize resource sharing, particularly in the areas of staffing, data collection, and quality assurance
	Develop a process for integration with other public health and safety services, including mental health, social services, transportation, fire, and law enforcement, to facilitate resource sharing
Financing	Acquire dedicated funding for additional positions needed to manage the trauma program
	Acquire dedicated funding for an EMS medical director
	Acquire one-time funding for an epidemiology consultant and fixing the state trauma registry
	Create a trauma unit within the Division of Emergency Medical Services that has staff supervision responsibilities for the state trauma manager to manage the elements of the trauma system
	Develop mechanisms for the collection of trauma payer data
Prevention and outreach	Develop an implementation guide for the injury prevention plan that clarifies the role of trauma centers and other stakeholders as partners in the implementation process
	Strengthen the relationship between the trauma system program and the injury prevention program, promoting a partnership that permits the injury prevention program to serve as the prevention arm of the trauma system
	Seek a State and Territorial Injury Prevention Directors Association technical assessment or consultation in preparation for seeking a Centers for Disease Control and Prevention injury capacity-building grant
	Develop a resource collection of evaluated and effective injury prevention programs for use by stakeholders
Definitive care facilities	Mandate the participation of all primary care and general acute care hospitals in the trauma system and tie this requirement to hospital licensure
	Develop a memorandum of understanding between the State Department of Health and the designated trauma centers outlining roles and responsibilities
	Conduct an inventory of trauma centers' programs and services to direct triage and patient flow
	Develop interfacility transfer criteria to ensure that patients with specialized needs are sent to facilities with matching resources
	Facilitate access to educational opportunities through investments in novel approaches to learning
	Review pediatric trauma care to assess the possibility of establishing an American College of Surgeons-verified Level II pediatric trauma center
System coordination and patient flow	Conduct an inventory of all trauma centers' programs and services to direct triage and patient flow
	Develop interfacility transfer criteria to ensure that patients with specialized needs are sent to facilities with matching resources
	Develop advanced life support intercept protocols
	Determine the impact on the appropriate utilization of advanced life support intercepts by basic life support services due to potential financial disincentives
	Evaluate the need and feasibility for expanding air medical coverage for the state
	Develop critical care ground transport capability
	Develop dispatch criteria and protocols to expedite rotor wing ambulance and ground advanced life support injury scene response and intercept in interfacility transfer
Rehabilitation	Functionally integrate rehabilitation into trauma system development
	Conduct a resource assessment of specialized rehabilitation services to identify what state or regional resources are available
	Develop criteria for interfacility transfer to rehabilitation centers to ensure access to specialized services when necessary
	Link data between trauma registries and rehabilitation centers to provide information regarding patient access and outcomes
Disaster preparedness	Provide training for all trauma system health care providers from an all-hazards approach
	Maximize interaction between the trauma and EMS community and the emergency preparedness community at all levels to optimize disaster preparedness
Systemwide evaluation and quality assurance	Develop a trauma system performance improvement plan and start with simple screens
	Establish clear guidelines that describe the expectations of the regional committees for peer review and patient outcomes
	Appoint a performance improvement technical advisory group to initiate quarterly meetings designed to review specific key measures and case reviews to identify opportunities for improving care
	Develop guidelines and a mechanism for the regions and state to gain concurrent information on significant trauma system and patient care issues
	Consider having the state trauma manager make occasional visits to the trauma centers each year to assess any trauma system or patient care concerns

Area	Recommendations
	Utilize the existing teleconferencing capabilities in the region for case review with a continuing medical education format to encourage attendance
	Consider hiring outside registry companies if filling local registrar positions becomes difficult
Trauma management information systems	Utilize existing registry data to its fullest extent
	Identify solutions to improve the current data system
	Improve access to and the quality of UB-92 data
	Explore all existing datasets for information that may be useful in the planning, development, and evaluation of the trauma system
Research	Engage the general medical community in the development of an agenda to identify the strategic priorities in injury research
	Encourage researchers within local academic centers to present new research findings at state trauma conferences to foster the development of academic-community partnerships
	Perform data linkage across datasets at the state level to facilitate evaluation of the continuum of care

The committee learned the State Trauma Committee met on July 23, 2008, to prioritize the recommendations from the evaluation. The State Trauma Committee determined that 21 of the recommendations should be implemented within the next two years. The following are five priority recommendations identified by the State Trauma Committee that need legislative action to implement and are not in ranked order:

1. Mandate the participation of all primary care and general acute care hospitals in the trauma system and make this a requirement of hospital licensure.
2. Provide the Division of Emergency Medical Services with personnel and additional funding to support the current staffing and program needs to implement the state trauma system. This would include a full-time associate trauma coordinator, a half-time EMS/trauma medical director, and a half-time administrative assistant.
3. Require licensure of all quick response units.
4. Update and modify the state trauma plan to meet current standards.
5. Determine the impact on the appropriate utilization of advanced life support intercepts by basic life support ambulance services due to potential financial disincentives.

The committee learned the following 16 recommendations were identified by the State Trauma Committee to be addressed in the next two years but do not require legislative action:

1. Develop dispatch criteria and protocols to expedite rotor wing ambulance and ground advanced life support injury scene response and intercept in interfacility transfer.
2. Create a committee comprised of representatives of both the State Trauma Committee and the EMS Advisory Committee to conduct a detailed review of all regulations pertaining to trauma and EMS, to consider the rules changes recommended, and to identify any additional regulation modifications that might be necessary.
3. Identify solutions to improve the current data system and utilize existing registry data to its fullest extent.

4. Explore all existing datasets of information that may be useful in the planning, development, and evaluation of the trauma system.
5. Expand opportunities for stakeholders to participate in trauma system development by creating technical advisory groups that function under the direction of the State Trauma Committee.
6. Establish clear guidelines that describe the expectations of the regional committees for peer review and patient outcomes.
7. Develop a trauma system performance improvement plan and start with simple screens.
8. Appoint a performance improvement technical advisory group to initiate quarterly meetings designed to review specific key measures and case reviews to identify opportunities for improving care.
9. Develop guidelines and a mechanism for the regions and the state to gain concurrent information about significant trauma system and patient care issues.
10. Utilize the existing teleconferencing capabilities in the regions for case review with a continuing medical education format to encourage attendance.
11. Consider having the state trauma manager make occasional visits to the trauma centers each year to assess any trauma system or patient care concerns.
12. Strengthen the relationship between the trauma system program and the injury prevention program, promoting a partnership that permits the injury prevention program to serve as the prevention arm of the trauma system.
13. Develop a process for integration with the disaster preparedness infrastructure, including reciprocal committee membership and mutual plan development.
14. Maximize interaction between the trauma and EMS community and the emergency preparedness community at all levels to optimize disaster preparedness.
15. Develop a process for integration with other public health and safety services, including mental health, social services, Department of

2. The Legislative Assembly should require licensing of all quick response units and consider removing the 24 hours a day 7 days a week requirement for quick response units.
3. The Legislative Assembly should make trauma designation mandatory for hospitals.
4. The State Department of Health Division of Emergency Medical Services should purchase functional software for state trauma registry.
5. The Legislative Assembly should establish and provide funding for a state EMS/trauma medical director.
6. The EMS Advisory Committee should be formally recognized in statute or rule to include EMSC representation.

The committee learned the following 10 recommendations were identified by the EMS Advisory Committee to be addressed in the next two years but do not require legislative action:

1. The Division of Emergency Medical Services should update the state EMS plan and add a pediatric component.
2. The Division of Emergency Medical Services should examine the initial and continuing education of EMS instructors to improve quality and uniformity of course delivery.
3. The Division of Emergency Medical Services should update the pediatric equipment list for ambulances.
4. The Division of Emergency Medical Services should update the trauma triage protocol to be consistent with current American College of Surgeons standards.
5. The Division of Emergency Medical Services should enhance collaborations with public safety answering points for data sharing and monitoring of EMS performance and have direct representation on Division of State Radio planning committees.
6. The Division of Emergency Medical Services should have a communications chapter in the state EMS plan or have a separate EMS communications plan.
7. The Division of Emergency Medical Services and the State Trauma Committee should develop a strategy for statewide trauma system quality improvement and update the state trauma system plan.
8. The Division of Emergency Medical Services should change its name to more accurately reflect its breadth of responsibilities and should consider "Division of Emergency Medical Services and Trauma."
9. The Division of Emergency Medical Services should facilitate evaluation at the local levels.
10. The Division of Emergency Medical Services should develop focused evaluation projects, including the utilization of tracer conditions.

North Dakota EMS Association

The committee received information from the North Dakota EMS Association regarding proposed changes to the state's EMS system. The association suggested the committee recommend providing $4,524,000 of additional funding for the EMS operations grant program established by the 2007 Legislative Assembly and expand the program to provide:

- An assessment process that would consist of a group of peers assessing EMS systems' structures, establishing EMS systems' goals, and assisting EMS systems with accomplishing their goals.
- Leadership training to all EMS managers and educators, including a stipend and expense reimbursement of lodging, meals, and mileage for all participants.
- An annual statewide recruitment drive to assist rural ambulance services experiencing difficulties recruiting staff.

The committee learned the association is concerned with specialty transportation. The definition of EMS was changed by the 2007 Legislative Assembly which resulted in the loss of the State Department of Health's authority to regulate wheelchair vans and no-care stretcher vans. The association suggested the committee recommend restoring the State Department of Health regulatory authority over specialty transportation.

The association also suggested the committee recommend that NDCC Section 23-27-04.7 be amended to provide that ambulance services operating in a taxing district receive a portion of tax revenue determined by the amount of mills collected in the townships covered by ambulance services.

Committee Recommendations

The committee recommends Senate Bill No. 2047 to provide a $128,400 general fund appropriation to the State Department of Health for providing emergency training grants to rural law enforcement officers and individuals choosing to become licensed first responders during the 2009-11 biennium. For the purposes of the bill, rural law enforcement is defined as licensed officers from city police departments of cities with a population of fewer than 6,500 and all licensed officers from county sheriffs' offices.

The committee recommends Senate Bill No. 2048 to provide that effective for initial licensures and license renewals occurring after December 31, 2009, as a condition for licensure as a primary care hospital or an acute care hospital, the hospital must participate in the trauma system established by the State Department of Health. The bill also provides that State Department of Health licensure for a quick response unit is not optional and the department's standards for quick response units may not require 24 hour availability.

The committee recommends Senate Bill No. 2049 to expand the EMS operations grant program. The bill provides:

- That the State Department of Health contract with a third party for completing an assessment of

PROPOSED AMENDMENTS TO SENATE BILL NO. 2048

Page 1, line 1, replace "a new section to chapter 23-16" with "five new sections to chapter 23-01.2"

Page 1, line 4, remove "and" after "date" insert "; and to provide a penalty"

Page 1, line 6, replace "A new section to chapter 23-16" with "Five new sections to chapter 23-01.2" and replace "is" with "are"

Page 1, replace lines 8 through 12 with:

"**Trauma center designation.** All licensed hospitals providing emergency services to the public in the state must meet the trauma center designation standards and participate in the trauma system before January 1, 2011.

Trauma system. The health council may adopt rules as necessary to carry out its responsibilities under this chapter, including the enforcement of this chapter.

Penalty. Any person who willfully manages or operates a hospital that provides emergency services to the public that is not in compliance with the provisions of this chapter is guilty of an infraction. In addition to any criminal sanctions, any person guilty of knowingly violating any provision of this chapter or any rules adopted under this chapter, may be charged a civil money penalty not to exceed one thousand dollars for each violation or for each day the violation continues plus interest and any costs incurred by the department to enforce this penalty. This civil money penalty may be imposed by the court in a civil proceeding or by the state health officer through an administrative hearing under chapter 28-32. Any funds received as penalties will be deposited in the state health department budget and distributed as grants to licensed ambulance services or hospitals for trauma specific education or trauma specific equipment as determined by the department.

Injunction. The department may apply to the district court of the county in which the hospital is located for, and the court has jurisdiction upon hearing and for cause shown, to grant a temporary or permanent injunction restraining the hospital from providing emergency services to the public without trauma center designation.

Public notice. The department may place a public notice in the newspapers in the area which the hospital is located to notify the public of the enforcement action to be imposed and the effective dates. The department shall notify the hospital in writing of the impending public notice fifteen days prior to the publication of the notice."

Renumber accordingly

#3

NDHA
North Dakota Healthcare Association

Testimony Senate Bill 2048
Senate Human Services Committee
January 28, 2009

Chairman Lee, Members of the Senate Human Services Committee. I am Arnold Thomas, President of the North Dakota Healthcare Association.

My testimony is limited to section one of this bill, which addresses one of a number of recommendations from a recently completed survey by the American College of Surgeons.

Section 1 would mandate that in order to be licensed, a hospital must be trauma designated. We are concerned with this section of the bill for a number of reasons:

1.) No other state has such a requirement as a condition of licensure.
2.) Training in trauma procedures is not a core element in training of physicians, physician assistants or nurse practitioners.
3.) It is not congruent with regional and state hospital emergency plans developed in response to national emergency response concerns.
4.) It penalizes recruitment and retention efforts of hospitals by narrowing the personnel who meet or are willing to meet this mandate.
5.) The mandate does not recognize the difference in relationships between a hospital salaried and non-salaried medical staff.
6.) The mandate is silent on the training of physicians providing medical direction for ambulance personnel and ambulance services.
7.) The mandate is silent on failure to bypass the local hospital when the hospital declares the need for trauma diversion.
8.) There has been no consideration of hospital network alternatives to this recommendation.
9.) With the expansion of training slots, there is a steady decrease in the number of persons not trauma trained.

10.) There has been no discussion of alternative training programs to the programs of the College, a private professional association.

11.) The Trauma Five designation-- not recognized by the College--is a ND designation whose purpose was and is to include all hospitals with emergency capability—regardless of there service depth or breadth-- in the evolution of a state wide emergency system.

12.) The mandate has an exclusive facility focus. It does not acknowledge nor recognize that the principle manner in which medical and emergency services are accessed and delivered in ND is through network agreements appropriate to the networks geographical regions.

Because not all emergencies involve trauma, but all trauma events are emergencies, we ask you to consider the following:

1.) Delete Section 1 of this bill making a hospitals license contingent upon trauma designation.

2.) Amend as follows:

    a.) Direct the State's Health Officer to convene a Work Group of no more than twelve representatives composed of hospital trauma coordinators, emergency department medical directors, trauma medical directors and ambulance service personnel.

    b.) Stipulate the cost to participate as a member of the Work Group is the responsibility of each Work Group member.

    c.) Under the leadership of the State Health Officer, charge the Work Group in determining how a regional emergency service network, building on current medical and emergency referral patterns, can address the range of emergency service and trauma recommendations developed by studies conducted during the past interim.

    d.) Included in this charge, evaluate the appropriateness of

        i. current hospital trauma assessment, stabilization, monitoring and transport protocols and policies;

        ii. current hospital emergency room assessment, stabilization, monitoring and transport protocols and polices;

        iii. current ambulance service on site assessment, stabilization, communications, transport-including bypass-protocols and policies.

iv. the role, functions and qualifications of the ambulance medical director;

v. existing affiliation agreements between and among hospitals and ambulance services to address local and regional emergency and trauma conditions; and

vi. current laws, regulations and accreditation standards relevant to the charge of the Work Group.

3.) Require the Health Officer to report to the appropriate interim legislative committee on the actions and recommendations of the Work Group.

We think this alternative to the proposed mandate in Section 1 of this bill will allow the expansion of trauma training opportunities to further mature and produce a stronger regional and state emergency network without compromise to emergency service quality or emergency service access.

Chairman Lee, I am pleased to entertain questions you and members of the Committee may have.

North Dakota Hospitals – Primary Referral Relationships
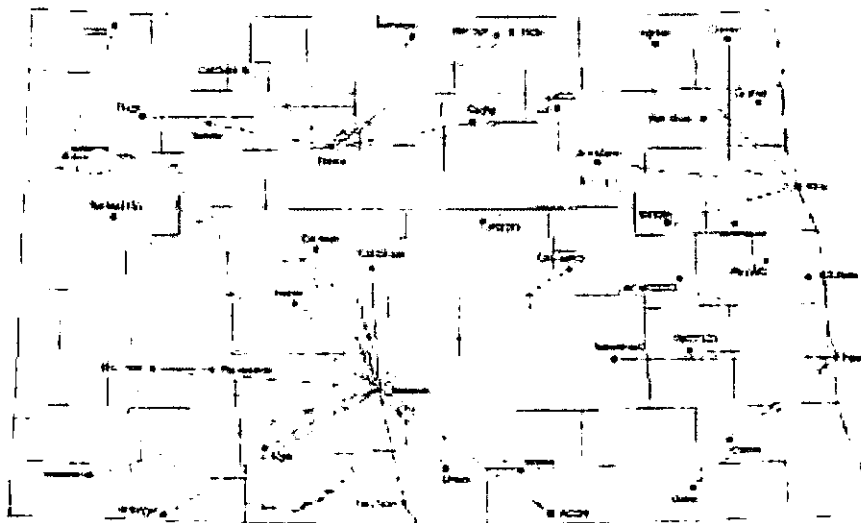
North Dakota Hospitals & Critical Access Hospitals
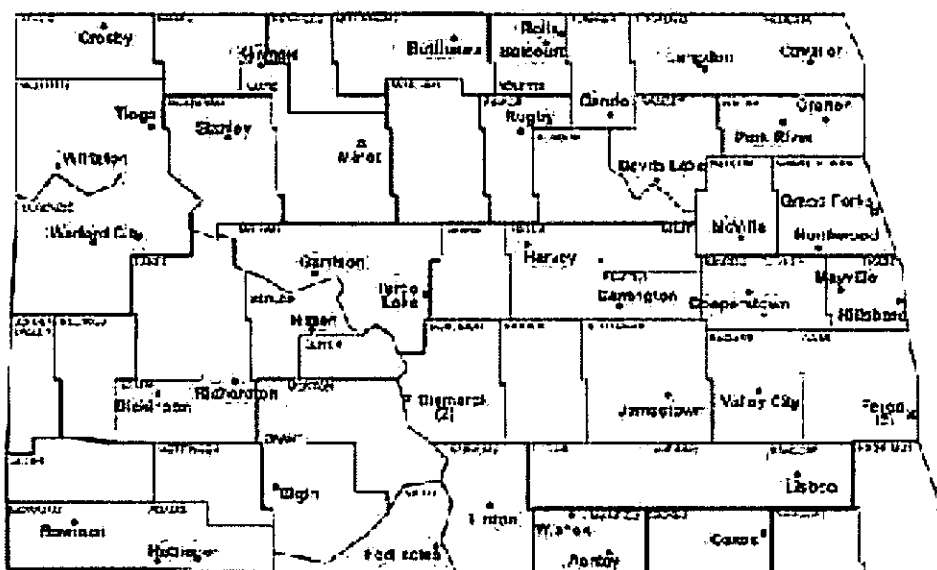
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SB 2048

January 28, 2009

Testimony – Human Services Committee
North Dakota EMS Association
Mark Weber, NDEMSA President
721-5650 – mwemtp@gmail.com

Good Morning Chairman Lee and members of the committee. My name is Mark Weber, I am the President of the North Dakota Emergency Medical Services (EMS) Association and the EMS Director at the Heart of America Medical Center in Rugby. I thank you for the opportunity to testify on SB 2048.

We will remain neutral on section 1 of this bill but would like to see every hospital participate in the trauma system.

(Section 2) Quick Response Units (QRU's) have been required to be available 24 hrs a day seven days a week as part of their licensing requirement. Currently the ND DoH Department of EMS and Trauma estimates that only half of the QRU's in ND are licensed because of this requirement. This means half of the QRU's are not licensed. The significance of this is that QRU's that are not licensed have no requirements or standards for their providers or equipment. We believe this creates a risk to the public. If a non licensed QRU is dispatched to an incident, there is no requirement for the responders to have any medical training or carry any specific equipment. If we remove the 24/7 requirement and make it a requirement to be licensed we can assure a minimal level of care for the citizens of ND.

Chairman Lee, thank you for this opportunity to testify and I would be happy to answer questions the committee may have.

CMC
Cooperstown Medical Center

January 28, 2009

My name is Greg Stomp and I am the Administrator /
CEO of the Cooperstown Medical Center.

My comments are centered around the mandating of the
Trauma designation for all hospitals and as Mr. Thomas
has already indicated we are not against obtaining the
designation but the mandating of this would put great
hardship on our communities. Griggs County has
supported our facility for over 50 Years and as an 18 bed
Critical Access Hospital we have contributed a significant
amount to the economy and to the well being of our
patients and Community. Our Community has recently
created a Hospital District which will allow for a small
tax base be used to support the Hospital and Long Term
Care facility, this new tax passed with a 70% positive
vote. This shows the support of our area.

Trauma designation is as important to us as it is to the
College of Surgeons however our volunteer EMS services
are not comfortable bypassing local physicians and
equipment that can stabilize a patient to drive another 45
minutes to an hour to a trauma designated facility. In

years 2007 and 2008 our facility had approximately 900 Emergency room visits of which 13 were determined to be trauma's after they arrived at our facility.

We have prepared our application, written our policies, obtained the necessary ER equipment, and installed the software to report trauma conditions, 3 years ago, but as a fact of life in rural medicine we constantly have turnover in our medical staff and when the turn over occurs some do not have the ATLS training required and we are at the mercy of the class dates and many times only so many mid-level providers – Nurse Practitioners or Physician Assistants are allowed in each class. Recently we hired a Nurse Practitioner from Minnesota who has been covering ER' s there in trauma designated facilities but needs the ATLS training, the soonest we can obtain the class for her is April. Prior to this it was our Physician obtaining the training and another NP whose certification had expired. Everything must be current and correct when we initially submit the application.

The other condition we have occur is when my Physician needs a weekend off and leaves town, the temporary or locums Physician we hire to fill in may not have this training, and many times we are scrambling to find a physician to provide coverage at all, so rejecting one

- without the training causes greater difficulty in providing the basic services our community needs.

- Our suggestion is that until a hospital does get its designation or if a current hospital loses it's designation due to staff turnover have the trauma coordinator at our Tertiary facilities who we have a transfer agreements with review our Trauma and let us know what we could have done to improve the patient's condition upon arrival or what care issues were missed. This would allow us to continue to provide a valuable service to our communities, support for our local EMS volunteers, and work on obtaining our designation but with some quality control review.

- Thank you for listening and I would be willing to answer questions to the best of my ability.

Testimony
Senate Bill 2048
Senate Human Services Committee
Wednesday, January 28, 2009; 9 a.m.
North Dakota Department of Health

Good morning, Madam Chair and members of the committee. My name is Tim Meyer, and I am the director of the Division of Emergency Medical Services and Trauma for the North Dakota Department of Health. I am here today to provide information regarding Senate Bill 2048.

There has been much discussion among trauma system stakeholders in North Dakota regarding this bill. Although there are differences of opinion on some of the details in the bill, most agree that all hospitals providing emergency services should be designated trauma centers. Meeting this standard would save lives.

