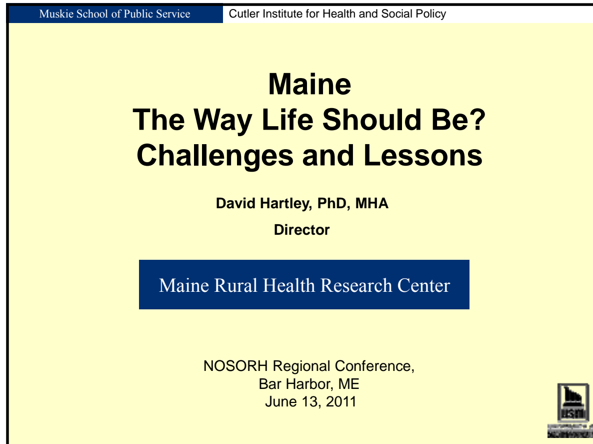

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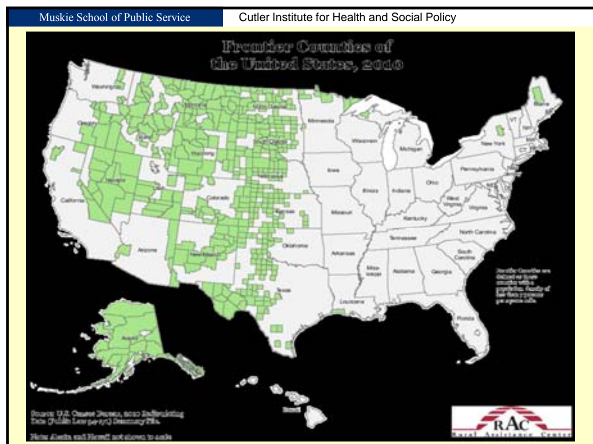
Overview

1. Where? Who? Why? Whirlybirds?
2. Moose and Lobsters
3. Population Health Issues
4. Remote Access – Critical Care
5. Meaningful Use – Health Information Technology



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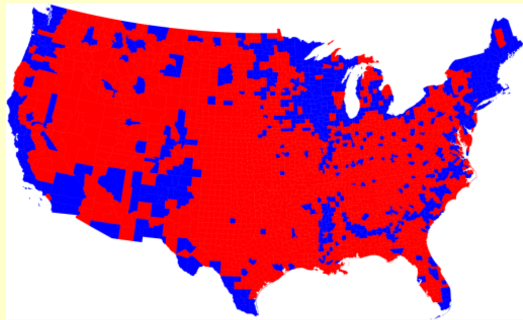
Who?



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Where?

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4568 miles of shoreline
4613 islands
total coastline including islands = ~7000 miles

Maine's Challenges

1. Maine is not Minnesota
2. Education (9th or 40th ?)
3. Employers - business
4. Haves and have nots
5. Aging population
6. Minimal county-level infrastructure
7. Large roadless areas

Maine vs. Minnesota

(Somebody has to be below average)

% of adult population with a college education:

2 Massachusetts: 36.7%
4 New Hampshire: 35.4%
5 Maryland: 35.2%
6 New Jersey: 34.6%
7 Connecticut: 34.5%
8 Vermont: 34.2%
10 Minnesota: 32.5
13 New York: 30.6%
20 Rhode Island: 27.2%
21 Delaware: 26.9%
29 Pennsylvania: 25.3%
40 Maine: 24.2%

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- 23rd State, 1820 Missouri Compromise
- Population 1,321,504   41.3/mi^2
- 9000 in Unorganized territories (½ the area of the state)
- 98 % white
- Percent over 65

Florida	17.8
West Virginia	16.0
Maine	15.6
Pennsylvania	15.5
Connecticut	14.4

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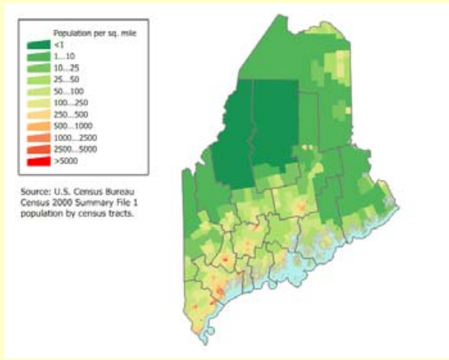

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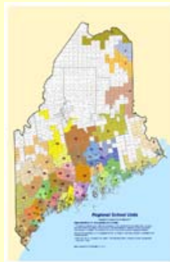
Maine's Unorganized Territories



