Boston Asthma Home Visiting Collaborative

Boston Public Health Commission
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Figure 8.13 Asthma Hospitalization for Children under Age 5 by Neighborhood, 2006, 2007 and 2008 Combined

Asthma Hospitalizations per 1,000 Population

ABBREVIATIONS KEY:
- A/B = Allston/Brighton
- BB = Back Bay (includes Beacon Hill, Downtown, North End and the West End)
- CH = Charlestown
- EB = East Boston
- FW = Fenway
- HP = Hyde Park
- JP = Jamaica Plain
- MT = Mattapan
- ND = North Dorchester
- RS = Roslindale
- RX = Roxbury
- SB = South Boston
- SD = South Dorchester
- SE = South End (includes Chinatown)
- WR = West Roxbury

DATA SOURCE: Acute Care Mix Files, Massachusetts Division of Health Care Finance and Policy
Figure 6.9 Asthma Hospitalizations for Children Ages 3 to 5 by Race/Ethnicity, 2008 and 2009

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy
Need for Collaborative

- Poor asthma outcomes for Boston children, particularly Black and Latino

- A number of home visiting programs
  - Grant funded
  - Serving institutional or cultural/lingual populations
  - Variations in content and quality

- BPHC survey of referring clinicians found they were confused by different services available
Collaborative Members

- Boston Public Health Commission (BPHC)
- Boston Medical Center (BMC)
- Boston Children’s Hospital (BCH)
- Ecumenical Social Action Committee (ESAC)
- Environmental Protection Agency, Region 1 (EPA)
- Neighborhood Health Plan (NHP)
- Partners Asthma Center
- Tufts Medical Center
Collaborative Purpose

- Our vision is that any person in Boston who could benefit from home visits for asthma receives them, that the visits are consistent and of high quality, that they result in improved asthma control, that they are funded primarily by those sources that pay for traditional medical care, and that they are perceived as cost-effective.

- The stakeholders identified two priorities for pursuing the vision:
  - building the capacity to offer home visits in as many languages as needed
  - establishing a centralized referral system through the BPHC that identifies the most culturally and linguistically appropriate agency to provide the visit to a given family.
Collaborative Process

- Collaborative meets every other month for past 3 years
  - MDs, nurses, public health, program directors, community health workers, payer
  - Facilitated by an asthma policy expert
  - Developed, tested, revamped forms, materials, training and support
  - Pilot evaluation of clinician and client satisfaction and ACT improvement after year 1
Referrer (usually clinician)

After the referral comes in, the CHW should call the client within one to two days to schedule the first visit.

Home Visitor (Boston Asthma Home Visit Collaborative)

Feedback from the home visitor to the referrer is essential for effectiveness of the program.

Client (Asthma patient or caregiver)

The target for completion of all home visits is within 16 weeks of the referral.

First visit: within two weeks of the referral.

Second visit: within 4-6 weeks of the first visit.

Third visit: within 4-8 weeks of the second visit.

Follow up phone call: six months after the third (or final) visit.

The target for the completion of the full program, including the six month follow up phone call, is 42 weeks after the referral.
Appendix A: Asthma Home Visit Referral

Family Agrees to referral: Yes ___ No ___ (If no, do not continue)

Patient Demographic Information
Patient Name:
D.O.B.:
Two years of age or older: Yes ___ No ___
If under 2, rationale for referral:
Parent/caregiver name:
Language:
Address:
Home Telephone: Cell:
Insurance: ID#

Criteria for Referral (check all that apply)
___ Poorly-controlled persistent asthma
___ Hospital admission for asthma exacerbation in the last 12 months
___ Repeated ER or urgent care visits for asthma in last 6 months
___ Overuse of rescue medications in last 6 months
___ More than one course of oral steroids in last 6 months
___ Concerns about home environmental triggers:
   ___ Patient smoke(s) ___ Environmental Tobacco Exposure
   ___ Roaches ___ Mice ___ Animal Dander
   ___ Chemicals (cleaning chemicals, pesticides) ___ Molds
   ___ Dust Mites ___ Other:

Additional Reasons for Referral (check all that apply)
___ Concerns about medication adherence
___ Needs help with medication administration technique

Other pertinent information
Allergy testing conducted*: Yes ___ No ___
Positive allergy testing results (pull-down menu):
___ Roaches ___ Mice ___ Molds
___ Animal Dander ___ Dust-mite

*We strongly encourage allergy testing, as recommended in the National Asthma Management Guidelines. Research shows that allergy test results help providers tailor interventions for improved health outcomes.

Referral Information
Date of referral:
Referrer is: ___ Primary Care Physician ___ Asthma/Allergy Specialist
___ School Nurse ___ Insurer ___ Asthma Nurse/Educator
___ Other.

