


January 10 2024

broadening the vision of ems
population health & ems

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Provincial Medical Director
Emergency Health Services
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Conflicts of Interest
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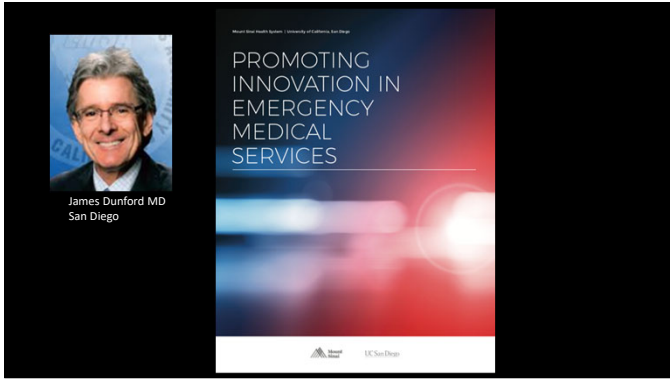
- Academic
 - Professor Dal
 - ILCOR, AHA
- Financial
 - Previous AHA BLS Science Editor
 - Provincial Medical Director, EHS
 - NSHA Staff Physician

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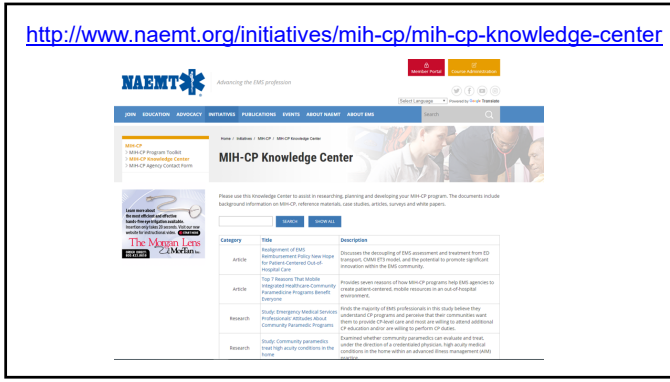





