THE NEW YORK STATE TRAUMA SYSTEM

TRAUMA IS A DISEASE

- Accidental Death and Disability: The Neglected Disease of Modern Society was published in 1966 by the National Academy of Sciences
  - 52 million accidents resulted in 107,000 deaths and 400,000 temporarily disabled persons
- Injury in America: A Continuing Public Health Problem was published in 1985 by the National Research Council
  - Trauma was not an insoluble problem

TRAUMA CARE AS A NATIONAL PROBLEM

- Rural trauma patients have more than a 25% reduced chance of survival
- 21.6 General Surgeons per 100,000 people in rural areas
- 67.2 General Surgeons per 100,000 people in urban areas
- 10.1% of the rural population is within 45 minutes of a trauma center
TRAGA SYSTEMS AND CENTERS

- Illinois (1966) and Maryland (1991) developed nation’s first statewide trauma networks
- First trauma centers established in 1966 in Chicago and in San Francisco in 1972
- The preventable death rate from trauma is reduced from 33% to 7% when patients go to a trauma center
- Trauma centers reduce the preventable death rate

TRAGA CENTERS IN NEW YORK

- Bellevue Hospital is the oldest public hospital – 1736
- The world’s first catastrophe hospital – 1941
- First ICU in a public hospital
- Emergency Services for the President and visiting dignitaries when they are in NYC

DEVELOPMENT OF THE NEW YORK TRAUMA SYSTEM

- The DOH recognized the need for New York to have a trauma system
- NYS trauma experts were polled & agreed that a NYS trauma system was important and needed
- The DOH facilitated a meeting of experts - trauma surgeons, emergency medicine physicians and nurses
DEVELOPMENT OF THE SYSTEM

- DOH informed hospital representatives and stakeholders that a State Trauma Advisory Committee was being formed.
- NYC had a 911 trauma designation system.
- The rest of NY did not have any designation system.
- The initial focus was to be on Upstate then incorporate NYC into the process.

DEVELOPMENT OF THE SYSTEM

- David Axelrod, MD was the Commissioner of Health.
  - Felt that state oversight would help identify and remove negligent or incompetent MDs.
  - Felt that DOH was best suited for this task.
  - Felt that public reporting of outcomes data would spur MDs and hospitals to perform better.

DEVELOPMENT OF THE SYSTEM

- 1987 NYS developed the formal system of trauma care.
- Minimal standards for trauma center designation were written – 708.5.
- The regulations were based on the then current edition of Resources for the Optimal Care of the Trauma Patient but they were modified significantly.
DEVELOPMENT OF THE SYSTEM

- Trauma Center regulations were completed and were designated to as the 708.5 regulations
- Regional and Area Trauma Center designations were created
- The registry software was supplied only to the Regional and Area Trauma Centers

A HRSA grant of $1.5 million was obtained to support the program
The grant was to last for 3 years
The grant was intended to be seed money for states to develop a trauma system
The state was expected to continue funding after the grant expired

8 regions were created in NYS
Any hospital could qualify
36 hospitals were initially designated
1990 saw DOH provide funding to continue development of the trauma system through a HRSA grant
DOH designated lead facilities based on a competitive RFP
DEVELOPMENT OF THE SYSTEM

- A State Trauma Registry was purchased by DOH – Trauma One developed by Lancet Technologies
- Trauma centers and non-trauma centers would submit data
- The grant funded the purchase of the registry and data collection (people)
- All hospitals in NYS would “submit” data
A statewide trauma registry began data collection in 1993. Registry data included all DOAs, all DIEs, and inpatient admissions ICD codes 800 to 959. The registry was one of three population based registries in the United States.

STAC

- 1991 – DOH selected members who had helped write the regulations to serve as the State Trauma Advisory Committee (STAC).
- Members came from the 8 regions of the state.
- The charge was for the committee to assist the DOH in the Appropriateness Review in evaluating applications for designation.

- The STAC members were appointed by the Commissioner of DOH and then the Governor.
- The STAC was to provide clinical guidance and assist the School of Public Health in data analysis.
- The STAC was an advisory body to the Commissioner.
- SPH was the data repository.
The DOH designated trauma centers after reviewing the applications.
There was no verification process during the application process.
The STAC felt strongly that verification was an integral component of the designation process.