We propose several changes to section one of the bill. We believe this statute would be better placed in the trauma statutes: N.D.C.C. 23-01.2. We also feel only hospitals that provide emergency services should be included in the bill. As written, an undue burden would be created for specialty hospitals such as psychiatric hospitals or rehabilitation centers that normally do not provide emergency services but would be required to receive trauma center designation. We also recommend that the statute include language allowing the Department of Health some latitude to provide reasonable time for hospitals to comply. We would accomplish this by changing the effective date to January 1, 2011, and providing a mechanism for the department to issue provisional trauma designations.

A possible amendment would look like this:

    Section 1. A new section to chapter ~~23-16~~ 23-01.2 of the North Dakota Century Code is created and enacted as follows:

    ~~Primary care and acute care hospitals~~ – Trauma centers designation. Effective ~~for initial licensures and renewals taking place after December 31, 2009, as a condition for licensure as a primary care hospital or an acute care hospital, the~~ January 1, 2011, hospitals that offer emergency services to the public ~~shall participate as a~~ must meet trauma center designation standards ~~as part of~~ and participate in the trauma system ~~established by the state department of health under chapter 12-01.2.~~

The state health council shall promulgate administrative rules that allow provisional trauma designation status for hospitals that are partially compliant with trauma designation standards. Issuance of a provisional trauma designation must include a reasonable amount of time determined by the department for a hospital to fully meet all trauma designation standards.

The language in section two of the bill concerns licensure of quick response units. In the recent statewide emergency medical services assessment performed by the National Highway Traffic Safety Administration, quick response unit licensure was identified as a way to improve first response services in our state. Currently we have about 50 quick response units that are licensed and about 50 that are unlicensed. The licensure process would ensure that all quick response units have a minimal set of equipment, that personnel are appropriately credentialed, and that they have medical direction provided by an associated ambulance service.

This concludes my testimony. I am happy to answer any questions you may have.

Testimony
Senate Bill 2048
House Human Services Committee
Monday, March 2, 2009; 9 a.m.
North Dakota Department of Health

Good morning, Chairman Wiesz and members of the committee. My name is Tim Meyer, and I am the director of the Division of Emergency Medical Services and Trauma for the North Dakota Department of Health. I am here today to support Senate Bill 2048.

In the 2007 Legislative Session, House Bill 1290 required the Department of Health to have an outside entity perform an evaluation of the state's trauma system. The American College of Surgeons Committee on Trauma was engaged to perform this evaluation. They made 73 recommendations for improvement of our state's trauma system; these recommendations were then prioritized by the State Trauma Committee. The recommendation with the highest priority was to create a statutory requirement that all hospitals be designated as trauma centers.

The language you see before you in section one, as amended by the Senate, has been developed with input from ambulance services; physicians; hospitals that are currently trauma designated, as well as those that are not trauma designated; the North Dakota Emergency Medical Services Association; and the North Dakota Healthcare Association. It is our understanding that all the parties agree with the compromise language that appears in section one of the engrossed bill.

The language in section two of the bill concerns licensure of quick response units. In the recent statewide emergency medical services assessment performed by the National Highway Traffic Safety Administration, quick response unit licensure was identified as a way to improve first response services in our state. Currently, we have about 50 quick response units that are licensed and about 50 that are unlicensed. The licensure process would ensure that all quick response units have a minimal set of equipment, that personnel are appropriately credentialed, and that they have medical direction provided by an associated ambulance service.

Senate Bill 2048 is in the best interest of public safety, will improve the entire trauma system in the state, and will save lives.

This concludes my testimony. I am happy to answer any questions you may have.

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SB 2048   March 2, 2009

Testimony – House Human Services Committee
North Dakota EMS Association
Mark Weber, NDEMSA President
721-5650 – mwemtp@gmail.com

Good Morning Chairman Weisz and members of the committee. My name is Mark Weber, I am the President of the North Dakota Emergency Medical Services (EMS) Association and the EMS Director at the Heart of America Medical Center in Rugby. I thank you for the opportunity to testify on SB 2048.

(Section 2) Quick Response Units (QRU's) have been required to be available 24 hrs a day seven days a week as part of their licensing requirement. Currently the ND DoH Department of EMS and Trauma estimates that only half of the QRU's in ND are licensed because of this requirement. This means half of the QRU's are not licensed. The significance of this is that QRU's that are not licensed have no requirements or standards for their providers or equipment. If a non licensed QRU is dispatched to an incident, there is no requirement for the responders to have any medical training or carry any specific equipment. If we remove the 24/7 requirement and make it a requirement to be licensed we can assure a minimal level of care for the citizens of ND.

Chairman Weisz and members of the committee, ND EMS Association supports SB 2048 and would ask for your favorable recommendation. Thank you for this opportunity to present testimony.

Trauma System Consultation
State of North Dakota
Mandan, North Dakota

April 27th-30th, 2008
American College of Surgeons
Committee on Trauma

A multidisciplinary working group prepared this document based on the consultation visit that took place on April 27th-30th, 2008 in Mandan, North Dakota and included the following members:

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Bozeman, MT

James D. Upchurch, MD
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Crow Agency, MT

ACS Staff:

Holly Michaels
Program Coordinator
Trauma Systems Consultation
American College of Surgeons

Table of Contents

Executive Summary

American College of Surgeons
Trauma System Consultation Visit
North Dakota Department of Health
April 27th-30th, 2008

The current trauma system within North Dakota is a testament to the dedication and resourcefulness of the leadership both within and outside of the North Dakota Department of Health. The larger healthcare facilities in the state have demonstrated an ongoing commitment to the citizens of North Dakota by completing and maintaining the verification process of the American College of Surgeons (ACS) as level II or level III trauma centers. As a result of the "inclusive" trauma system model articulated in the state's first trauma system plan, completed in 1993, there has been active recruitment of rural and frontier facilities as well. The fact that only eight of forty-six hospitals are not currently verified for trauma care at some level speaks highly of the success of this recruitment process. Notable support from the Office of Rural Health through the Rural Hospital Flexibility Grant Program to assist the seven remaining Critical Access Hospitals in achieving verification is available over the next three years.

Adequate numbers of emergency medical service (EMS) agencies are present throughout the state, most of which operate at a basic life support level and 95% of whom are volunteer in nature. Many other attributes of a comprehensive trauma system are in place, in varying degrees, including broadly empowering legislation, the designation of a lead agency, statewide communications, trauma training, injury prevention interventions, local trauma data collection, and disaster preparedness.

Though its daily function is generally good, the trauma system has some remaining challenges. The most important areas remaining to be addressed include an ongoing system-wide approach to performance improvement, the development of a formal critical care transportation network (with combined ground and air medical resources), the ability to generate statewide reports from the trauma registry, and the limited access to fundamental epidemiological data that can be used to better describe and respond to the injury problem in North Dakota.

North Dakota is poised to take the trauma system to the next level and has the potential to become a showcase for an inclusive rural trauma system. However, in order to make this transition, the state needs additional, but modest, investments in personnel and infrastructure. In particular, the state trauma program staff will need to be increased and investments in the state trauma registry may be necessary.

Currently, North Dakota has 46 hospitals, six verified as level II trauma centers, 1 as level III, 21 as level IV, and 11 as level V. Two hospitals from Minnesota and South Dakota are also included in the North Dakota trauma system. Eight hospitals in the state are non-designated with regard to trauma care. Budget support is appropriated by the state legislature for salary support for the trauma manager and additional limited operating expenses. The majority of serious injury to North Dakota citizens is blunt trauma, primarily from motor vehicle crashes. The state had nearly 400 trauma-related deaths in 2006.

Advantages and Assets of the North Dakota Trauma System

- Long history of strong commitment by people and health care facilities
- Inclusive system with excellent participation
- Over ten years practical experience with current system
- Good EMS coverage despite geographic challenges
- Good working relationship between EMS and trauma
- Strong enabling legislation
- Strong confidentiality legislation
- Budgetary support for trauma system administration
- Existence of other significant health resources
- Lower than average rate of unfunded care
- Seven centers maintaining ACS verification standards
- Strong cooperation among hospitals
- Robust internal system for designation of rural hospitals
- Recent Technical Assistance Team visit from NHTSA
- FLEX program collaboration
- State radio communications system
- WAN connection between hospitals
- North Dakota Trauma Foundation
- Potential for the state to benefit economically from recent oil discovery
- Current budget surplus
- Engaged members of state legislature

Challenges and Vulnerabilities of the North Dakota Trauma System

- Large geographic area, scattered population
    - o Difficulty in provider recruitment
    - o High reliance on volunteer personnel, especially EMS
- Trauma plan is out of date
- Progress with system development has stalled
- No statewide trauma registry data, little use of existing data collected by trauma centers
- No statewide hospital discharge data
- No statewide quality assurance/process improvement efforts
- Poor coordination between trauma and disaster programs

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- Lack of specific pediatric protocols and practices
- Relative shortage of air ambulance services
- Poor coordination with the existing injury prevention program
- Current regional structure is not working well
- Transportation plans are not fully implemented
- Aging population

The following compilation of priority recommendations is drawn from the individual sections of the report that follows. Additional detail and rationale will be found in those individual sections. The recommendations are listed in the general public health framework that has, as its three core functions, assessment, policy development, and assurance.

Priority Recommendations Summary

Assessment

Prevention
- Obtain the services of an epidemiology consultant to help identify and utilize existing resources and develop a template for an annual statewide injury report.

Policy Development

Trauma system policy & oversight
- Mandate participation of all primary care and general acute care hospitals as a condition of licensure
  - Assure participation at a level consistent with resources
  - Modify level V criteria to facilitate compliance
- Strengthen the State Trauma Committee
  - Assume role as lead advisory body
  - Establish technical advisory groups (TAGs) responsible for specific tasks (e.g. prevention, verification) to move work forward and to broaden inclusion of stakeholders
  - Review membership of the Committee, consider adding members from payer community, industry, media
  - Establish a mechanism for succession, continuation and growth

State Trauma Plan
- Update and modify the State Trauma Plan
- Bring up to current standards
- Seek better integration with disaster preparedness agencies, rural health programs, injury prevention, public health
- Establish a process for routine periodic review and update of plan
- Use plan to drive rules process

- Modify the regional committee structure to rely more upon regional level 2 centers for leadership and support

Financing
- Acquire dedicated funding for additional positions needed to manage the trauma program
  - Associate Trauma Manager (1.0 FTE)
  - Administrative support (.5 FTE)
- Acquire dedicated funding for an EMS Medical Director
- Acquire funding to improve/maintain state trauma registry

Assurance

Prevention
- Develop a comprehensive approach to injury control
  - Assessment
  - Interventional strategies
  - Evaluation
- Strengthen the relationship between the state trauma system program and the injury prevention program, in preparation for seeking a CDC injury capacity-building grant
- Obtain the services of an epidemiology consultant to help identify and utilize existing resources and develop a template for an annual statewide injury report

EMS
- Appoint a state EMS medical director
- Encourage participation, assure consistency and provide adequate support for EMS medical directors in their provision of medical oversight
- Develop automatic dispatch protocols to expedite rotor wing ambulance and/or ALS injury scene response/intercepts
- Evaluate the impact on the utilization of ALS intercepts by BLS services due to potential financial disincentives

Definitive Care
- Create memoranda of understanding between the Department of Health and trauma centers outlining their roles and responsibilities
- Develop an inventory of each facility's resources and capabilities to better direct triage and patient flow
- Develop specific inter-facility transfer criteria
  - Match patient needs to resources (acute care and rehabilitation)
- Review pediatric trauma care to assess the possibility of establishing an ACS verified level II pediatric trauma center in the state

System Evaluation and PI
- Develop a performance improvement plan

- o Start with simple screens
- o Conduct quarterly or semi-annual reviews
- Appoint a multidisciplinary PI TAG
  - o Base membership TD and TPM from ACS verified centers
  - o Other members as appropriate
- Base reviews on available trauma registry data
- Start now

Trauma Management Information Systems
- Utilize existing registry data to its fullest extent
- Identify solutions to improve current system
  - o Ensure that each installed version is fully compatible with the NTDS
  - o Explore all avenues for aggregation and reporting on current data
  - o Contact the National EMSC Data Analysis Resource Center (NEDARC) for assistance with current software package
- Consider replacement of existing system if above fails, recognizing significant costs in both time and money

Research
- Encourage the general medical community to come together and develop an agenda to identify the strategic priorities in injury research
- Encourage the presentation of new findings from researchers within local academic centers at state trauma conferences to foster the development of academic-community partnerships
- Perform state level linkage across datasets, where relevant, to facilitate evaluation of the continuum of care

Trauma System Assessment

Injury Epidemiology

Purpose and Rationale

Injury epidemiology is concerned with the evaluation of the frequency, rates, and pattern of injury events in a population. Injury pattern refers to the occurrence of injury-related events by time, place, and personal characteristics (for example, demographic factors such as age, race, and sex) and behavior and environmental exposures, and, thus, it provides a relatively simple form of risk-factor assessment.

The descriptive epidemiology of injury among the whole jurisdictional population (geographic area served) within a trauma system should be studied and reported. Injury epidemiology provides the data for public health action and becomes an important link between injury prevention and control and trauma system design and development. Within the trauma system, injury epidemiology has an integral role in describing the root causes of injury and identifying patterns of injury so that public health policy and programs can be implemented. Knowledge of a region's injury epidemiology enables the identification of priorities for directing better allocation of resources, the nature and distribution of injury prevention activities, financing of the system, and health policy initiatives.

The epidemiology of injury is obtained by analyzing data from multiple sources. These sources might include vital statistics, hospital administrative discharge databases, and data from emergency medical services (EMS), emergency departments (EDs), and trauma registries. Motor-vehicle crash data might also prove useful, as would data from the criminal justice system focusing on interpersonal conflict. It is important to assess the burden of injury across specific population groups (for example, children, elderly people, and ethnic groups) to ensure that specific needs or risk factors are identified. It is critical to assess rates of injury appropriately and, thus, to identify the appropriate denominator (for example, admissions per 100,000 population). Without such a measure, it becomes difficult to provide valid comparisons across geographic regions and over time.

To establish injury policy and develop an injury prevention and control plan, the trauma system, in conjunction with the state or regional epidemiologist, should complete a risk assessment and gap analysis using all available data. These data allow for an assessment of the "injury health" of the population (community, state, or region) and will allow for the assessment of whether injury prevention programs are available, accessible, effective, and efficient.

An ongoing part of injury epidemiology is public health surveillance. In the case of injury surveillance, the trauma system provides routine and systematic data collection and, along with its partners in public health, uses the data to complete injury analysis, interpretation, and dissemination of the injury information. Public health officials and trauma leaders should use injury surveillance data to describe and monitor injury events and emerging injury trends in their jurisdictions; to identify emerging threats that will call for a reassessment of priorities and/or reallocation of resources; and to assist in the planning, implementation, and evaluation of public health interventions and programs.

OPTIMAL ELEMENTS

I. There is a thorough description of the epidemiology of injury in the system jurisdiction using population-based data and clinical databases. **(B-101)**

    a. There is a through description of the epidemiology of injury mortality in the system jurisdiction using population-based data. **(I-101.1)**

    b. There is a description of injuries within the trauma system jurisdiction, including the distribution by geographic area, high-risk populations (pediatric, elderly, distinct cultural/ethnic, rural, and others), incidence, prevalence, mechanism, manner, intent, mortality, contributing factors, determinants, morbidity, injury severity (including death), and patient distribution using any or all the following: vital statistics, ED data, EMS data, hospital discharge data, state police data (data from law enforcement agencies), medical examiner data, trauma registry, and other data sources. The description is updated at regular intervals. **(I-101.2)** *Note:* Injury severity should be determined through the consistent and systemwide application of one of the existing injury scoring methods, for example, Injury Severity Score (ISS).

    c. There is comparison of injury mortality using local, regional, statewide, and national data. **(I-101.3)**

    d. Collaboration exists among EMS, public health officials, and trauma system leaders to complete injury risk assessments. **(I-101.4)**

    e. The trauma system works with EMS and public health agencies to identify special at-risk populations. **(I-101.7)**

II. Collected data are used to evaluate system performance and to develop public policy. **(B-205)**

    a. Injury prevention programs use trauma management information system data to develop intervention strategies. **(I-205.4)**

III. The trauma, public health, and emergency preparedness systems are closely linked. **(B-208)**

a. The trauma system and the public health system have established linkages, including programs with an emphasis on population based public health surveillance and evaluation for acute and chronic traumatic injury and injury prevention. **(I-208.1)**

IV. The jurisdictional lead agency, in cooperation with the other agencies and organizations, uses analytic tools to monitor the performance of population-based prevention and trauma care services. **(B-304)**

a. The lead agency, along with partner organizations, prepares annual reports on the status on injury prevention and trauma care in the state, regional, or local areas. **(I-304.1)**

b. The trauma system management information system database is available for routine public health surveillance. There is concurrent access to the databases (ED, trauma, prehospital, medical examiner, and public health epidemiology) for the purpose of routine surveillance and monitoring of health status that occurs regularly and is a shared responsibility. **(I-304.2)**

CURRENT STATUS

Unintentional injury is a significant problem in the state of North Dakota, as it is the leading cause of death for the population between 1 and 45 years of age. Intentional injury is also a significant cause of mortality in the same age group. Currently, the state has limited information about the epidemiology of its population's injuries from existing data sources. Some simple analyses of mortality data were conducted for the development of the Injury Prevention Plan published in 2005. However, more recent injury data were not presented to the team. More extensive analyses of injuries by age group, geographic regions of the state, and tribal population groups would be beneficial to help select and target future injury prevention interventions.

The state has multiple data sources that are regularly accessed for injury statistics, such as vital statistics records, crash data, and law enforcement data. The injury prevention department does look at these sources regularly, but collaboration between the trauma program and injury prevention has been weak. The state trauma registry is not available to provide injury data, but the EMS database (SOAR) which is available has not yet been investigated for injury data. Other sources of injury data in North Dakota include the Worker's Compensation program and the Domestic Violence/Sexual Abuse registry.

North Dakota is one of few states in the United States that does not require hospitals to submit Hospital Discharge data (UB-92). Hospital discharge data are used by other states as one of the best sources of population-based injury morbidity data. Hospital discharge data are collected by a few hospitals and submitted to the North Dakota Hospital Association (NDHA), and some additional

hospital discharge data may be available through Medicare. These data sources are not currently being used to assess injury morbidity.

The Injury Prevention Program Director has a primary focus on injury issues of women of childbearing age and children because that is the source of prevention program funding. The state's core injury prevention and control issues are not being addressed by any identified individual. However, there are 4 individuals within the injury prevention department that look at intentional injury through the RPE Domestic Violence grants, and the Garret Lee Smith grants for Suicide. An epidemiologist is available on a limited basis (approximately 0.15 FTE) to assist and support the investigation of causes of injury across the state. The time available is often limited to the Injury Prevention Program Director's primary focus rather than an investigation of injury epidemiology for the entire population. Occasional support has been obtained from the University of North Dakota for injury epidemiology investigations.

No coordinated comprehensive injury assessment is conducted or compiled to help the state understand its injury problem. While an Injury Prevention Coalition was reported to have been reactivated, it is not apparent that extensive collaboration exists to conduct injury risk assessments. Safe Communities was reported to be an infrastructure used by the trauma centers, Department of Transportation (DOT) programs, SafeKids, and other partners to review injury data and to implement injury interventions. No evidence was provided of collaboration with tribal leaders to understand and address the injury problem of the Native American population.

The state expressed interest in obtaining a Centers for Disease Control and Prevention Injury Capacity Building Grant, however, the state does not meet two major requirements. For example, routine injury surveillance can not currently be conducted, and there is not an operational injury prevention plan.

No evidence of annual reports on the status of injury or injury prevention efforts was provided.

RECOMMENDATIONS

- Seek legislation to establish a statewide collection of hospital discharge data with E-codes.
- Identify resources to increase the availability of epidemiology support for a statewide injury program.
- **Develop a comprehensive approach to injury assessment.**
    - o **Obtain the services of an epidemiology consultant to define a set of standard reports that can be run from existing databases and the state trauma registry, run the reports, and develop a template for an annual statewide injury report.**

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- Provide funding for the Injury Prevention Program Director to seek additional injury prevention and control education such as:
  - o An injury epidemiology program sponsored by one of the CDC's Injury Control Research Centers
  - o The Indian Health Services' Injury Fellowship Program

Indicators as a Tool for System Assessment

Purpose and Rationale

In the absence of validated national benchmarks, or norms, the benchmarks, indicators and scoring (BIS) process included in the Health Resources and Services Administration's *Model Trauma System Planning and Evaluation* document provides a tool for each trauma system to define its system-specific health status benchmarks and performance indicators and to use a variety of community health and public health interventions to improve the community's health status. The tool also addresses reducing the burden of injury as a community-wide public health problem, not strictly as a trauma patient care issue.

This BIS tool provides the instrument and process for a relatively objective state and substate (regional) trauma system self-assessment. The BIS process allows for the use of state, regional, and local data and assets to drive consensus responses to the BIS. It is essential that the BIS process be completed by a multidisciplinary stakeholder group, most often the equivalent of a state trauma advisory committee. The BIS process can help focus the discussion on various system strengths and weaknesses, can be used to set goals or benchmarks, and provides the opportunity to target often limited resources and energies to the areas identified as most critical during the consensus process. The BIS process is useful to develop a snapshot of any given system at a moment in time. However, its true usefulness is in repeated assessments that reveal progress toward achieving various benchmarks identified in the previous application of the BIS. This process further permits the trauma system to refine goals to be attained before future reassessments using the tool.

OPTIMAL ELEMENT

I.   Assurance to constituents that services necessary to achieve agreed-on goals are provided by encouraging actions of others (public or private), requiring action through regulation, or providing services directly. **(B-300)**

CURRENT STATUS

The state trauma program reviewed the 16 indicators identified by the ACS from the BIS tool in the HRSA Model Trauma Systems Planning and Evaluation document. Fifteen members of the State Trauma Committee and approximately 30 other stakeholders (representatives of trauma program managers, coordinators, and registrars, the ND Heath Care Association, the American Heart Association, and the Heath Department) participated in the discussion and scoring of the indicators.

The review identified and confirmed many of the challenges reported in the Pre-review Questionnaire regarding the state trauma system's development. The process was reported to be valuable, and review of other indicators in the BIS tool may be conducted in the future with revision of the state's trauma plan.

RECOMMENDATIONS

- Repeat the assessment of the 16 indicators in the BIS tool, and others as desired, at established intervals to assess progress in trauma system development.
- Consider review, scoring, and repeated scoring at set intervals of all BIS indicators as part of a system benchmarking process.

Trauma System Policy Development

Statutory Authority and Administrative Rules

Purpose and Rationale

Reducing morbidity and mortality due to injury is the measure of success of a trauma system. A key element to this success is having the legal authority necessary to improve and enhance care of injured people through comprehensive legislation and through implementing regulations and administrative code, including the ability to regularly update laws, policies, procedures, and protocols. In the context of the trauma system, comprehensive legislation means the statutes, regulations, or administrative codes necessary to meet or exceed a predescribed set of standards of care. It also refers to the operating procedures necessary to continually improve the care of injured patients from injury prevention and control programs through postinjury rehabilitation. The ability to enforce laws and rules guides the care and treatment of injured patients throughout the continuum of care.