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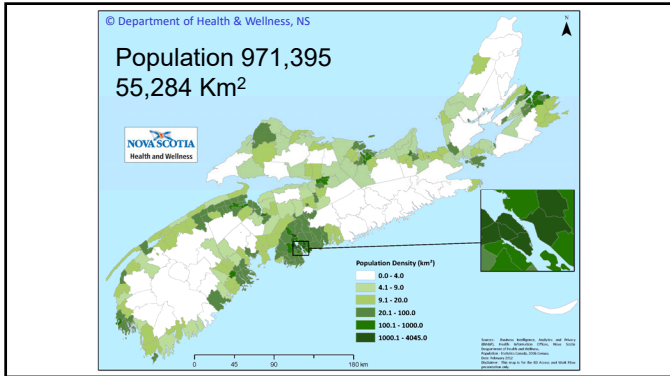
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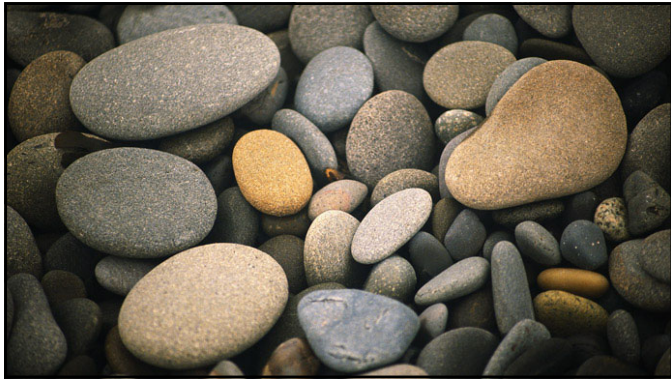
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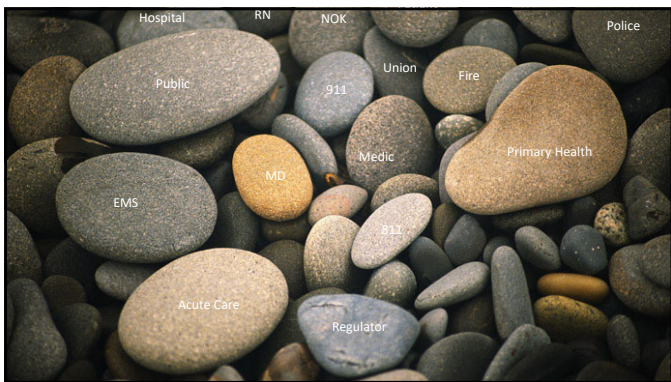
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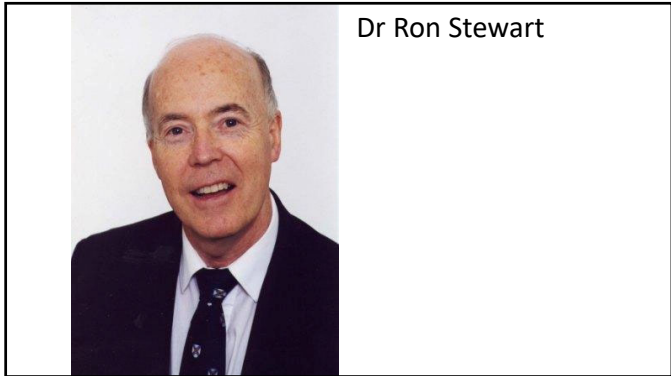
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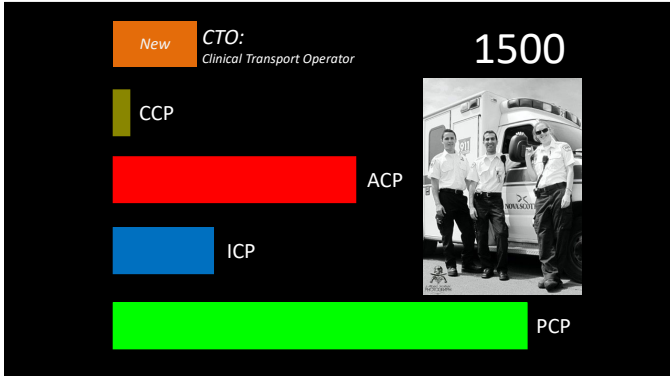
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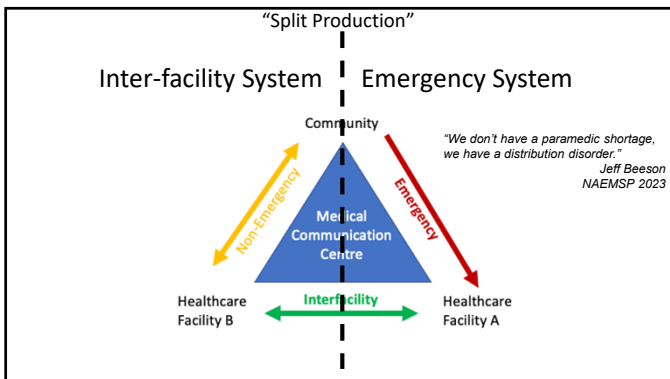
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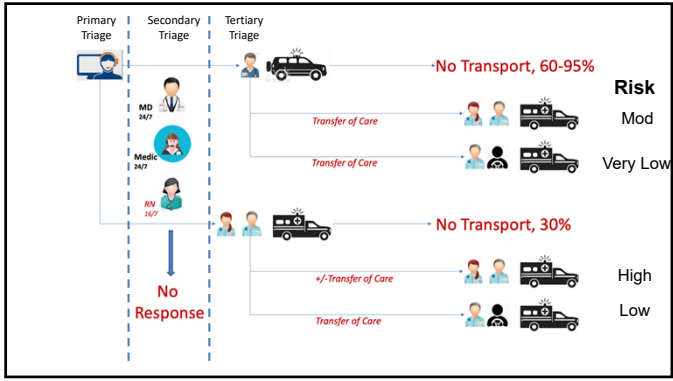
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<ul style="list-style-type: none"> acetaminophen adenosine amiodarone ASA atropine Bicarb Ca Chloride Clopidogrel D50W diazepam dimenhydrinate diphenhydramine dopamine enoxaparin epinephrine fentanyl