

Sarah Bohn, R3, CATS Block 3

**Clinical question:** Do regional trauma systems reduce mortality in trauma patients?

**Citation:** He, Jack C, et al "Performance of a regional trauma network: A state-wide analysis." J Trauma Acute Care Surg 81:1 (190-195); 2016.

**BLUF: Regionalized trauma system in Cuyahoga County Ohio shows about 2 % reduced trauma mortality when compared to rest of state.**

**Introduction:** Trauma systems were established in 1970s with theories that such would reduce mortality in trauma pts. Traditional systems have been single hospital systems centered on local demands. Foreign studies show regional systems improve outcomes, yet there is little in American literature showing effect here in the States. Northern Ohio Trauma System (**NOTS**) was born with the hope of showing reduction in mortality compared to its prior system and hopefully compared to other regions in Ohio.

**Methods:** NOTS began in 2010 with 2 hospital systems, on L1TC, 4 L2TCs, 7 non trauma hospitals. It was studied until 2012 when 2 of the L2TC closed, but 7 non-trauma hospitals were added to the system. A single NOTS transfer line was established in the L1TC to coordinate transfers with a protocol for triage (base on pt injuries, mechanism and apparent physiologic response). Scene triage protocols were also added. Data collected prospectively and compared retrospectively as collected for National Trauma data Bank.

Patients included all traumas 15 yo and up and compared to both all 88 counties of Ohio as well as Cuyahoga County data from 2006-2009, and compared to other Ohio regions with L1TC date from 2010 - 2012 (the effective period of change in the NOTS region)

**Results:** 178,143 trauma pts from 2006-2012 with 96,467 in pre-NOTS group, 81,676 in post NOTS group. NOTS group (Cuyahoga Co) had reduction in mortality from 7% to 5% from 2010-2012. Other Counties numbers were 6 to 5%, 5 to 4%, 6 to 6%, 3 to 4%, 5 to 6% in that time period with lesser median and mean ISS compared to Cuyahoga Region. However, subgroup analysis compared to other Ohio Counties for older pts (>65), higher ISS > 15 compared to other counties didn't make a difference. However, compared to other regions with more than one L1TC presumably without integrated system there was some mortality reduction in these groups, but compared to regions that had only 1 L1TC, it did not

In the Cuyahoga region of study there was a reduction in deaths for age >65 from 5% to 4%, ISS > 15 26% to 21%, blunt injuries 5% to 4% and penetrating injuries from 20% to 15% when compared to the preNOTS period. With P values to support.

**Discussion:** Having worked in an environment with a central trauma call center and clear criteria for transfer to trauma center, I had wondered if there was data to support this sort of system. This hit home as it's comparing to a system in our back yard in Ohio. This article seems to support that a centralized call center with clear transfer criteria makes a difference in overall mortality, though not necessarily in the severely injured or those > 65 if there is more than one L1TC in the region.

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