There must be sufficient legal authority to establish a lead trauma agency and to plan, develop, maintain, and evaluate the trauma system during all phases of care. In addition, it is essential that as the development of the trauma system progresses, included in the legislative mandate are provisions for collaboration, coordination, and integration with other entities also engaged in providing care, treatment, or surveillance activities related to injured people. A broad approach to policy development should include the building of system infrastructure that can ensure system oversight and future development, enforcement, and routine monitoring of system performance; the updating of laws, regulations or rules, and policies and procedures; and the establishment of best practices across all phases of intervention. The success of the system in reducing morbidity and mortality due to traumatic injury improves when all service providers and system participants consistently comply with the rules, have the ability to evaluate performance in a confidential manner, and work together to improve and enhance the trauma system through defined policies.

OPTIMAL ELEMENTS

I. Comprehensive state statutory authority and administrative rules support trauma system leaders and maintain trauma system infrastructure, planning, oversight, and future development. **(B-201)**

a. The legislative authority states that all the trauma system components, emergency medical services (EMS), injury control, incident management,

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and planning documents work together for the effective implementation of the trauma system (infrastructure is in place). **(I-201.2)**

b. Administrative rules and regulations direct the development of operational policies and procedures at the state, regional, and local levels. **(I-201.3)**

II. The lead agency acts to protect the public welfare by enforcing various laws, rules, and regulations as they pertain to the trauma system. **(B-311)**

a. Laws, rules, and regulations are routinely reviewed and revised to continually strengthen and improve the trauma system. **(I-311.4)**

CURRENT STATUS

The State of North Dakota is to be congratulated for having what was considered by the ACS review team to be strong statute and regulations pertaining to the trauma system. Particular sections pertaining to the protection of information during performance improvement processes are exemplary. The statute and regulations have served the trauma community well during the developmental period of the voluntary, inclusive trauma system.

North Dakota Century Code 23-01.2-01, clearly states that the State Health Council in conjunction with the ND Department of Health has the authority for the development and maintenance of a comprehensive trauma system. Authority is specifically provided for:

1. A system plan.
2. Prehospital emergency medical services.
3. Hospitals, for which there must be standards for:
    a. Designation, redesignation, and dedesignation of trauma centers.
    b. Evaluation and quality improvement programs for designated trauma centers. The standards require each trauma center to collect quality improvement data and to provide specified portions to the department for use in state and regional trauma quality improvement programs.
    c. Qualifications for trauma center personnel.
4. A trauma registry. Data in the trauma registry are not subject to subpoena or discovery or introduction into evidence in any civil action. Designated trauma centers must participate in the trauma registry. A hospital not designated as a trauma center must provide the registry with a minimum set of data elements for all trauma patients as determined by the State Health Council.
5. A trauma quality improvement program to monitor the performance of the trauma system. The proceedings and records of the program are not subject to subpoena or discovery or introduction into evidence in any civil action arising out of any matter that is the subject of consideration by the program.

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This broad authority is sufficient to allow the state to develop a comprehensive trauma system. However, state law does not require hospitals to participate in the trauma system. There is considerable sentiment that all hospitals in this state should be designed at some level.

Article 33-38 of regulations provides detail on the processes and standards to achieve the Century Code 23-01.2-01 mandates. While sufficient, it was generally agreed by both stakeholders and ACS review team that the regulations are in need of update and revision. Some issues to consider during the update might include:

1. Change all references to "Resources for Optimal Care for the Injured Patient: 1999" to "Resources for Optimal Care for the Injured Patient: Current Edition".
2. Clarify the structure of State Trauma Committee (STC) to include term limits (staggered to ensure continuity and a historical perspective) and a mechanism for member replacement.
3. Expand the composition of the STC to include media and third party payers.
4. Add language pertaining to a state level physician medical director for trauma and EMS (may be separate or combined)
5. Consider formalizing "provisional status" for level IV and Level V facilities.
6. Specify the composition of review teams for level IV and Level V on-site verification.
7. Require review of all transport plans of EMS agencies transporting to each facility (level II to level V) with every verification review cycle.
8. Revise level V designation standards to allow physicians and/or mid-level practitioners (PA/NP) to receive training in trauma resuscitation and stabilization according to generally accepted principles contained in the ACS' Advanced Trauma Life Support Course and to have completed an ACS' Rural Trauma Team Development Course.
9. Mandate trauma system participation at a minimum of level V by all primary care or general acute hospitals as a condition of hospital licensure.

The latter two items were felt by the ACS review team as a way of ensuring participation of all hospitals in the state. Reducing training requirements for personnel serving in the level V facilities was seen as a method to enable all facilities, regardless of size, to be able to meet designation requirements. The State of Wyoming serves as a model for required participation as a condition of hospital licensure.

Chapter 23-27 contains regulations pertaining to the operations of emergency medical services. While largely sufficient, the ACS review team agreed that it may be necessary to revise some portions of this Chapter as well. During the revision, some considerations would include the following:

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1. Add language pertaining to a state level physician medical director for trauma and EMS (may be separate or combined)
2. Require training for local agency medical directors (may be provided on-line)
3. Consider expanding in-hospital use of prehospital personnel to include EMT-Basic participation.

Consideration 3 may allow for sustainability of the most fragile EMS systems. While it may meet with resistance from professional nursing organizations, this strategy allows for maximum flexibility around sustainability, restructuring, and integration of health services as outlined in the *Rural and Frontier EMS Agenda for the Future* and the *Institute of Medicines' Future of Emergency Care in the U.S. Health Care System*.

Chapter 33-11-01.1 provides for optional regulation of Quick Response Units (QRUs). The state does not know how many QRU's are in the state or where they are located. This is a concern from the perspective of resource utilization and patient safety. It was generally agreed by the National Highway Traffic Safety Administration's (NHTSA) Technical Assistance Team, the stakeholders and the ACS review team that this section should be revised to make regulation of QRUs mandatory, rather than optional. The ACS review team felt strongly that all prehospital personnel operating within the North Dakota EMS and trauma systems should operate under medical control.

Several other related chapters of regulations were provided and reviewed, and no major deficiencies were noted in these regulations.

RECOMMENDATIONS

- **Modify level V trauma center criteria to ensure that ALL facilities can legitimately (without waiver or exception) achieve and maintain verification at this level.**
- **Include trauma system participation at a level consistent with their resources and capabilities for all primary care or general acute hospitals as a condition of state licensure.**
- Task a committee comprised of representatives of both the State Trauma Committee and the EMS Advisory Committee to conduct a detailed review of all regulations pertaining to trauma and EMS, to consider the rules changes recommended above, and to identify any additional regulation modifications that might be necessary.
  - Provide appropriate forums to allow for input on the proposed regulatory changes from key stakeholders and formal representatives of membership organizations including, but not limited to, the North Dakota Hospital Association and the North Dakota EMS Association.
  - Complete the process of regulatory change in accordance with North Dakota policy and procedure.

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- Conduct a periodic review of all statutes, rules, and regulations pertaining to trauma/EMS to ensure that they are current.

System Leadership

Purpose and Rationale

In addition to lead agency staff and consultants (for example, trauma system medical director), there are other significant leadership roles essential to developing mature trauma systems. A broad constituency of trauma leaders includes trauma center medical directors and nurse coordinators, prehospital personnel, injury prevention advocates, and others. This broad group of trauma leaders works with the lead agency to inform and educate others about the trauma system, implements trauma prevention programs, and assists in trauma system evaluation and research to ensure that the right patient, right hospital, and right time goals are met. There is a strong role for the trauma system leadership in conveying trauma system messages, building communication pathways, building coalitions, and collaborating with relevant individuals and groups. The marketing communication component of trauma system development and maintenance begins with a consensus-built public information and education plan. The plan should emphasize the need for close collaboration between coalitions and constituency groups and increased public awareness of trauma as a disease. The plan should be part of the ongoing and regular assessment of the trauma system and be updated as frequently as necessary to meet the changing environment of the trauma system.

When there are challenges to providing the optimal care to trauma patients within the system, the leadership needs to effect change to produce the desired results. Broad system improvements require the ability to identify challenges and the resources and authority to make changes to improve system performance. However, system evaluation is a shared responsibility. Although the leadership will have a key role in the acquisition and analysis of system performance data, the multidisciplinary trauma oversight committee will share the responsibility of interpreting those data from a broad systems perspective to help determine the efficiency and effectiveness of the system in meeting its stated performance goals and benchmarks. All stakeholders have the responsibility of identifying opportunities for system improvement and bringing them to the attention of the multidisciplinary committee or the lead agency. Often, subtle changes in system performance are noticed by clinical care providers long before they become apparent through more formal evaluation processes.

Perhaps the biggest challenge facing the lead agency is to synergize the diversity, complexity, and uniqueness of individuals and organizations into a finely tuned system for prevention of injury and for the provision of quality care for injured patients. To meet this challenge, leaders in all phases of trauma care must demonstrate a strong desire to work together to improve care provided to injured victims.

OPTIMAL ELEMENTS

I. Trauma system leaders (lead agency, trauma center personnel, and other stakeholders) use a process to establish, maintain, and constantly evaluate and improve a comprehensive trauma system in cooperation with medical, professional, governmental, and other citizen organizations. **(B-202)**

II. Collected data are used to evaluate system performance and to develop public policy. **(B-205)**

III. Trauma system leaders, including a trauma-specific statewide multidisciplinary, multiagency advisory committee, regularly review system performance reports. **(B-206)**

IV. The lead agency informs and educates state, regional, and local, constituencies and policy makers to foster collaboration and cooperation for system enhancement and injury control. **(B-207)**

CURRENT STATUS

The North Dakota trauma system has a number of strengths that provide leadership for system development and implementation. Statute and regulations provide authority to address the trauma system components. The State Trauma Committee (STC) has good representation from the major trauma centers and professional associations. The STC is fortunate to have a member of the state legislature and EMS service owner as a member. Strong trauma coordinator subcommittees and the four trauma regions are assets that allow the system to address issues within a referral area. This infrastructure enables a focus on the integration of the EMS, hospital, and prevention resources in a systems approach at the community and regional level.

The availability and involvement of trauma center directors is a real asset and provides opportunity for leadership in performance improvement and medical direction of the system. There is strong support of the system by the North Dakota Hospital Association. The North Dakota Trauma Foundation provides an opportunity for public information campaigns that help tell the trauma system story to the public, media, and elected officials. The staff members in the Department of Health and the EMS and trauma programs are also great assets.

The North Dakota Department of Health is responsible to and reports to the State Health Council. The trauma program is located in the Division of EMS in the Department of Health, and the STC is advisory to the Department of Health, Division of Emergency Medical Services (EMS). The Division of EMS created an EMS Advisory Committee to provide input to the state regarding EMS standards and rules. The EMS Advisory Committee meets as needed to provide advice to the Division of EMS, but the committee has not met lately. The Co-Chair of the STC is a member of the EMS Advisory Committee.

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The STC is composed of a core of highly dedicated individuals who have provided the state with long term leadership in initiating the development of the trauma system and advocating for its broad legislative foundation. The historical knowledge and strong commitment to the trauma system provided by these long term advocates is irreplaceable. However, there is no succession plan for creating new, strong leadership for the future. The STC has no "term limits" for membership or appointments and no reappointment timelines are present in rule or in practice. Succession planning could be addressed by developing bylaws or policies for the STC or through rule change.

The state does not have a State Trauma Medical Director or a state EMS Medical Director. The Division of EMS has limited employee positions and funding to support the implementation of the trauma system.

The North Dakota statute provides broad authority to the State Health Council, the lead agency, to adopt a statewide trauma system. All of the major components of a comprehensive trauma system are included in rule: State Trauma Committee, four regional trauma committees, standard definition of trauma patients, authority to develop processes for trauma center designation and revocation, local EMS transport plans, trauma activation protocols, statewide trauma registry, and quality improvement.

Although statute provides broad authority for trauma system development and implementation, the state and STC focus on the designation functions of the trauma system. The STC representatives described the meetings as revolving around level IV and V verification approvals. The STC meets in an annual face-to-face meeting and other teleconference meetings are called as needed to address specific issues, primarily designation reviews. Reasons provided for not holding regularly scheduled meetings (face-to-face or teleconference) included geographic distances and the perception that system analysis and performance improvement cannot move forward without data.

While these are legitimate barriers, a number of actions could be initiated to develop a strong, active STC that provides leadership for system development and improvement. The STC has multiple responsibilities including:
- Monitoring the standard of care of the trauma system
- Addressing system issues
- Providing a forum for development of policy and guidelines, problem solving, and identifying issues
- Reviewing designations of trauma centers
- Monitoring the effectiveness of the trauma system
- Supporting public education and trauma prevention programs
- Overseeing functions of the regional trauma committees

The STC should develop a strong vision and mission, as well as establish goals and objectives for the work of the committee. As a new State Trauma Plan is

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developed, strategies, timelines, and products should be identified for the STC to accomplish for each facet of the trauma system. These activities would then drive the STC meeting agendas. Product-oriented agendas with work for members and technical advisory groups will create excitement and participation by members and interested parties. Some ideas for activities of the STC that do not require additional data sources include the following: treatment guidelines for specific injuries, development of a trauma activation tool or guideline to be used as basis for regional guidelines, development of strong ties with the injury prevention community and other agencies working toward similar prevention and injury control goals in the state.

Trauma advisory committees of many states accomplish these activities through the active work of technical advisory groups that focus on specific elements of the system. Examples of technical advisory groups in other states include trauma medical direction, prehospital care, hospital care, injury prevention, policy development, and emergency preparedness.

Two committees appear to be highly effective and deserve recognition for the work performed in addressing many system development issues:
- The Urban Trauma Coordinator Committee, consisting of the trauma program managers from the level II's and III's
- The Trauma Coordinator Committee, consisting of all trauma program managers in the State.

These committees provide education and resources locally and throughout the state, and annually the Urban Trauma Coordinators along with the Department of Health offer an informational conference with excellent attendance.

The state would benefit by establishing a strong Performance Improvement/ technical advisory group which could focus on the development of trauma treatment guidelines, transfer criteria, and begin to monitor the system through analysis of death records, injury, and EMS data available in the state. This technical advisory group could provide the leadership needed due to the lack of a State EMS and Trauma Medical Director.

Another technical advisory group could consist of the chairs and other key leaders of the regional committees. The regional committees play a key role in implementing the state system at the community and regional level. Although each region is different, the common goal of having a strong state trauma system is shared by all. The regional committees could be tasked with facilitating the integration of EMS and hospital trauma centers, addressing local issues and barriers to system design, and leading performance improvement and injury prevention efforts.

The regional committee structure has great potential to facilitate optimization of EMS protocols, to oversee systems issues, and to help overcome the significant geographical barriers to integration. However, as structured, the regional

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committees are somewhat redundant and meetings are poorly attended in most regions. Reasons provided for not holding regularly scheduled meetings (face-to-face or teleconference) included geographic distances and the perception that system analysis and performance improvement cannot move forward without data.

Since most of the regional committee functions must also be conducted by the level II trauma centers as part of their requirements for ongoing ACS verification, existing resources could be utilized most efficiently by placing regional trauma committee leadership and organizational functions at the level II trauma centers. Other necessary regional business could be conducted in the course of required outreach and process improvement activities.

The State EMS Advisory Committee, which does not meet regularly, could serve as the prehospital advisory committee to the STC.

RECOMMENDATIONS

- Strengthen the State Trauma Committee (STC) enabling it to assume its role as the lead advisory body for the trauma system.
  - o **Establish a mechanism for succession, continuation, and growth**
  - o **Review membership on the committee, consider adding members from the payer community, industry, and the media**
  - o Establish the STC vision, mission, and goals
  - o Develop strategies and timelines for specific activities and products of the STC
  - o **Establish technical advisory groups responsible for specific tasks (e.g., prevention, verification) to move work forward and to broaden the inclusion of stakeholders.**
  - o Establish a regular meeting schedule (face-to-face or teleconference) with meaningful agendas for the STC
- In absence of a state medical director, provide medical direction through a technical advisory group comprised of trauma center directors
- Structure and empower regions to lead implementation of the State Trauma Plan at a regional level

Coalition Building and Community Support

Purpose and Rationale

Coalition building is a continuous process of cultivating and maintaining relationships with constituents (interested citizens) in a state or region who agree to collaborate on injury control and trauma system development. Key constituents include health professionals, trauma center administrators, prehospital care providers, health insurers and payers, data experts, consumers and advocates, policy makers, and media representatives. The coalition of key constituents comprises the trauma system's stakeholders. The involvement of these key constituents is important for the following:

- Trauma system plan development
- Regionalization: promoting collaboration rather than competition between trauma centers
- System integration
- State policy development: authorizing legislation and regulations
- Financing initiatives
- Disaster preparedness

The coalition should be effectively organized through the formation of multidisciplinary state and regional advisory groups to coordinate trauma system planning and implementation efforts. Constituents also communicate with elected officials and policy leaders regarding the development and sustainability of the trauma system. Information and education are needed by constituents to be effective partners in policy development for trauma system planning. Regular communication about the status of the trauma system helps these key partners to recognize needs and progress made with trauma system implementation.

One of the most effective ways to educate elected officials and the public is through an organized public information and education effort that may involve a media campaign about the burden of injury in the state and the need for trauma system development. Information and education are important to reduce the incidence of injury in all age groups and to demonstrate the value of an effective trauma system when a serious injury occurs.

OPTIMAL ELEMENT

I.   The lead agency informs and educates state, regional, and local constituencies and policy makers to foster collaboration and cooperation for system enhancement and injury control. **(B-207)**

CURRENT STATUS

The STC represents the coalition of state trauma stakeholders and has several key constituents as members. The current voting members of the committee represent the following groups:

- ND medical association
- University of North Dakota School of Medicine
- State chapter of American College of Emergency Physicians
- State chapter of American College of Surgeons Committee on Trauma
- State chapter of the Emergency Nurses Association
- North Dakota Nurses Association
- ND EMS Association-ALS
- ND EMS Association-BLS
- Indian Health Services
- ND Health Care Association
- NW Regional Trauma Committee
- SE Regional Trauma Committee
- NE Regional Trauma Committee
- SW Regional Trauma Committee
- ND Trauma Coordinator Committee
- Accredited Rehab Facilities

In addition, the STC has voting members from other key groups on an ad hoc basis, including the following:

- American Academy of Pediatrics
- Emergency Preparedness and Response
- Member of the State Legislature
- Consumer

Other interested members are also invited to attend the STC meetings. These members do not have voting privileges. A rule change is required to convert these members for full committee voting status. In addition, the STC does not have representation from key groups or individuals such as the health plan payers, the media, and industry.

Since the state trauma committee was formed in the late 1990's, representation has been statewide and very dedicated. Little turnover of the committee membership has occurred. The committee meets at least quarterly via telephone, and only once a year face-to-face.

In the early phases of trauma system development, the coalition was active in promoting the trauma system's development. Leadership in level II trauma centers then became very engaged and formed the North Dakota Trauma Foundation. The initial intent of the foundation was to support the salary for a state trauma manager, but funds now support trauma education and other needs such as ambulance and hospital equipment in the rural areas.

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Most recently, the trauma coalition has been instrumental in advocating for resources to improve the trauma system during state legislative sessions, developing guidelines for trauma facilities, and promoting trauma system development within the regions.

The injury prevention coalition has been active for many years, but has recently established new goals and a subcommittee to work on specific issues (i.e. primary seatbelt law, ATV injuries). It is comprised of trauma centers and members in the 8 regional Safe Communities organizations. These groups are active in promoting the dissemination of injury prevention programs. A major focus of the coalition is to obtain primary seatbelt legislation.

One missed opportunity seems to be broad utilization of the media for statewide campaigns addressing the burden of injury in the state to raise awareness of the trauma system.

RECOMMENDATIONS

- **Review the membership of the State Trauma Committee (STC) and consider partnering with other community leaders representing the media, health plans, payers, and industry who can further advocate for injury prevention and control and on-going trauma system development.**
- **Expand opportunities for stakeholders to participate in trauma system development by creating technical advisory groups that function under the direction of the STC.**
- Obtain a rule change to convert interested members to voting members.

Lead Agency and Human Resources Within the Lead Agency

Purpose and Rationale

Each trauma system (state, regional, local, as defined in state statute) should have a lead agency with a strong program manager who is responsible for leading the trauma system. The lead agency, usually a government agency, should have the authority, responsibility, and resources to lead the planning, development, operations, and evaluation of the trauma system throughout the continuum of care. The lead agency, empowered through legislation, ensures system integrity and provides for program integration with other health care and community-based entities, namely, public health, EMS, disaster preparedness, emergency management, law enforcement, social services, and other community-based organizations.

The lead agency works through a variety of groups to accomplish the goals of trauma system planning, implementation, and evaluation. The ability to bring multidisciplinary, multiagency advisory groups together to accomplish trauma system goals is essential in developing and maintaining the trauma system and is part of providing leadership to evolving and mature systems.

The lead agency's trauma system program manager coordinates trauma system design, the adoption of minimum standards (prehospital and in-hospital), and provides for overall system evaluation through performance indicator assessment and assurance. In addition to a trauma program manager, the lead agency must be sufficiently staffed to actively participate in each phase of development and in maintaining the system through a clearly defined structure for decision making (policies and procedures) and through proactive surveillance and evaluation. *Minimum* staffing usually consists of a trauma system program manager, data entry and analysis personnel, and monitoring and compliance personnel. Additional staff resources include administrative support and a part-time commitment from the public health epidemiology service to provide system evaluation and research support.

Within the leadership and governance structure of the trauma system, there is a role for strong physician leadership. This role is usually fulfilled by a full- or part-time trauma medical director within the lead agency.

OPTIMAL ELEMENTS

I. Comprehensive state statutory authority and administrative rules support trauma system leaders and maintain trauma system infrastructure, planning, oversight, and future development. **(B-201)**

a. The legislative authority (statutes and regulations) plans, develops, implements, manages, and evaluates the trauma system and its component parts, including the identification of the lead agency and the designation of trauma facilities. **(I-201.1)**

b. The lead agency has adopted clearly defined trauma system standards (for example, facility standards, triage and transfer guidelines, and data collection standards) and has sufficient legal authority to ensure and enforce compliance.　　　**(I-201.4)**.

II. Sufficient resources, including financial and infrastructure-related, support system planning, implementation, and maintenance. **(B-204)**

CURRENT STATUS

The state has statutory authority to develop and manage a trauma system. Rules in support of this statute provide authority for the Department of Health through the State Health Council to implement, manage, and regulate the Trauma and EMS system, making the Department of Health the lead agency for trauma. A few issues in the statutory authority and rules for both EMS and Trauma need attention in order to assure the availability of a system of emergency trauma services statewide. See the Statutory Authority section for more information.

The Trauma program resides in the Division of EMS, Health Resources Section within the Department of Health. The Health Resources Section chief reports directly to the State Health Officer who receives direction from the State Health Council. The Health Resources Section responsibilities include the regulation and enforcement of standards for health care services and facilities.

