

Innovation in EMS

Scott T Youngquist, MD, MS
Chief Medical Officer, Salt Lake City Fire
Department

What is Innovation in EMS?

The application of new drugs, devices, technologies, protocols or clinical practices meant to:

Improve Patient Outcomes

Enhance Efficiency

Augment Training and Education

Optimize Resource Utilization

Innovation vs Experimentation

Innovation = applying evidence earlier or differently

Experimentation = generating new evidence

Where IRB/IND/Ethics committees become necessary

Intention matters more than novelty

**EMS is among the most
innovative practices in
medicine**

Drivers of Innovation

Community Needs

Technological
Progress

Rising Costs

Increasing
Demand/Utilization

Regulatory Incentives

Unsatisfactory
Outcomes



INNOVATION

Community Needs

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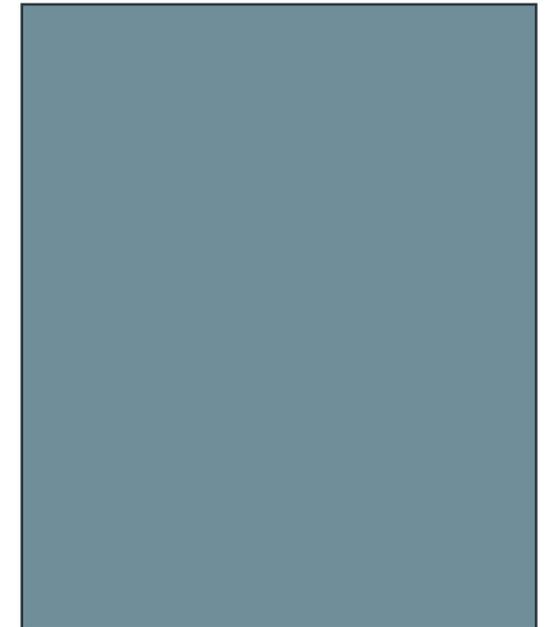
Report ad

Salt Lake City firefighters begin distributing naloxone kits

By Daphne Chen | Posted - Feb. 26, 2017 at 7:42 a.m.



(Scott G Winterton, Deseret News)



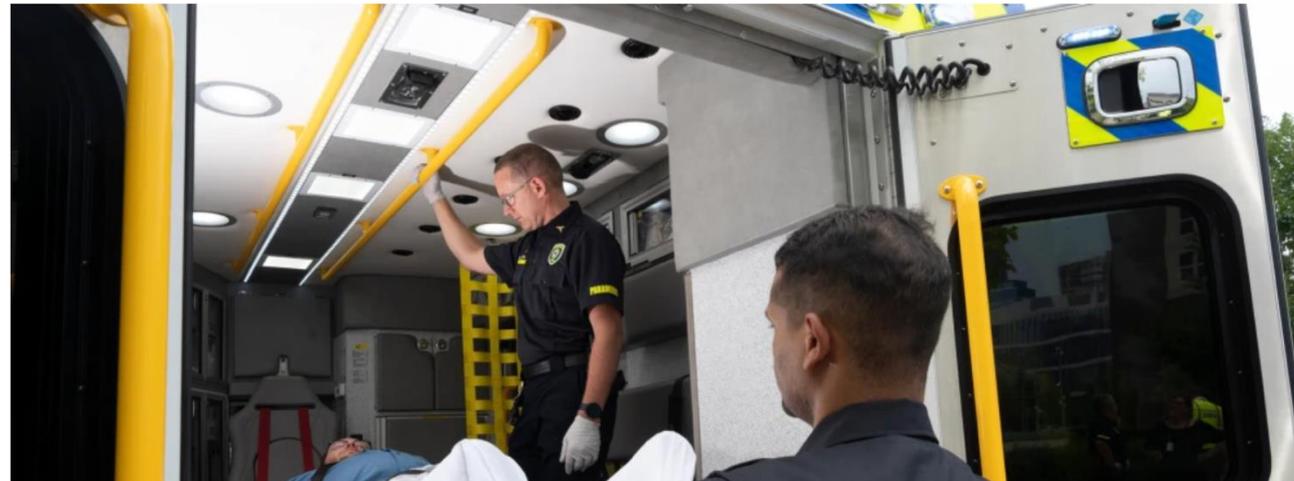
Community Needs

Breaking barriers: Hennepin EMS leads the way in safely implementing buprenorphine