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Maine's Advantages

1. Maine is not Minnesota
2. "Civil Society"
3. Amenities
4. Arts
5. Large not-for-profit network
6. Independent voters – high voter turnout
7. Leadership in rural health

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Population Health in Rural Maine

Childhood Obesity

Substance Abuse

Access

- Dental
- Mental
- Primary Care
- **Emergency**

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Obesity

- Rural Mainer victimized by epidemic
- I came down with obesity 2 years after I got married. I know it was hard for my husband to watch me suffer from this disease. When he caught obesity a year later, he got so depressed he couldn't do anything but sit on the couch. Some days, we sit and watch television from dawn to dusk, hoping for news of a breakthrough.

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What do we know about rural obesity

- Adults:
  - Urban 23.9%
  - Rural 27.4%
- Adolescents
  - Rural = 1.25 urban (Odds ratio, from Lutifiyya, 2007 children 5-18, National Survey of Children's Health)

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Childhood Obesity

Findings from Recent Maine Study

- Survey sample of 6 communities n = 272
- (All are rural and low-income children 5-17)
- 47.9% Overweight
- 27.7% Obese

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Childhood Obesity

Physical Activity

Active Living: an ecological approach targeting individuals, social environments, physical environments, and policies to achieve population change in physical activity (PA) and obesity prevention.

Goes beyond the notion that physical activity only occurs during sport or leisure time.

Emphasizes incorporating physical activity into people's *daily routines*, with the goal of accumulating at least 30 minutes of activity each day.

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Environmental Prevention

We can try to change conditions within each individual

But to see real lasting change we need to change conditions in the shared environment

Blaming kids for lack of physical activity is like blaming fish for dying in a polluted stream.

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How does this work in rural towns?

- Low population density
- Low socio-economic status
- Few sidewalks, parks, trails
- Fewer children walk or bike to school
- Schools often located outside of town

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Series of RWJ-Funded Rural Projects

- Active Living for Rural Youth
- Development of the RALA Tools
  - (rural active living assessment tools)
- Scoring and validation of RALA tools
- Healthy Eating
- Food Insecurity

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Active Living for Rural Youth

- Three towns in rural Maine
- Environmental Audits
- Focus Groups
  - (grades 5-6, 7-8, 9-12 , boys, girls)
- Key Informant Interviews

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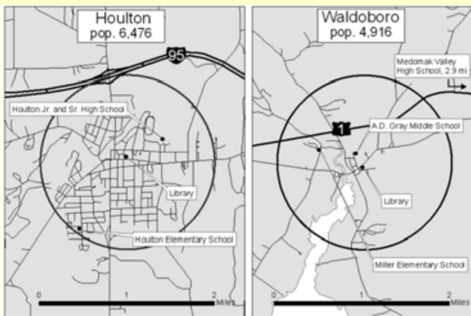
Population Density. Intersection Density



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Social Environment

- Socioeconomic status:
  - *"My brother and I both wanted to do the YMCA, but my mom could only afford for one of us to go."*
- Family/Parental Role Models:
  - *"I watch TV because my mother is too lazy to go anywhere."*
- Crime:
  - *"There are basketball courts, but druggies go there so I stay away from there."*
  - *"…Most of the time my mom says 'you don't need to do that'…maybe because she's afraid of sex offenders. There's one who lives right up the street."*

Physical Environment

- Distance and isolation create unique barriers:
  - *"The general layout is not conducive to everyday PA. It is very spread out, so you have to drive everywhere."*
- Investment in traditional/diverse town centers:
  - *"There's not much reason to go into town – people live far away and there is no park or community area. To shop, people go to Walmart in Rockland or Augusta."*
- School and recreational facility location:
  - *"They are building the new middle school right next to the high school, way out of town…There is no real way for kids to walk/ride to the high school."*
  - *"I don't feel safe walking to school and walking back because there's no sidewalks…you're like walking in the middle of the road."*
- Natural environmental features not always accessible:
  - *"There are really good trails all through town…but people don't walk on it because there's a lot of turns and sledders fly through the trails."*

