

Research Networks in Emergency Medicine

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Objectives

- **What is a research network?**
- **Types of research networks**
- **Emergency Medicine Network**
- **Interactive Q+A**

What is a Research Network?

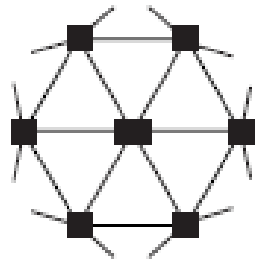
- **Collaboration**

- A group of investigators working together
- Most often from different medical centers
- May be from different departments within a center
- May be different disciplines within a department

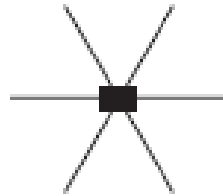
- **Generalizability**

- Ability to answer a question from different perspectives
 - » Geographical
 - » Racial/Ethnic

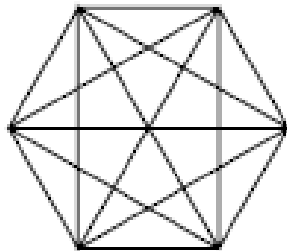
Types of Networks



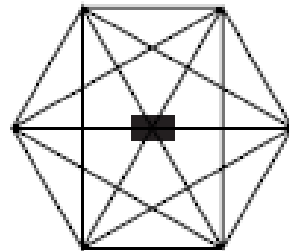
Orbital model



Bicycle wheel
model



Crystal model



Carousel model

Figure 1 Four models of research networks
(reproduced with permission Evans *et al*,
1997).

Types of Research Networks (cont.)

- **Orbital**
 - Includes a center with coordinated satellite units
- **Crystal**
 - Lacks a defined center
 - Characterized by multiple informal relationships
- **Carousel**
 - Has a defined central unit
 - Also has complex interactive relationships
- **Bicycle wheel**
 - More centralized with little collaboration at periphery

Combines Two Perspectives

- **Emergency Medicine**

- evaluation & management of critically ill and injured patients at the earliest stages of medical crisis
- focus on treatment ... individuals ... minutes

