National Health Reliability Organization/Corporation

Duane Caneva, MD, MS

Chief Medical Officer

U.S. Department of Homeland Security

What is a *Reliable* Organization?

- The quality of being trustworthy or of performing *consistently well*

- The degree to which the result of a measurement, calculation, or specification can be *depended on* to be accurate

- …during "blue sky" and "black sky" days

> * Differentiated from "*Resilience*"
> - The capacity to recover quickly from difficulties; toughness
> - The ability of a substance or object to spring back into shape; elasticity

Is Healthcare Reliable?

- Healthcare
  - 1.7 million healthcare-associated infections annually in U.S hospitals
  - 99,000 related fatalities annually

- Aviation
  - U.S. airlines have transported 8 billion passengers during the past <u>decade</u>
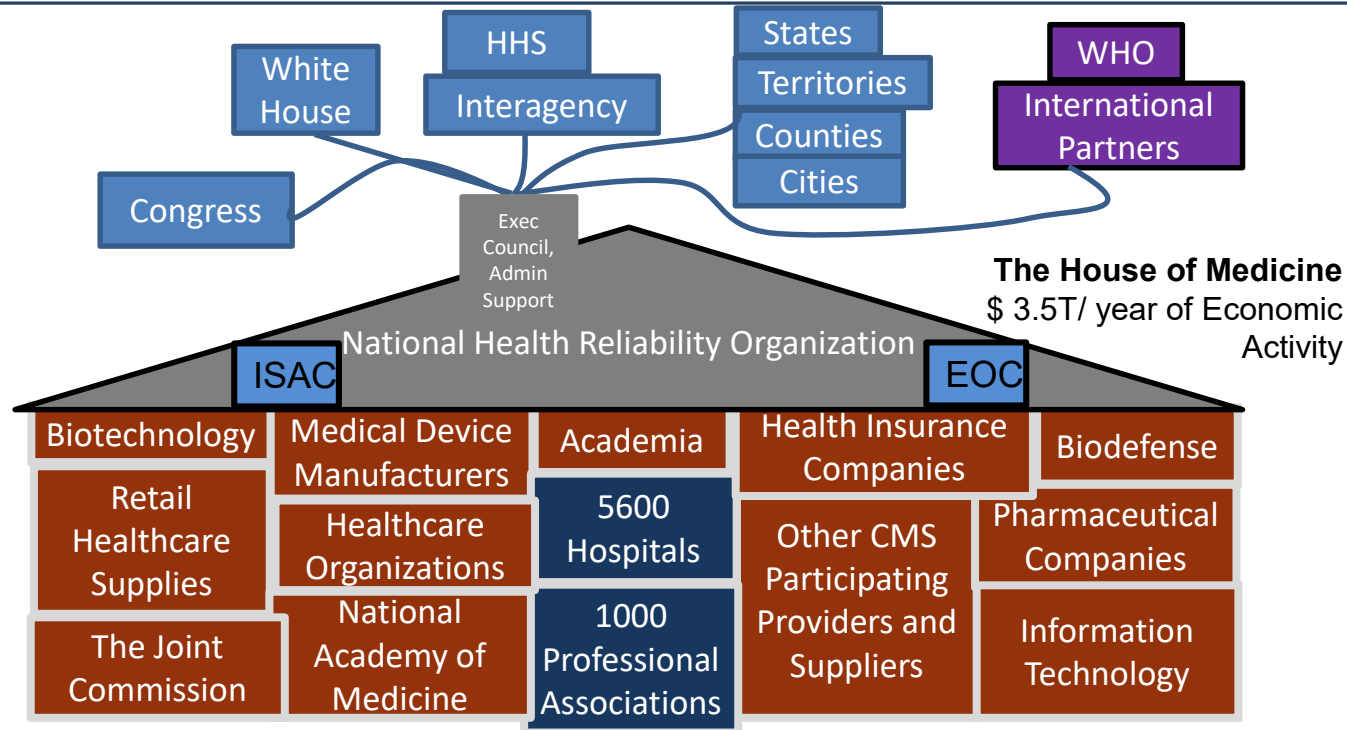 - 1 safety-related fatality

Homeland Security

Countering Weapons of Mass Destruction

National Health Reliability Organization

Purpose: To empower the various components of the health sector to improve the quality, accessibility, and affordability of healthcare

- Private (and some public) sector participation
- Voluntary membership
- Corporate structure with charter, by-laws
- Empowered with Standards Development Organization authorities
- Empowered with self-enforcement responsibilities
- Ultimately regulated by FSLTT governments
- The patient is central