furosemide glucagon 		<ul style="list-style-type: none"> ipratropium ketorolac lidocaine magnesium midazolam morphine naloxone nitroglycerin oxygen salbutamol tenecteplase thiamine topical ANE tranexemic acid haloperidol metoclopramide hydromorphone
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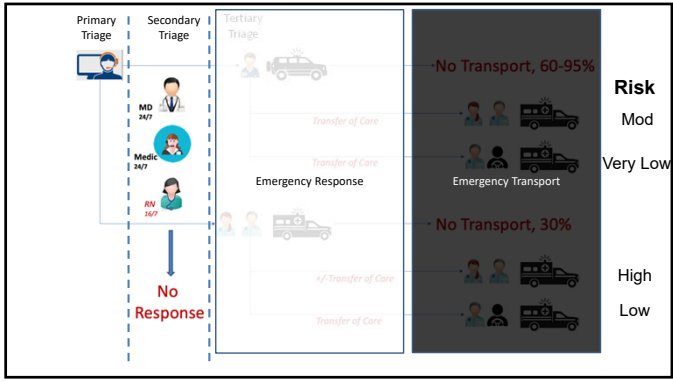
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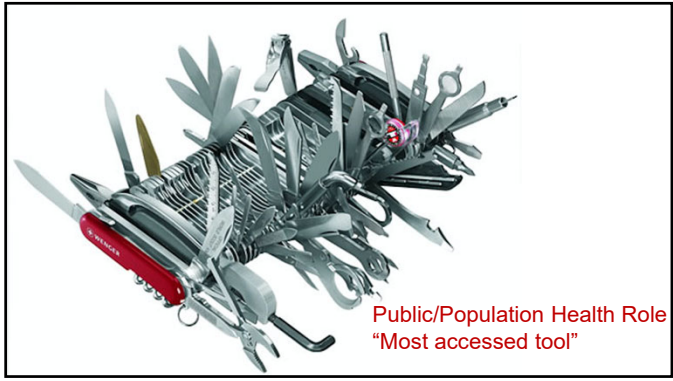
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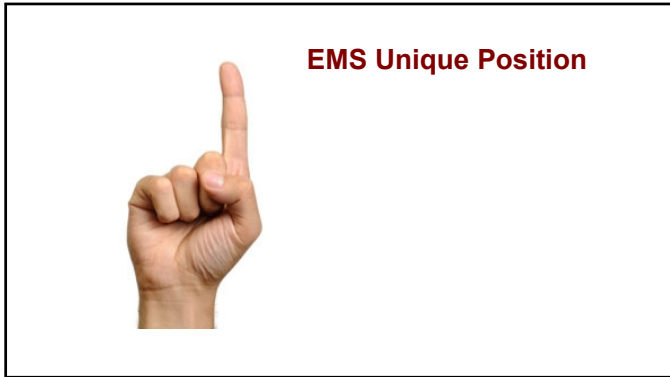
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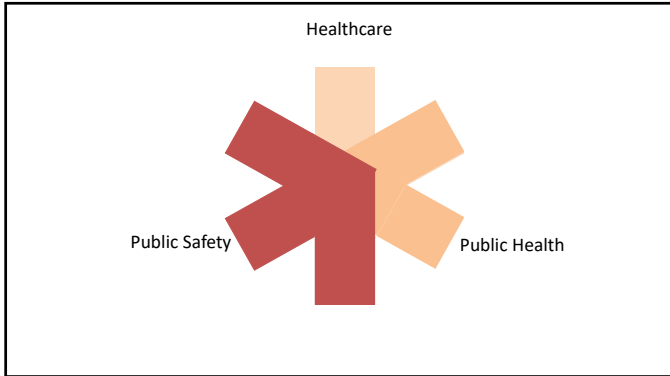
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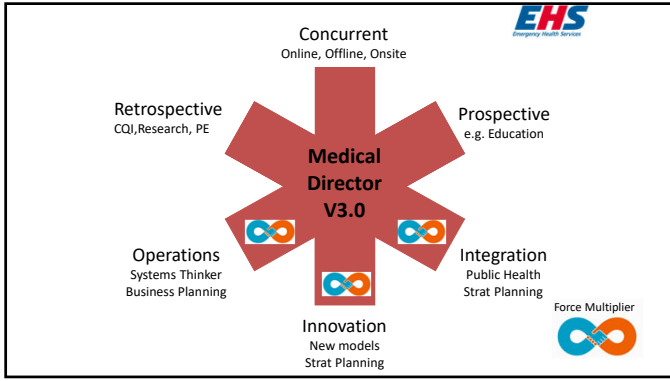
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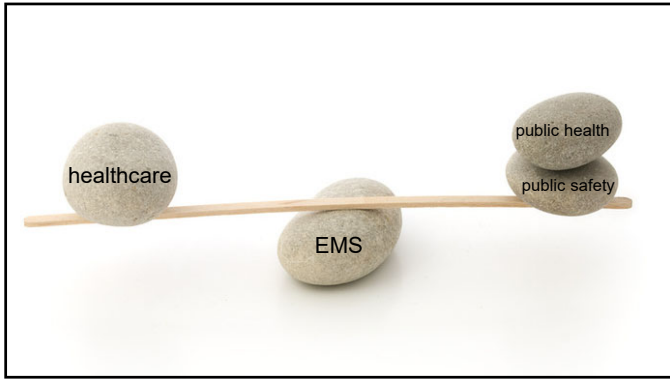
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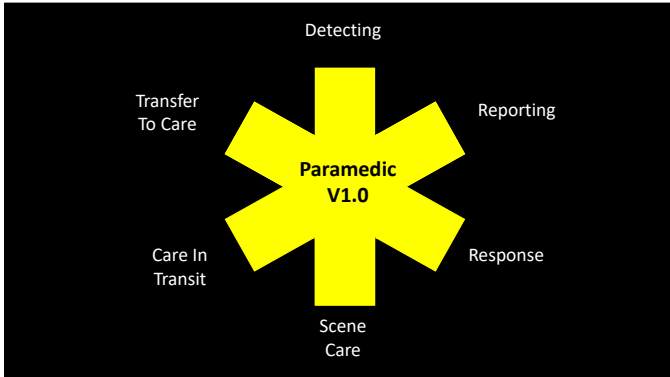