- **Public Health**

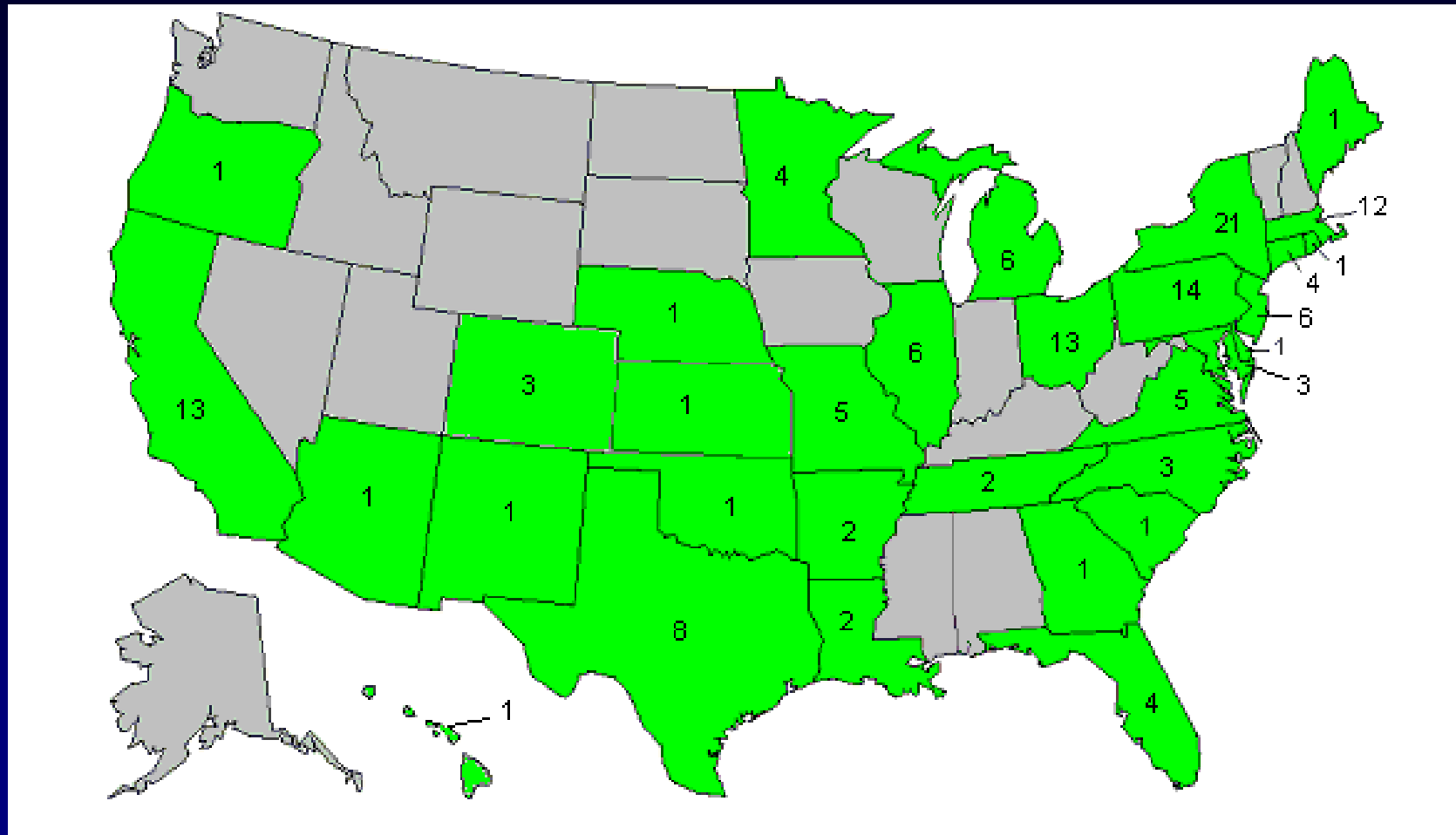
- functions & services meant to fulfill society's interest in assuring conditions in which people can be healthy
- focus on prevention ... populations ... months/years

Emergency Medicine Network

- MARC founded in 1996
- Goal: To improve care of acute asthma & other airway disorders
- NIH, AHRQ, industry, foundations
- Emergency Medicine Network
- 135 peer-reviewed papers
- www.EMNet-USA.org



EMNet (148 US and 32 International sites = 180 sites)



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... With Shared Mission

- To protect and improve the health of the populations they serve
- Opportunities for improved interaction:
 - surveillance of diseases, injuries, and health risks
 - monitor health care access
 - deliver clinical preventive services
 - develop policies to protect & improve the public's health

EMNet Mission: To advance *HP2010* objectives through ED-based interventions



Emergency Medicine Network

About EMNet »

Sites

Studies

Opportunities

Publications

Lectures

Affiliated Projects

Industry Trials

Links

To Join

The Emergency Medicine Network (EMNet) involves 185 medical centers and is comprised of two complementary programs: ED24 and MARC.

01-Feb-2006

[Massachusetts ED Study](#)

03-Jan-2006

[National Emergency Department Safety Study](#)

07-Nov-2005

[MARC-25: Bronchiolitis \(year 2\)](#)

13-Sept-2005

[EMNet Newsletter](#) (Fall 2005)

12-Apr-2005

[Public Health Survey](#)

10-Nov-2004

[Fatal Asthma Registry](#)



Search Site:

Go

EMNet Programs

www.emnet-usa.org

ED 24-hour Research Network (ED24)

- US research network focusing on public health issues that affect the delivery and quality of emergency care, as well as the primary care needs of medically disadvantaged populations
- Brief multicenter studies (eg, 24-hours) and surveys

Multicenter Airway Research Collaboration (MARC)

- International research network focusing on asthma, COPD, anaphylaxis, and other “airway” disorders.
- Multicenter studies of longer duration (weeks-months)