The first trauma center surveys were conducted in 1994.
15 centers were surveyed.
Surveyor teams were composed of a trauma surgeon, an EM physician and a trauma nurse coordinator.
The HRSA grant supported the surveys.

The first report of the NYS Trauma System was published in 1994.
Data analyzed from SPARCS.
SPARCS data lags calendar year by 18 months.
SPARCS was used to confirm that all appropriate trauma cases were included in the NYS registry.
DEVELOPMENT OF THE SYSTEM

- A complete data set was necessary because the intent was to publicly disseminate hospital and physician specific results
- Data entered by trauma centers was not used
- ICISS
- This was opposed by the surgeons, HANYS and GNYHA
- Not all data was properly coded

STATE DATA ANALYSIS

- Risk adjustment inpatient mortality rates were calculated
- Difference in inpatient mortality (Area Centers had lower mortality rate)
- Probably due to the nature of transfers to Regional Centers Upstate

STATE DATA ANALYSIS

- Data analysis showed weaknesses in care at individual trauma centers and in regions
- "Competition" in the market place forced hospitals to improve their support for trauma care
- The data made the DOH aware of the gaps in trauma coverage in the state
- The DOH realized that "not all hospitals are created equal"
DATA ANALYSIS

- Some community hospital trauma centers did not meet 708.5 medical staff criteria
- Some university and community hospitals did not meet 708.5 criteria for support staff
- EMS providers did not consistently take trauma patients to a designated trauma center
- Some non-trauma centers “courted” EMS providers to continue to bring trauma patients to them
1994 to 1995

- 1994 – 1995 saw an increase in trauma center admissions from 48.3% to 59.1%
- The inpatient mortality rate decreased from 34.6% to 31.8%
- Inpatient mortality for ISS 16 to 24 decreased by 11% (7.9% to 7%)
- Inpatient mortality for ISS 1 to 14 decreased by 22.9% (3.5% to 2.7%)

1994 to 1995

- 33.9% of the patients were from NYC
- None of the other seven regions had more than 11% of the total trauma population
- 87% had blunt mechanism of injury
- MVC accounted for 29.8%
- 12.3% were pediatric patients
- GSW accounted for highest mortality (12.4%)
1994 to 1995

- 18% of ED deaths occurred in Regional Centers
- 39% of ED deaths occurred in Area Centers
- There was a great deal of concern since Regional centers did not appear to result in improved survival

1994 to 1995

- This was the first documentation that a Regional Center (Level I equivalent) had a different patient population
- Unfair to compare Regional Centers to all other hospitals
- RAMR maybe misleading because injury severity may not be accurately estimated

1994 to 1995

- Statistical models were developed for MVC, low falls and other blunt injuries
- Allowed prediction of the probability of dying in the hospital as a function of common risk factors such as ISS, GCS, RR and SBP
- SPH was trying to develop a model that would not need a complete registry
1994 to 1995

- Regional Centers tend to have sicker patients triaged to them
- The data is valuable in assessing and improving the quality of trauma care
- The trauma registry was recognized as quality improvement tool by the state

LOSS OF DIRECTION

- No report issued from 1996 to 2002
- Problems with funding
  - Grant expired
  - BEMS maintained funding through Dormitory Fund
  - Use of the Dormitory Fund was eliminated by auditor
  - New Governor – George Pataki
  - New Director for DOH – Antonio Novello, MD
  - New DOH initiatives

- Loss of coordinators and registrars
- Loss of comprehensive data base – non-center data was difficult to obtain
- Dependence on SPARCS to verify registry data
- Paper by Reilly from Kings County questioned the interpretation of SPH and BEMS
LOSS OF DIRECTION

- Centers dropping out of the system
- No verification visits
- New applications
- Decreasing trauma center volumes
- Frequent change in trauma program staff – directors, coordinators and registrars
- Outdated appropriateness review standards

LOSS OF DIRECTION

- Registry support lost and now multiple registries used – Trauma One, NTRACS and Image Trend
- Data submitted to NTDB by all registries
- DOH and SPH release report for 1999 to 2002 in 2006
- Mortality for MVC decreased to 8.44% compared to national average of 15.42%