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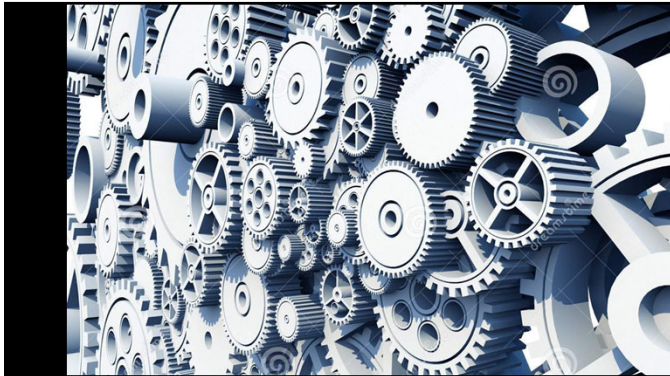
Not all 911 calls need to go to ED.
 Paramedics are clinicians.
 Not a replacement, rather an enhancement.



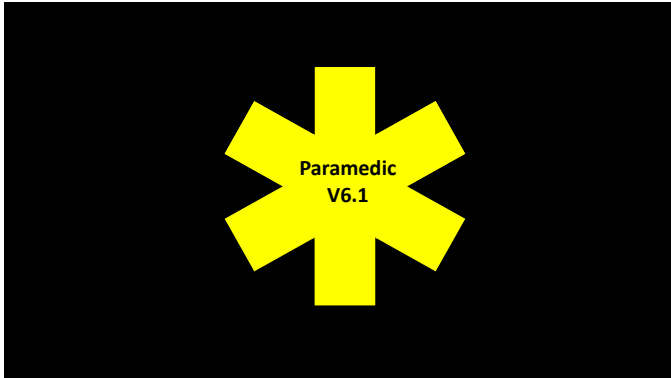
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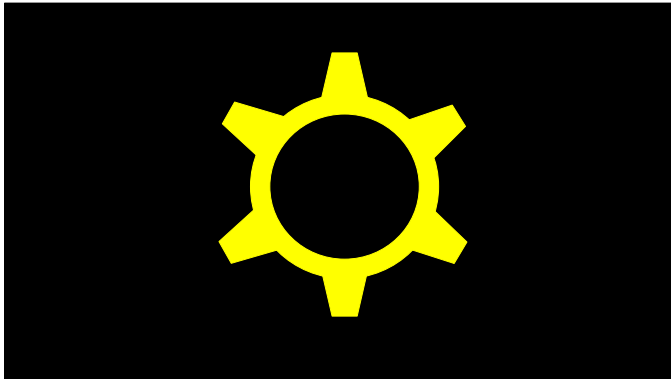
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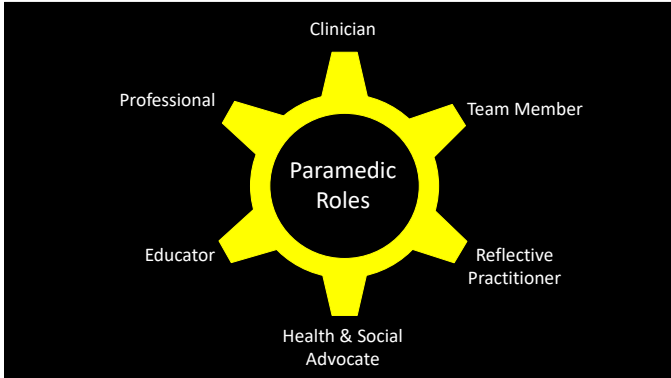
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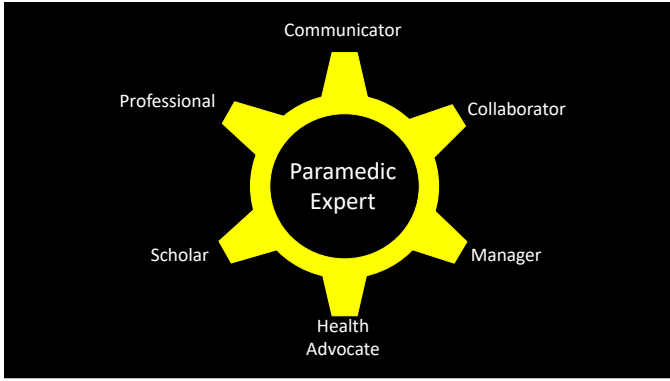
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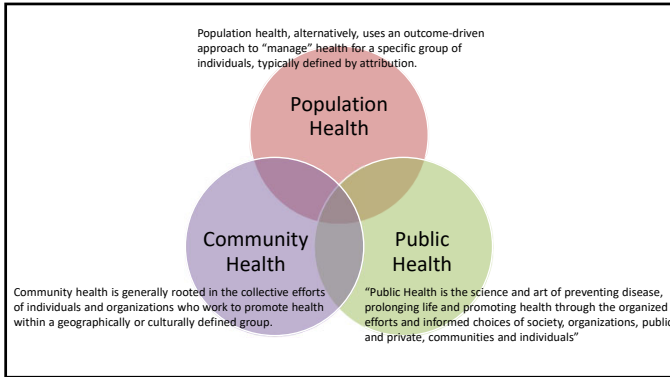
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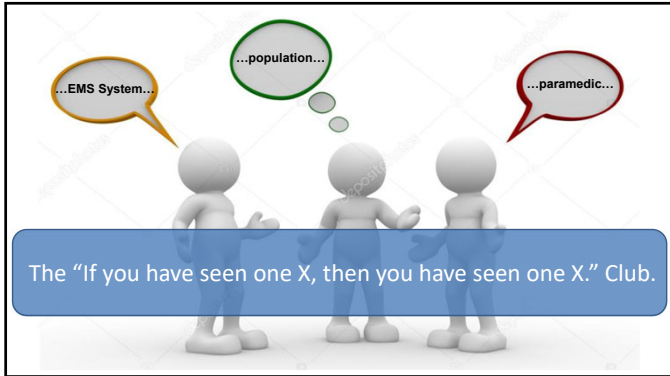
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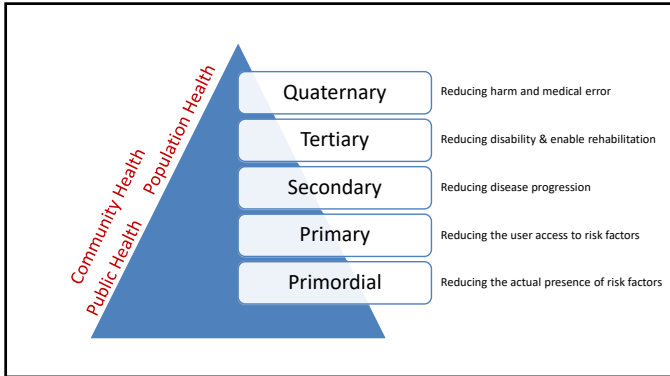
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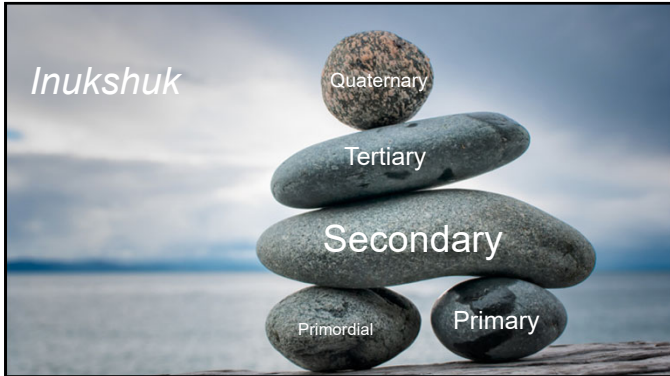
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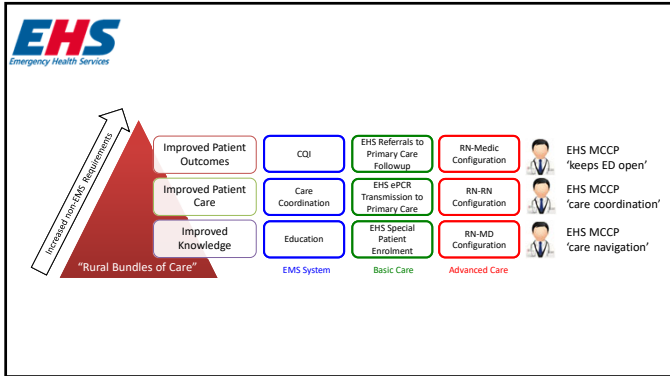
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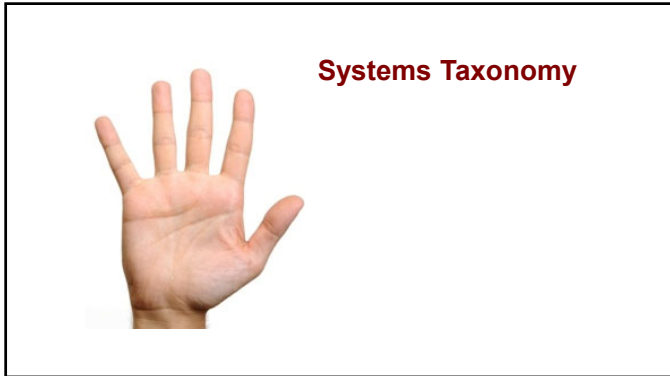
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Finance	Decoupling of payment from transportation, Ensure positive feedback on core business
Education	Increasing provider access to clinical feedback and patient outcomes
Medical Direction	Ensure greater emphasis on measuring clinical outcomes
Law & Regulation	Ensures the provision of EMS as essential services in all communities
Regional Coordination	Pooling data to improve analytics, Integrating data via health information exchange
Data & Telecommunications	Creating multiagency (clinical and nonclinical) partnerships
Interdisciplinary Collaboration	Longitudinal record keeping, Encouraging the use of EMS data for pop'n & public health analyt