A pioneering EMS program is helping patients with opioid use disorder find a path to recovery

March 20, 2025 03:14 PM •

Nick Simpson, MD, FACEP, FAEMS, Holly Drone, PharmD, BCCCP, BCEMP



Technological Progress



03:25 ARRIVAL 1450 Bay Street San Francisco, CA 94109 01:38 ON CALL

Cardiac Arrest Alert

CPR Instructions

Follow the steps below to guide the caller

1 STEP

Lay the victim flat on the ground and check mouth for vomit or food



2 STEP

Place your hand on the victim's forehead, the other hand on his neck, and your head between his head and your ear.

C

Is he having a heart attack then what do I do

Oh my god Oh my god I thought he just fell and hit his head

No actually I do not think he is

Technological Progress



Technological Progress



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Handtevy Mobile for EMS

Now you can treat every critically ill or injured child and adult on scene quickly, effectively, and with confidence.

Rising Costs



<https://www.ems1.com/epinephrine/articles/is-draw-up-epinephrine-the-new-norm-for-emts-emrs-EPQ9cUTOIG5iHIBT/>

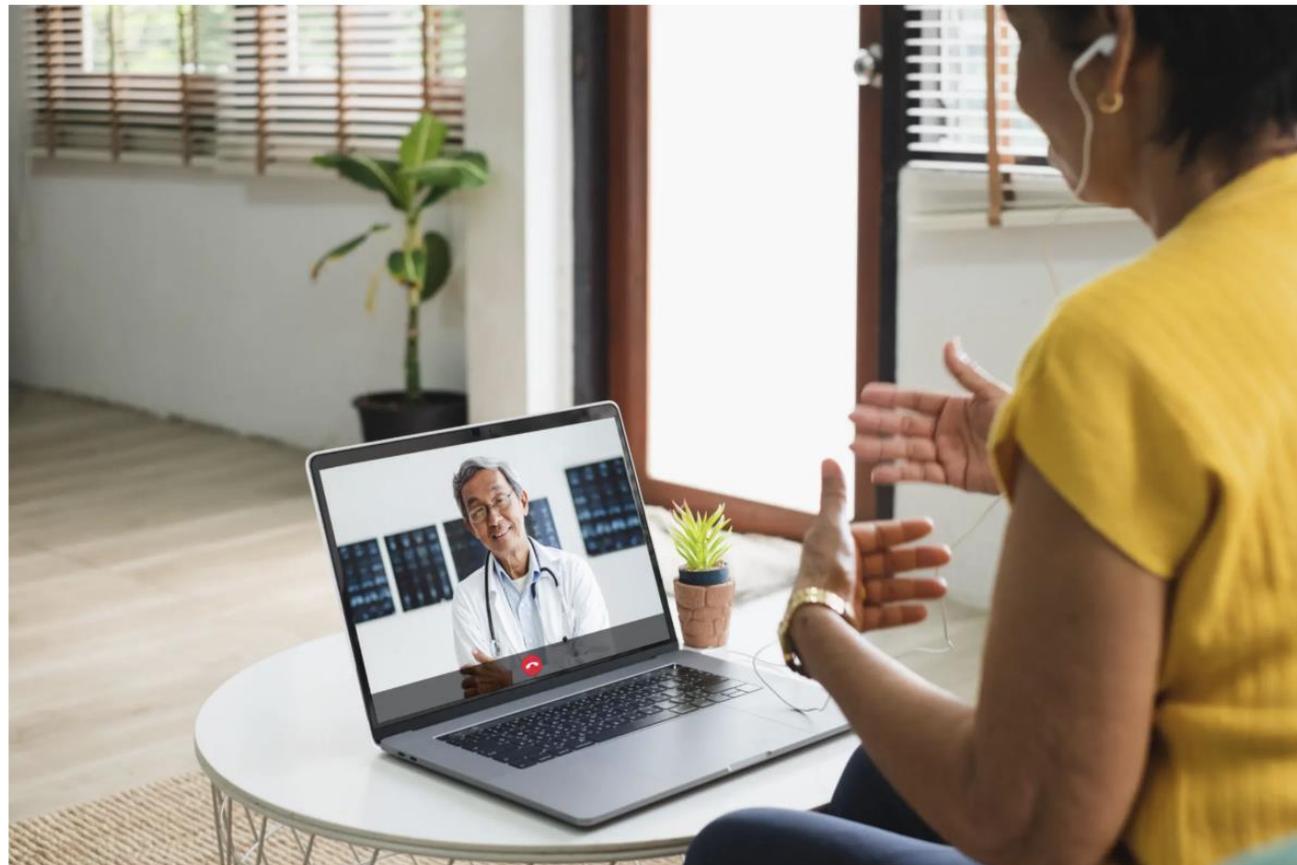
Increased Demand/Utilization



City of Houston converts HFD telehealth service to for-profit corporation for national distribution

Houston City Council created a for-profit corporation to sell a telehealth tool developed by the Houston Fire Department. It could be distributed at the regional and national level.

[Dominic Anthony Walsh](#) | October 28, 2024, 12:16 PM



A woman uses a video call with a doctor for telehealth.

Regulatory/Financial Incentives

Emergency Triage, Treat and Transport (ET3) Model

New options help beneficiaries receive care at the right time and place

Alternative Location
(like a doctor's office)

Hospital
(or any other currently
allowed destination)

On scene
(with a qualified health practitioner
in person or via telehealth)



Unsatisfactory Outcomes



Unsatisfactory Outcomes