LOSS OF DIRECTION

- Two regions collected inclusive data – CNY (Upstate) and Suffolk (Stony Brook)
  - Due to determination of trauma coordinators
  - SPH did not analyze community data from registry
  - RTACS in these two regions were functional and focused on regional QI
  - Some community hospitals were reluctant to allow data submission but were persuaded to continue
SURVIVAL OF THE SYSTEM

- STAC was not a statutorily recognized body in the DOH
- High turnover in STAC membership
- New trauma center in the Bronx
- New Executive Committee
- New BEMS liaison

SURVIVAL OF THE SYSTEM

- September 11, 2001
- 2002 HRSA and ACS-COT published Model Trauma System Planning and Evaluation
- 2006 IOM The Future of Emergency Care in the US Health Care System
- Public Health model
- New recognition that trauma care was important

PUBLIC HEALTH MODEL FOR TRAUMA CARE
PUBLIC HEALTH MODEL FOR TRAUMA CARE

- The public health principles:
  - Prevent epidemics and spread of disease
  - Protect against environmental hazards
  - Prevent injuries
  - Promote and encourage healthy behaviors
  - Respond and assist communities when disaster strikes
  - Assure quality and accessibility of health services

NEW LIFE

- New Executive Committee members brought new perspectives and enthusiasm
- The NYS Trauma System and STAC not statutorily recognized
- NYS ACS chapter and changed from a 503(c) organization to a taxable organization so that lobbying was legal
- ATS

NEW LIFE

- Focused lobbying efforts by ACS and ATS
- Support from both Democratic (Assembly) and Republican (Senate) Health Committee Chairs
- The first two attempts at moving legislation from the Committees to floor were unsuccessful
  - Budget issues
  - Lack of understanding
NEW LIFE

- State Hospital Review and Planning Council (SHRPC) became involved with a NYC issue – an additional trauma center in the Bronx
- SHRPC requested STAC perform a review of the NYC Trauma System
- NYS had never performed a systems review
- 2005 saw article 30B passed as Emergency Medical, Trauma and Disaster Care Act

- A revision of 708.5 was attempted
- Verification review visits were resumed
- Efforts made to have more current state reports
- NYC trauma centers were lobbying for de-designation of facilities that did not meet the current standard or were redundant

NYC REVIEW

- First systems review by DOH
- Determine if there is a high quality of trauma care in NYC
- Determine the number of trauma centers required for NYC
- Assessment of accessibility to trauma care in NYC
NYC REVIEW

- High quality care is provided in NYC but cannot comment on uniformity
- 25% of care is provided by non-trauma centers
- Did not determine how many centers were needed
- Trauma care is accessible to all patients except in southern Kings County

- DOH accepted the view that trauma care is a public health problem
- Problems with trauma patients going to non-centers and lack of outcome data
- Inability to determine if there were too many trauma centers in NYC
- Conflict among stakeholders – FDNY, GNYHA, HHC

NEW LIFE

- 1999 to 2004 report released in 2006
- Data was stale
- Users of the report (legislature and DOH) were unhappy with time delay
- Findings were helpful in determining the direction the system should take
Meeting with the Commissioner of Health, BEMS, senior DOH members and STAC

The need for support from state to STAC to complete revisions of 708

The option of using VRC verification was discussed

March 2012 the state decides to use VRC

ACS - COT

Level I, II, III and IV centers

Verification based on the capability of the hospital to support the trauma program

Level I and II essentially the same

Level III has longer response times

Level IV has a trauma team

THE NEED FOR MORE TRAUMA CENTERS

Large areas of state without trauma care

Reduced number of general surgeons

Lack of infrastructure

Hospital cost
THE FUTURE

- New report is to be released
- Goal is to maintain and improve outcomes
- Provide adequate resources for NYS
  - NYC review revealed 19 neurosurgeons providing care to 19 hospitals
  - Upstate NY has lost Orthopaedic and Neurosurgery coverage – centers have closed

THE FUTURE

- NYS physician deficit issues are mandating a new approach
- BEMS staffing
- ACS-COT verification process to be considered as the trauma center verification regulations
- Better trauma care for all New Yorkers