Homeland Security

White House

HHS
Interagency

States
Territories
Counties
Cities

WHO
International Partners

Congress

Exec Council, Admin Support

The House of Medicine
$ 3.5T/ year of Economic Activity

National Health Reliability Organization

ISAC

EOC

Biotechnology	Medical Device Manufacturers	Academia	Health Insurance Companies	Biodefense
Retail Healthcare Supplies	Healthcare Organizations	5600 Hospitals	Other CMS Participating Providers and Suppliers	Pharmaceutical Companies
The Joint Commission	National Academy of Medicine	1000 Professional Associations		Information Technology

Chartered, non-profit corporate structure
- Real Systems Architecture
- Formal Business Processes Management
- Enabled as *Standards Setting Organization*
- Development of *evidence-based outcomes* for national healthcare
- Sector-wide Enterprise Risk Management
- Public-Private Partnerships

Reliability: Quality, Accessibility, Affordability
- Robust Information Sharing and Analysis Centers (ISAC)
- Dedicated regional and national 24/7 Health Sector Emergency Operations Centers (EOC), similar to Energy Sector (NERC)
- Interoperability with other critical sectors
- Development of Health Information Data Exchanges
- Self-enforcement (with oversight)

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Countering Weapons of Mass Destruction

Infection Prevention and Control Requirements

- CMS, NHSN, TJC, state requirements,….

Complications & deaths- Infections

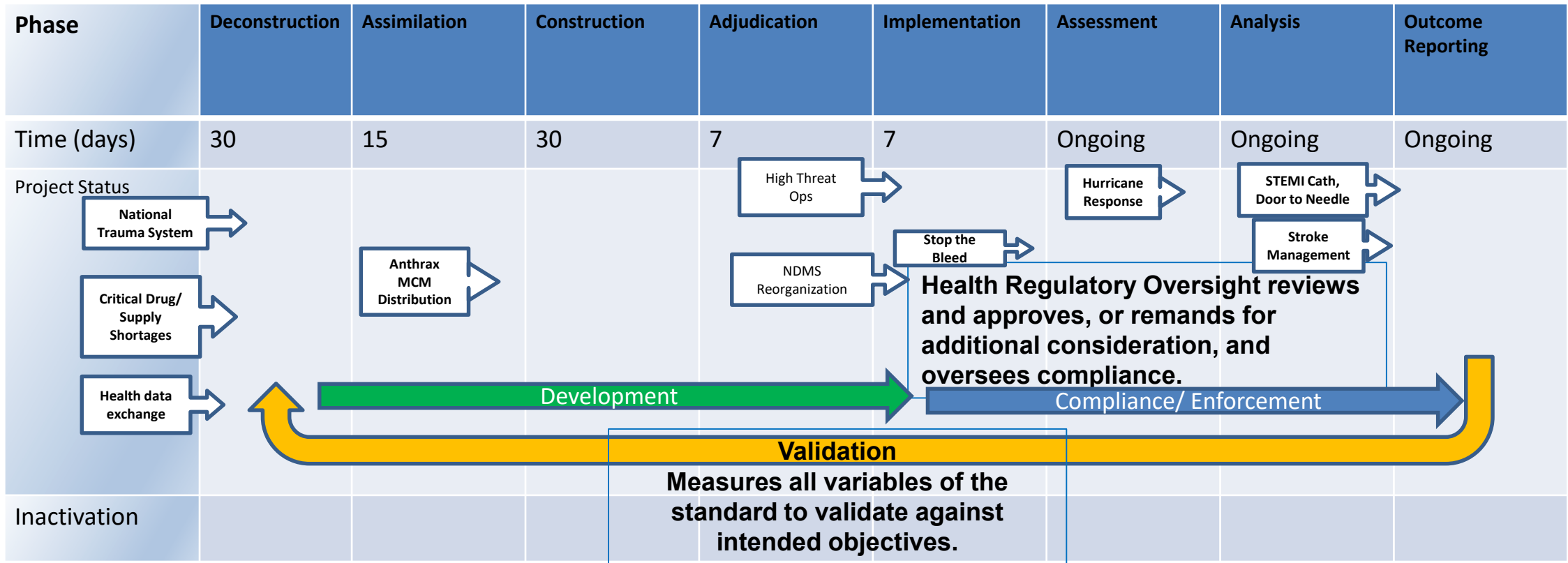|			
HAI-1	Central line-associated bloodstream infections (CLABSI) in ICUs and select wards	Central line-associated bloodstream infections (CLABSI) in ICUs and select wards	Quarterly (January, April, July, October)
HAI-2	Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards	Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards	Quarterly (January, April, July, October)
HAI-3	Surgical site infections from colon surgery (SSI: Colon)	Surgical site infections (SSI) from colon surgery	Quarterly (January, April, July, October)
HAI-4	Surgical site infections from abdominal hysterectomy (SSI: Hysterectomy)	Surgical site infections (SSI) from abdominal hysterectomy	Quarterly (January, April, July, October)
HAI-5	Methicillin-resistant Staphylococcus Aureus (MRSA) Blood Laboratory-identified Events (Bloodstream infections)	Methicillin-resistant Staphylococcus Aureus (MRSA) blood infections	Quarterly (January, April, July, October)
HAI-6	*Clostridium difficile* (C.diff.) Laboratory-identified Events (Intestinal infections)	*Clostridium difficile* (C.diff.) intestinal infections	Quarterly (January, April, July, October)