This organization of the Department of Health places the Division of EMS and especially the Health Resources Section at a high enough level to communicate with the policy makers of the organization. The Section Chief has put forward an "optional budget package" requesting additional funding to provide administrative support to the trauma program. This request is moving through the agency review process to determine what the Department of Health will request in funding from the governor's office. The Section Chief indicated that it is her hope to use the ACS trauma consultation recommendations and the NHTSA EMS technical assessment recommendations to identify future legislative and funding initiatives that might be addressed in the next legislative session. It is anticipated that the trauma and EMS stakeholders will propose legislative changes and work with legislators to draft bills.

The Division of EMS has related emergency services functions such as the regulation of the EMS agencies, including licensure of ambulances and Quick Response Units (QRUs). The Division of EMS has staff for EMS licensing and training, as well as the EMSC program.

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Historically, the trauma program has been underappreciated in the state, operating solely on HRSA grant funds until those funds were no longer available. The Division of EMS has two permanent staff working on trauma system issues. The State Trauma Manager position is funded by state general funds and should be very stable. A permanent research analyst position is funded by federal Department of Transportation (DOT) Section 408 funds to support the EMS registry and trauma registry. This position is dependent upon the availability of grant funds, which should be safe for about 3 years. The Department of Health Office of Human Resources advocated for this research position to be permanent because of multi-year grant funding and to attract highly qualified applicants.

Due to variability in funding sources and salaries that are not competitive with outside employers, considerable turnover has occurred for the state trauma manager position. The current trauma manager, Amy Eberle, has been with the Division of EMS for about two years and is providing consistent leadership in system development for the state. The research analyst is a recent position addition, and this individual is viewed as a great asset to the trauma program.

The increased work associated with the next stages of trauma system development will necessitate additional personnel for system management. For example, the proposed technical advisory groups will require someone to coordinate the groups, facilitate communication, and search for needed resources. Additionally the state PI program is likely to become a significant responsibility of the state trauma manager. The state trauma manager, supported by an associate trauma manager and administrative assistant will enable the trauma system to meet current obligations and continue to develop.

RECOMMENDATIONS

- The Department of Health, the Division of EMS, and the State Trauma Committee should evaluate the recommendations contained in this report and the NHTSA recommendations, to identify focus areas for attention and develop a funding and staffing plan.
- **Acquire personnel and additional funding for the State office to support the current staff needs to implement the North Dakota trauma system.**
    - o **Add an Associate Trauma Manager (1.0 FT)**
    - o **Provide administrative support for the State Trauma Manager and staff (0.5 FTE)**
    - o Establish a trauma unit with the Division of EMS
    - o Obtain funding to improve the trauma registry
    - o Fund an epidemiologist consultant
- Identify a State EMS Medical Director. This position may be funded or voluntary.

- Consider renaming the Division of EMS to incorporate trauma into the division title. For example, it could be named the Division of EMS and Trauma. This branding change could elevate the perception of the role of trauma in the state health department.

- Create strong ties with the injury prevention program within the Department of Health and support each other's programs within the state system of resource allocation.

- Create stronger ties with Center for Rural Health to support research and data analysis in addition to the current use of Flex Grants for hospital training.

- Work more closely with the University of North Dakota/North Dakota State University to maximize data analysis efforts as well as training opportunities. For example, utilize the UND mobile simulation center to take training out to the providers across the state.

Trauma System Plan

Purpose and Rationale

Each trauma system, as defined in statute, should have a clearly articulated trauma system planning process resulting in a written trauma system plan. The plan should be built on a completed inventory of trauma system resources identifying gaps in services or resources and the location of assets. It should also include an assessment of population demographics, topography, or other access enhancements (location of hospital and prehospital resources) or barriers to access. It is important that the plan identify special populations (for example, pediatric, elderly, in need of burn care, ethnic groups, rural) within the geographic area served and address the needs of those populations within the planning process. A needs assessment (or other method of identifying injury patterns, patient care review/preventable death study) should also be completed for initial trauma system planning and updated periodically as needed to assess system changes over time.

The trauma system plan is developed by the lead trauma agency based on the results of a needs assessment and other data resources available for review. It describes the system design, integrated and inclusive, with adopted standards of care for prehospital and hospital personnel and a process to regularly review the plan over time. The plan is built on input from trauma advisory committees (or stakeholder groups) that assist in analyzing data, identifying resources, and developing system standards of care, including system policies and procedures and overall system design. Ideally, although every stakeholder group may not be satisfied with the plan or system design, the plan, to the extent possible, should be based on consensus of the advisory committees and stakeholder groups. These advisory groups should be able to review the plan before final adoption and approve the plan before it is submitted to the lead agency with authority for plan approval.

The trauma system plan is used to guide system development, implementation, and management. Each component of the trauma system (for example, prehospital, hospital, communications, and transportation) is clearly defined and an established service level identified (baseline) with goals for enhancement (benchmark). Within the plan are incorporated other planning documents used to ensure integration of similar services and build collaboration and cooperation with those services. Service plans for emergency preparedness, EMS, injury prevention and control, public health, social services, and mental health are examples of services for which the trauma system plan should include an interface between agencies and services.

OPTIMAL ELEMENT

I. The state lead agency has a comprehensive written trauma system plan based on national guidelines. The plan integrates the trauma system with EMS, public health, emergency preparedness, and incident management. The written trauma system plan is developed in collaboration with community partners and stakeholders. **(B-203)**

    a. The trauma system plan clearly describes the system design (including the components necessary to have an integrated and inclusive trauma system) and is used to guide system implementation and management. For example, the plan includes references to regulatory standards and documents and includes methods of data collection and analysis. **(I-203.4)**

CURRENT STATUS

Development of the present trauma plan was undertaken after the state received grant funding under the 1992 Trauma Care Systems Act. The STC was appointed by the State Health Council, with members chosen to represent a broad spectrum of stakeholders. The present trauma plan was published in September of 1993, after public review. The 1993 plan is consistent with national standards of the time, envisioning an inclusive trauma system, and containing plans for integration of all necessary elements. It is noteworthy that the trauma plan was developed at a time when there was no functional statewide system, and as such represented a synthesis of existing standards and opinions, based generally on the 1992 *Model Trauma Care System Plan* published by the Health Resources and Services Administration (HRSA). The state's subsequent enabling legislation and trauma system rules were derived from the trauma plan.

The 1993 plan appears to be a static rather than a dynamic document. Triage and treatment protocols were consistent with standards of the time, but have not been updated. A comprehensive assessment of state assets, both EMS and hospital-based was conducted, but this has not been updated. The role of disaster preparedness has increased dramatically since 1993, and specific provisions for integration with state and local disaster planning are not included in the existing trauma plan. The plan also lacks specific provisions for integration with injury prevention agencies, public health, and rural health agencies, which were also far less developed at the time.

The plan does not contain provisions for periodic review and revision, and no apparent changes or amendments have been made to the plan itself since it was originally authored. The plan contains no provision for periodic review of the trauma system's operational policy, trauma system regulations, and updates to system rules. Operational guidelines and clinical protocols have been disseminated by the STC, but these are not reflected in the trauma plan.

Overall, the 1993 trauma plan contains the necessary provisions to establish and maintain a comprehensive trauma system; however, update and revision are needed to enable the plan to meet current standards and to provide a more

broad-based public health approach. Provisions for integration with the disaster planning infrastructure, injury prevention, rural health infrastructure, and other public health infrastructure should be specifically included. In addition, provisions should be made for routine review and revision of the plan itself. The injury assessment and the inventory of EMS and hospital-based resources should be updated, and then a timeline for regular plan updates should be identified.

Some provisions in the trauma plan, such as the function of the regional committees and the required transport plans for EMS agencies describe sound structural components that have not been fully actualized in system operations.

RECOMMENDATIONS

- **Update and modify the State Trauma Plan bringing it up to current standards**
  - o **Ensure appropriate integration with disaster preparedness agencies, rural health programs, injury prevention and control, and public health programs**
  - o **Establish a process for the Trauma System Plan's routine periodic review and update**
  - o **Use the State Trauma Plan to drive the process for Rules revision**
  - o Update the triage protocol and level I, II, and III trauma center requirements to reflect current standards
  - o Update or modify level IV and V requirements consistent with evolving trauma system requirements and changing provider demographics
  - o **Modify regional committee structure to rely primarily on the regional level II trauma centers for leadership and organization, with support from the state**
  - o Enhance requirements for EMS agencies and referring hospitals to complete transportation plans and keep them current.

System Integration

Purpose and Rationale

Trauma system integration is essential for the daily care of injured people and includes such services as mental health, social services, child protective services, and public safety. The trauma system should use the public health approach to injury prevention to contribute to reducing the entire burden of injury in a state or region. This approach enables the trauma system to address primary, secondary, and tertiary injury prevention through closer integration with community health programs and mobilizing community partnerships. The partnerships also include mental health, social services, child protection, and public safety services. Collaboration with the public health community also provides access to health data that can be used for system assessment, development of public policy, and informing and educating the community.

Integration with EMS is essential because this system is linked with the emergency response and communication infrastructure and transports severely injured patients to trauma centers. Triage protocols should exist for treatment and patient delivery decisions. Regulations and procedures should exist for online and off-line medical direction. In the event of a disaster affecting local trauma centers, EMS would have a major role in evacuating patients from trauma centers to safety or to other facilities or to make beds available for patients in greater need.

The trauma system is a significant state and regional resource for the response to mass casualty incidents (MCIs). The trauma system and its trauma centers are essential for the rapid mobilization of resources during MCIs. Preplanning and integration of the trauma system with related systems (public health, EMS, and emergency preparedness) are critical for rapid mobilization when a disaster or MCI occurs. The extensive impact of disasters and MCIs on the functioning of trauma centers and the EMS and public health systems within the affected region or state must be considered, and joint planning for optimal use of all resources must occur to enable a coordinated response to an MCI. Trauma system leaders need to be actively involved in emergency management planning to ensure that trauma centers are integrated into the local, regional, and state disaster response plans.

OPTIMAL ELEMENTS

I. The state lead agency has a comprehensive written trauma system plan based on national guidelines. The plan integrates the trauma system with EMS, public health, emergency preparedness, and incident management. The written trauma system plan is developed in collaboration with community partners and stakeholders. **(B-203)**

a. The trauma system plan has established clearly defined methods of integrating the trauma system plan with the EMS, emergency, and public health preparedness plans. **(I-203.7)**

II. The trauma, public health, and emergency preparedness systems are closely linked. **(B-208)**

CURRENT STATUS

Consistent with the time frame of its planning, the current system retains many of the of the characteristics of the 1992 *HRSA Model Trauma System Plan*, which itself was in transition between the trauma center-based exclusive model of the 1980's and the current public health inclusive model approach. As such, the plan has very good integration with EMS, but limited provisions for integration with many of the public health-based initiatives, including disaster preparedness, rural health (particularly applicable in North Dakota), and injury and violence prevention.

The trauma system infrastructure is located within the Division of EMS, and EMS administration and providers are well represented on the STC and the regional committee structure. In addition, there are well developed relationships between system hospitals and the EMS system. These relationships seem to function well, and though confirmatory data is limited, the coordination of patient identification and transport to an appropriate facility appear to be good, in both urban and rural areas.

The North Dakota Office of Rural Health (NDORH) is housed within the nationally renowned Center for Rural Health at the University of North Dakota. The NDORH, through the Rural Hospital Flexibility Grant Program made resources available to support the 7 Critical Access Hospitals (CAH) who have not yet achieved verification status to accomplish that task. Many other activities such as the support of on-line training for local EMS medical directors and for trauma system plan updates could also be funded through this resource. Importantly, NDORH could assist with establishing trauma performance indicators for the CAH that could become institutionalized as part of the ongoing assessment of the CAH program.

Integration with the injury and violence prevention coalition is minimal, with the state trauma manager serving on the injury prevention coalition and the injury prevention program director attending the STC meetings as an interested non-voting member. There is no apparent shared vision or leadership. The same impression was gained regarding the trauma system's integration with the disaster preparedness infrastructure. There does not appear to be a necessary level of trauma system involvement, and trauma system resources are underutilized. Enhancement of a broad-based public health approach to the trauma system has the potential to bring significant additional resources to the program, as injury prevention and disaster preparedness activities are occurring

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within the North Dakota health system. Formal system integration with rehabilitation facilities is minimal, but improving, since the current physiatrist was appointed a voting member of the STC.

The focus of system level integration should be to construct a seamless flow of patient and information, beginning with injury prevention and control measures on an outpatient basis, through rescue and transportation by EMS, through the acute care phase of hospitalization, through rehabilitation, until final re-integration into the community.

RECOMMENDATIONS

- Develop a process for integration with the disaster preparedness infrastructure, including reciprocal committee membership and mutual plan development
- Develop a process for integration with the injury/violence prevention coalition and develop a shared vision and plan
- Develop a process for integration with Rural Health/Critical Access Hospital programs, to optimize resource sharing, particularly around staffing, data collection, and quality assurance
- Develop a process for integration with other public health and safety services including mental health, social services, DOT, Fire and Law Enforcement to facilitate resource sharing.

Financing

Purpose and Rationale

Trauma systems need sufficient funding to plan, implement, and evaluate a statewide or regional system of care. All components of the trauma system need funding, including prehospital, acute care facilities, rehabilitation, and prevention programs. Lead agency trauma system management requires adequate funding for daily operations and other important activities such as advisory committee meetings, development of regulations, data collection, performance improvement, and public awareness and education. Adequate funding to support the operation of trauma centers and their state of readiness to care for seriously injured patients within the state or region is essential. The financial health of the trauma system is essential for ensuring its integrity and its improvement over time.

The trauma system lead agency needs a process for assessing its own financial health, as well as that of the trauma system. A trauma system budget should be prepared, and costs should be reported by each component, if possible. Routine collection of financial data from all participating health care facilities is encouraged to fully identify the costs and revenues of the trauma system, including costs and revenues pertaining to patient care, administrative, and trauma center operations. When possible, the lead agency financial planning should integrate with the budgets and costs of the EMS system and disaster, rehabilitation, and prevention programs to enable development of a comprehensive financial health report.

Trauma system financial planning should be related to the trauma plan outcome measures (for example, patient outcome measures such as mortality rates, length of stay, and quality-of-life indicators). Such information may demonstrate the value added by having a trauma system in place.

OPTIMAL ELEMENTS

I. Sufficient resources, including financial and infrastructure-related, support system planning, implementation, and maintenance. **(B-204)**

   a. Financial resources exist that support the planning, implementation, and ongoing management of the administrative and clinical care components of the trauma system. **(I 204.2)**

   b. Designated funding for trauma system infrastructure support (lead agency) is legislatively appropriated. **(I-204.3)**

   c. Operational budgets (system administration and operations, facilities administration and operations, and EMS administration and operations) are aligned with the trauma system plan and priorities. **(I-204.4)**

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II. The financial aspects of the trauma systems are integrated into the overall performance improvement system to ensure ongoing fine tuning and cost-effectiveness. **(B-309)**

    a. Collection and reimbursement data are submitted by each agency or institution on at least an annual basis. Common definitions exist for collection and reimbursement data and are submitted by each agency. **(I-309.2)**

CURRENT STATUS

Financial Resources
North Dakota enjoys two financial strengths that many state trauma systems do not have.
- The economic boom with recent development of oil fields in the state has resulted in a general fund surplus of $700 million that is expected to grow over the next year.
- Costs of trauma care in North Dakota are adequately reimbursed due to patient and payer mix.

Despite these strengths, the state has very limited funding to support the development and implementation of its trauma system. Division of EMS state-appropriated general funds are allocated to support the state trauma manager salary and benefits and an additional $30,000 to support travel, meetings, communications, office supplies and printing, mailing and duplication services. The $9,000 of the $17,000 required yearly support for the state trauma registry also comes out of this allocation. The Division of EMS budget covers office space and phone service.

Additional funds have been acquired from a federal DOT Section 402 grant for Advanced Trauma Life Support (ATLS) and Trauma Nurse Core Curriculum (TNCC) training reimbursement and for the Research Analyst position that supports both the EMS and Trauma registries.

The North Dakota Office of Rural Health will provide $27,000 in FY 08, $27,000 in FY 09, and $9,000 in FY 10 to support CAH attainment of level IV or level V trauma center status.

State salaries are low through the state compensation program, and this creates a problem with recruitment and retention. This is a common issue among many government agencies. The state reports that it often serves as a training ground for employees in many fields of expertise. After gaining experience in state service, these employees become marketable outside of state government, and they often leave for better paying positions on the outside. The state has experienced a challenge with retention in the trauma manager position, having had several changes in personnel over the past 5 -6 years. It was reported that a

salary adjustment for the trauma manager may be possible if the position were upgraded to include supervisory responsibilities.

Currently no state funding is available for either an EMS Medical Director or Trauma Medical Director. State funding to support EMS and trauma system medical direction is desirable.

The state does not charge fees for the designation of trauma centers or for level IV and V designation site visits. Level II and III trauma centers are verified by the ACS after which the state designates them as trauma centers at these levels. The level II trauma centers provide team members for the level IV and V verification site visits free of charge. This is a great contribution to the state trauma system by the level II trauma centers involved in the state system.

The state does charge a fee for ambulance service licensure. These funds go directly into the state general fund rather than back to the Division of EMS to support its programs. Charging a fee for trauma center designation would likely also go directly to the state general fund and not help support the program. It was additionally reported by the participants that charging a fee would be an impediment to implementing the state's inclusive trauma system.

Financial Data
The trauma registry includes a mechanism to collect financial data about trauma patients, but collection of these data has not been enforced. The trauma centers reported that it takes at least six months for actual payer information to become available on many patients.

Representatives from urban hospitals reported that payer mix is about 75% Medicare and about 25% Blue Cross Blue Shield. Representatives from rural hospitals report a mix of about 60% Medicare, 25% Blue Cross Blue Shield, with the remainder Medicaid and self-pay. North Dakota was reported to be among the lowest reimbursed states for Medicare. The hospital industry, especially in rural North Dakota is fragile due to payer mix.

Blue Cross and Blue Shield have instituted trauma activation fees payable only when a trauma activation is called by EMS in the field. The reimbursement is reported to be low. EMS providers need to be educated to identify a trauma patient appropriate for trauma activation and then call the code from the field. The advance call enables the hospital to activate the trauma team before arrival, assuring quicker acute care for the patient, and to bill for the activation fee.

North Dakota also has mandatory no-fault auto insurance. This is a primary payer of trauma care for motor vehicle crash patients. Since the trauma patient mix in North Dakota is primarily blunt injury due to motor vehicle crash, this is an important funding source for trauma care in the state.

The state reports no financial disincentives for hospital participation in the trauma system. The bigger challenges are maintaining and retaining educated personnel. This requires a change in mechanisms for delivery of education programs with appropriate funding to support such programs.

RECOMMENDATIONS
- **Acquire dedicated funding for additional positions needed to manage the trauma program**
  - **Associate trauma manager (1.0 FTE)**
  - **Administrative support (0.5 FTE)**
- **Acquire dedicated funding for an EMS Medical Director**
- **Acquire one time funding for**
  - An epidemiology consultant to provide leadership and direction for designing PI, identifying and mining existing data sets
  - **Fixing the state trauma registry**
- Create a Trauma Unit within the Division of EMS that has staff supervision responsibilities for the State Trauma Manager to manage the elements of the trauma system. This would also have the advantage of potentially increasing the compensation rating for this position.
- Develop mechanisms for the collection of trauma payer data

Trauma System Assurance

Prevention and Outreach

Purpose and Rationale

Trauma systems must develop prevention strategies that help control injury as part of an integrated, coordinated, and inclusive trauma system. The lead agency and providers throughout the system should be working with business organizations, community groups, and the public to enact prevention programs and prevention strategies that are based on epidemiologic data gleaned from the system.

Efforts at prevention must be targeted for the intended audience, well defined, and structured, so that the impact of prevention efforts is systemwide. The implementation of injury control and prevention requires the same priority as other aspects of the trauma system, including adequate staffing, partnering with the community, and taking advantage of outreach opportunities. Many systems focus information, education, and prevention efforts directly to the general public (for example, restraint use, driving while intoxicated). However, a portion of these efforts should be directed toward emergency medical services (EMS) and trauma care personnel safety (for example, securing the scene, infection control). Collaboration with public service agencies, such as the department of health is essential to successful prevention program implementation. Such partnerships can serve to synergize and increase the efficiency of individual efforts. Alliances with multiple agencies within the system, hospitals, and professional associations, working toward the formation of an injury control network, are beneficial.

Activities that are essential to the development and implementation of injury control and prevention programs include the following:

• A needs assessment focusing on the public information needed for media relations, public officials, general public, and third-party payers, thus ensuring a better understanding of injury control and prevention
• A needs assessment for the general medical community, including physicians, nurses, prehospital care providers, and others concerning trauma system and injury control information
• Preparation of annual reports on the status of injury prevention and trauma care in the system
• Trauma system databases that are available and usable for routine public health surveillance

OPTIMAL ELEMENTS

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I. The lead agency informs and educates state, regional, and local constituencies and policy makers to foster collaboration and cooperation for system enhancement and injury control. **(B-207)**

    a. The trauma system leaders (lead agency, advisory committees, and others) inform and educate constituencies and policy makers through community development activities, targeted media messaging, and active collaborations aimed at injury prevention and trauma system development. **(I-207.2)**

II. The jurisdictional lead agency, in cooperation with other agencies and organizations, uses analytic tools to monitor the performance of population based prevention and trauma care services. **(B-304)**

    a. The lead agency, along with partner organizations, prepares annual reports on the status of injury prevention and trauma care in state, regional, or local areas. **(I-304.1)**

III. The lead agency ensures that the trauma system demonstrates prevention and medical outreach activities within its defined service area. **(B-306)**

    a. The trauma system is active within its jurisdiction in the evaluation of community based activities and injury prevention and response programs. **(I-306.2)**

    b. The effect or impact of outreach programs (medical and community training and support and prevention activities) is evaluated as part of a system performance improvement process. **(I-306.3)**

CURRENT STATUS

North Dakota developed an Injury Prevention Plan in 2005 that contains 5 major priorities: motor vehicle crashes, suicide, falls, poisonings, and domestic violence/sexual assault. The plan was published in 2006 and is available on the Department of Health website. Many participants were not aware that the Injury Prevention Plan existed. An Injury Prevention Coalition is now forming subcommittees to address more specific issues and to begin the development of an implementation strategy to accompany the Injury Prevention Plan.

North Dakota has numerous injury prevention challenges, some of which contribute to the large number of motor vehicle deaths, including:
- No motorcycle helmet law
- Seat belt law with secondary enforcement only
- 2nd highest DUI rate in the U.S.
- ATV's allowed to operate on the highway

The injury prevention program director dedicates 60% of her time to injury prevention and control activities. Her focus is associated with specific grant funding and targeted to the maternal and child population. Numerous

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publications are available on the Department of Health website addressing injury issues for children, child passenger safety, graduated driver's licensing, and suicide prevention. Numerous print publications addressing sexual assault and domestic violence were provided for review. Publications addressing key priority areas such as falls were not located on the website or among print publications provided.

The trauma system and the injury prevention program are not well integrated. The state trauma manager serves on the injury prevention coalition, and the injury prevention program director serves on the STC as an interested non-voting member. The STC and trauma system have not previously addressed injury prevention issues as part of their activities. Information exchange is beginning, but partnership in addressing injury issues has not yet occurred.