Policy and Programmatic Environment

- Transportation Policies:
  - *"For practices there are no late buses…I have to get a ride."*
  - *"I wanted to do track but my mom won't let me because she doesn't want to drive me."*
- School Policies/Programming:
  - *"They should put a playground near the school – we have nothing to do! It's just like a parking lot and a field…"*
  - *"The school needs a real track – running on that dirt hurts!"*
  - *"There should be a janitor at the school gym on the weekends so we could use it."*
- Community Programs:
  - *"(We need) more family events that get younger people involved in doing things they can continue doing as teenagers and beyond."*
  - *"There's a rec program – that but that's for kids under 14. Once you get into high school it ends though…"*

RALA Tool Development

- To develop, test and refine a rural-specific instrument to help assess how the physical, program, and policy environments of a rural community support active living
- Split into 3 separate instruments:
  - Town-wide Assessment
  - Program and Policy Assessment
  - Segment Assessment
- RALA TOOLS AVAILABLE AT: http://www.activelivingresearch.org/node/11947

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Methods: RALA tools development

- **Town-wide Assessment** - *Demographic and geographic characteristics, school locations, and presence/location/condition of physical activity amenities:*

  - bike paths
  - public pool
  - skate park
  - ice-skating rink
  - YMCA/recreation center
  - playgrounds

- **Program and Policy Assessment** – *Community- and school-based programs and policies:*

  - sliding fee scale for town rec. programs
  - regular snow clearing from sidewalks
  - public transportation
  - walk to school programs
  - school late busses
  - public access to school facilities

- **Segment Assessment** – *Individual segment audits:*

  - land use
  - topography
  - walkability
  - connectivity
  - residential density

  Presence/condition of features:
  - public/civic
  - commercial
  - school
  - industrial

  Subjective assessments:
  - walkability
  - aesthetic appeal

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Healthy Eating in Rural Maine

How does the rural food environment affect low-income children's healthy food consumption and obesity rates ?

1. How does the community food environment affect the home food environment?
2. How do home and community food environments affect children's healthy food consumption?
3. How do these factors, including eating behavior, affect obesity?

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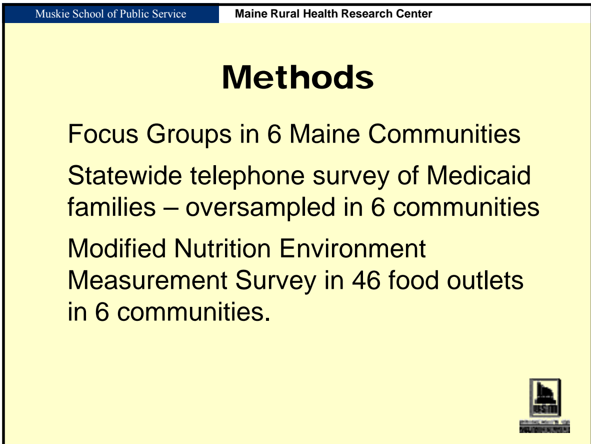
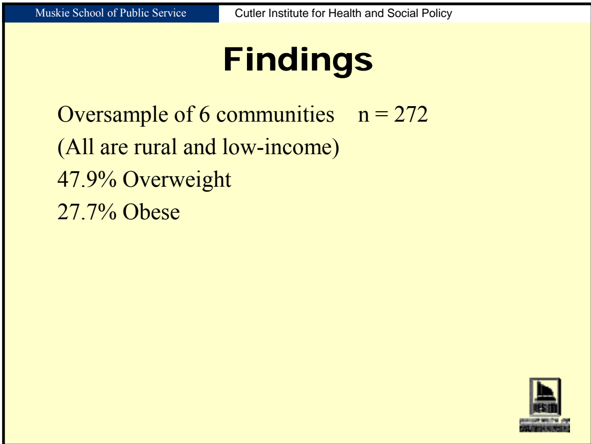
Conceptual Model

Community Food Environment	→	**Home Food Environment**	→	**Child's Food Consumption**	→	**Child's BMI**
		Home food Availability				
		Family and Parent Eating Behavior				





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Findings:

Community food environment →
Home food environment

- Families traveling greater distances to their primary food store were shopping at higher scoring stores – suggesting rural residents are traveling farther to obtain lower prices and better selection.
- Families receiving SNAP benefits had greater availability of healthy food in the home.

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Findings:

Home food environment → Child's healthy eating behavior

- 68% of our respondents raised some of their own food (gardening and animal husbandry) and 71% purchased some food from farmers.
- Children in these households exhibited healthier eating behavior than those in households not employing these strategies.