Hospital Compare HAI Measures

Homeland Security

The Forum—Standards Development and Review Process

The Forum: Formal, Professional Project Management of Issues, on a timeline, with multidisciplinary input, providing outcome objectives that are integrated, measured, enforced, and validated.

Phase	Deconstruction	Assimilation	Construction	Adjudication	Implementation	Assessment	Analysis	Outcome Reporting
Time (days)	30	15	30	7	7	Ongoing	Ongoing	Ongoing

Project Status

National Trauma System

Critical Drug/ Supply Shortages

Health data exchange

Anthrax MCM Distribution

High Threat Ops

NDMS Reorganization

Stop the Bleed

Hurricane Response

STEMI Cath, Door to Needle

Stroke Management

Health Regulatory Oversight reviews and approves, or remands for additional consideration, and oversees compliance.

Development

Compliance/ Enforcement

Validation
Measures all variables of the standard to validate against intended objectives.

Inactivation

Development "Legislative"

Compliance/ Enforcement "Executive"

Validation "Judicial"

# Key Characteristics (think STEM)

- Scientific Method reigns supreme, remains pure, apolitical, purged of bias

- Technology Levers
  - Internet of Things, Artificial Intelligence, Machine Learning, Knowledge Management, Situational Awareness, gamification

- Engineered Approach
  - System of systems architectures, Systems Operations
  - Interdependencies
  - Key points of failure identified
  - Constraint Theory

- Math and Metrics
  - What gets measured gets done.
  - Not all that can be measured matters. Not all that matters can be measured
 - Outcomes measured, analyzed, optimized

Countering Weapons of Mass Destruction

- Cost, quality, accessibility of healthcare
- Standards, best practices, clinical pathways guidelines
- Single Points of Failure in manufacturing, supplies, logistics
- Critical shortages of critical medications
- Health information ownership, handling, storing, exchange
- Actuarial registries for injury/ illness treatment outcomes
- Integrated clinical device algorithms
- National Trauma System (Zero Preventable Deaths Campaign
- Stop the Bleed Campaign

- Issues are submitted to the NHRO for development of solutions
  - These become standards for the sector
- NHRO workforce includes employees in health sector industry and professional association members
- Issues are addressed by multidisciplinary sub-committees and working groups cross-linked to other, relevant sub-committees and working groups addressing interdependencies.
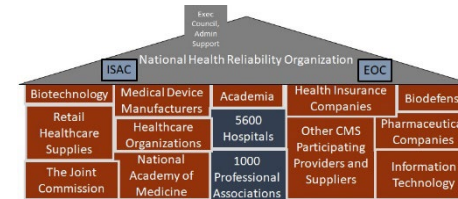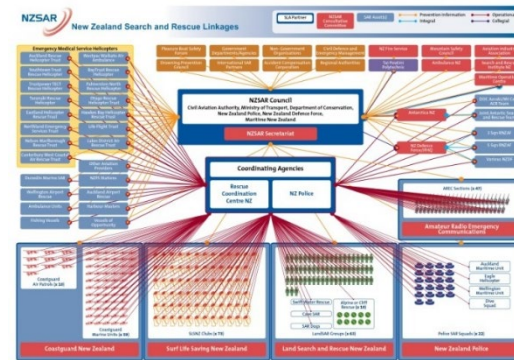
Info Tech	Med Devices	Int Med	Pharma	Surgery	System HCOs	Supply Logistic	Research/ Dev	Peds/Ger	XSector	Economics	Insurance	BioTech	BioDef	Ed/ Train

Cybersecurity	Electronic Health Records	Medical Device Data	Statistical/ Actuarial Pop Health	Apps	AI/ Machine Learning	Data Exchanges	Genetic Sequencing
		Integrated Clinical Environment					Library
		Monitoring/ alerting Algorithms					
		Cybersecuirty					
		Wearables					Ownership

All aspects of information technology are interdependent