Home Based Asthma Management: A Collaborative Effort to Reduce the Burden of Pediatric Asthma

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NewYork-Presbyterian Queens
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New York-Presbyterian is one of the nation's most comprehensive, integrated academic healthcare systems, encompassing 10 hospital campuses across the Greater New York area, more than 200 primary and specialty care clinics and medical groups, and an array of telemedicine services.

New York-Presbyterian Queens is a community hospital serving Queens and metropolitan New York and has been recognized as one of the best regional hospitals in New York State, according to the 2020-2021 US News & World Report "Best Hospitals" survey.

New York Presbyterian Queens has:
- 14 clinical departments
- numerous sub-specialties
- Affiliations with Weill Cornell Medicine – an ivy league medical school that is among the nation’s best in patient care, medical education and research
- network of affiliated physician practices and community health centers.
St. Mary’s Home Care

- Serves over 1250 children and young adults from birth to age 44
- Most vulnerable – medically fragile and medical complex

**Services**

<table>
<thead>
<tr>
<th>Skilled Nursing</th>
<th>Social Work</th>
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<tbody>
<tr>
<td>Telehealth (RPM &amp; Virtual Visits)</td>
<td>Physical Therapy</td>
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<td>Occupational Therapy</td>
<td>Speech Therapy</td>
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<td>Palliative Care</td>
<td>Nutrition</td>
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**Geography**

- Five boroughs of NYC, Nassau and Suffolk Counties
Collaboration

New York Presbyterian Queens
- Community Providers
- Patient Referrals

St. Mary’s Home Care
- Skilled Nursing Home Visits
- Remote Patient Monitoring

The Asthma Coalition of NYC
- Asthma Education
- Home Remediation Supplies
NYPQ Community Needs Assessment

**CHALLENGES**
- Increasing asthma rates in Queens
- Non-adherence to medication
- Home Triggers
- Missed primary & specialist MD visits

**GOALS**
- Reduce asthma rates in Queens
- Reduce missed medication doses
- Reduce triggers
- Reduce avoidable ED visits & Hospitalizations
Early Beginnings – DSRIP

Delivery System Reform Incentive Payment (“DSRIP”) Program

New York Presbyterian Queens (NYPQ) was designated as a DSRIP Hospital Performing Provider System (PPS) in 2014 and chose Project 3.d.11 – Expansion of a Home Based Asthma Program as one of their key projects.
2012
• 2013 -2018 NYS Prevention Agenda
• Focus on Pediatric Asthma - Reducing Pediatric ED visits

2014
• NYS DSRIP
• 3.d.iii Expansion of asthma home-based self-management programs

2015 Ongoing
• Collaboration I – Asthma Skilled Nursing Home Visits
• Education – Environmental Assessments – Trigger Reduction Remediation

2018
• Collaboration II - Asthma Home Visits Plus +
• Remote medication adherence monitoring

2020
• 2019-2024 NYS Prevention Agenda – Updated
• Expanded Focus on Chronic Disease, Cross-sector partnerships, Value Based Payment Models

2021 & Beyond
• Collaboration III – Chronic Disease Home Management Program
Problem Statement-Asthma

2016 New York State
• 152,000 emergency department visits
• 20,000 hospitalizations due to asthma

Project Aims

- Decrease rate of hospitalizations & emergency department visits
- Improve quality of life for individuals with asthma and their families
- Increase collaboration between primary care & community providers
- Improve asthma control among individuals with asthma
Collaboration I - Asthma Program

- Family Engagement
- Two-way Communication
- Staff & Provider Education
- Home Visits
- Environmental Assessments
- Partnership

St. Mary’s Home Care

NewYork-Presbyterian
Queens

Asthma Care Quick Reference
Diagnosing and Managing Asthma

Guidelines from the National Asthma Education and Prevention Program

- The goal of this asthma care quick reference guide is to help clinicians provide quality care to people who have asthma.

- Specific asthma care refers to inhalant approaches for people with chronic asthma. It also includes regular follow-up care.

- Asthma control is defined by the National Asthma Education and Prevention Program guidelines. It includes minimizing symptoms, reducing the frequency and severity of exacerbations, and improving the ability to participate in daily activities.

- Asthma control reduces the risk of long-term complications and avoids frequent hospitalizations or emergency department visits.

- Asthma control also improves lung function and reduces the need for medication. It also improves quality of life and reduces the risk of severe asthma.

