Best Evidence

or

Best Guess

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Academic EMS is NOT an Oxymoron
Prehospital Care Research Forum

Challenging the future of EMS

Mission: To assist, recognize and disseminate prehospital care research conducted at all provider levels
Research is what I am doing when I don’t know what I am doing

Werner Von Braum
HISTORICAL PERSPECTIVE
Those of us who fail to learn from the lessons of history are doomed to repeat the past

*Winston Churchill*
1966 DOT published the White Paper

Listed 29 recommendations for the improvement of the American emergency health care system. *Eleven specifically dealt with EMS*
“Things are seldom what they seem”

Stewart, RD
Annals of Emergency Medicine
1989:18:1015-7
Michael Calaham, MD

Quantifying the Sanctity Science of Prehospital Emergency Care

Annals of Emergency Medicine;
December 1997
It is possible to document exactly how much scientific support there is for the efficacy of our present scope of EMS practice, and it is IMPRESSIVELY DEFICIENT.
There is virtually **NO** aspect of EMS that could meet the current requirements of the FDA for approval as a safe and effective new therapy.
TECHNOLOGY: Help or Hindrance?
New from
www.i am not an ambulance driver.com
Agenda for the FUTURE
Agenda for the Future

- Integration
- **Research**
- Human Resources
- Medical Direction
- Education
- Prevention
- Clinical Care

- Evaluation
- Public Education
- Legislation
- System Finance
- Public Access
- Communication
- Information Systems
We did what we felt was RIGHT
Tough to admit

• We were wrong
• Didn’t know the answer
• We guessed
Medicine is a JOURNEY

Not a DESTINATION
Medicine is SCIENCE

The Future of EMS

Prehospital Care
Science is based on RESEARCH

WARNING: Insufficient Medical Research Can Be Hazardous To Your Health

Too many Americans are suffering and dying needlessly because, as a nation, we don’t invest enough in medical research.

That’s why former Surgeon General C. Everett Koop is joining RESEARCH/AMERICA, an alliance for discoveries in health, in making this simple request:

Take action! Let your voice be heard in support of medical research as the nation’s No. 1 national priority.

CALL 1-800-366-CURE for information on how to deliver your WARNING.
Research promotes CHANGE
Are we open to CHANGE?
Open Minded?
Change can be GOOD
Change Can Be GOOD
If I knew THEN,
What I know NOW
The significant problems we face cannot be solved at the same level of thinking we were at when we enacted them

*Albert Einstein*
For years we didn’t have research to base our practice of EMS
Some of EMS was based on
Best guess
Anecdotal evidence
“I hate it when we’re not sure we’re inoculating against the right strain of flu virus.”
Evidence based medicine ??
HISTORY
EVIDENCE BASED MEDICINE

- Before the 1836, Bloodletting was routinely used to “cleanse the body” by physicians
- Pierre Louis, conducted an outcome clinical study
  - Specifically pneumonia patients
- Found that bloodletting was linked to far more deaths
  - Changed the practice of medicine
Levels of evidence for clinical application

Level 1 - formal, open, clinical randomised-controlled trials

Level 2 - case controlled trials (comparisons made but not randomised)

Level 3 - observational studies (including surveys and questionnaires)

Level 4 - anecdotal evidence (including independent user comments and reviews)

Level 5 - methodological verification and validation studies
Clinical expertise

Research evidence

Patient preferences
Need to remember that EMS is Science
Science depends on RESEARCH
Research is based on STATISTICS
Do statistics really prove anything?
SOMETIMES
Some Things Are Obvious
It's PUBLISHED

It must be

TRUE
Not everything IS how it appears
GET Help
Understanding Data
There are three kinds of lies: Lies, Damn Lies, and Statistics.

Mark Twain
WHO’S DOING OUR RESEARCH?

- Academic Institutions
- Physicians
- Manufacturers
- EMS Providers
Twelve Step Approach to EMS Research
STEP 1

Identify the topic

Define a question or answer
Be sure of the question before you start looking for the answer

*Dr Ronald Stewart*
STEP 2

Formulate a Hypothesis
The true worth of a researcher lies in perusing what he did not seek in his experiment as well as what he sought.

Claud Bernard
French Physiologist
STEP 3

Conduct a Literature Search and Consult with Epidemiologist
STEP 4

Type of study
STEP 5

Develop Methods
Passion Fruit Mousse

You’ll need:

- 1 1/4 cups passion fruit puree
- 1 1/4 cups orange juice
- 3/4 cup sugar
- Scant 1 tablespoon gelatin dissolved in 2 tablespoons water
- 3 cups heavy cream, whipped
- 2 finger bananas
- Coarse sugar
- 1 kiwi, peeled, cut in 1/2 and sliced

In a saucepan, heat the passion fruit puree, orange juice, and sugar until dissolved.

Add the gelatin to the hot juice and stir to melt and combine. Strain the liquid into a bowl and place it over an ice bath. Stir it constantly with a rubber spatula and when it just starts to set, fold in the whipped cream. Pour this into soup plates or dessert bowls and chill. If storing them overnight, cover them with plastic wrap.

To serve the mousse, remove the bowls from the refrigerator. Peel and slice the bananas in half lengthwise and dip the flat side in coarse sugar and caramelize them under a broiler or with a blowtorch. Place them on the mousse fanning them then tuck in a few half slices of kiwi.
STEP 6

Perform Power Calculation
STEP 7

Internal Review Board Approval
STEP 8

Interaction with Providers
STEP 9

Pilot Trial
STEP 10

Conduct Study
Collect Data
STEP 11

Analyze Data
Know your resources and ask for support and help

*Dr Ronald Stewart*
STEP 12

Report Findings
The great tragedy of science - the slaying of a beautiful theory by an ugly fact

Thomas H Huxley
English Biologist
DON'T BE AFRAID OF CHANGE.
YOU can’t handle the Truth
AN INCONVENIENT TRUTH

A REASSURING LIE
Change Can Be GOOD
Be Careful what you ask for
Don’t be AFRAID to STAND OUT
Consider this book
A GREAT IDEA Should Never Be Wasted
The Prehospital Care Research Workshop
The National EMS Research Agenda

Prehospital Care Research

Our future depends on it

Baxter Larmon
Professional Paramedic