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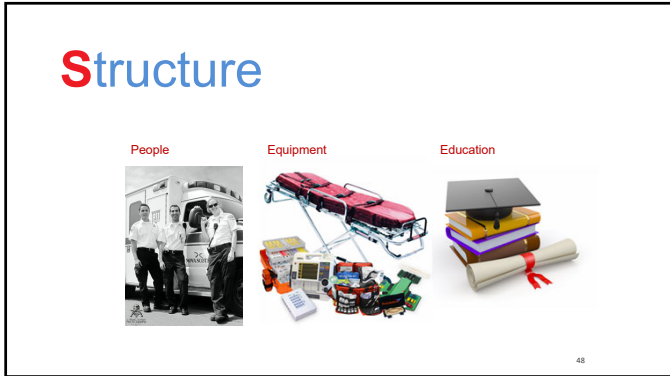
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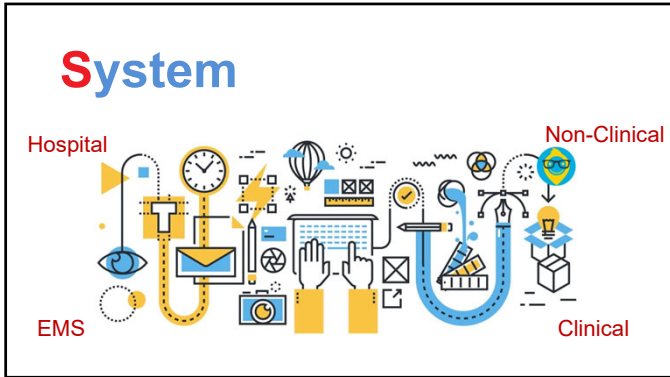
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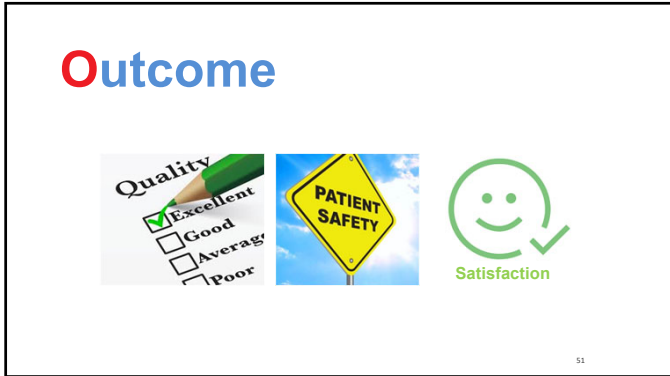
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Part 4: Systems of Care and Continuous Quality Improvement
2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