- The guide includes short-term and long-term control strategies.
Asthma Program

- March 2016 – August 2017
- Achievements

- 31 Nurses Trained on Asthma Education
- 96 Enrolled Pediatric Patients with asthma
- 234 Skilled Nursing Home Visits & Environmental Assessments Completed
- 86% patients had an Asthma Action Plan
- 88% families could demonstrate asthma skills
- 100% Received Environmental Remediation Products (Allergen Covers, Vacuums, etc.)
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- 100% Received Environmental Remediation Products (Allergen Covers, Vacuums, etc.)
Asthma Program

- Lessons Learned
  - Involve PCPs & Provide Staff Education
  - Identify Asthma Captains & Frequent Touch Bases
  - Have a “Plan B” for challenges
  - Challenges with patient medication adherence
  - Challenges with patient acceptance of home visits
  - Outline data to collect PRIOR to enrollment

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Collaboration II - JUST BREATHE

Introduction of blue tooth medication adherence monitoring devices

Twenty new patients enrolled in pilot program – poorly controlled asthma high-risk patients

Weekly RN visits coupled with Remote Patient Medication Adherence Monitoring

Expanded collection of patient outcomes data

Adherence

2019-2021
“Smart” sensor caps placed on medication

Parameters provided by patient’s provider

Remote monitoring of patient med adherence

Dashboard alerts to Telehealth RN

RN triage for timely intervention

Prevents avoidable ED visits and hospitalizations
**JUST BREATHE**

- **January 2019–March 2021**
- **Achievements**

- **Pre-Program (6 months prior)**
  - 8 patients / 14 hospitalizations
  - 14 patients / 32 reported ED visits

- **Post-Program**
  - 20 patients / 2 hospitalizations
  - 20 patients / 1 ED visit
  - 20 patients – 4 ED visits averted

* Program continued throughout COVID Pandemic

- **0**
  - Hospitalizations for asthma!
- **4**
  - ED visits averted
- **100%**
  - Improved Asthma Control Test Scores
- **10**
  - SW
- **150**
  - Medication Alerts Reviewed
- **26**
  - Patients Referred
- **20**
  - Patients Enrolled
- **145**
  - Nursing Visits
- **100%**
  - families could demonstrate asthma skills
- **81.2%**
  - overall med adherence against a target of 75%
• 11-year old boy diagnosed with mild, persistent asthma, congenital tracheomalacia, sleep apnea, GERD without esophagitis.

• Living in a shelter.

• Enrolled in remote monitoring for asthma for 12 months

• Nurse obtained air conditioner

• Avoided ED visits and hospitalizations!
St. Mary’s Home Care

Just Breathe

Barriers & Lessons Learned

- Limited MD office time
- Bi-directional communication is key
- Need for additional services
- Coverage Denials
- Language Barriers
- Tech challenges
Success is a journey not a destination. Just keep learning and keep growing.

Enjoy the journey!
## NYS Prevention Agenda-2019-2024

### Focus Area 1: Healthy Eating and Food Security
**Overarching Goal:** Reduce obesity and the risk of chronic diseases

- **Goal 1.1:** Increase access to healthy and affordable foods and beverages
- **Goal 1.2:** Increase skills and knowledge to support healthy food and beverage choices
- **Goal 1.3:** Increase food security

### Focus Area 2: Physical Activity
**Overarching Goal:** Reduce obesity and the risk of chronic diseases

- **Goal 2.1:** Improve community environments that support active transportation and recreational physical activity for people of all ages and abilities
- **Goal 2.2:** Promote school, child care, and worksite environments that support physical activity for people of all ages and abilities
- **Goal 2.3:** Increase access, for people of all ages and abilities, to safe indoor and/or outdoor places for physical activity

### Focus Area 3: Tobacco Prevention

- **Goal 3.1:** Prevent initiation of tobacco use, including combustible tobacco and electronic vaping products (electronic cigarettes and similar devices) by youth and young adults
- **Goal 3.2:** Promote tobacco use cessation, especially among populations disproportionately affected by tobacco use including: low SES; frequent mental distress/substance use disorder; LGBT; and disability
- **Goal 3.3:** Eliminate exposure to secondhand smoke and exposure to secondhand aerosol/emissions from electronic vapor products

### Focus Area 4: Preventive Care and Management

- **Goal 4.1:** Increase cancer screening rates for breast, cervical, and colorectal cancer
- **Goal 4.2:** Increase early detection of cardiovascular disease, diabetes, prediabetes and obesity
- **Goal 4.3:** Promote the use of evidence-based care to manage chronic diseases
- **Goal 4.4:** Improve self-management skills for individuals with chronic conditions
Problem Statement

Pediatric patients with chronic illnesses in Queens have poor adherence to treatment plans and limited access to care.

Project Aim

By referring pediatric patients with chronic illnesses to St. Mary’s Chronic Disease Home Management program, we aim to reduce high cost health care utilization and improve Quality of Life.