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Home food environment → Child's healthy eating behavior → Childhood obesity

- In multivariate analysis, parent consumption of healthy foods significantly related to likelihood of child being obese (OR .64)
- In multivariate analysis, food availability in the home, home food behaviors, and child food consumption NOT SIGNIFICANT predictors of obesity.

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Recommendations

- Defining and identifying "food deserts" is not a promising approach to measuring the rural food environment due to long distance trips, careful price shopping, and local, alternative strategies.
- Strategies to place healthier food in the home should be combined with interventions directed at parents' and families' eating behaviors.

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Substance Abuse

- Illicit drug use prevalence
- Adolescent alcohol use and abuse
- Prescription drug abuse

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What substances are we talking about?

Substance	Large Urban	Small Rural
Alcohol	62%	59%
Marijuana	17%	15%
Methamphetamine	.5%	1.1%
Oxycontin	1%	1%
Inhalants	2.1%	2.3%
Binge Drinking	25.2%	24.9%
Binge Drinking age 12-17	9.7%	12.3%
DUI	14.5%	15.2%
DUI age 12-17	3.8%	6.6%

2008 data from NSDUH

Methamphetamine and Oxycontin

Drug Age	2004 Large Metro	2004 Non-metro Med/Small	2008 Large Metro	2008 Non-metro Med/Small
Meth 12-17	0.7%	1.2%	0.5%	0.7%
Meth 18-25	1.5%	2.9%	0.8%	2.1%
Oxy 12-17	0.7%	0.5%	.7%	1.1%
Oxy 18-25	1.7%	2.8%	1.5%	2.1%

Driving Under the Influence by Age

Age	2004 Metro	2004 Non-metro Med/Small	2008 Metro	2008 Non-metro Med/Small
Total	14.3%	11.8%	15.5%	15.2%
12-17	3.7%	7.2%	3.8%	6.6%
18-25	25.9%	26.6%	26.4%	26.4%

Substance Abuse

- **Prescription drug abuse exceeds heroin, cocaine and ecstasy combined**
- Learn more: http://www.naturalnews.com/029054_drug_abuse_pharmas.html#ixzz1LsFUq7fe
- **Statistics Show Drug Abuse in Seniors is Rising**
- Learn more: http://www.naturalnews.com/028858_seniors_drug_abuse.html#ixzz1LsFZypar
- **Ohio County Losing Its Young to Painkillers' Grip**

NYtimes April 19, 2011

Nearly 1 in 10 babies born last year in this Appalachian county tested positive for drugs. … a 74-year-old friend selling the pills from his front door.

Substance Abuse

Newly Born, and Withdrawing From Painkillers

NYTimes Dateline, April 9, 2011, Bangor, Maine

Tonya, 24, said she was introduced to painkillers like OxyContin, Percocet and Vicodin while working the overnight shift at an industrial bakery an hour from her home. Everyone — including co-workers, the boyfriend she met on the job and their manager — was taking pills, she said.

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How do you prevent substance abuse?

Need to change intervening factors:

Individual characteristics??
or
Environmental influences??

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Risk factors and protective factors

Attitudes of parents and peers
Perceived likelihood of getting caught
Parental involvement
School performance
Ease of obtaining alcohol
Community adult attitudes

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Prescription Monitoring

Many states have a prescription monitoring program that reports all filled prescriptions for all controlled substances.

A few states, including Maine, are using this database to identify physicians who over-prescribe, and individuals who use multiple physicians and emergency rooms to obtain controlled substances

One goal for such programs is to assure that the pharmacist looks up the patient in this database before filling the prescription.

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Montana Meth Project

The Montana meth project is a large-scale prevention program aimed at significantly reducing first-time meth use through public service messaging, public policy and community outreach.

Environmental prevention focused on:
Access to anhydrous ammonia and pseudoephedrine
Social marketing to change public perceptions

Individual prevention focused on:
Perception of risks
Perception of social benefits

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Montana Meth Project

Meth_Proj_Just_once_Large.mov

tel_EverythingElse.mov

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Where is the Montana Oxycontin Project

?

