“TREAT THE STREETS”: PARAMEDIC HOME VISITS

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Asthma: The Problem

- Most common reason for hospitalization in children
- Hospitalization is itself the strongest predictor of future hospitalizations
- Missed school/work days
- **Cost:** direct and indirect

Asthma: Hospital Readmissions

- 30 day Inpatient readmission rate
  - Reached peak of 7.98% in 2012
  - National average 2.8%
- Hospital-wide change in approach:
  - View every asthma hospital admission as treatment failure
  - Provide individualized, wraparound care
  - Multiple interventions
  - **Goal: Include home visits**

Existing Home Visit Workforce

- Public Health Nurses
  - Limited primarily to Marion County
  - Visit ~110 asthmatics per year throughout county
  - Riley Hospital asthma patient volume 400-650 patients per year

Expanding Workforce - Options

- Expansion of public health capability
  - MCPHD lacked funding/capacity
- Hospital system provide service
  - Lack of personnel/experience in home visitation

- Existing personnel visiting homes?
  - Skilled nursing agencies
  - Paramedics

Community Param

- Clinical assessment
- Problem solving
- Aid in navigating the healthcare system
- Coordinate resource
- Help address obstac self-care

Establishing Partnership

- Indianapolis Emergency Medical Service (IEMS)

Assets

- Experience: Community Paramedicine
  - Frequent 911 callers
  - CHF/COPD adult program
- Capacity
- Transportation
- Support personnel

Development: Multidisciplinary Team

- IUSOM Department of Pediatrics, Pulmonary Division
- Riley Children's Hospital
- IUSOM Department of Emergency Medicine
- Social Work
- Marion County Public Health
- Asthma Educators
- IEMS Pharmacist
- IEMS Logistics Chief
- Pulmonary Asthma Coordinator
- Information Technology IEMS/Hospital/State
- Pediatric Primary Care Community

Grant Funding: "Treat the Streets"

- US Dept. of Health and Human Services/ Health Resources and Services Administration (HRSA)

- Emergency Medical Services for Children-Targeted Issues (EMSC-TI) Category II Grant

- Sept 2013- Sept 2016

Creating the Workforce

- Three paramedics
- Sept 2013-Dec 2013 training
  - Riley ED
  - Riley Pulmonary Inpatient Wards
  - Riley Pediatric ICU
  - Riley Pulmonary Outpatient
  - Home Visits: Public Health RN
  - Practice Run

Component	Objectives	Training Method	Training Location	Training Period
ASTHMA GUIDELINES	• Understand core concepts of EPR 3 asthma guidelines: • Quick relief medications • Long term control medications • Define asthma control • Understand role of pulmonary function testing	• Didactic • Self review of EPR 3	• Orientation • Didactics • PFT lab	• October
ASTHMA HISTORY	• Obtain detailed and complete asthma history	• Didactic • Observation • Ongoing feedback	• Inpatient • HRA • New Pt	• Oct-Nov
PHYSICAL EXAMINATION	• Perform reliable asthma physicial examination • Recognize air exchange, work of breathing, wheezes, distress •	• Didactic • Observation • Ongoing feedback	• ED • ICU • Inpatient • HRA	• Oct-Nov
ASTHMA MEDICATIONS	• Provide correct education in use of asthma medications and devices	• Didactic • Observation	• HRA • Inpatient	• Oct-Dec

Pre-implemenation

- Protocols
  - Sick/urgent
    - Duonebs
    - Steroid extension
    - Outpatient appt ≤ 48 hours
  - Emergent
- Guidelines
  - Referrals
- EMR
  - Report structure
  - Data collection
  - Information sharing
- Outreach
  - PCP offices
  - Asthma specialists

Implementation

- All patients discharged from Riley Hospital for asthma:
  - Marion County
  - Age 2yo and older
- Visits 3-5 days after discharge
- Scheduled by asthma educator
- Extra capacity on evenings/weekends