DSRIP Funded
Collaboration III: Asthma & Beyond

- Expansion of program to monitor other chronic conditions with supportive services

<table>
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<tr>
<th>GL disease</th>
<th>Dysphagia</th>
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<tr>
<td>Lung disease</td>
<td>Seizures</td>
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<tr>
<td>Developmental Delays</td>
<td>Obesity with co-morbidity</td>
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We Can Do More

- Decrease avoidable Health Care Utilization
- Improve Access to care
- Improve Disease Specific Outcomes
- Improve Patient Quality of Life
Home Care Nurse Liaison Model

Patient diagnosed with chronic illness

Patient fills medication

Patient follows plan and takes medication

Yes → Treatment plan continues

No → Disease exacerbation

Patient enrolled with home visits and provided with telehealth kit

Remote monitoring by telehealth nurse triggers patient contact and/or home visit

Yes → Education Reinforced and Adherence Counseling

No → MD follow up and communication facilitated

Referral to St. Mary's Chronic Disease Management Program

MD notified of barriers to care

Plan Adjusted

MD recommends treatment plan and medications

MD (Specialist or PCP)
- Designed special Intake Referral form designated for specific program
- Educated all Intake staff on how to process
- PDSA – cycles of improvement
Chronic Disease Home Management Program

• Hybrid – Virtual + In-Home visits
  – Tablets + PPE and COVID precautions
  – Remote Patient Monitoring

• Supportive Counseling
  – Licensed Clinical Social Worker

• Nutritional Support by RDs
  – Healthy Eating Education
  – Activity monitoring

• “Eyes in the Home”
  – Telehealth RNs
Collaboration III - CDHMGT

- April 2021–2023
- Asthma - RPM
- Achievements to Date

Metrics:
- ED visits/hospitalizations
- Adherence Rates
- Asthma Control Tests
- RPM notifications

- 43 Patients Referred
- 13 Patients Enrolled
- 0 Hospitalizations
- 0 ED visits to date
- 100% Improved Asthma Control Test Scores
- 84% overall med adherence against a target of 75%
- 0 Families with AAP in home
- 179 Medication Alerts Reviewed & Triaged
- 78 Nursing Visits
- 23 SW/SC
- 6 Nutrition

St. Mary’s Home Care

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Queens
CDHMGT Success Story: Leslie

- 10 year old diagnosed with moderate persistent asthma and allergic rhinitis
- Enrolled in RPM for 105 days to date
  - 100% Medication Compliance
  - 0% Rescue Alerts
- Beginning ACT Score of 18
- Improved ACT Score of 26
- 9 Nursing Visits to date/Daily RPM
- Trigger Remediation items provided
- No ED Visits to date
- No Hospitalizations to date
Project Expansion to Chronic Care

- **10** pts enrolled with asthma only (RPM with Smart inhaler)
- **3** pts enrolled with asthma + other chronic illnesses*
  - Receiving combined RPM (smart inhaler, scale, pulsox, temp)
- **5** pts enrolled with chronic illnesses from NYPQ aerodigestive clinic
  - Skilled nursing visits, care plan adherence and telehealth platform
  - Scale, pulse ox, thermometer
  - SW, Care Coordination
  - Feeding, ST, PT, OT
  - Supportive Counseling for families

*Failure to Thrive, obesity, seizures, dysphagia, developmental delays
CDHMGT Progress

- April 2021– Sept. 2021
- Other Chronic Conditions*
- Achievements to Date

Metrics:
- ED visits/hospitalizations
- Adherence Rates
- Disease Specific Outcomes
- RPM notifications

*Failure to Thrive, obesity, seizures, dysphagia, developmental delays
CDHMGT Barriers

CHALLENGES

- Patient Refusal
- Unable to contact
- Patient Schedules
- Lack of Insurance
- Lack of Technology
- Non-compatible devices
* Other provider referrals

Solutions

- MD handout and encouragement
- Clinic staff referral f/u
- Social Work referrals
- Grant-funded devices
- IT and MD assists with technology and Rx

St. Mary’s Home Care

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Project Expansion: Creating a Medical Home

- Pediatric Asthma Center Move 11/1/21
  - Into pediatric clinic at Theresa Lang Children’s Center located in NYPQ
  - Expand chronic care interdisciplinary services based in Gen Peds
  - Increase collaboration and CDHMGT referrals from Gen Peds, Neuro, GI for children with chronic illnesses OTHER than asthma
• 13-year old patient with asthma, depression, anxiety
• Fell behind on schoolwork during COVID, resulting in fear of entrance to high school
• Supportive counseling visits provided by Licensed Clinical Social Worker
• Patient completed summer school and was accepted into high school of her choice
• Further referrals made to additional community resources for the family
Future Directions

- Expand to other providers in NYP network
- Recruit staff with specialized skillsets
- Define disease specific outcomes for other chronic illnesses (vitals, weight, blood glucose, blood pressure, temperature, seizure frequency)
- Identify quality of life or patient experience questionnaire to evaluate program
Thank you

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Working together to achieve excellence in care

Where big hearts help little patients

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