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Remote Access

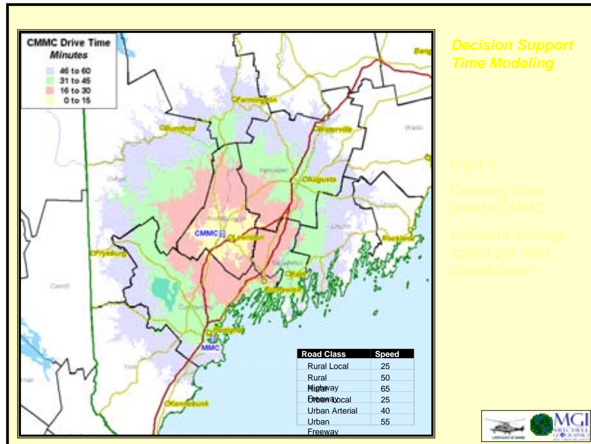
Every Critical Access Hospital has an emergency room.

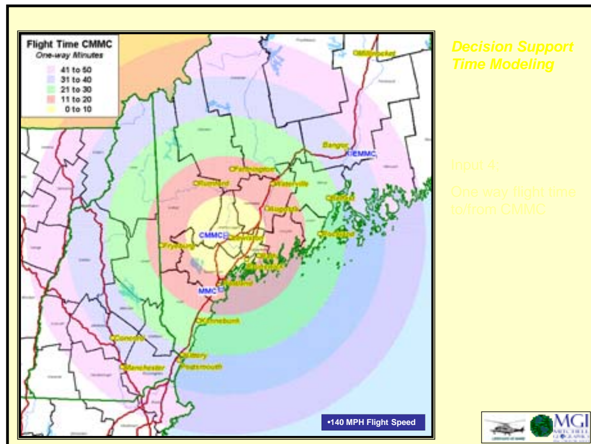
Most CAHs see low volume and wide variety of needs.

How do providers in low-volume settings maintain skills?

How do CAHs assure their communities of high quality care for those in critical condition?

When CAHs must transfer critically ill patients to a tertiary facility, how can they assure critical care in transit?


CMMC Drive Time
Minutes
46 to 60
31 to 45
16 to 30
0 to 15
CMMC
MMC
Road Class | Speed
Rural Local | 25
Rural Highway | 50
Rural Freeway | 65
Urban Local | 25
Urban Arterial | 40
Urban Freeway | 55
Decision Support Time Modeling
Input 3;
One way drive time to CMMC
Constant average speed per road classification
MGI


Flight Time CMMC
One-way Minutes
41 to 50
31 to 40
21 to 30
11 to 20
0 to 10
Bangor
EMMC
CMMC
MMC
•140 MPH Flight Speed
Decision Support Time Modeling
Input 4;
One way flight time to/from CMMC
MGI

N901CM

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Star-Telegram **Medical helicopter bill is 'a tough pill to swallow'**
Thursday, Dec. 03, 2009

- Dana Strittmatter was boiling water in her kitchen in July when it spilled on her leg. After paramedics from Benbrook's Emergency Medical Services arrived, they called for a medical helicopter from PHI Air Medical, a for-profit company that operates in Dallas-Fort Worth and elsewhere.
- PHI Air Medical flew her to Parkland Memorial Hospital in Dallas. She was treated and released in an hour, according to her husband, Larry. She had second-degree burns.
- But at the hospital, a doctor and others were angry that she had been transported by helicopter, Larry Strittmatter said.
- One doctor told him that abuse of medical helicopters is a growing problem. The hospital expected her to arrive by ambulance.
- "They were shocked when the helicopter pilot radioed in announcing his arrival," he said.
- The final bill was $17,500.

Effect of # Helicopters on Charges

Note: Medicare Spending on HEMS up 434% in 7 years

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Medicare Fee Schedule – "Gas Pedal"

- 1997 BBA negotiated rulemaking with final implementation in 2002
- Modeled cost of = hospital twin engine helicopter
- Doesn't require that level of investment (safety/quality)
- Allows substantial profit margin for lower quality and safety investments (as high as 30% or more)
- The primary driver behind the growth from 350 to 870 helicopters in 9 years
- 434% increase in Medicare spending in 7 years

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Perverse Economic Incentives

In oversaturated markets, with 85% fixed costs, incentive becomes to fly as much as possible and as cheaply as possible – HOW?

- Increase volume/flights
  - Helicopter shopping
  - Flight stacking
  - Call jumping
- Reduce acuity for flight/medical necessity
  - Hospital discharge rates climbing <24 hours
  - Patients, Medicare/Medicaid, insurers pay

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Perverse Economic Incentives

Indicator of inappropriate transports is the proportion of patients transported to a hospital who were discharged within 24 hours.