As described in the Injury Epidemiology section, a comprehensive injury assessment has not been performed. Similarly, no coordinated statewide approach to injury prevention interventions has occurred, particularly in relationship to several of the priorities outlined in the Injury Prevention Plan. Grants have been obtained to address key injury issues such as suicide in youth, as well as domestic violence and sexual assault. Three Garrett Lee Smith grants for youth suicide prevention have been funded in the state. Some coordination between and among these projects was noted.

News releases from the Department of Health are occasionally used to promote awareness of key injury prevention events or important safety concerns.

One well coordinated injury prevention activity is the injury prevention coalition's ongoing effort to obtain a primary seatbelt law. The stakeholders have mobilized for several legislative sessions, and they were successful in getting the bill reported out of committee in the most recent legislative session. The stakeholders plan to mobilize and make another effort in the next legislative session.

The Safe Communities infrastructure is the mechanism used to implement injury prevention programs. Safe Communities organizations are located in the 8 public health regions (Bismarck, Minot, Fargo, Grand Forks, Williston, Devils Lake, Dickinson, and Jamestown). Trauma centers share local data from their registries to help identify key injury issues to target. Partners identify injury prevention programs that have been developed for implementation in their region or local communities. Child Passenger Safety technicians are widely available across the state. Alcohol screening is provided in some communities. The level II trauma centers have addressed injury prevention as required for ACS verification, and they attempt to target populations and issues identified from data in their trauma registries.

Injury prevention programs selected by trauma centers and other stakeholders are based on models or resources found that can be easily implemented, (e.g. child passenger safety, Emergency Nurses Association fall program, and Safe Kids programs), but in most cases the programs are not data-driven. No mention was made of attempts to use national injury control resources (e.g. CDC funded injury control research centers, Children's Safety Network) for identification of additional effective injury programs. A resource collection of effective injury prevention programs would be a helpful resource when trauma centers and other groups are selecting intervention programs. Evaluation of program effectiveness is not performed.

RECOMMENDATIONS

- Develop an implementation guide for the Injury Prevention Plan that clarifies the role of trauma centers and other stakeholders as partners in the implementation process.
- **In preparation for seeking a CDC injury capacity-building grant, strengthen the relationship between the trauma system program and the injury prevention program, promoting a partnership that permits the injury prevention program to serve as the prevention arm of the trauma system.**
- Develop a resource collection of evaluated and effective injury prevention programs for use by stakeholders.

Emergency Medical Services

Purpose and Rationale

The trauma system includes, and/or interacts with, many different agencies, institutions, and systems. The EMS system is one of the most important of these relationships. EMS is often the critical link between the injury-producing event and definitive care at a trauma center. Even though at its inception the EMS system was a very broad system concept, over time, EMS has come to be recognized as the prehospital care component of the larger emergency health care system. It is a complex system that not only transports patients, but also includes public access, communications, personnel, triage, data collection, and quality improvement activities.

The EMS system medical director must have statutory authority to develop protocols, oversee practice, and establish a means of ongoing quality assessment to ensure the optimal provision of prehospital care. If not the same individual, the EMS system medical director must work closely with the trauma system medical director to ensure that protocols and goals are mutually aligned. The EMS system medical director must also have ongoing interaction with EMS agency medical directors at local levels, as well as the state EMS for Children program, to ensure that there is understanding of and compliance with trauma triage and destination protocols.

Ideally, a system should have some means of ensuring whether resources meet the needs of the population. To achieve this end, a resource and needs assessment evaluating the availability and geographic distribution of EMS personnel and physical resources is important to ensure a rapid and appropriate response. This assessment includes a detailed description of the distribution of ground ambulance and aeromedical locations across the region. Resource allocations must be assessed on a periodic basis as needs dictate a redistribution of resources. In communities with full-time paid EMS agencies, ambulances should be positioned according to predictable geographic or temporal demands to optimize response efficiencies. Such positioning schemes require strong prehospital data collection systems that can track the location of occurrences over time. Periodic assessment of dispatch and transport times will also provide insight into whether resources are consistent with needs. Each region should have objective criteria dictating the level of response (advanced life support [ALS], basic life support [BLS]), the mode of transport, and the disposition of the patient based on the location of the incident and the severity of injury. A mechanism for case-based review of trauma patients that involves prehospital and hospital providers allows bidirectional information sharing and continuing education, ensuring that expectations are met at both ends. Ongoing review of triage and treatment decisions allows for continuing quality improvement of the triage and prehospital care protocols. A more detailed

discussion of in-field (primary) triage criteria is provided in the section titled: System Coordination and Patient Flow.

Human Resources

Periodic workforce assessments of EMS should be conducted to ensure adequate numbers and distribution of personnel. EMS, not unlike other health care professions, experiences shortages and maldistribution of personnel. Some means of addressing recruitment, retention, and engagement of qualified personnel should be a priority. It is critical that trauma system leaders work to ensure that prehospital care providers at all levels attain and maintain competence in trauma care. Maintenance of competence should be ensured by requiring standards for credentialing and certification and specifying continuing educational requirements for all prehospital personnel involved in trauma care. The core curricula for First Responder, Emergency Medical Technician (EMT) Basic, EMT-Intermediate, EMT Paramedic, and other levels of prehospital personnel have an essential orientation to trauma care for all ages. However, trauma care knowledge and skills need to be continuously updated, refined, and expanded through targeted trauma care training such as Prehospital Trauma Life Support®, Basic Trauma Life Support®, and age-specific courses. Mechanisms for the periodic assessment of competence, educational needs, and education availability within the system should be incorporated into the trauma system plan.

Systems of excellence also encourage EMS providers to go beyond meeting state standards for agency licensure and to seek national accreditation. National accreditation standards exist for ground-based and air medical agencies, as well as for EMS educational programs. In some states, agency licensure requirements are waived or substantially simplified if the EMS agency maintains national accreditation.

EMS is the only component of the emergency health care and trauma system that depends on a large cadre of volunteers. In some states, substantially more than half of all EMS agencies are staffed by volunteers. These agencies typically serve rural areas and are essential to the provision of immediate care to trauma patients, in addition to provision of efficient transportation to the appropriate facility. In some smaller facilities, EMS personnel also become part of the emergency resuscitation team, augmenting hospital personnel. The trauma care system program should reach out to these volunteer agencies to help them achieve their vital role in the outcome of care of trauma patients. However, it must be noted that there is a delicate balance between expecting quality performance in these agencies and placing unrealistic demands on their response capacity. In many cases, it is better to ensure that there is an optimal BLS response available at all times rather than a sporadic or less timely response involving ALS personnel. Support to volunteer EMS systems may be in the form of quality improvement activities, training, clinical opportunities, and support to the system medical director.

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Owing to the multidisciplinary nature of trauma system response to injury, conferences that include all levels of providers (for example, prehospital personnel, nurses, and physicians) need to occur regularly with each level of personnel respected for its role in the care and outcome of trauma patients. Communication with and respect for prehospital providers is particularly important, especially in rural areas where exposure to major trauma patients might be relatively rare.

Integration of EMS Within the Trauma System
In addition to its critical role in the prehospital treatment and transportation of injured patients, EMS must also be engaged in assessment and integration functions that include the trauma system and also public health and other public safety agencies. EMS agencies should have a critical role in ensuring that communication systems are available and have sufficient redundancy so that trauma system stakeholders will be able to assess and act to limit death and disability at the single patient level and at the population level in the case of mass casualty incidents (MCIs). Enhanced 911 services and a central communication system for the EMS/trauma system to ensure field-to-facility bidirectional communications, interfacility dialogue, and all-hazards response communications among all system participants are important for integrating a system's response. Wireless communications capabilities, including automatic crash notification, hold great promise for quickly identifying trauma-producing events, thereby reducing delays in discovery and decreasing prehospital response intervals.

Further integration might be accomplished through the use of EMS data to help define high-risk geographic and demographic characteristics of injuries within a response area. EMS should assist with the identification of injury prevention program needs and in the delivery of prevention messages. EMS also serves a critical role in the development of all-hazards response plans and in the implementation of those plans during a crisis. This integration should be provided by the state and regional trauma plan and overseen by the lead agency. EMS should participate through its leadership in all aspects of trauma system design, evaluation, and operation, including policy development, public education, and strategic planning.

OPTIMAL ELEMENTS

I. The trauma system is supported by an EMS system that includes communications, medical oversight, prehospital triage, and transportation; the trauma system, EMS system, and public health agency are well integrated. **(B-302)**

    a. There is well-defined trauma system medical oversight integrating the specialty needs of the trauma system with the medical oversight for the overall EMS system. **(I-302.1)**

    b. There is a clearly defined, cooperative, and ongoing relationship between the trauma specialty physician leaders (for example, trauma medical

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director within each trauma center) and the EMS system medical director. **(I-302.2)**

c. There is clear-cut legal authority and responsibility for the EMS system medical director, including the authority to adopt protocols, to implement a performance improvement system, to restrict the practice of prehospital care providers, and to generally ensure medical appropriateness of the EMS system. **(I-302.3)**

d. The trauma system medical director is actively involved with the development, implementation, and ongoing evaluation of system dispatch protocols to ensure they are congruent with the trauma system design. These protocols include, but are not limited to, which resources to dispatch, for example, ALS versus BLS, airground coordination, early notification of the trauma care facility, prearrival instructions, and other procedures necessary to ensure that resources dispatched are consistent with the needs of injured patients. **(I-302.4)**

e. The retrospective medical oversight of the EMS system for trauma triage, communications, treatment, and transport is closely coordinated with the established performance improvement processes of the trauma system. **(I-302.5)**

f. There is a universal access number for citizens to access the EMS/trauma system, with dispatch of appropriate medical resources. There is a central communication system for the EMS/trauma system to ensure field- to-facility bidirectional communications, interfacility dialogue, and all-hazards response communications among all system participants. **(I-302.7)**

g. There are sufficient and well-coordinated transportation resources to ensure that EMS providers arrive at the scene promptly and expeditiously transport the patient to the correct hospital by the correct transportation mode. **(I-302.8)**

II. The lead trauma authority ensures a competent workforce. **(B-310)**

a. In cooperation with the prehospital certification and licensure authority, set guidelines for prehospital personnel for initial and ongoing trauma training, including trauma-specific courses and courses that are readily available throughout the state. **(I-310.1)**

b. In cooperation with the prehospital certification and licensure authority, ensure that prehospital personnel who routinely provide care to trauma patients have a current trauma training certificate, for example, Prehospital Trauma Life Support or Basic Trauma Life Support and others, or that trauma training needs are driven by the performance improvement process. **(I-310.2)**

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c. Conduct at least 1 multidisciplinary trauma conference annually that encourages system and team approaches to trauma care. **(I-310.9)**

III. The lead agency acts to protect the public welfare by enforcing various laws, rules, and regulations as they pertain to the trauma system. **(B-311)**

a. Incentives are provided to individual agencies and institutions to seek state or nationally recognized accreditation in areas that will contribute to overall improvement across the trauma system, for example, Commission on Accreditation of Ambulance Services for prehospital agencies, Council on Allied Health Education Accreditation for training programs, and American College of Surgeons (ACS) verification for trauma facilities. **(I-311.6)**

CURRENT STATUS

The Division of EMS is the lead agency for EMS in North Dakota. Including the director, there are 8.5 FTE staff positions supporting the division.

The majority of prehospital care in this largely rural state is provided by volunteer first responder and emergency medical technician (EMT) basic level providers. Total statewide annual call volume is approximately 57,000 per year. Licensed EMS services include: 58 QRUs, 118 ground Basic Life Support (BLS) ambulances, 18 ground Advanced Life Support (ALS) ambulances, and 4 ALS/Critical Care air ambulances (2 rotor wing and 2 fixed wing). Licensure at the QRU level is voluntary resulting in an unknown number of unlicensed QRUs operating in the state. Minimum staffing requirements for ground ambulance at the BLS level is one EMT and a driver, and at the ALS level, one paramedic and an EMT are required. Rotor wing crew configuration is an RN and a paramedic.

The state uses the NHTSA educational standards for EMT courses at all levels. State EMT certification and recertification is dependent on successful certification and recertification by the National Registry of Emergency Medical Technicians. Trauma specific training for the EMT is not prescribed by the state.

Enhanced 911 is operational in all counties except one, which will come online soon. EMS dispatch across the state is provided by certified emergency medical dispatchers (EMDs) working in public safety answering points (PSAPs) located throughout the state. EMD protocols may vary from PSAP to PSAP. The statewide radio system, through its network of 36 radio towers, accomplishes statewide communication coverage for EMS providers.

North Dakota does not have a state EMS medical director. On the local level, both the EMT (BLS and ALS) and the ambulance services are required to have physician oversight (off-line medical direction). There are 78 medical directors in the state. Liability protection is provided to medical directors if their annual compensation from each service is $10,000.00 or less. The ability of medical

directors to accomplish oversight of the medical care provided in the field varies across the state for multiple reasons (e.g., time, knowledge, interest, and resources). Medical directors can access run information for their ambulance service through the Statewide On-Line Ambulance Reporting (SOAR) system. The extent of use by local medical directors is unknown as is the degree of oversight activities performed by medical directors. An annual EMS medical director's meeting is held each year, but it is poorly attended. In an effort to engage medical director interest, a Medical Director's Course will be offered by the state chapter of ACEP in conjunction with the annual trauma conference in 2008. Medical directors are not required to have training in EMS medical direction. On-line or direct medical direction is required, but it is intermittently difficult to accomplish in rural environments.

North Dakota is to be congratulated on its recent Technical Assistance Team (TAT) reassessment by NHTSA. The report notes many of the positive developments in the EMS system since the initial TAT assessment was conducted. The recommendations in this report build upon and are consistent with the findings of the recent TAT.

RECOMMENDATIONS

- **Once the state EMS medical director is appointed, ensure that his/her responsibilities include encouraging participation, assuring consistency, and providing adequate support to the local service EMS medical director in their provision of medical oversight.**
- Provide/require minimum training for local EMS medical directors that is readily accessible (ie. via computer-mediated training)
- Develop a listserv for local medical directors to encourage interaction and information sharing among the medical directors and to allow timely access by the Division of EMS for dissemination of relevant information.
- Require licensure of all QRUs.
- Develop and institutionalize ongoing prehospital trauma educational opportunities to include special populations such as pediatric and geriatric patients.
- Develop and standardize policies within each region to educate the pre hospital personnel on trauma triage activation and early notification.

Definitive Care Facilities

Purpose and Rationale

Inclusive trauma systems are the systems that include all acute health care facilities, to the extent that their resources and capabilities allow and in which the patient's needs are matched to hospital resources and capabilities. Thus, as the core of a regional trauma system, acute care facilities operating within an inclusive trauma system provide definitive care to the entire spectrum of patients with traumatic injuries. Acute care facilities must be well integrated into the continuum of care, including prevention and rehabilitation, and operate as part of a network of trauma-receiving hospitals within the public health framework. All acute care facilities should participate in the essential activities of a trauma system, including performance improvement, data submission to state or regional registries, representation on regional trauma advisory committees, and mutual operational agreements with other regional hospitals to address interfacility transfer, educational support, and outreach. The roles of all definitive care facilities, including specialty hospitals (for example, pediatric, burn, severe traumatic brain injury [TBI], spinal cord injury [SCI]) within the system should be clearly outlined in the regional trauma plan and monitored by the lead agency. Facilities providing the highest level of trauma care are expected to provide leadership in education, outreach, patient care, and research and to participate in the design, development, evaluation, and operation of the regional trauma system.

In an inclusive system, patients should be triaged to the appropriate facility based on their needs and facility resources. Patients with the least severe injuries might be cared for at appropriately designated facilities within their community, whereas the most severe should be triaged to a level I or II trauma center. In rural and frontier systems, smaller facilities must be ready to resuscitate and initiate treatment of the major injuries and have a system in place that will allow for the fastest, safest transfer to a higher level of care.

Trauma receiving facilities providing definitive care to patients with other than minor injuries must be specifically designated by the state or regional lead agency and equipped and qualified to do so at a level commensurate with injury severity. To assess and ensure that injury type and severity are matched to the qualifications of the facilities and personnel providing definitive care, the lead agency should have a process in place that reviews and verifies the qualifications of a particular facility according to a specific set of resource and quality standards. This criteria-based process for review and verification should be consistent with national standards and be conducted on a periodic cycle as determined by the lead agency. When centers do not meet set standards, there should be a process for suspension, probation, revocation, or dedesignation.

Designation by the lead agency should be restricted to facilities meeting criteria or statewide resource and quality standards and based on patient care needs of the regional trauma system. There should be a well-defined regulatory relationship between the lead agency and designated trauma facilities in the form of a contract, guidelines, or memorandum of understanding. This legally binding document should define the relationships, roles, and responsibilities between the lead agency and the medical leadership from each designated trauma facility. The number of trauma centers by level of designation and location of acute care facilities must be periodically assessed by the lead agency with respect to patient care needs and timely access to definitive trauma care. There should be a process in place for augmenting and restricting, if necessary, the number and/or level of acute care facilities based on these periodic assessments. The trauma system plan should address means for improving acute care facility participation in the trauma system, particularly in systems in which there has been difficulty addressing needs.

Human Resources
The ability to deliver high-quality trauma care is highly dependent on the availability of skilled human resources. Therefore, it is critical to assess the availability and educational needs of providers on a periodic basis. Because availability, particularly of subspecialty resources, is often limited, some means of addressing recruitment, retention, and engagement of qualified personnel should be a priority. Periodic workforce assessments should be conducted. Maintenance of competence should be ensured by requiring standards for credentialing and certification and specifying continuing educational requirements for physicians and nurses providing care to trauma patients. Mechanisms for the periodic assessment of ancillary and subspecialty competence, educational needs, and availability within the system for all designated facilities should be incorporated into the trauma system plan. The lead trauma centers in rural areas will need to consider teleconferencing and telemedicine to assist smaller facilities in providing education on regionally identified needs. In addition, lead trauma centers within the region should assist in meeting educational needs while fostering a team approach to care through annual educational multidisciplinary trauma conferences. These activities will do much to foster a sense of teamwork and a functionally inclusive system.

Integration of Designated Trauma Facilities Within the Trauma System
Designated trauma facilities must be well integrated into all other facets of an organized system of trauma care, including public health systems and injury surveillance, prevention, EMS and prehospital care, disaster preparedness, rehabilitation, and system performance improvement. This integration should be provided by the state and/or regional trauma plan and overseen by the lead agency.

Each designated acute care facility should participate, through its trauma program leadership, in all aspects of trauma system design, evaluation, and operation. This participation should include policy and legislative development,

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legislative and public education, and strategic planning. In addition, the trauma program and subspecialty leaders should provide direction and oversight to the development, implementation, and monitoring of integrated protocols for patient care used throughout the system (for example, TBI guidelines used by prehospital providers and nondesignated transferring centers), including region specific primary (field) and secondary (early transfer) triage protocols. The highest level trauma facilities should provide leadership of the regional trauma committees through their trauma program medical leadership. These medical leaders, through their activities on these committees, can assist the lead agency and help ensure that deficiencies in the quality of care within the system, relative to national standards, are recognized and corrected. Educational outreach by these higher level centers should be used when appropriate to help achieve this goal.

OPTIMAL ELEMENTS

I. Acute care facilities are integrated into a resource efficient, inclusive network that meets required standards and that provides optimal care for all injured patients. **(B-303)**

    a. The trauma system plan has clearly defined the roles and responsibilities of all acute care facilities treating trauma and of facilities that provide care to specialty populations (for example, burn, pediatric, SCI, and others). **(I-303.1)**

II. To maintain its state, regional, or local designation, each hospital will continually work to improve the trauma care as measured by patient outcomes. **(B-307)**

    a. The trauma system engages in regular evaluation of all licensed acute care facilities that provide trauma care to trauma patients and of designated trauma hospitals. Such evaluation involves independent external reviews. **(I-307.1)**

III. The lead trauma authority ensures a competent workforce. **(B-310)**

    a. As part of the established standards, set appropriate levels of trauma training for nursing personnel who routinely care for trauma patients in acute care facilities. **(I-310.3)**

    b. Ensure that appropriate, approved trauma training courses are provided for nursing personnel on a regular basis. **(I-310.4)**

    c. In cooperation with the nursing licensure authority, ensure that all nursing personnel who routinely provide care to trauma patients have a trauma training certificate (for example, Advanced Trauma Care for Nurses, Trauma Nursing Core Course, or any national or state trauma nurse verification course). As an alternative after initial trauma course

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completion, training can be driven by the performance improvement process. **(I-310.5)**

d. In cooperation with the physician licensure authority, ensure that physicians who routinely provide care to trauma patients have a current trauma training certificate of completion, for example, Advanced Trauma Life Support® (ATLS®) and others. As an alternative, physicians may maintain trauma competence through continuing medical education programs after initial ATLS completion. **(I-310.8)**

e. Conduct at least 1 multidisciplinary trauma conference annually that encourages system and team approaches to trauma care. **(I-310.9)**

f. As new protocols and treatment approaches are instituted within the system, structured mechanisms are in place to inform all personnel about the changes in a timely manner. **(I-310-10)**

CURRENT STATUS

Organization of definitive care facilities in North Dakota
North Dakota has a voluntary inclusive trauma system that has served the state well since the system's inception. To date, 38 of 46 hospitals participate. Of the 46 primary care and general acute hospitals licensed in the state, 34 are determined to be Critical Access Hospitals and are, therefore, eligible for cost-based reimbursement. There are six level II trauma centers; two each are located in Fargo and Bismarck, one in Minot, and one in Grand Forks. Each region of the state has adequate resources to provide emergency higher level trauma care. A single level III trauma center is located in the Southwest region and 31 level IV and V trauma centers are positioned throughout the remainder of the state. Of the 8 non-designated trauma centers, 3 are in the most northern parts of the state where coverage is sparse. By virtue of this organization and positioning of trauma facilities, most patients in need of operative management are transferred to a level II facility. As there are no designated burn centers in the state; patients needing burn care are transferred to Minnesota.

Pediatric trauma care
The state has no designated pediatric trauma centers. Each level II trauma center provides care to children in their region, with transfers to out-of-state level I trauma or specialty centers when necessary. ACS criteria for a level II pediatric trauma center mandates at least 100 admissions (age <15 years) per annum. If consolidating care in one or more centers might achieve this threshold volume, then moving forward with level II pediatric verification and designation could create a pediatric referral center in the state and reduce out-of-state transfers. --

Designation process
Level II and III trauma centers are designated by the state after a successful ACS verification visit. There is the potential for level II and level III trauma center

provisional status designation for up to 2 years following an on-site visit by a team designated by the STC while awaiting an ACS verification visit. Currently, all level II and III trauma centers in the state are ACS-verified.

Level IV and V trauma centers receive designation after a written application and site visit by a team composed of the state trauma manager and a trauma center program manager and trauma surgeon from a level II center. Level IV trauma centers are required to have physicians with Advanced Trauma Life Support (ATLS) certification. Level V trauma centers require mid-level providers (nurse practitioners and physician assistants) to have completed ATLS and TNCC.