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Regional Whole Blood Program



The STRAC Regional Whole Blood Program is a consortium of multi-disciplinary, multi-institutional members. Members include South Texas Blood and Tissue Center; Regional Trauma Centers, including University Health and Brooke Army Medical Center; and Regional EMS agencies, both ground and air. This program is the national leader in pre-hospital whole blood with the mission to reduce pre-hospital death due to hemorrhage. This program has extended damage control resuscitation capabilities to all levels of care within the STRAC region while



Whole Blood in Urban EMS

Community need

Evidence base

Regulatory hurdles

Training + QA burden

Outcome metrics

What Slows Innovation in EMS?

Limited Funding

Regulatory Oversight

Unions

Politics

Innovation Implies Failure

- How are you going to achieve “Early Failure Detection”
- What is your personal “stopping rule”?
- Are you willing to role this back?
- Do you try to adjust strategy to make it work before dialing it back?



Regulatory and Oversight Framework

State and/or Local EMS Authority

Ethics Committees

IRB

FDA IND

The Need to Seek Approval/Consultation for an Innovation Depends Upon the Intent of the Program, the Perceived Risks, and How Far Outside of “Accepted Medical Practice” the Innovation Falls.

Questions to Consider

How evidence-based is this therapy/diagnostic already?

What is the prevalence of disease it addresses in my community?

Am I among the first to deploy this?

How will I know whether this innovation is being applied correctly?

How will I know whether this innovation is benefiting our patients?

Does this innovation deserve a widespread rollout or placement in the hands of select providers for testing/evaluation?

How much initial training and ongoing QA/QI does this innovation call for?

EMS Medical Directors (CMOs)

- Translators of Evidence
- Risk Managers
- System Stewards
- **Champions of Disciplined Innovation**