- Arizona (statewide) 43.2%
- Dartmouth Hitchcock 22.1%
- Boston MedFlight 11.4%
- LifeFlight of Maine 3.6%

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Comparison of Pennsylvania and New England

NorthEast Air Alliance
Critical Care Transport System

Population of Pennsylvania:
12,281,054

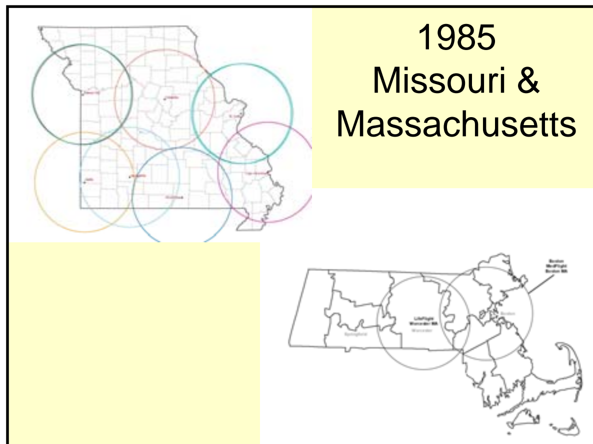
Surface Area of Pennsylvania:
46,058 sq. miles

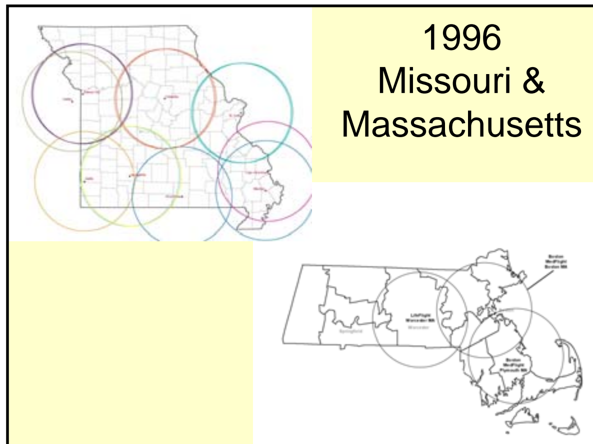
Number of HEMS programs:
45

Population of New England Area:
14,238,888

Surface Area of New England:
71,997 sq. miles

Number of HEMS programs:
11


1985
Missouri &
Massachusetts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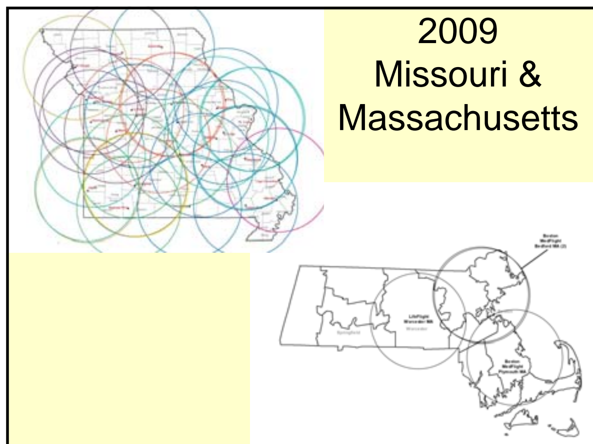
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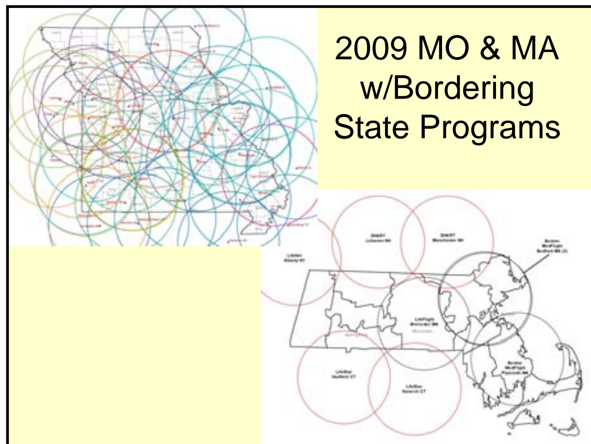