State regulations provide a mechanism for de-designation when trauma centers no longer meet essential criteria. In the history provided, level IV trauma centers have been redesignated to level V when physicians could no longer provide coverage, suggesting that monitoring occurs between designation cycles. Facilities applying for level IV or V designation who fail to meet criteria are not designated and are encouraged to re-apply, or they may be provided with "limited designation" status with a focused review to occur in the next 2 to 12 months. A review of the STC minutes revealed that this process is clearly established and used. The application of limited designation for level IV and V trauma centers are not outlined in state regulations and require clarification.

The level II trauma centers function as leaders within the region. Roles these centers fulfill include case review discussions, performance improvement, injury prevention activities, and assistance in the planning a multi-disciplinary trauma conference. Additionally, their hospital registrars are key resources for the region, and they support trauma data collection from the lower designated trauma centers.

The number of designated trauma centers in the state is not limited by regulation. While this does not pose difficulties with level III, IV, and V trauma centers, it has created an environment in Bismarck and Fargo in which two relatively low volume level II trauma centers operate. One could argue for consolidation of trauma services in these cities; however the ACS review team felt this approach would be ill-advised. Trauma resources are already thin within the state and some level of redundancy is necessary to assure access to care, particularly if one center should have a facility disruption. The neighboring trauma centers might consider joint performance improvement, case reviews, and CME activities to benefit from the shared greater collective experience.

The 8 non-designated facilities need to be drawn into the system. Of these 8, seven are Critical Access Hospitals (CAHs). Funding does not appear to be an important factor as trauma care appears to be revenue neutral in this payer environment. Additionally, through the State's Hospital Flexibility Grant program $9,000 is available for each of the seven CAHs (over a three year period) to be used to meet the requirements for trauma center designation. The major

impediment appears to be access to educational resources (see Human Resources and Training, below). When the appropriate supports are in place, inclusion in the trauma system should be mandatory and tied to hospital licensure.

Human resources and training

While strong voluntary participation in the trauma system has been the norm, this might not be sustainable long-term due to limited human resources. For example, some of the key reasons for failure to designate the 8 remaining centers include provider turnover, limited accessibility of ATLS courses, and discontent that the TNCC does not suit the providers' needs. Additionally, a trend was reported of level IV trauma centers downgrading to level V (and level IIIs to IV) due to the lack of physicians and aging surgeons.

Access to educational resources is one of the major impediments to designation. A means should be identified to facilitate remote learning in the form of tele-education, mobile simulators, and mobile ATLS programs to ensure competent providers. Given the lack of utility of the TNCC for mid-level providers in the practice environment of the level V trauma centers, this requirement should be omitted.

Physician subspecialty coverage (neurosurgery, orthopedics) appears to be adequate in the level II trauma centers. However, consideration should be given to some means of shared subspecialty coverage in the cities with two level II trauma centers to avoid burnout.

RECOMMENDATIONS

- Mandate the participation of all primary care and general acute care hospitals in the trauma system and tie this requirement to hospital licensure.
- **Develop a Memorandum of Understanding (MOU) between the Department of Health and the designated trauma centers outlining roles and responsibilities.**
- **Conduct an inventory of trauma centers' programs and services to direct triage and patient flow**
- Develop interfacility transfer criteria to ensure that patients with specialized needs are sent to facilities with matching resources (acute care and rehabilitation)
- Facilitate access to educational opportunities through investments in novel approaches to learning (remote learning; traveling courses)
- **Review pediatric trauma care to assess the possibility of establishing an ACS-verified level II pediatric trauma center.**

System Coordination and Patient Flow

Purpose and Rationale

To achieve the best possible outcomes, the system must be designed so that the right patient is transported to the right facility at the right time. Although on the surface this objective seems relatively straightforward, patients, geography, and transportation systems often conspire to present significant challenges. The most critically injured trauma patient is often easy to identify at the scene by virtue of the presence of·coma or hypotension. However, in some circumstances, the patients requiring the resources of a Level I or II center may not be immediately apparent to prehospital providers. Primary or field triage criteria aid providers in identifying which patients have the greatest likelihood of adverse outcomes and might benefit from the resources of a designated trauma center. Even if the need is identified, regional geography or limited air medical (or land) transport services might not allow for direct transport to an appropriate facility.

Primary triage of a patient from the field to a center capable of providing definitive care is the goal of the trauma system. However, there are circumstances (for example, airway management, rural environments, inclement weather) when triaging a patient to a closer facility for stabilization and transfer is the best option for accessing definitive care. Patients sustaining severe injuries in rural environments might need immediate assessment and stabilization before a long-distance transport to a trauma center. In addition, evaluation of the patient might bring to light severe injuries for which needed care exceeds the resources of the initial receiving facility. Some patients might have specific needs that can be addressed at relatively few centers within a region (for example, pediatric trauma, burns, severe TBI, SCI, and reimplantation). Finally, temporary resource limitations might necessitate the transfer of patients between acute care facilities.

Secondary triage at the initial receiving facility has several advantages in systems with a large rural or suburban component. The ability to assess patients at nondesignated or level III to V centers provides an opportunity to limit the transfer of only the most severely injured patients to level I or II facilities, thus preserving a limited resource for patients most in need. It also provides patients with lesser injuries the possibility of being cared for within their community.

The decision to transfer a trauma patient should be based on objective, prospectively agreed-on criteria. Established transfer criteria and transfer agreements will minimize discussions about individual patient transfers, expedite the process, and ensure optimal patient care. Delays in transfer might increase mortality, complications, and length of stay. A system with an excess of transferred patients might tax the resources of the regional trauma facility. Conversely, inappropriate retention of patients at centers without adequate facilities or expertise might increase the risk of adverse outcomes. Given the

importance of timely, appropriate interfacility transfers, the time to transfer, as well as the rates of primary and secondary overtriage and undertriage, should be evaluated on a regular basis, and corrective actions should be instituted when problems are identified. Data derived from tracking and monitoring the timeliness of access to a level of trauma care commensurate with injury type and severity should be used to help define optimal system configuration.

A central communications center with real-time access to information on system resources greatly facilitates the transfer process. Ideally, this center identifies a receiving facility, facilitates dialogue between the transferring and receiving centers, and coordinates interfacility transport.

To ensure that the system operates at the greatest efficiency, it is important that patients are repatriated back to community hospitals once the acute phase of trauma care is complete. The process of repatriation opens up the limited resources available to care for severely injured patients. In addition, it provides an opportunity to bring patients back into their local environment where their social network might help reintegrate patients into their community.

OPTIMAL ELEMENTS

I. The trauma system is supported by an EMS system that includes communications, medical oversight, prehospital triage, and transportation; the trauma system, EMS system, and public health agency are well integrated. **(B-302)**

    a. There are mandatory systemwide prehospital triage criteria to ensure that trauma patients are transported to an appropriate facility based on their injuries. These triage criteria are regularly evaluated and updated to ensure acceptable and system-defined rates of sensitivity and specificity for appropriately identifying a major trauma patient. **(I-302.6)**

    b. There is a universal access number for citizens to access the EMS/trauma system, with dispatch of appropriate medical resources. There is a central communications system for the EMS/trauma system to ensure field-to-facility bidirectional communications, interfacility dialogue, and all-hazards response communications among all system participants. **(I-302.7)**

    c. There is a procedure for communications among medical facilities when arranging for interfacility transfers, including contingencies for radio or telephone system failure. **(I-302.9)**

II. Acute care facilities are integrated into a resource-efficient, inclusive network that meets required standards and that provides optimal care for all injured patients. **(B-303)**

    a. When injured patients arrive at a medical facility that cannot provide the appropriate level of definitive care, there is an organized and regularly

monitored system to ensure that the patients are expeditiously transferred to the appropriate system-defined trauma facility. **(I-303.4)**

CURRENT STATUS

When EMS makes contact with an injured patient, the prehospital providers use trauma triage protocols outlined in the ACS's *Resources for Optimal Care of the Injured Patient: 1999.* The participants stated that there are plans to update the protocols to the current version. All major trauma patients, regardless of age or injury, are transported to the nearest designated trauma center. However, EMS may bypass a designated center to access a higher level trauma center if the increase in transport time does not exceed 30 minutes. A rotor wing ambulance is to be used if it will get the patient to a trauma center quicker than ground transport by at least twenty minutes. Specific guidelines for each ambulance service are outlined in the Trauma Transport Plan document that must be completed by all ambulance services. The three plans available for review lacked the signature of the trauma regional chair.

Strong cooperation across trauma centers is evident and trauma physicians have collegial relationships. Interfacility transfer agreements address access to care to higher level trauma centers both within and outside the state. While level IV and V trauma centers are required to have trauma transfer protocols that address triage decisions, it is not clear that these protocols provide guidance in the form of interfacility transfer criteria.

Overall, interfacility transport is hindered by insufficient air medical support and lack of critical care ground transport capability. Interfacility transports are often initiated by BLS crews, sometimes accompanied by an RN or MD, and sometimes an ALS intercept is arranged. The ALS intercept may result in a financial disincentive for the local BLS ambulance service if the BLS unit is billed by the ALS unit for the intercept (sometimes at a rate higher than the actual BLS reimbursement) or if the patient is transferred to an ALS unit thus preventing the BLS unit from billing for services. Local ambulances may deliver a patient to a non-designated facility due to problems with distance, weather, and/or inability of a volunteer EMT to be absent from work for a prolonged period of time.

Major trauma patients that are initially transported to a level IV or V trauma center are rarely admitted to that facility due to lack of local resources. A central communication center is not available to coordinate patient transfers, however the level II trauma centers do provide a 'one call does all' approach to facilitate transfer from a referring facility.

A patient admitted to a level II trauma center that requires specialty care not available in-house is transferred to another level II trauma center within the state or to an out-of-state facility. Interfacility agreements are in place for these types of transfers. Currently, there is no resource inventory that describes special capabilities offered by the various level II centers across the state. Opportunities

to better align patients' needs and resources can occur through the development of an inventory of programs and services at the level II trauma centers. For example, no interfacility transfer criteria exist for identifying the patient with specialized needs (e.g. burns, children, and complex orthopedic injuries, including hand). Where subspecialty access is limited (e.g. complex orthopedics, hand, and pediatrics), interfacility transfer criteria and agreements should be developed with trauma centers that can provide ready access to such services. In regions with two level II trauma centers and timely notification of EMS, the identification of particular services available at one trauma center versus the other, will increase the possibility that triage and destination decisions are resource-based. Interfacility transfer criteria may also be used to identify patients with specific injuries who might benefit from transfer based on national guidelines (e.g. American Burn Association Transfer Criteria).

RECOMMENDATIONS

- **Conduct an inventory of all trauma centers' programs and services to direct triage and patient flow**
- Develop interfacility transfer criteria to ensure that patients with specialized needs are sent to facilities with matching resources (acute care and rehabilitation)
- Develop ALS intercept protocols.
- **Determine the impact on the appropriate utilization of ALS intercepts by BLS services due to potential financial disincentives.**
- Evaluate the need and feasibility for expanding air medical coverage for the state.
- Develop critical care ground transport capability.
- **Develop dispatch criteria/protocols to expedite rotor wing ambulance and ground ALS injury scene response and/or intercept in interfacility transfer.**

Rehabilitation

Purpose and Rationale

As an integral component of the trauma system, rehabilitation services in acute care and rehabilitation centers provide coordinated care for trauma patients who have sustained severe or catastrophic injuries, resulting in long-standing or permanent impairments. Patients with less severe injuries may also benefit from rehabilitative programs that enhance recovery and speed return to function and productivity. The goal of rehabilitative interventions is to allow the patient to return to the highest level of function, reducing disability and avoiding handicap whenever possible. The rehabilitation process should begin in the acute care facility as soon as possible, ideally within the first 24 hours. Inpatient and outpatient rehabilitation services should be available. Rehabilitation centers should have CARF (Commission of Accreditation of Rehabilitation Facilities) accreditation for comprehensive inpatient rehabilitation programs, and accreditation of specialty centers (SCI and TBI) should be strongly encouraged.

The trauma system should conduct a rehabilitation needs assessment (including specialized programs in SCI, TBI, and for children) to identify the number of beds needed and available for rehabilitation in the geographic region. Rehabilitation specialists should be integrated into the multidisciplinary advisory committee to ensure that rehabilitation issues are integrated into the trauma system plan. The trauma system should demonstrate strong linkages and transfer agreements between designated trauma centers and rehabilitation facilities located in its geographic region (in or out of state). Plans for repatriation of patients, especially when rehabilitation centers across state lines are used, should be part of rehabilitation system planning. Feedback on functional outcomes after rehabilitation should be made available to the trauma centers.

OPTIMAL ELEMENTS

I. The lead agency ensures that adequate rehabilitation facilities have been integrated into the trauma system and that these resources are made available to all populations requiring them. **(B-308)**

    a. The lead agency has incorporated, within the trauma system plan and the trauma center standards, requirements for rehabilitation services, including interfacility transfer of trauma patients to rehabilitation centers. **(I-308.1)**

    b. Rehabilitation centers and outpatient rehabilitation services provide data on trauma patients to the central trauma system registry that include final disposition, functional outcome, and rehabilitation costs and also participate in performance improvement processes. **(I-308.2)**

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II. A resource assessment for the trauma system has been completed and is regularly updated. **(B-103)**

    a. The trauma system has completed a comprehensive system status inventory that identifies the availability and distribution of current capabilities and resources. **(I-103.1)**

CURRENT STATUS

Integration into the trauma system
Integration of rehabilitation into the trauma system was outlined in the Trauma System Plan; however, this level of integration never occurred. While required in regulation, pertaining to the composition of the STC, rehabilitation representation has been sporadic until recently. Similarly, a requirement was made for rehabilitation representation on each of the regional committees; however discussions with stakeholders resulted in the impression by the ACS review team that engagement with rehabilitation is minimal at the regional level.

Resources
With the exception of Innovis Health in Fargo, all level II trauma centers are affiliated with a Commission of Accreditation of Rehabilitation Facilities (CARF)-accredited inpatient rehabilitation facility. One such facility (MeritCare, Fargo) has received accreditation for its specialty program in traumatic brain injury (TBI). However, no rehabilitation facilities in the state have received similar specialty recognition for the care of patients with spinal cord injury (SCI). Trauma patients at Innovis Health in Fargo are transferred to MeritCare when inpatient rehabilitation is necessary. Patients appear to have prompt access to physiatrists following injury. Participants reported that rehabilitation resources are appropriate for demand, and wait times for transfer to rehabilitation are 1-2 days.

With the limited data available, it is difficult to ascertain whether all who require rehabilitation are receiving appropriate services. ACS reviewers gained the impression that access to specialty rehabilitation varies by hospital and varies across the state. For example, a specific rehabilitation plan for pediatric, SCI, or TBI patients does not exist. Criteria should be developed to ensure that patients receive rehabilitation services most appropriate for their needs. Data regarding success in meeting these criteria need to be tracked through the trauma registries.

Severely injured patients will require assistance in re-integration back into their communities, particularly in more rural environments. The extent to which an infrastructure exists to support re-integration is unknown.

RECOMMENDATIONS

• Functionally integrate rehabilitation into trauma system development

- Conduct a resource assessment of specialized rehabilitation services (pediatric, TBI, SCI) to identify what state or regional resources are available
- Develop criteria for interfacility transfer to rehabilitation centers to assure access to specialized services when necessary
- Link data between trauma registries and rehabilitation centers to provide information regarding patient access and outcomes

Disaster Preparedness

Purpose and Rationale

As critically important resources for state, regional, and local responses to MCIs, the trauma system and its trauma centers are central to disaster preparedness. Trauma system leaders need to be actively involved in public health preparedness planning to ensure that trauma system resources are integrated into the state, regional, and local disaster response plans. Acute care facilities (sometimes including one or more trauma centers) within an affected community are the first line of response to an MCI. However, an MCI may result in more casualties than the local acute care facilities can handle, requiring the activation of a larger emergency response plan with support provided by state and regional assets.

For this reason, the trauma system and its trauma centers must conduct a resource assessment of its surge capacity to respond to MCIs. The resource assessment should build on and be coupled to a hazard vulnerability analysis. An assessment of the trauma system's response to simulated incident or tabletop drills must be conducted to determine the trauma system's ability to respond to MCIs. Following these assessments, a gap analysis should be conducted to develop statewide MCI response resource standards. This information is essential for the development of an emergency management plan that includes the trauma system.

Planning and integration of the trauma system with plans of related systems (public health, EMS, and emergency management) are important because of the extensive impact disasters have on the trauma system and the value of the trauma system in providing care. Relationships and working cooperation between the trauma system and public health, EMS, and emergency management agencies support the provision of assets that enable a more rapid and organized disaster response when an event occurs. For example, the EMS emergency preparedness plan needs to include the distribution of severely injured patients to trauma centers, when possible, to make optimal use of trauma center resources. This plan could optimize triage through directing less severely injured patients to lower level trauma centers or nondesignated facilities, thus allowing resources in trauma centers to be spared for patients with the most severe injuries. In addition, the trauma system and its trauma centers will be targeted to receive additional resources (personnel, equipment, and supplies) during major MCIs.

Mass casualty events and disasters are chaotic, and only with planning and drills will a more organized response be possible. Simulation or tabletop drills provide an opportunity to test the emergency preparedness response plans for the trauma system and other systems and to train the teams that will respond.

Exercises must be jointly conducted with other agencies to ensure that all aspects of the response plan have the trauma system integrated.

OPTIMAL ELEMENTS

I. An assessment of the trauma system's emergency preparedness has been completed, including coordination with the public health agency, EMS system, and the emergency management agency. **(B-104)**

    a. There is a resource assessment of the trauma system's ability to expand its capacity to respond to MCIs in an all-hazards approach. **(I-104.1)**

    b. There has been a consultation by external experts to assist in identifying current status and needs of the trauma system to be able to respond to MCIs. **(I-104.2)**

    c. The trauma system has completed a gap analysis based on the resource assessment for trauma emergency preparedness. **(I-104.3)**

II. The lead agency ensures that its trauma system plan is integrated with, and complementary to, the comprehensive mass casualty plan for natural and manmade incidents, including an all-hazards approach to planning and operations. **(B-305)**

    a. The EMS, the trauma system, and the all-hazards medical response system have operational trauma and all-hazards response plans and have established an ongoing cooperative working relationship to ensure trauma system readiness for all-hazards events. **(I-305.1)**

    b. All-hazards events routinely include situations involving natural (for example, earthquake), unintentional (for example, school bus crash), and intentional (for example, terrorist explosion) trauma-producing events that test the expanded response capabilities and surge capacity of the trauma system. **(I-305-2)**

    c. The trauma system, through the lead agency, has access to additional equipment, materials, and personnel for large-scale traumatic events. **(I-305.3)**

CURRENT STATUS

The current director of the North Dakota Emergency Preparedness and Response Section of the Department of Health was the former director of the Division of EMS. Despite this logical connection, a less than desirable level of interface has occurred between the trauma system and disaster preparedness activities within the state. Most participants reported that emergency preparedness training has concentrated on ICS and WMD. In particular, there are communication assets that connect health care facilities that could have

significant uses in major trauma events and for other activities germane to the trauma system.

The trauma system represents significant organizational assets that will be called upon during any/all disaster events. Formalizing this response and capitalizing on the coordination that already exists within the system will be key to optimizing responses to large scale events, regardless of the etiology of the event.

The STC and the trauma centers are active in Emergency Preparedness (EP) planning at various levels and degrees of involvement. The EMS director sits on the Emergency Preparedness committee. The STC recently added an EP representative to their committee.

The level II trauma centers are accredited by the JCAHO, whose EP requirements include a current disaster plan that has been exercised on a scheduled basis. The level IV and V trauma centers are required to have disaster plans in place as a requirement of state licensure.

RECOMMENDATIONS

- Provide training for all trauma system healthcare providers from an all-hazards approach such as provided by the American Medical Association's (AMA) Basic and Advanced Disaster Life Support Courses.
- **Maximize interaction between the trauma and EMS community and the emergency preparedness community at all levels to optimize disaster preparedness.**

Systemwide Evaluation and Quality Assurance

Purpose and Rationale

The trauma lead agency has responsibility for instituting processes to evaluate the performance of all aspects of the trauma system. Key aspects of systemwide effectiveness include the outcomes of population based injury prevention initiatives, access to care, as well as the availability of services, the quality of services provided within the trauma care continuum from prehospital and acute care management phases through rehabilitation and community reintegration, and financial impact or cost. Intrinsic to this function is the delineation of valid, objective metrics for the ongoing quality audit of system performance and patient outcomes based on sound benchmarks and available clinical evidence. Trauma management information systems (MISs) must be available to support data collection and analysis.

The lead agency should establish forums that promote inclusive multidisciplinary and multiagency review of cases, events, concerns, regulatory issues, policies, procedures, and standards that pertain to the trauma system. The evaluation of system effectiveness must take into account the integration of these various components of the trauma care continuum and review how well personnel, agencies, and facilities perform together to achieve the desired goals and objectives. Results of customer satisfaction (patient, provider, and facility) appraisals and data indicative of community and population needs should be considered in strategic planning for system development. System improvements derived through evaluation and quality assurance activities may encompass enhancements in technology, legislative or regulatory infrastructure, clinical care, and critical resource availability.

To promote participation and sustainability, the lead agency should associate accountability for achieving defined goals and trauma system performance indicators with meaningful incentives that will act to cement the support of key constituents in the health care community and general population. For example, the costs and benefits of the trauma system as they relate to reducing mortality or decreasing years of productive life lost may make the value of promoting trauma system development more tangible. A facility that achieves trauma center verification/designation may be rewarded with monetary compensation (for example, ability to bill for trauma activation fees) and the ability to serve as a receiving center for trauma patients. The trauma lead agency should promote ongoing dialog with key stakeholders to ensure that incentives remain aligned with system needs.

OPTIMAL ELEMENTS

I. The trauma MIS is used to facilitate ongoing assessment and assurance of system performance and outcomes and provides a basis for continuously improving the trauma system, including a cost-benefit analysis. **(B-301)**

   a. The lead trauma authority ensures that each member hospital of the trauma system collects and uses patient data, as well as provider data, to assess system performance and to improve quality of care. Assessment data are routinely submitted to the lead trauma authority. **(I-301.1)**

II. The jurisdictional lead agency, in cooperation with other agencies and organizations, uses analytic tools to monitor the performance of population based prevention and trauma care services. **(B-304)**

III. The financial aspects of the trauma system are integrated into the overall performance improvement system to ensure ongoing fine tuning and cost-effectiveness. **(B-309)**

   a. Financial data are combined with other cost, outcome, or surrogate measures, for example, years of potential life lost, quality-adjusted life years, and disability adjusted life years; length of stay; length of intensive care unit stay; number of ventilator days; and others, to estimate and track true system costs and cost- benefits. **(I-309.4)**

CURRENT STATUS

Currently the state has no system-wide plan in place to measure compliance with standards, to document system effectiveness, or to identify performance improvement opportunities. Neither the STC nor the regional committees have a formal performance improvement (PI) plan. The lead agency noted that the current trauma registry is working for most level II trauma centers and the level III trauma center, but significant problems remain once data are downloaded to the state trauma registry. It was reported that the lack of data has limited the state's ability to implement a statewide trauma PI program.