EMNet Projects (examples)

- Asthma exacerbations
- COPD exacerbations
- Community-acquired Pneumonia
- Anaphylaxis
- Bronchiolitis (MARC-25)
- Childhood insurance
- Public Health Survey
- NHAMCS analyses
- National ED Safety Study (NEDSS)
- National ED Inventory (NEDI)

Massachusetts General Hospital

- **Established 1811**
- **Emergency Department**
 - Level 1 Adult & Pediatric Trauma
 - Level 1 Burn Center
 - 80,000 ED visits / year
 - Harvard-Affiliated EM Residency (HAEMR)
 - EMNet Coordinating Center, www.emnet-usa.org



EMNet Coordinating Center

- **Director:** Carlos Camargo, MD, DrPH
- **Epidemiologist / Biostatisticians**
 - Andrea Pelletier, MS, MPH
 - Ashley Sullivan, MS, MPH
- **Research Fellows**
 - Adit Ginde, MD
 - Chu-Lin Tsai, MD, MPH
- **Office Manager:** Lisa Dubois
- **RAs & Other Staff:** 2 full-time + 2 part-time

EMNet Steering Committee

- Michelle Blanda, MD, *Ohio*
- Ed Boudreaux, PhD, *New Jersey*
- Carlos Camargo, MD, DrPH (chair), *Massachusetts*
- Ted Gaeta, DO, MPH, *New York*
- Susan Key, RN, MS, *Florida*
- Jonathan Mansbach, MD, *Massachusetts*
- Steven Polevoi, MD, *California*
- Mike Radeos, MD, MPH, *New York*
- Ben Sun, MD, MPH, *California*

Guiding Principles

- **High-quality clinical research**
 - Prospective cohort studies and randomized trials
 - Short, high-intensity projects at multiple sites
 - EMNet Coordinating Center (Boston)
 - Criteria for acceptance into network
 - Standardized data collection (incl patient registry)
 - Physician review of all forms, double data entry
- **Fairness: academic, financial, infrastructure**
- **Mutual respect: leadership, sites, sponsors**

Advantages

- **Large sample size (↓ type II error)**
- **More rapid enrollment and completion**
- **May be representative of diverse settings and populations (ie, better generalization)**
- **Pooling of resources and minds**
- **Enhanced collective “bargaining power”**
 - ↑ likelihood of external funding
 - ↑ likelihood of manuscript acceptance

Disadvantages

- **Coordination can be cumbersome**
- **Longer start up times**
- **More difficult to standardize care**
- **More costly (usually requires external funding)**
- **Inconsistent IRB responses and consenting**
- **Potential Authorship problems**
 - Inability to include all investigators in publication
 - Order of authors ... “honorary” authors ... etc.

