

# Health System Neurorestoratology: Mass Casualty Centers

Andrews RJ<sup>1,2</sup>

<sup>1</sup> World Federation of Neurosurgical Societies, Nyon, Switzerland

<sup>2</sup> Nanotechnology & Smart Systems, NASA Ames Research Center, Moffett Field, CA, USA

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## Abstract:

One-third of all deaths worldwide result from lack of surgical care, e.g. trauma, difficult childbirth, noncommunicable diseases – with lack of neurosurgical care being a major factor. Disasters – both natural and man-made (from infrastructure failures to terrorism) – claim 100,000s of lives annually. If this lack is not addressed, GDP loss will exceed US\$1T by 2030.

Trauma and stroke centers (TSCs) evolved with evidence that "24/7/365" treatment dramatically improved morbidity/mortality, much of that benefit due to improved nervous system disorder outcomes. TSC equipment/personnel are an integral part of healthcare systems. Mass Casualty Centers (MCCs) – similarly integrated – provide resilient infrastructure that augments the daily healthcare of the regions served in addition to disaster mass casualty response. MCCs include mobile operating rooms (including a car battery-powered CT, portable by helicopter), telemedicine/telesurgery, and drones (e.g., identify the living buried in rubble, optimize triage). MCCs integrate civilian and military emergency medical resources, and combine developing and developed country personnel. Cutting-edge data collection/analysis across MCCs facilitates uniformly high-standard medical education and quality assurance.

Initial MCC sites are Iquique (Chile) and Peshawar (Pakistan) – both sites spearheaded by local neurosurgeons. United civilian and military resources improve emergency care (both daily and mass casualty). In Chile, the MCC project works with the National Office of Emergency Response (ONEMI); in Pakistan the new nationwide plans for improving both nursing and surgical care by 2025 will incorporate the MCC concept.

MCCs encompass all aspects of healthcare in general and neurorestoratology in particular– from prevention (Peshawar received the ThinkFirst 2019 International Chapter Award) to prehospital care (Peshawar began ambulance service in 2017) to acute critical care/surgery to rehabilitation (Peshawar has had a spinal cord injury rehabilitation for over a decade). Additionally, the MCC network establishes global training standards and provides universal research platforms.

There are political, cultural, and socioeconomic benefits - beyond the healthcare and nervous system benefits - of integrating MCCs into the global healthcare system.