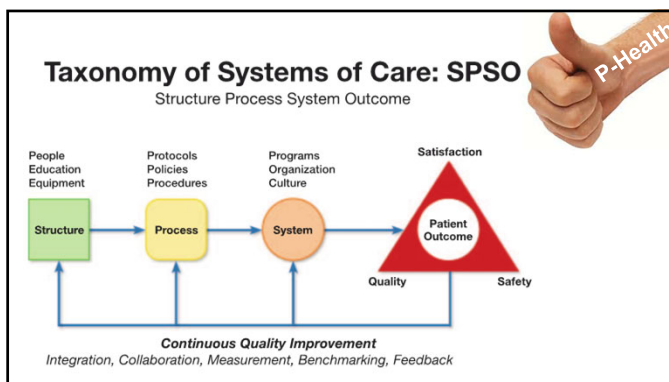
Steven L. Kronick, Chair; Michael C. Kurz; Steve Lin; Dana P. Edelson; Robert A. Berg;
 John E. Billi; Jose G. Cabanas; David C. Cone; Deborah B. Dieckes; James (Jim) Foster;
 Reylon A. Meeks; Andrew H. Travers; Michelle Welsford

Introduction
 The science and recommendations discussed in the other Parts of the 2015 American Heart Association (AHA) Guidelines Update for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC) form the backbone of resuscitation. They answer the "why," "what," and "when" of