Variation in IRB responses

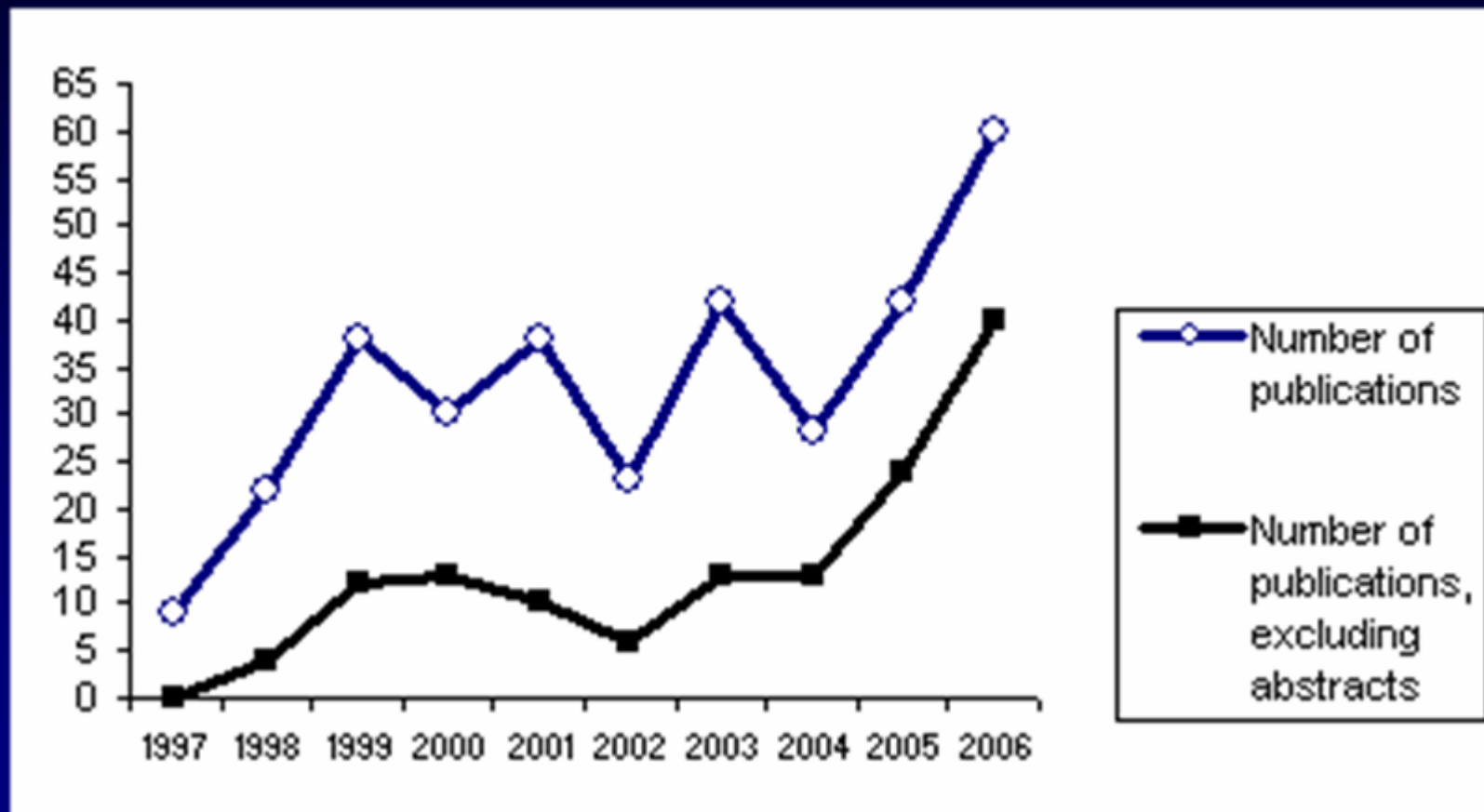
- MARC protocol submitted to 44 IRBs
- Site PI submitted in 58 days (IQR, 40-83)
- IRB approval another 38 days (IQR, 26-62)
- Number of IRB submissions required
 - 9% approved without any modification
 - 9% approved with minimal modification
 - 60% of applications returned once
 - 16% returned 2x, 5% 3x, 2% 4x

18%

Publications, 1997-2006 (as of 9/1/06)

- # of publications: 332
- # of publications, excluding abstracts: **135**
- # of investigators with publications: 277
- # sites with publications: 96
- **Top 3 journals:**
 - Academic Emergency Medicine (20)
 - Annals of Emergency Medicine (18)
 - Chest (11)