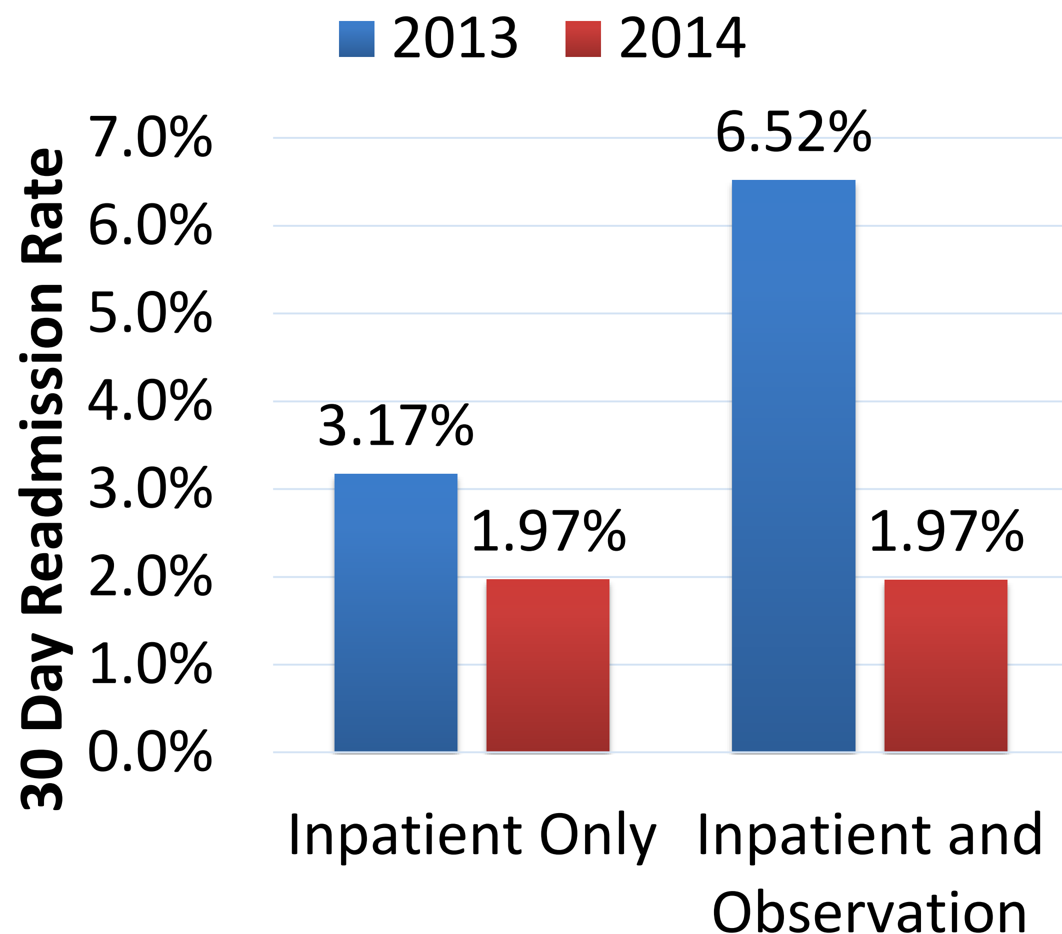
Visit Structure

- Medication/equipment review
- Reinforce asthma education
- Review of Asthma Action Plan
- Inhaler/spacer technique
- Home environmental assessments
- Referral to ongoing services as indicated
  - Social work
  - Legal support
  - Public health nursing
  - Indoor air quality specialist
  - Smoking cessation (QUIT-NOW)

Challenges

- Personnel turnover
- Training period
  - Streamlined training (3 months → 3 weeks)
  - Train the trainer
- Communication / EMR
- Scheduling
- No-shows

Results



- 79-84% of eligible patients scheduled for visit
- 40-59% with successful visit completed
  - Variable over time
  - Affected by volume

Admissions Based Cost Savings

- 2013 = 6.52% (44/675)
- 2014 = 1.97% (14/712)