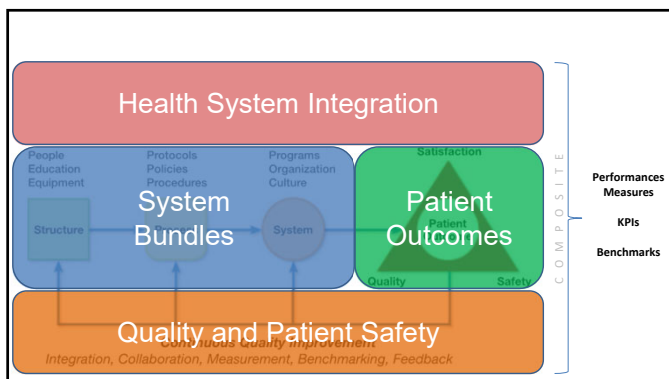
as the final link in both chains, symbolized by a hospital bed with a monitor and thermometer, which represent advanced monitoring and targeted temperature management. As noted above, the structure and process elements before the convergence of the 2 chains, however, vary significantly. Patients with OHCA depend on elements within the com-



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Population: Cardiovascular

- Primordial
 - ?
- Primary
 - ?
- Secondary
 - Prehospital Fibrinolysis, 'ECMO', PAD
- Tertiary
 - **Special Patient: CHF**
- Quaternary
 - Prehospital Identification > Notification



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Population: Chronic Care

- Primordial
 - ?
- Primary
 - ?
- Secondary
 - EHS Special Patients (unscheduled)
 - IHP/MIH: Long Term Care Facilities
 - **Paramedics Providing Palliative Care**
 - Medical Assistance in Dying (MAID)
- Tertiary
 - IHP: Supportive Discharge from Hospital (unscheduled)
- Quaternary
 - ?



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Population: Major Trauma

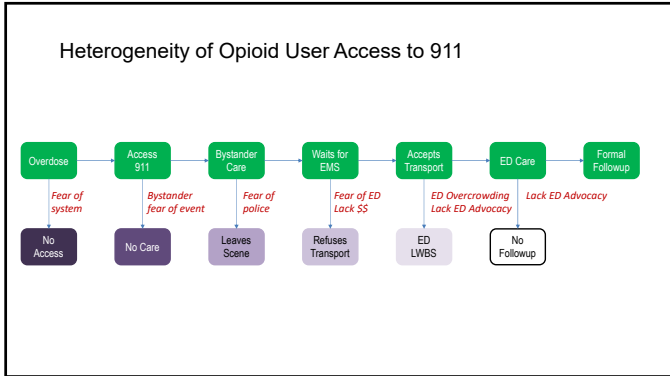
- Primordial
 - ATV Legislation, TWD Surveillance
- Primary
 - Helmet Legislation, Education Programs
- Secondary
 - Strong Trauma Guidelines
- Tertiary
 - ?
- Quaternary
 - Prehospital Identification
 - Wrong hospital = medical error



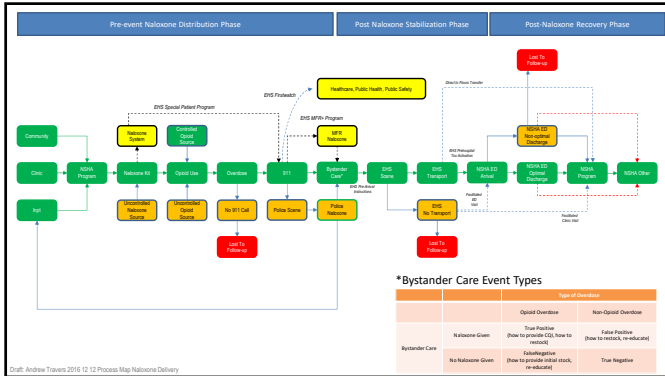
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Population: Opioid Use Disorder

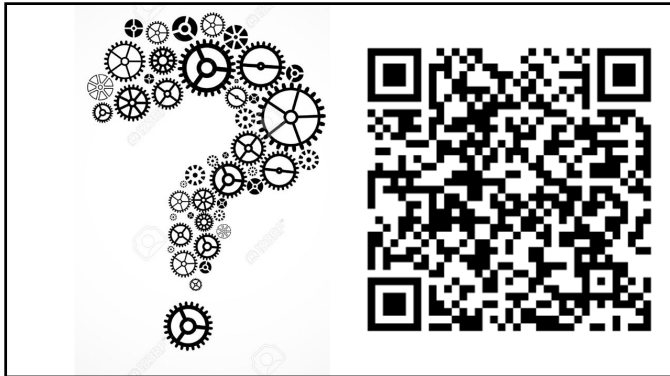
- Primordial
 - Firstwatch Syndromic Surveillance: Public Health & Safety
- Primary
 - Educational 'Moments', Advocacy
- Secondary
 - Bystander naloxone, Improved Pathways of Care
- Tertiary
 - Followup, Treat release, restock, referral
- Quaternary
 - Monitoring of drug/drug, drug/disease interactions in ePCR; Surveillance of Polypharmacy