The STC should be commended for working with the level II and III trauma centers to achieve successful ACS verification during which performance improvement activities are assessed by the ACS. Between verification visits, however, no statewide PI activities of a concurrent nature are conducted to provide an on-going assessment of trauma center and trauma system activities. The state currently has neither a trigger for investigating patient care problems within each region or the state, nor a method for seeking timely knowledge of system performance. No statewide trauma system performance improvement efforts are directed at the EMS agencies, the dispatch centers, or the rehabilitation facilities.

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Patient outcome measures are not currently tracked at the trauma system level including measures for special populations. The STC indicated that it was planning to look at the following measures when regional and statewide data are available:

- Transfer times
- Cause codes
- Protective devices
- ISS Scores
- Demographics

Due to data challenges, the STC indicated that examination of statewide indicators is in the very early stages. Site team reviewers for level IV and V trauma centers stated that one indicator reviewed is a maximum stay of 2 hours. In some cases the length of stay was found to be excessive and education was provided to minimize diagnostic studies, such as CT scanning, and to expedite transfers.

Under-triage was a second measure investigated. Site team reviewers have found that ISS scoring is often inaccurate at the level IV and V trauma centers so the data for the measure are unreliable. The participants stated that it would be extremely rare for the level IV and V trauma centers to keep patients with severe injuries given their limited resources, so under-triage was not felt to be a problem. The level II trauma program managers have offered to help with ISS training.

RECOMMENDATIONS

- **Develop a trauma system performance improvement plan and start with simple screens.**
- Establish clear guidelines that describe the expectations of the regional committees for peer review and patient outcomes.
- **Appoint a PI technical advisory group to initiate quarterly meetings designed to review specific key measures and case reviews to identify opportunities for improving care.**
    - **Select membership on the PI technical advisory group from trauma center directors and trauma program managers of ACS verified trauma centers and other members as appropriate**
    - **The technical advisory group should report its findings to the STC each quarter.**
    - **The technical advisory group should base its reviews on available trauma registry data from the level II and III trauma centers until the state trauma registry data issues are resolved.**

- Develop guidelines and a mechanism for the regions and state to gain concurrent information on significant trauma system and patient care issues.
- Consider having the state trauma manager make occasional visits to the trauma centers each year to assess any trauma system or patient care concerns.
- Utilize the existing teleconferencing capabilities in the region for case review with a continuing medical education format to encourage attendance.
- Consider hiring outside registry companies such as K-Force, who have experience in data entry, report writing, and ISS scoring if filling local registrar positions becomes difficult.

Trauma Management Information Systems

Purpose and Rationale

Hospital-based trauma registries developed from the idea that aggregating data from similar cases may reveal variations in care and ultimately result in a better understanding of the underlying injury and its treatment. Hospital-based registries have proven very effective in improving trauma care within an institution but provide limited information regarding how interactions with other phases of health care influence the outcome of an injured patient. To address this limitation, data from hospital-based registries should be collated into a regional registry and linked such that data from all phases of care (prehospital, hospital, and rehabilitation) are accessible in 1 data set. When possible, these data should be further linked to law enforcement, crash incident reports, ED records, administrative discharge data, medical examiner records, vital statistics data (death certificates), and financial data. The information system should be designed to provide systemwide data that allow and facilitate evaluation of the structure, process, and outcomes of the entire system; all phases of care; and their interactions. This information should be used to develop, implement, and influence public policy.

The lead agency should maintain oversight of the information system. In doing so, it must define the roles and responsibilities for agencies and institutions regarding data collection and outline processes to evaluate the quality, timeliness, and completeness of data. There must be some means to ensure patient and provider confidentiality is in keeping with federal regulations. The agency must also develop policies and procedures to facilitate and encourage injury surveillance and trauma care research using data derived from the trauma MIS. There are key features of regional trauma MISs that enhance their usefulness as a means to evaluate the quality of care provided within a system. Patient information collected within the management system must be standardized to ensure that noted variations in care can be characterized in a similar manner across differing geographic regions, facilities, and EMS agencies. The composition of patients and injuries included in local registries (inclusion criteria) should be consistent across centers, allowing for the evaluation of processes and outcomes among similar patient groups. Many regions limit their information systems to trauma centers. However, the optimal approach is to collect data from all acute care facilities within the region. Limiting required data submission to hospitals designated as trauma centers allows one to evaluate systems issues only among patients transported to appropriate facilities. It is also important to have protocols in place to ensure a uniform approach to data abstraction and collection. Research suggests that if the process of case abstraction is not routinely calibrated, practices used by abstractors begin to drift.

Finally, every effort should be made to conform to national standards defining processes for case acquisition, case definition (that is, inclusion criteria), and registry coding conventions. Two such national standards include the National Highway Traffic Safety Administration's National Emergency Medical Services Information System (NEMSIS), which standardizes EMS data collection, and the American College of Surgeons National Trauma Data Standard, which addresses the standardization of hospital registry data collection. Strictly adhering to national standards markedly increases the value of state trauma MISs by providing national benchmarks and allowing for the use of software solutions that link data sets to enable a review of the entire injury and health care event for an injured patient.

To derive value from the tremendous amount of effort that goes into data collection, it is important that a similar focus address the process of data reporting. Dedicated staff and resources should be available to ensure rapid and consistent reporting of information to vested parties with the authority and vision to prevent injuries and improve the care of patients with injuries. An optimal information reporting process will include standardized reporting tools that allow for the assessment of temporal and/or system changes and a dynamic reporting tool, permitting anyone to tailor specific "views" of the information.

OPTIMAL ELEMENTS

I. There is an established trauma MIS for ongoing injury surveillance and system performance assessment. **(B-102)**

    a. There is an established injury surveillance process that can, in part, be used as an MIS performance measure. **(I-102.1)**

    b. Injury surveillance is coordinated with statewide and local community health surveillance. **(I-102.2)**

    c. There is a process to evaluate the quality, timeliness, completeness, and confidentiality of data. **(I-102.4)**

    d. There is an established method of collecting trauma financial data from all health care facilities and trauma agencies, including patient charges and administrative and system costs. **(I-102.5)**

II. The trauma MIS is used to facilitate ongoing assessment and assurance of system performance and outcomes and provides a basis for continuously improving the trauma system, including a cost-benefit analysis. **(B-301)**

    a. The lead trauma authority ensures that each member hospital of the trauma system collects and uses patient data, as well as provider data, to assess system performance and to improve quality of care. Assessment data are routinely submitted to the lead trauma authority. **(I-301.1)**

b. Prehospital care providers collect patient care and administrative data for each episode of care and not only provide these data to the hospital, but also have a mechanism to evaluate the data within their own agency, including monitoring trends and identifying outliers. **(I-301.2)**

c. Trauma registry, ED, prehospital, rehabilitation, and other databases are linked or combined to create a trauma system registry. **(I-301.3)**

d. The lead agency has available for use the latest in computer/technology advances and analytic tools for monitoring injury prevention and control components of the trauma system. There is reporting on the outcome of implemented strategies for injury prevention and control programs within the trauma system. **(I-301.4)**

CURRENT STATUS

All verified and nonverified trauma centers are required to capture and submit data through the trauma registry. Historically, the larger centers were using disparate data systems from multiple vendors. The state supported a migration to a single software vendor. During that migration individual institutions were allowed considerable latitude in the customization of the software to meet specific needs and preferences. Individual institutions (level II and III) have as much as a decade of legacy data.

While the existing trauma registry software (Trauma Base) reportedly serves the individual level II and III trauma centers well, considerable frustration was expressed concerning the inability to aggregate and report data at regional or state levels. Statewide system PI has stalled in the absence of these data and regional PI similarly has been hampered, but to a lesser degree.

Several steps have been taken in an attempt to gain access to aggregate data from all level II and III trauma centers. These have included:

1. The establishment of a standardized data dictionary and training in its use.
2. The employment of a data analyst (0.5 FTE, with the remaining 0.5 FTE assigned to the State On-Line Ambulance Reporting (SOAR) and GIS mapping).
3. Numerous technical support requests from the vendor (Clinical Data Management [CDM])
4. The circumvention of the state repository with direct submission to CDM for reporting and aggregation

In spite of these efforts, aggregate data and reporting remain elusive.

The level II trauma centers take their role of support to the level IV and V trauma centers seriously by offering support and technical assistance in the capture of the minimum data sets required at these facilities.

North Dakota has, previously, received a Crash Outcome Data Evaluation System (CODES) grant from NHTSA. The purpose of CODES grants was to train personnel in various states to link disparate data sets such as crash records and EMS and trauma registries to report on the benefits of safety belts and motorcycle helmets. The time frame of that project could not be determined but no residual benefits from the CODES grant in terms of linking various datasets available within North Dakota could be identified. Currently, the Upper Great Plains Transportation Institute is attempting to link vital records, EMS data, trauma registry, rehabilitation outcomes, hospital discharge, crash records, or other sources of potential information.

The Division of EMS supports an on-line data collection system for EMS providers named Statewide On-line Ambulance Reporting (SOAR). The SOAR system is reportedly functioning well although the review team was not provided with any aggregate reports from the dataset. Med-Media is the vendor that developed and supports SOAR. It was reported that the trauma community has made few requests to access SOAR data. SOAR may provide substantial information pertaining to transport times and facility destinations that could serve as a basis for some PI.

Some hospital discharge (uniform billing – 1992 [UB-92]) data were reported to exist although access to those data is challenging. The data do not consistently contain inclusion of external cause of injury codes (ICD9 CM E 800-999). The data are provided by select facilities but are housed by an intermediary in Minnesota. It may be possible to frame specific questions and have data run in Minnesota addressing those issues of interest. The data are not available for exploration or mining to assist in framing research questions or hypotheses. The limitations in these data, from both a completeness and access standpoint, hamper the full understanding of such issues as the total injury denominator and costs associated with injury in North Dakota.

Fatal motor vehicle crash data are captured by the North Dakota Department of Transportation – Office Traffic Safety. An annual report is produced. It was reported that linkage between the crash data and SOAR is in an early, exploratory, phase.

Several participants within the audience favored "dumping" the existing trauma registry and changing vendors. While this is a viable option, it is one that should be exercised only with great caution. Doing so could result in the loss of significant legacy data that currently resides at each of the level II and III trauma centers. Transition to a new system could cause "glitches" associated with the distribution, installation, debugging, and training for the new system. Likely, the current set of challenges would only be traded for a different set. However, if the current vendor is either unable or unwilling to identify a solution to the statewide reporting function of the existing software then this option may be necessary.

RECOMMENDATIONS

- Utilize existing registry data to its fullest extent
- Identify solutions to improve the current data system
  - o Ensure that each installed version is fully compatible with the ACS National Trauma Data Standard.
  - o Explore all avenues for aggregation and reporting on current data including submission to the ACS National Trauma Data Bank for aggregation and reporting.
  - o **Contact the National EMSC Data Analysis Resource Center (NEDARC) for assistance with the current software package.**
  - o **Place the vendor on notice that if aggregate reports can not be generated by December 31, 2008, from all of the trauma centers that a new vendor will be hired to provide software at the institutional and state level.**
  - o **On January 1, 2009 either begin reporting aggregate data or issue a request for proposal (RFP) for a new trauma registry software vendor.**
- Improve access to and the quality of UB-92 data.
  - o Require participation from all hospitals, including submission of E-Code data.
  - o Bring the data back to North Dakota for collection, maintenance, and retrieval functions.
  - o Ensure that the North Dakota Department of Health has access to the data for purposes of planning and evaluation.
- Explore any/all existing datasets for information that may be useful in the planning, development, and evaluation of the trauma system.

Research

Purpose and Rationale

Overview of Research Activity

Trauma systems are remarkably diverse. This diversity is simply a reflection of authorities tailoring the system to meet the needs of the region based on the unique combination of geographic, economic, and population characteristics within their jurisdiction. In addition, trauma systems are not fixed in their organization or operation. The system evolves over years in response to lessons learned, critical review, and changes in population demographics. Given the diversity of organization and the dynamic nature of any particular system, it is valuable when research can be conducted that evaluates the effectiveness of the regional or statewide system. Research drives the system and will provide the foundation for system development and performance improvement. Research findings provide value in defining best practices and might alter system development. Thus, the system should facilitate and encourage trauma-related research through processes designed to make data available to investigators. Competitive grants or contracts made available through lead authorities or constituencies should provide funds to support research activities. All system components should contribute to the research agenda. The extent to which research activities are required should be clearly outlined in the trauma system plan and/or the criteria for trauma center designation.

The sources of data used for research might be institutional and regional trauma registries. As an alternative, population-based research might provide a broader view of trauma care within the region. Primary data collection, although desirable, is expensive but might provide insights into system performance that might not be otherwise available.

Trauma Registry–based Research

Investigators examining trauma systems can use the information recorded in trauma registries to great advantage to determine the prevalence and annual incidence rate of injuries, patterns of care that occur to injured patients in the system's region, and outcomes for the patients. These data can be compared with standards available from other trauma registries, such as the NTDB. Such comparisons can then enable investigators to determine if care within their region is within standards and can allow for benchmarking. Initiating and sustaining injury prevention initiatives is a vital goal in mature trauma systems. Investigators can take a leadership role in performing research using trauma registry data that identify emerging threats and instituting public health measures to mitigate the threats. For example, a recent surge in death and disability related to off-road vehicles can be identified and the scope of the problem defined in terms of who,

where, and how riders are injured, and then, through presentations and publications, the public can be informed of a new threat.

Trauma system administrators have a responsibility to control investigators' access to the registry. The integrity and reliability of data in a trauma systems registry are essential if accurate research and valid conclusions are to be reached using the data. Trauma system administrators should have a process that screens data entered into the system's composite registry from individual institutions. There should be a mechanism that ensures that the information is stored in a secure manner. Investigators who seek access to the trauma registry must follow a written policy and procedure that includes approval by an authorized institutional review board. Trauma registry data may include unique identifiers, and system administrators must ensure that patient confidentiality is respected, consistent with state and federal regulations.

Population-based Trauma System Research

A major disadvantage of using only trauma registry data to conduct research that evaluates injured patients in a region is the bias resulting from missing data on patients not treated at trauma centers. Specifically, most registry data are restricted to information from hospitals that participate in the trauma system. Although ideally all facilities participate in the form of an inclusive system, many systems do not attain this goal. Thus, a population-based data set provides investigators with the full spectrum of patients, irrespective of whether they have been treated in trauma centers or nondesignated centers or were never admitted to the hospital owing to death at the scene of incident or because their injuries were insufficiently severe to require admission. The state and national hospital discharge databases are examples of population-based data. These discharge databases contain information that was abstracted from medical records for billing purposes by hospital employees who enter these data into an electronic database. For investigators seeking a wider perspective on the care of injured patients in their region, these more inclusive data sets, compared with registries, are essential tools. Other population based data that may be of help include mortality vital statistics data recorded in death certificates. Selected regions might have outpatient data to capture patients who are assessed in the ED and then released.

Investigators can use these population-based data to study the influence of a regional trauma system on the entire spectrum of patients within its catchment area.

Participation in Research Projects and Primary Data Collection

Multi-institutional research projects are important mechanisms for learning new knowledge that can guide the care of injured patients. Investigators within trauma systems can participate as coinvestigators in these projects. Investigators can participate by recruiting patients into prospective studies, being leaders in the design and administration of grants, and preparing manuscripts and reports.

Evidence of this collaboration is that investigators within a trauma system are recognized in announcements of grants or awards. Lead agency personnel should identify and reach out to resources within the system with research expertise. These include academic centers and public health agencies.

Measures of Research Activity

Research can be broadly defined as hypothesis-driven data analysis. This analysis leads the investigators to a conclusion, which might become a recommendation for system change. Full manuscripts published in peer reviewed research journals are an exemplary form of research activity. Research reported in annual reviews or in public information formats intended to inform the trauma system's constituency can also be considered legitimate research activity.

OPTIMAL ELEMENTS

I. The trauma MIS is used to facilitate ongoing assessment and assurance of system performance and outcomes and provides a basis for continuously improving the trauma system, including a cost-benefit analysis. **(B-301)**

    a. The lead agency has available for use the latest in computer/technology advances and analytic tools for monitoring injury prevention and control components of the trauma system. There is reporting on the outcome of implemented strategies for injury prevention and control programs within the trauma system. **(I-301.4)**

II. The lead agency ensures that the trauma system demonstrates prevention and medical outreach activities within its defined service area. **(B-306)**

    a. The trauma system has developed mechanisms to engage the general medical community and other system participants in their research findings and performance improvement efforts. **(I-306.1)**

    b. The effect or impact of outreach programs (medical community training/support and prevention activities) is evaluated as part of a system performance improvement process. **(I-306.3)**

III. To maintain its state, regional, or local designation, each hospital will continually work to improve the trauma care as measured by patient outcomes. **(B-307)**

    a. The trauma system implements and regularly reviews a standardized report on patient care outcomes as measured against national norms. **(I-307.2)**

CURRENT STATUS

An active research community exists in North Dakota, with many researchers interested in injury prevention and control. For example, the Department of Physical Education, Exercise Science and Wellness at the University of North

Dakota (UND) has an interest in the epidemiology of injury in child and adolescent sports; the Center for Health Promotion and Translation Research, UND has an interest in rural ambulance transport for traumatic brain injury; and the Department of Psychology, North Dakota State University has an interest in firearm injury prevention. Other investigators have an interest in adolescent suicide.

This research community was not well represented during the ACS review. The stakeholders focused primarily on their inability to evaluate the trauma system due to the previously outlined management information systems difficulties. (See the Trauma Management Information Systems section for more information.) As a result, projects relying on trauma registry data require a request to each of the participating trauma centers, with aggregation by the investigator. These difficulties have been a disincentive to using the trauma registry for research purposes.

Opportunities exist to broaden the scope of trauma system research beyond the delivery of acute trauma care through better linkage of providers and researchers. For example, providing an infrastructure for the development of a research agenda focusing on state injury prevention and control issues will bring together key stakeholders with a great breadth of expertise. Such a research agenda and the potential studies that result have the potential to inform rural trauma system development in North Dakota and beyond.

North Dakota has a very robust EMS database and is one of only ten states contributing data to the National EMS Information System (NEMSIS). While these data have the potential to impact system performance, these databases have had limited utilization. These data should be made available to interested researchers. Further, when difficulties with the hospital trauma registries have been resolved, the EMS data should be linked to the state trauma registry to provide investigators with the opportunity to evaluate their system.

Data access
Hospital trauma registry data are aggregated by analysts in the Department of Health. A mechanism exists to make these data available to investigators agreeing to comply with the relevant privacy legislation. While access to aggregate registry data has not been tested, the mechanism described for data access appears adequate to provide researchers with the necessary data.

Funding
Participants expressed that graduate students and other investigators have a tremendous interest in the trauma data and that funding for research activities or data analysis would not be required. While the Department of Health does not provide competitive grant funds for research activities, an opportunity to explore the use of funds from the State Traffic Safety Information System Improvement grants (DOT) for research related to MVC-related injuries could be a possibility.

Payers appear to be interested stakeholders in the community and should be considered as potential means or source of funding. For example, at the time of the ACS review, Blue Cross Blue Shield of North Dakota was requesting applications pertaining to rural health information technology.

Knowledge translation
Participants expressed a general consensus that a structure for translating new research findings into practice exists. Research findings could be presented to stakeholders at the STC and then moved forward for either a regulatory change or a change in practice guidelines. However, it was acknowledged that the process for stimulating change is slow.

RECOMMENDATIONS

- **Engage the general medical community in the development of an agenda to identify the strategic priorities in injury research**
- **Encourage researchers within local academic centers to present new research findings at state trauma conferences to foster the development of academic-community partnerships**
- **Perform data linkage across datasets at the state level to facilitate evaluation of the continuum of care**

FOCUSED QUESTIONS

1. **The site review teams, the State Trauma Committee, and the Urban Trauma Coordinators have worked with the Level IV and V Trauma Centers and hospitals striving to become Trauma Centers to develop and review their hospital Trauma PI Programs.**

   The North Dakota Trauma Committee does address system problems that are identified and brought to the committee's attention, but we don't have a formalized regional or statewide system PI program. Can you provide strategies to develop Regional and Statewide System PI programs?

Response

Having a PI plan in place is important to the success of the PI process. Potential resources for development of a PI plan are the Delaware trauma program and Washington State, which has a strong regional PI plan and patient outcome analysis. Another source of state PI plans is the Trauma Managers Council of the State Association of State EMS Officials. These plans outline the process and various components of a quality state PI program that include:

- Trauma system quality definitions
- Goals for the PI process
- Goals of the PI technical advisory group
- Overview of the PI program
- Facility indicators for internal review
- External indicators for system review
- Problem solving methodology
- Reports
- EMS system indicators

When developing the PI plan, the mission and key goals must first be agreed upon. Since North Dakota does not currently have an EMS or trauma medical director, the level II trauma center medical directors and trauma program managers should take the lead in initiating the process. As a group they can establish the mission and goals of the PI plan and the purpose of the technical advisory group. Once that has been established, assigning workgroups to develop sections of the PI plan should then occur. Each workgroup should have a leader who sets the agenda, maintains minutes of all meetings, and keeps the workgroup on a schedule with specific timelines for completion. Sample PI plans from other states should be provided to each workgroup as models.

While the PI plan is being developed, the data technical advisory group could work on selection of specific outcome indicators with the level II trauma center medical directors and trauma program managers. Examples might include:

- Frequency with which ALS intercepts are called from the field
- The number of trauma activation codes that are being called by EMS from the field
- All trauma deaths in all centers
- Time from injury to definitive care

At the regional level, the individual trauma center registries can provide most of the data. Other sources of data for PI activities could come from SOAR to measure outcome indicators such as response time, scene time, and interfacility transport time. If the regions collaborate to determine which processes of care to measure and what indicators to use, results and findings could be compared between and among the regions as an incremental step toward statewide PI.

Additionally, select indicators could be identified and downloaded from the individual level II and III trauma registries. These data could be sent to the state where they could either be imported or re-entered into simple spreadsheet or database software programs. In that format, analysis could be conducted and simple reports generated until the statewide aggregation and reporting function is resolved.

System PI should not be delayed in anticipation of a fully functioning statewide trauma registry. All system PI should be inclusive and multi-disciplinary. Feedback and benchmarking processes should be reported back to the regional councils as a loop closure.

2. There are active Injury Prevention Programs and Disaster Preparedness activities going on in North Dakota. The Indian Health Services also has Injury Prevention Programs going on in our state. Currently there are loose ties from these groups to the State Trauma System and Committee. Can you provide our state with some direction on how to form stronger collaboration with these entities?

Response

State Injury Prevention Program

The injury prevention program director has recently been invited to participate on the STC, and this provides an opportunity to promote the visibility of primary prevention as a significant focus of the trauma system.

Integrating prevention as a component of the revised State Trauma Plan will formalize the linkage between the two programs. The State Trauma Plan could promote the role of the state's injury prevention program in fulfilling the prevention function for the state trauma system with key responsibilities for the following:

- injury surveillance,
- performing an annual or biennial comprehensive injury assessment,
- developing the implementation plan for the Injury Prevention Plan,
- revising the Injury Prevention Plan at regular intervals (e.g., every 5 years) to address the emerging trends in injury, and
- coordinating the primary prevention intervention programs within the regional Safe Communities infrastructure to address the priority injury issues in the state injury plan.