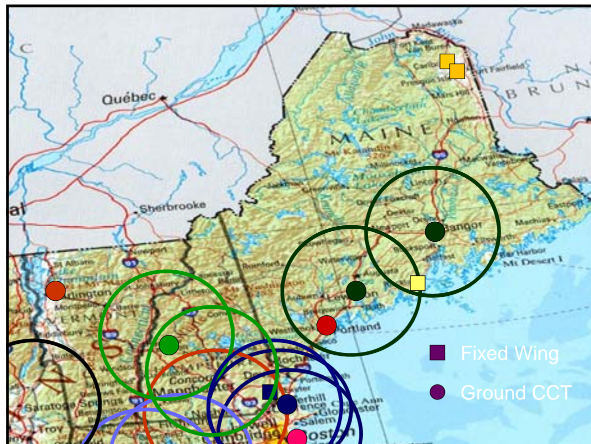

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LifeFlight of Maine

- Hospital consortium stand alone NFP
- Support by LifeFlight Foundation
- 2 bases at hospitals (EMMC and CMMC)
- Pediatric retrieval for MMC (Portland0
- Ground Critical care from both bases
- Contract with ERA for Part 135
- IFR system with Maine EMS, DOT

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Regional Challenges

- For profit vendor models entering geography
- CON will likely not be a barrier to entry for the for-profit vendors
- Network development and for profit systems (BMF undesignated patients FY '10 25%; FY '06 33%) may push tension between cooperation, collaboration and competition
- Acuity and specialty mission increase

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Meaningful Use

- Must use a certified EHR in a meaningful way
- Must use an EHR that can exchange information with other systems electronically
- Must submit reports to CMS that include performance measures proving meaningful use of the EHR.
- e.g. CPOE, e-pharmacy (e-prescribing, medication list, drug-drug interactions, allergies, med reconciliation), disease registries.

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Patient-Centered Medical Home

- Access and Continuity (7 elements)
  - Critical factor: provide same day appointments
  - Critical factor: advice by phone when office is closed
- Identify and Manage Patient Populations (4 elements)
- Plan and Manage Care. (5 elements)
  - Critical factor: reviews and reconciles medications for more than 50% of care transitions
- Self Care and Community Support (2 elements)
- Track and Coordinate Care (3 elements)
- Measure and Improve Performance. (6 elements)

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Federal HIT Landscape

- Office of the National Coordinator for HIT (ONC)
  - Regional Extension Centers
    - Rural Health Resource Center (TASC)
    - Health InfoNet
- HRSA
  - Office of Health Information Technology and Quality (OHITQ)
  - Office of Rural Health Policy
    - Maine Rural Health Research Center

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Maine Rural Health Research Center Recent RHC Projects

- **RHC Chart Book Jan. 2003**
- **RHC Mental Health 2010**
- **RHC Safety Net. 2010**

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Maine Rural Health Research Center RHC – HIT Projects

- **RHC HIT 1**: "Role of Rural Health Clinics in a Changing Rural Primary Care Landscape." Funded Sept. 2009 by ORHP
- **RHC PCMH**: "Transformation of Primary Care: Are RHCs Ready?" to be funded Sept. 2011 by ORHP
- **RHC HIT 2:** "Assessing HIT Readiness of Rural Health Clinics: A National Survey." Proposal now under review, to be funded by OHITQ.
- .

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Maine Health Policy

- LD1333
- Addresses the individual insurance market.
- Allows geographic rating in addition to age rating
- Eliminates geographic access standards
- Allows non-Maine insurers to sell products in Maine that do not adhere to Maine standards.
- Allows non-Maine insurers to cherry-pick young healthy population, leaving older, less healthy to in-state companies.

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Maine LD1333 immediate effects

Increased insurance premiums due to geographic rating

- Downeast – 22% indiv. 9% small bus.
- North – 19% indiv. 17% small bus.
- North central 11% indiv. 6% small bus.

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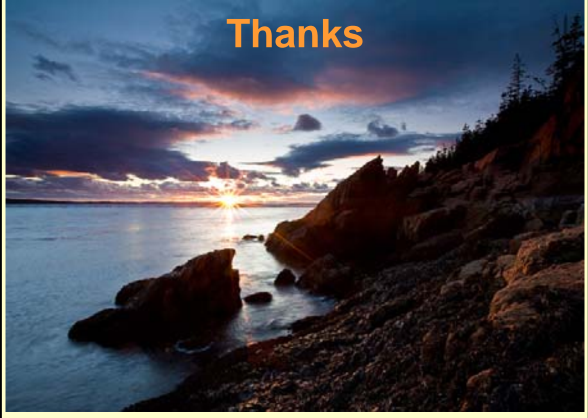
…and in conclusion

- Leadership
- Cooperation
- ..the way life should be

davidh@usm.maine.edu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