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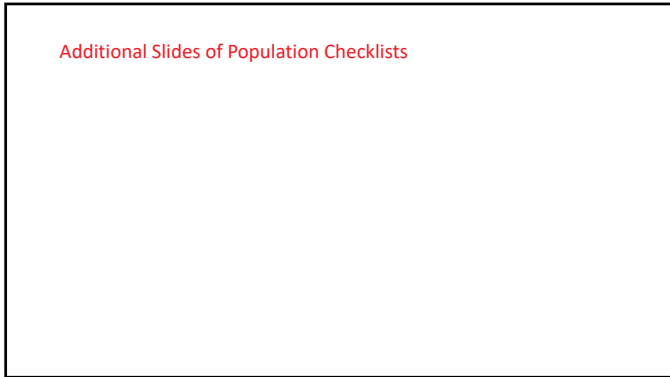
- Recognize the power of the PCP* health arm of your EMS practice.
- Consider the common enabling strategies.
- Construct a population health checklist.
- Innovate, innovate, innovate.
- Use a systems taxonomy when implementing.

*Public/Community/Population Health

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Population: Peds


- Primordial
 - ?
- Primary
 - Car Seat Installation
- Secondary
 - TREK Guidelines,
 - Special Patient Program: Seizures, CHD, Prehospital Solucortef for Adrenal Insufficiency
- Tertiary
 - ?
- Quaternary
 - ?



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Population: Respiratory


- Primordial
 - ?
- Primary
 - 'Just in Time' Education
- Secondary
 - Inspire Program: off label narcotic use
- Tertiary
 - **Supportive Discharge for COPD**
- Quaternary
 - Special Patient: COPD, venturi mask 88-92%



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Population: System Status Plan

- Primordial
 - ?
- Primary
 - Community Paramedicine: risk factor reduction
- Secondary
 - Collaborative Emergency Centres
- Tertiary
 - Falls Referral Program, No Transfer Referrals
- Quaternary
 - **Strong Safety Culture with early reporting of near misses and adverse events**
 - Offload Interval <20 min 90% fractile




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Community Paramedicine



- CHF Assessment
- Home Safety
- Venipuncture / Phlebotomy
- Urinalysis
- Suture/Staple Removal
- Wound Care
- Immunizations
- Medication Compliance
- Diabetic Assessment
- BP Check
- Antibiotic Administration
- B₁₂ Injections
- Helmet Safety
- Car Seat Installation
- CPR / 1st Aide Instruction



Primary Health Care Research & Development 2009; 10: 14-25
doi:10.1016/j.pnh.2009.03.001

Research

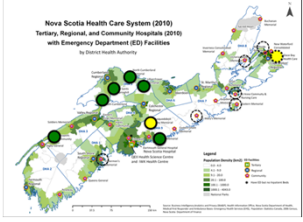
Cost effectiveness and outcomes of a nurse practitioner-paramedic-family physician model of care: the Long and Brier Islands study

Ruth Martin-Misener¹, Barbara Deane-Winnboldt¹, Ed Cole¹ and Marilyn Girouard²
¹Dalhousie University School of Nursing, 6885 University Ave., Halifax, Nova Scotia, Canada B3H 3J5
²Department of Emergency Medicine, Dalhousie University, Saint John's, Canada
Department of Emergency Health Services, Nova Scotia, Canada

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Collaborative Emergency Centres

2000h-0800h: onsite paramedic and RN, online physician

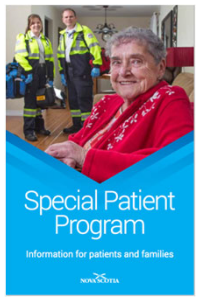


- N > 15,000 patients
- Treat & Self Care: 37%
- Treat & Followup: 46%
- Treat & Transfer: 17%
- "Not an emergency department, rather a portal to care."

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Special Patient Program

- N=9000+
- Seizure Patients
- Congenital Heart Disease
- LVAD Patients
- Behavioral Emergencies
- Palliative Care Patients
- Opioid Use Disorder
- T.E.D. Patient



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Population: Mobile Integrated Health



- Primordial
 - ?
- Primary
 - MIH: Hospital Avoidance Program
- Secondary
 - MIH: Extended Care Program
- Tertiary
 - MIH: Supportive Discharge Program
- Quaternary
 - ?



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Extended Care Paramedicine

- 4500+ visits, 26 long-term care facilities
- **Treat and Release: 80%**
- **Treat and facilitated ED Transfer: 15%**
- **Immediate Transfer to Ambulance: 5%**
- 0900-2100h, 7d week
- 1102 visits to Police Cells





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tertiary **Supportive Discharge**




Structure → Process → System → Outcome




COMMUNITY
PARAMEDICS



Hospital
Assessment
Interventions



Onsite Medic
Online MD
Telehealth RN




Quality
Safety
Satisfaction

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Population: unscheduled 'big' events

- Primordial
 - *Syndromic Surveillance, Firstwatch*
- Primary
 - Syndromic Response
- Secondary
 - Emergency Preparedness Response: weather
 - Port: cruise ship, migrant vessel planning
 - COVID-19 Response
- Tertiary
 - ?
- Quaternary
 - ?



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