Referrer Phone # Fax #
Email:
Referrer Phone # Fax #
Email:

Primary Care Information
Primary Care Physician Name (if different from above):
Primary Care Site:
Primary Care Site Phone:
Primary Care Site Fax:
Primary Care Email:
Primary Care Pedi Triage/Asthma Care Coord. Name:
Primary Care Pedi Triage/Asthma Care Coord. Email:

Others requesting a report back (if not PCP or referree):
___ Specialist:
   Fax #: Email:
___ Insurer:
   Fax #: Email:
___ Other:
   Fax #: Email:

Asthma Action Plan
(Either FAX the AAP or fill out information below (or attached sheet))
ASThma ACTION PLAN GREEN ZONE/Peak Flow Value ______
Controller medications:
Allergy medications:
ASThma ACTION PLAN YELLOW ZONE/Peak Flow Value ______
Rescue medications:
ASThma ACTION PLAN RED ZONE/Peak Flow Value ______

Equipment used (check all that apply)
___ Nebulizer ___ Spacer with mask
___ Spacer ___ Peak Flow
Based on allergy testing and environmental exposures

- Cleaning supplies (mop, sponges, covered waste basket) @ $16
- HEPA vacuum @ $95
- Food Storage supplies (plastic food containers) @ 10
- Pest control (traps, monitors, door sweeps, copper mesh) @ $11
- Allergy blocking mattress and pillow covers @ $40 - $50
- Educational Materials @ $10
- Supply cost range $47 - $192
- Other costs staff, travel, field data collection instruments
Home Visitor Support

- Monthly meeting of home visitors
  - RN, NP or MD for clinical oversight
  - BPHC facilitator
  - Problem solving, peer to peer learning, support, information on resources, training and education reinforcement

- Goal of standardization of methods and approach across service providers
Current Status of the Program

- All field data collection and forms on netbooks
- Starting to analyze data
- Provide standardized home visits in English, Spanish, Haitian Creole, Portuguese, Cape Verdean Creole, Mandarin and Cantonese
- Supported through grants, institutional funding and reimbursement from one payer
NAEPP Guidelines

- Assessment and monitoring
- Patient education
- Control of environmental factors and other conditions that can affect asthma
- Medications
GINA Guidelines, Step-up Therapy and Home Visits

- Before step up therapy is considered, the following must be checked:
  - Inhaler and spacer technique
  - Medication adherence

- Dosing is based on clinician appraisal of asthma control
  - The CHW serves as liaison to ensure that the clinician is aware of the circumstances surrounding the child’s asthma control or lack thereof.
Basic Demographic Data

- Total number of clients as determined by the number of first visits conducted
  - 216 clients have received first visits since the introduction of Netbooks.

- All further data presented is out of 200 clients.
Distribution of Race Among Home Visit Clients

- Asian: 19%
- Black: 41%
- Hawaiian/Pacific Islander: 15%
- White: 7%
- Other: 18%
- Information Withheld: 0%
Distribution of Ethnicity among client population

N.B. – Many clients may self identify as belonging to more than one of the above categories.
Language in which clients are comfortable discussing healthcare-related issues

- English: 57%
- Spanish: 23%
- Chinese Languages: 12%
- Other: 8%
Pre-intervention Environmental Exposures (n = 200)

- Environmental Tobacco Smoke: 41%
- Pesticide: 48.50%
- Pets (at least 1 dog or cat): 28.00%
- Mold: 54.50%
- Cockroaches: 50.50%
- Mouse: 68.50%
Referrals Made

- Breathe Easy at Home program
- Quitworks
- Others –
  - Mayor’s Health Line
  - Cradles to Crayons
  - Salvation Army
  - Healthy Baby Healthy Child
  - Medical-Legal Partnership
  - Housing
  - Allergy Testing
Referrals made (n = 200)

- **Breathe Easy at Home**: 51
- **Quitworks**: 7
- **Other**: 21
Controller Medication Use

- Sometimes
- Most of the time
- Always
- Never

Visit 1 vs. Visit 2
Asthma Control Test (ACT)

- **Measures:**
  - Frequency of symptoms
  - Frequency of reduced or difficult physical activity
  - Frequency of rescue medication use
  - Frequency of shortness of breath
  - Self-report on asthma control

- Higher ACT scores are indicative of better asthma control
Changes in ACT Scores

- A score higher than 19 is considered “controlled”.
- An increase in score by 3 points is considered an improvement.
- As yet no consensus on how quickly the ACT score should change after a home visit intervention.
- Many factors including:
  - Recent hospitalization
  - Seasonality
  - School year vs. summer vacation
BAHVC Health Outcomes as measured by ACT scores

- All clients received 1\textsuperscript{st} visits
- Some received 2\textsuperscript{nd} visits and 3\textsuperscript{rd} visits
- Reasons for discontinuation may include:
  - Loss to follow-up
  - CHW determination that there is no need
  - Client may no longer be comfortable
- Change in ACTs ranged from -10 to 18
- Average of +4.3 points
Unhealthy to healthy – 29.7%
Healthy to healthy – 33.1%
3 point increase – 52%
ACT score changes at 6 month follow up

- Six month follow up phone call has been completed for 37 clients.

- Average increase of ACT scores over baseline is +4.05, indicative of sustained improvement.

- 21 out of 37 clients (57%) had an increase of 3 or more, indicating improvement.

- 28 out of 37 clients (76%) had a “controlled” ACT score at 6 month follow up.
Massachusetts Department of Public Health contracted with BPHC to take model statewide

- Created and currently updating statewide asthma home visitor training
  - Asthma content and CHW skills
- Overseeing peer support infrastructure
- Undertaking supervisor training
- Participating in Asthma Home Visitor skills and knowledge assessment process
- Will conduct training for organizations selected for MassHealth Bundled Payment Pilot
Improving the program

- **Data**
  - Looking towards more sophisticated data collection hardware and software
  - Hoping for web-based data storage
  - Leading to stronger and more effective statistical analysis

- **Sustainability**
  - Reimbursement from payers
  - Implementing a more sophisticated communication mechanism with our referrers
    - Integrating feedback into clinical record system, perhaps through EMR