→ 30 hospitalizations prevented

- Hospital cost:
  - Estimated $13,597 per hospitalization

→ **$407,910 saved** in hospitalization costs for 2014

Return on Investment

- 285 visits provided in 2014

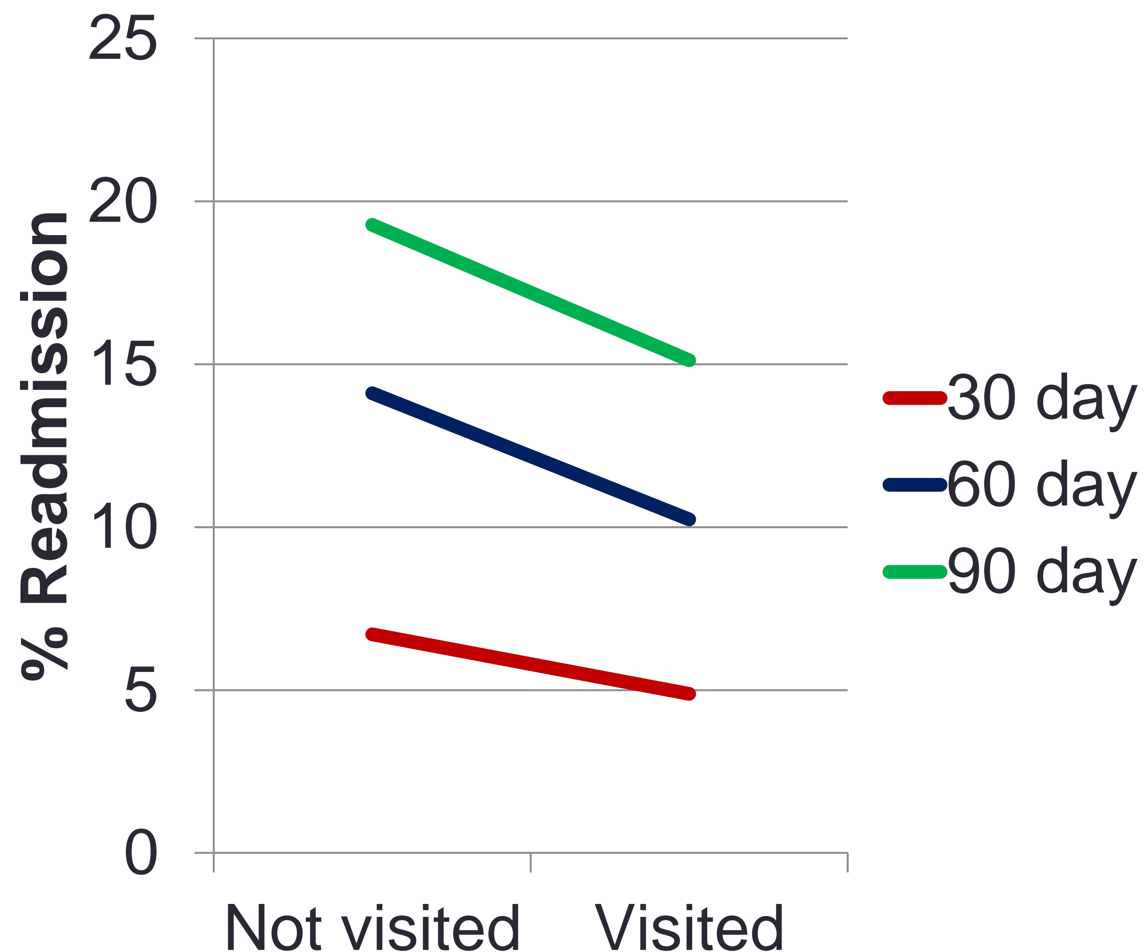
Number Needed to Treat:

- 9.0 visits to prevent one hospitalization

- $1431 saved per visit provided

Visited versus Not Visited

- 2014-2015 combined
- Recidivism to ED or hospital
- Reductions seen up to 90 days post-discharge



Medical and Social Interventions (2014-2015)

Medication review, weaning schedule, medication technique	N= 138
Environmental and triggers education in home	N=86
Smoking cessation education / referral	N= 22
Advise/ Assistance to schedule follow -up appointment/PCP apt	N= 21
Referral to Public Health Department	N= 37
Referral to Air Quality Specialist	N= 3
Referral to Department of Child Services	N= 2
Referral to Asthma Alliance for Daycare Education	N =3
Referral to Riley Social Work: financial barriers	N= 10
Provided with a mask/spacer	N= 23
Contacted clinic nurse for care coordination/concerns	N= 3
Flu Shots (pt/family)	N=4
Urgent action provided/arrange care due to immediate concerns	N= 3
Asthma Education Material/books and crayons provided	N= 18
Vacuum provided	N= 6

Successful Case Study 1

- 3 year old: hospitalization x2, mother lost job
- IEMS visit: water damage, mold, second-hand smoke from neighbor, broken water pipes
  - MCPHD referral, Indoor Air Program
  - Family was moved out of the old apt
  - Referral: Medical Legal Partnership - assisted with moving
  - Family was followed up by MCPHD in new apt

Successful Case Study 2

- 5 year old: ER x 3 times, hospitalization x 1 in the past 5 months

✓ IEMS visit
  - Cockroaches were seen in the apt
  - MCPHD referral → Housing order issued by MCPHD
  - MCPHD provided roach baits, gel, education
  - Property manager sprayed for cockroaches
  - MCPHD continues to followup

Current Program Status

- Have expanded to 6 paramedics
  - Cross-trained with COPD/CHF programs
- Grant funding ending September 1, 2016
- Initial meetings with Medicaid providers
  - Data presentation
  - Negotiations
- Other options?

Future Goals

- AE-C
- Healthy Homes Training
- Expand outside Marion County
  - Central Indiana
  - Statewide
- Followup visits
- Robust <u>bi-directional</u> partnerships:
  - Public Health Nursing
  - Indoor Air Quality Specialists
  - Remediation Services

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