Clarifying the role and expectations of the injury prevention program within the state trauma program may provide justification for dedicated core injury prevention personnel. Conversely, the inclusion of the trauma system activities in the Injury Prevention Plan as the primary segment of tertiary prevention would again strengthen the linkage and interdependent relationship between the two activities.

A prevention technical advisory group for the STC is one potential mechanism to facilitate the relationship between the programs. Membership on this prevention technical advisory committee could potentially include representation from each of 8 Safe Communities and the Indian Health Service, to promote coordinated regional prevention interventions in support of the Injury Prevention Plan.

The Indian Health Service (IHS) offers an injury prevention fellowship. "The IHS Injury Prevention Fellowship Program is a 12-month advanced learning

experience for individuals promoting injury prevention in American Indian/Alaska Native communities." Please refer to the following website for additional information: http://www.ihs.gov/MedicalPrograms/InjuryPrevention/index.cfm?module=Fellowship.

In the past, non-IHS and non-Tribal individuals have been accepted into the program because of their potential to impact injury in the Native American population. If there is an interested individual in the North Dakota Department of Health with an interest in directing injury prevention efforts towards the Native American population, this could be an opportunity for both parties to benefit.

The United Tribes Technical College (http://www.uttc.edu/) located in Bismarck, North Dakota offers an Injury Degree Program and may provide other opportunities for training or collaboration.

Resources

- IHS Injury Prevention program web site:
  http://www.ihs.gov/MedicalPrograms/InjuryPrevention/index.cfm
- Recent copy of Aberdeen Area IHS Injury Prevention Program newsletter:
  http://www.ihs.gov/MedicalPrograms/InjuryPrevention/Documents/IP%20Newsletter%20Fall.pdf

Recommendations:

- Formalize the relationship between the state injury prevention program and state trauma program with clear statements of roles and expectations of each program in promoting statewide primary prevention.
- Develop an injury prevention technical advisory group for the State Trauma Committee.
- Investigate opportunities for an injury prevention advocate to become engaged in Indian Health Services training to promote a closer collaboration with the state's Native American Community.
- Initiate a joint high level meeting with trauma, injury prevention, and Indian Health Services to identify other opportunities for communication and injury prevention program activities.

Disaster Preparedness
Disaster preparedness has become more complex, evolving in multiple domains and existing on numerous levels; and at the same time exhibiting a common problem experienced in actual disasters — inadequate communication. The trauma system made a good decision to add a disaster preparedness representative to the STC, and the EMS director serves on the state's Emergency Preparedness committee. These appointments provide an

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opportunity to promote dialogue and enhance the common goals of both programs.

The state has multiple disaster preparedness committees, some of which could benefit by the trauma center representation or representation from the STC. The concept of reciprocal representation should be encouraged at all levels where the trauma system and disaster preparedness interact — facilities, counties, Indian Health Service, etc. It was reported that some interaction occurs in some areas, but the degree and extent is unknown. Perhaps as a starting point, the STC or the state trauma system could determine who in the trauma community is involved with regional, county, or local disaster preparedness committees. Once this is known, opportunities for increased participation could potentially be identified.

Recommendations:

- Conduct a survey among the trauma system stakeholders to identify all individuals currently involved on regional, county, and local disaster preparedness committees or groups.
- Obtain a list of disaster preparedness committees in the state at regional, county, and local levels to identify opportunities for increased collaboration by the state's trauma centers and the trauma system.
- Initiate a joint high level meeting with trauma, disaster preparedness, and Indian Health Services to discuss potential opportunities for collaboration.

Appendix A: Site Visit Team- Biographical Sketches

ROBERT J. WINCHELL, MD, FACS- TEAM LEADER

Dr. Robert Winchell is currently the head of the Division of Trauma and Burn Surgery at the Maine Medical Center and Associate Clinical Professor of Surgery at the University of Vermont School of Medicine. Dr. Winchell received his undergraduate degree from the California Institute of Technology and his M.D. from Yale University. He did his internship, General Surgery residency, and Trauma and Critical Care Fellowship at the University of California, San Diego, where he remained on the faculty as Associate Professor of Clinical Surgery in the Division of Trauma through 1999. After leaving the University of California, Dr. Winchell established and subsequently directed the Tacoma Trauma Center in Tacoma, Washington, a successful new trauma center operated as a joint venture between two previously competing hospitals. Dr. Winchell moved to the Maine Medical Center in 2001 and assumed his current post in 2004.

Dr. Winchell has been involved in trauma center and trauma system design and operation throughout his career, in a wide variety of settings covering the spectrum of system development. He was involved with both the day-to-day operations and ongoing development of the San Diego County trauma system for over ten years and served as chair of the San Diego and Imperial County Committee on Trauma. He participated in operation and ongoing development of the Washington state trauma system, serving on the state advisory board, and as chair of the Southwest EMS region. Since coming to Maine, Dr. Winchell has worked to develop the Maine state system, is a member of the state advisory board, and is currently the chairman of the Maine State Committee on Trauma. Dr. Winchell is an active member of the Trauma Systems Evaluation and Planning Committee of the American College of Surgeons and also serves as a site reviewer for the trauma center verification program of the College.

Dr. Winchell is Board certified in General Surgery, with added qualifications in Surgical Critical Care. Dr. Winchell is a Fellow of the American College of Surgeons as well as a member of the American Association for the Surgery of Trauma, the Association for Academic Surgery, the Southwest Surgical Congress, and the Society of Critical Care Medicine. He is author of more than 40 scientific papers and book chapters, and has given over 100 regional, national, and international presentations.

JANE W. BALL, RN, PHD

Dr. Jane W. Ball served as the Director of the National Resource Center (NRC) at the Children's National Medical Center in Washington, D.C., from 1991 through 2006. The NRC provided support to two Federal Programs in the U. S. Department of Health and Human Services' Health Services and Resources Administration (HRSA): the Emergency Medical Services for Children (EMSC) Program and the Trauma-Emergency Medical Services Systems Program. As director of the NRC, she coordinated the support provided to the Federal Program Directors as well as the provision of technical assistance to state grantees. Support to the Federal Program Directors often included meeting facilitation, preparation of special reports (such as the Model Trauma Systems Evaluation and Planning document), and consultation on Program issues. Technical assistance often included strategic planning, providing guidance in securing funding, developing and implementing grants, developing injury prevention plans and programs, building coalitions, shaping public policy, conducting training, and producing educational resource materials.

Dr. Ball has authored numerous articles and publications as well as several health care textbooks, including *Mosby's Guide to Physical Examination* (6 editions), *Child Health Nursing* (first edition), *Pediatric Nursing: Caring for Children* (4 editions), *Maternal and Child Nursing* (2 editions), and *Pediatric Emergencies: A Manual for Prehospital Care Providers* (2 editions). One of these texts, *Pediatric Nursing: Caring for Children*, received the 1999 and 2001 Robert Wood Johnson Foundation Last Acts coalition *Outstanding Specialty Book Award*. As an expert in the emergency care of children, Dr. Ball has frequently been invited to join committees and professional groups that address the unique needs of children.

Dr. Ball recently completed her term as the President of the National Academies of Practice, an organization composed of distinguished health care practitioners from 10 disciplines that promote education, research, and public policy related to improving the quality of health care for all through interdisciplinary care. She currently serves as the organization's Immediate Past President.

Dr. Ball graduated from the Johns Hopkins Hospital School of Nursing. She obtained her master's degree and doctorate in Public Health from John Hopkins University School of Hygiene and Public Health. She is a Certified Pediatric Nurse Practitioner.

CHRISTY FRECCERI, RN

Christy Frecceri, RN is currently the Trauma Director at Kaiser Permanente, a trauma program in development in South Sacramento, California as a level II center. Most recently, Ms. Frecceri's focus has been as a nurse consultant in the areas of Trauma and Emergency Medicine. Ms. Frecceri has been an independent nursing consultant for approximately 6 years prior to engaging in her most recent program with Kaiser Permanente. The majority of the focus of her work in the consulting field has included providing hospitals with advice, onsite preparation, and education in the area of trauma, emergency medicine, and critical care services, developing new trauma programs, and providing education for medical and nursing personnel in caring for trauma patients.
Ms. Frecceri also provided consultative services to write a plan for bioterrorism preparedness in a 5 county region in California. Additionally, she served as interim EMS Trauma Coordinator for the Santa Clara EMS Agency initiating the process for inter-county MOU's as well as monitoring overall performance of trauma care in the county, ensuring delivery of quality care in two level I Trauma Centers and one level II Center. Ms. Frecceri monitored system integration of patient care, prehospital care, and patient destination throughout the region, provided trauma nurse consultation, and prepared a report for the agency reviewing Regional Medical Center's request for level II designation in the County.

Ms. Frecceri has focused her career on trauma since the 1980's. Prior to full-time consulting, Ms. Frecceri served as the Trauma Program Director for two level II start up trauma centers. In addition to her trauma center work, Ms. Frecceri served as the Regional Trauma Director in the 1990's for Northern California EMS, INC., an eleven county region. Ms. Frecceri's responsibilities included: monitoring overall performance of trauma care in the counties and ensuring delivery of quality care in two level II Trauma Centers and five level III Centers; monitoring system integration of patient care, prehospital care, and patient destination throughout the region; and preparation and submission of grant proposals to acquire funding for special projects including a prehospital care computerized data collection program and a data program to link prehospital, trauma, hospital discharge and traffic information into one system.

JANET GRIFFITH KASTL, MA

Janet Griffith Kastl is the Director of the Washington State Office of Emergency Medical Services and Trauma System. She has held this position since passage of the Washington State Trauma Care Act in 1990. Prior to serving as Director, she oversaw the Trauma Assessment Project that planned and created the 1990 *Report to the Legislature*, resulting in enactment into statute with full funding. In 1997, the Legislature passed the Trauma Care Fund Act, which provides a dedicated fund that is available for designated facilities, physicians, and EMS providers of care to major trauma patients.

Ms. Kastl began her career as an EMS Systems Planner and Regional EMS Administrator when the state's EMS system was in its infancy. An early advocate of addressing trauma care through a systems approach, she played a strong role in the development and successful implementation of a statewide EMS and Trauma System in Washington. During her 30-year career in public health, Ms. Kastl has taken on increased responsibilities in the development, administration, and evaluation of health delivery systems, specializing in EMS and trauma systems development. Due in no small measure to her extensive experience, knowledge, skills and dedication, Washington's system enjoys a broad reputation for excellence and is considered a national model by many public health professionals.

AVERY B. NATHENS, MD, FACS

Dr. Nathens is currently the Division Head in General Surgery and Director of Trauma at St. Michael's Hospital, in Toronto, Canada and an Associate Professor of Surgery at the University of Toronto. He is a practicing trauma surgeon and epidemiologist with a focus on trauma system design. He currently serves as the Chair of the National Trauma Databank Subcommittee and is an active member of the Trauma Systems Consultation Subcommittee and the Outcomes Subcommittee within the American College of Surgeons Committee on Trauma. Dr. Nathens served as Chief Editor in the 2008 revision of the Trauma Systems Consultation Guide, *Regional Trauma Systems: Optimal Elements, Integration, and Assessment.* Dr. Nathens is board certified in both General Surgery and Critical Care.

Dr. Nathens received his medical degree at Queen's University in Canada and completed his residency in General Surgery at the University of Toronto. Here he completed a doctoral degree focusing on the inflammatory response to injury. He completed a fellowship in Trauma and Critical Care at Harborview Medical Center in Seattle where he also pursued a Master in Public Health in Epidemiology. He was an attending trauma surgeon at Harborview Medical Center for six years, where he was appointed Director of Surgical Critical Care and Director of the Acute Care Section at the Harborview Injury Center, one of ten CDC funded injury control centers.

Dr. Nathens has had extensive experience evaluating trauma system effectiveness and patient flow within a system and has published many landmark peer-reviewed papers in the Lancet, NEJM, and JAMA focusing on trauma system design and implementation. He has also played a key role in identifying the processes and outcome of trauma center care and the long term effects of injury on functional outcome.

NELS D. SANDDAL, MS, REMT-B

Mr. Sanddal is currently the president of the Critical Illness and Trauma Foundation (CIT), in Bozeman, Montana. CIT is a non-profit organization dedicated to improving the outcomes of people who are injured in rural America through programs of prevention, training, and research. He recently completed a detachment as the Director of the Rural EMS and Trauma Technical Assistance Center which was funded by the Department of Health and Human Services, Health Resources and Services Administration. Mr. Sanddal worked as the training coordinator for the EMS and Injury Prevention Section of the Montana Department of Public Health and Human Services in the late 1970's. He has served as the Chairperson of the National Council of State EMS Training Coordinators and as the lead staff member for that organization, as well as the National Association of EMT.

Mr. Sanddal has been a co-investigator for six state or regional rural preventable trauma mortality studies and has conducted research in the area of training for prehospital and nursing personnel as well as in rural injury prevention and control. He is a core faculty member for the NHTSA Development of Trauma Systems course and has conducted several statewide EMS assessments for NHTSA. Mr. Sanddal served on the IOM Committee on the Future of Emergency Care in the U.S.

He received his EMT training in Boulder, Montana, in 1973 and has been an active EMT with numerous volunteer ambulance services since that time. He currently responds with the Gallatin River Ranch Volunteer Fire Department , where he serves as the Medical Officer and Assistant Chief.

He completed his undergraduate work at Carroll College, received his Master's degree in psychology from Montana State University and is currently completing his doctorate in Health and Human Behavior from Walden University.

JIM UPCHURCH, MD, MA, REMTP

Dr. Upchurch began his medical career in 1971 as a Special Forces Medic courtesy of the US Army. He graduated from the University of Texas Medical Branch at Galveston in 1982 and completed a Family Practice residency from the University of Oklahoma in 1985. Since 1985, he has served as an Indian Health Service (IHS) Physician on the Crow Indian Reservation in Montana. The majority of his clinical practice involves emergency medicine (EM), Emergency Medical Services (EMS), surgery, and obstetrics. He maintains current National Registry certification and state licensure as a paramedic. In 2003, he completed a Master's degree in educational technology from George Washington University.

Dr. Upchurch is a long-standing member of the National Association of EMS. Physicians and the American College of Emergency Physicians. Since 1986, he has functioned as EMS medical director for Big Horn County in Montana and has guided their basic care program to the advanced life support level, including critical care interfacility transport. He also provides EMS medical direction for Big Horn Canyon National Park and the Incident Medical Specialist Program, US Forest Service, Region VI.

Dr. Upchurch is director of a small non-profit organization, EMS Education & Training. They offer distance and face-to-face educational opportunities to rural and frontier EMS personnel in Montana who desire to advance their level of care. He is an active ACLS, ACLS EP, ATLS and PHTLS instructor. Recently, he authored the Geriatric chapter for the sixth edition of *Nancy Caroline's Emergency Care in the Streets*, released in 2007.

Although Montana has no recognized State EMS Medical Director, Dr. Upchurch has served in that function for many years and represents Montana on the National Council of State EMS Medical Directors of the National Association of State EMS Officials. He functions at the IHS national level as a consultant on EM and EMS issues. He also sits on the Montana Board of Medical Examiners and on the board for the Critical Illness and Trauma Foundation.

Appendix B: List of Participants

Name	Title	Organization
David Antonenko, MD	Trauma Medical Director	State Trauma Committee, UND School of Medicine, and Altru Health System (Level II Trauma Center in Grand Forks)
Shelly Arnold, RN	Trauma Program Manager	State Trauma Committee, ND Trauma Coordinators, and MedCenter One (Level II Trauma Center in Bismarck)
Darleen Bartz	Section Chief, Health Facilities	State Health Department
Gloria Belgarde, RN	Director of Nursing	Quentin Burdick Health Care Facility (Level IV Trauma Center in Belcourt)
Vicky Black, RN	Trauma Program Manager	Altru Health System (Level II Trauma Center in Grand Forks)
Sandy Boschee, RN	Chairman of the NW Regional Trauma Committee, Director	State Trauma Committee, NW Regional Trauma Committee, and NorthStar Criticare Helicopter-Trinity (Level II Trauma Center in Minot)
Steven Briggs, MD	Trauma Medical Director	Merit Care (Level II Trauma Center in Fargo)
James Brooke, MD	General Surgeon	St. Joseph's (Level III Trauma Center in Dickinson)
Rhonda Bugbee, RN,CEN	Trauma Consultant	State Trauma Committee
Ron Carlisle	State Representative	ND Legislature
James Cooper	Administrator	MedCenter One (Level II Trauma Center in Bismarck)
Terry Dwelle, MD	State Health Officer	State Health Department
Amy Eberle, RN	State Trauma Coordinator	State Health Department
Dan Ehlen, EMT-P	Director of MeritCare Life Flight	Merit Care (Level II Trauma Center in Fargo)
Becky Elkins, RN	Trauma Coordinator and Nurse Manager of the ED	St. Joseph's (Level III Trauma Center in Dickinson)
Wayne Fahy	Paramedic	State Trauma Committee, ND EMS (ALS) Association, and Harvey Ambulance Service
Neil Frame	Chair	EMS Advisory Committee
Luis Garcia, MD	Trauma Surgeon and ND COT Vice Chair	Merit Care (Level II Trauma Center in Fargo)
Mike Gerhardt	Representative	State Highway Patrol
Ed Gregoire	State EMS Training Coordinator	State Health Department
Mayebeth Hadfield	Assistant Director of Midwest Government Affairs	Genentech
Steven Hamar, MD, FACS	Vice Chair of State Trauma Committee and Chair of SW Regional Committee, ND COT Chair, American College of Surgeons, Past	State Trauma Committee, SW Regional Committee, ND COT, American College of Surgeons, St. Alexis (Level II Trauma Center in Bismarck)

	Trauma Director at St. Alexius	
Derek Hanson	Safety Officer	State Trauma Committee, ND EMS (BLS) Association and St. Alexius (Level II Trauma Center in Bismarck)
Linda Harmsen	Trauma Registrar	St. Alexis (Level II Trauma Center in Bismarck)
Peg Haug	Director	ND EMS Association
Joan Heckaman	State Senator	ND Legislature
June Herman	Representative	Dakota Affiliate of the American Heart Association
Kent Hoerauf, MD	Chairman of State Trauma Committee	State Trauma Committee, ND Medical Association, West River Regional Medical Center (Level IV Trauma Center in Hettinger)
Terry Hoff	CEO	State Trauma Committee, the ND Healthcare Association, and Trinity Health (Level II Trauma Center in Minot)
Dan Hunt, MD	Chairman of SE Regional Trauma Committee	State Trauma Committee, SE Regional Trauma Committee, and Innovis Health (Level II Trauma Center in Fargo)
Mary Jagim, RN	Disaster Coordinator	State Trauma Committee, ND Emergency Nurses Association, and Merit Care (Level II Trauma Center in Fargo)
Toby Jezzard, RN	Trauma Program Manager	Innovis Health (Level II in Fargo)
Shelly Killen, MD	Medical Director	State Trauma Committee and Rehab at St. Alexius (Level II Trauma Center in Bismarck)
Cheryl Korsmo, RN	Trauma Coordinator, Chairman of NE Regional Trauma Committee	State Trauma Committee, NE Regional Trauma Committee, and Northwood Deaconess Health Center (Level V in Northwood)
Joe Kroeber	State Representative	ND Legislature
Deanna Kubitz, RN	Trauma Registrar	Merit Care (Level II Trauma Center in Fargo)
Craig Lambrecht, MD	EMS Medical Director	State Trauma Committee and MedCenter One (Level II Trauma Center in Bismarck) and ACEP
Lane Lee, DO, FACOS	Trauma Medical Director	Trinity (Level II Trauma Center in Minot)
Marsha Lembke	Representative	Highway Traffic Safety
Bruce Levi	Representative	ND Medical Association
Elroy Lindaas	Senator	ND Legislature
Tim Mahoney, MD	Past Trauma Medical Director	Innovis Health (Level II Trauma Center in Fargo)
Tim Meyer, EMT-P	State EMS Director	State Health Department
Marlene Miller	Program Director	ND Medicare Rural Hospital Flex Program
Barb Monson, RN	Trauma Coordinator	Jamestown Hospital
Karin Morgean	Manager, Office of Traffic Safety	Highway Traffic Safety
Lindsey Narloch	Research Analyst	State Health Department
Shareen Parisien, RN	Trauma Coordinator and Nurse Manager of the ED	Quentin Burdick Health Care Facility (Level IV Trauma Center in Belcourt)
Melissa Parsons	Senior Epidemiologist	State Health Department- Community Health Section

Janelle Pepple	Representative	911 Association
Dave Peske	Representative	ND Medical Association
Randy Peterson	Administrator	Tioga Medical Center (Level V Trauma Center in Tioga) and Tioga's Volunteer Ambulance Service
Todd Porter	ND Legislature Representative and Chairman of the House Public Safety Committee	State Trauma Committee, ND Legislature, the House Public Safety Committee, and the Manager of Metro Ambulance in Bismarck
Clara Sue Price	State Representative	ND Legislature
Diana Read	Program Director	State Health Department- ND Injury Prevention Program
Kelli Rice	EMSC Coordinator	State Health Department
Rod St. Aubyn	Director of Government Relations	BlueCross BlueShield ND
Jeff Sather, MD	EMS Medical Director	Trinity (Level II Trauma Center in Minot)
Jan Schmid, RN	Trauma Registrar	MedCenter One (Level II Trauma Center in Bismarck)
Mike Schmit, MD	Trauma Medical Director	St. Alexius (Level II Trauma Center in Bismarck)
Kathy Seidel, RN	Director, St. Alexius Emergency and Trauma Center	State Trauma Committee, St. Alexis (Level II Trauma Center in Bismarck), and ND Nurses Association
Arvy Smith	Deputy State Health Officer	State Health Department
Bill Sorensen	Representative	ND Department of Emergency Services (State Radio)
Bonnie Staiger	Policy Advisor	American Heart Association
Stacy Staiger	Lobbyist	American Heart Association
Waldemar Storm, MD	Pediatric Physician	State Trauma Committee, American Academy of Pediatrics, and Meritcare Children's Hospital
Deb Syverson, RN	Trauma Program Manager	Merit Care (Level II Trauma Center in Fargo)
Chip Thomas	Representative	ND Hospital Association
Carol Thurn	Program Manager	Highway Traffic Safety
Cheryl Underhill	Emergency Preparedness and Response Representative	State Trauma Committee
Don Vigesaa	State Representative	ND Legislature
Jeanette Viney, MD, FACS	Trauma Medical Director	MedCenter One (Level II Trauma Center in Bismarck)
Brenda Vossler	Emergency Preparedness Hospital Coordinator	State Health Department
Howard Walth, RN	Trauma Program Manager	St. Alexius (Level II Trauma Center in Bismarck)
Mark Weber	President	ND EMS Association
Tim Wiedrich	Chief	State Health Department- Emergency Preparedness and Response
Roxanne Woeste	Fiscal Analyst	ND Legislative Council
Kimber Wraalstad	CEO	Rolla Hospital
Karen Zimmerman, RN	Trauma Program Manager	Trinity (Level II Trauma Center in Minot)