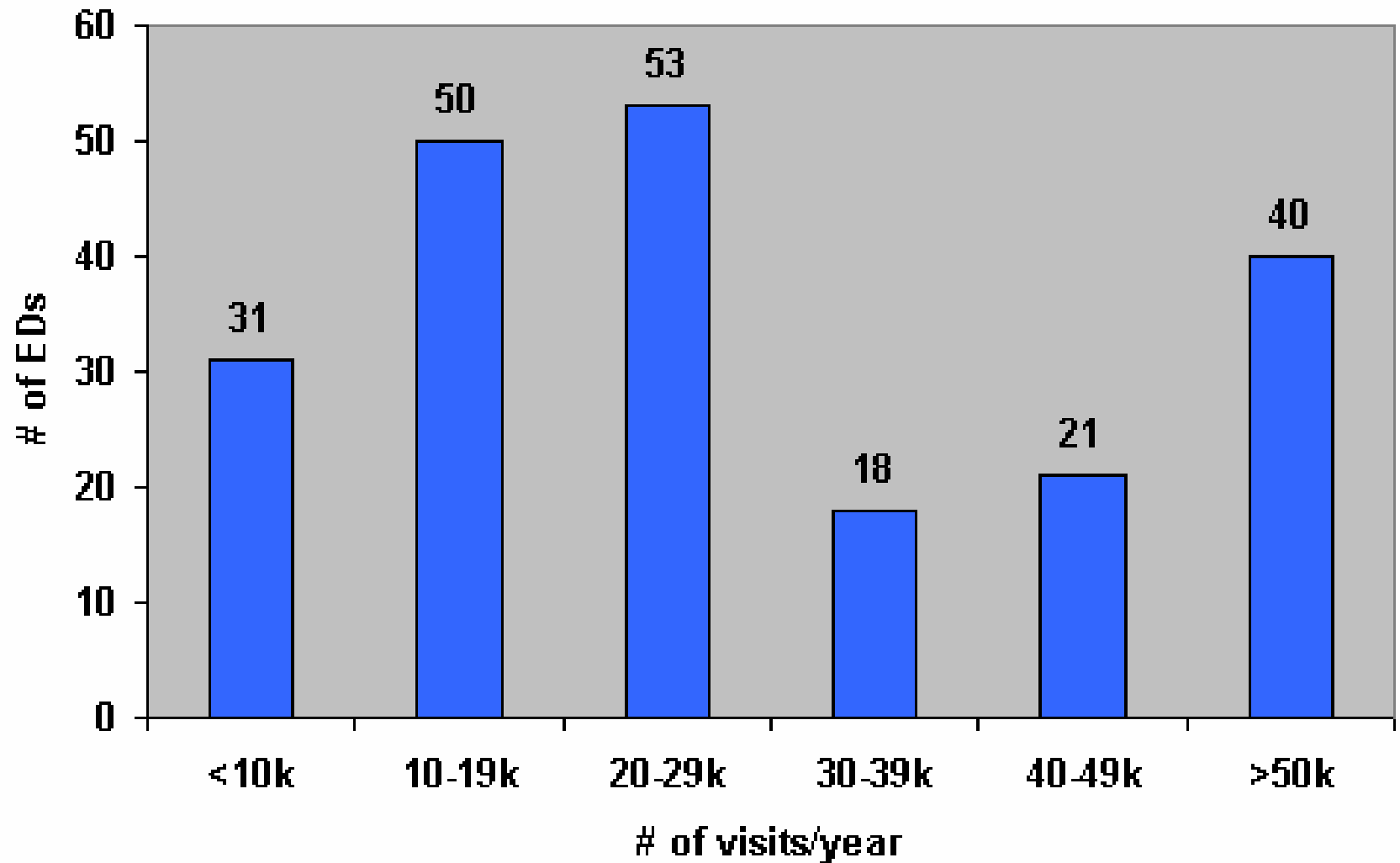
Publications, 1997-2006



National Emergency Department Inventory – (NEDI)

- Collection of data on EDs within a geographical area (e.g., state)
- Integrates data from multiple sources
- Provides a useful resource for health policy planning
- **Example: New York State**
 - Total # EDs – 213
 - Total # ED Visits – 6,979,269
 - Median # ED Visits (IQR) – 24,600 (14,637-42,810)

NEDI New York



Summary

- **Research networks are helpful in EM**
- **Type of research network depends on local factors**
- **Excellent method for young academic faculty to develop**
- **Allows EM to interact with PIs from other specialties and disciplines**
- **Makes the research process more enjoyable**