PCORI Fact Sheet
(Last literature review Feb. 2017 by Teresa Linck before change in focus from asthma to behavioral health)

Question 1: In school-age children with behavioral health needs in rural communities in the Southeastern part of the United States, how does a School Based Health Center (SBHC) model of APRN healthcare with specialty telehealth services compared to a primary care physician practice model of healthcare affect children's school behavior, quality of life and learning outcomes over a one-year period of time?

Background on School Based Health Centers

- School Based Health Centers provide healthcare services to children from Kindergarten to the 12th grade. They are located either on the school property or linked to an off-site facility. The majority of SBHCs are found in low-income areas.
- Most SBHCs are open extended hours and have prior arranged after school hours.
- School Based Health Centers are instrumental in providing positive health and educational outcomes for underprivileged children, thus lessening health inequalities.(4)

Potential Services Provided by School Based Health Centers

- Complete health assessments and prescriptions
- Treatments for asthmatic episodes and acute illnesses
- Health screenings for dental, hearing, vision and scoliosis
- Primary health preventative services such as immunizations; counseling services for nutrition, weight control and physical activity; dental care; school dropout and violence prevention; substance abuse; and pregnancy testing (4)

What research has been conducted in this area? Research conducted in this area can be categorized as falling into two broad areas:

1. **School Based Health Centers –** most of the studies were in urban areas and focused on pediatric asthma.
   - Emergency room (ER) visits declined (33.5%) (10) after opening SBHCs (10, 13, 14)
   - Rural community found ER visits increased overall after opening SBHCs, but decreased for asthma-related visits (21)
   - Low-income adolescents with asthma had higher rates of influenza immunizations (45% versus 16-21%) compared to asthmatic children from a multistate study (1)
   - Low-income adolescents were more likely to have at least 3 primary care visits (52% versus 34%), receive health maintenance care (47% versus 33%), tetanus boosters (33% versus 21%) and hepatitis B boosters through SBHCs(1)
   - Students' knowledge about asthma improved after participation in school-based asthma management program intervention, but no differences on morbidity outcomes (9)
   - Use of peak-flow meters, asthma care plans and inhalers improved (13)
   - Patterns of use suggested improved access to health care for disadvantaged youths (25)
   - Hospitalizations decreased (2.4-fold) and absences from school declined (13, 27)
   - Hospitalization costs declined for African American children using SBHCs (10)
   - Activity tolerance improved (14)
   - Healthcare costs decreased and quality of life (QOL) improved (23, 26)

- Low adherence to the National Heart, Lung, and Blood Institute asthma care guidelines found in some SBHCs [18]

2. **Pediatrician Offices –** all studies focused on pediatric asthma
   - Asthma outcomes improved after provider training and educational programs: [2, 5, 16] decreased hospitalizations, ER and urgent care visits; [6,7] improved communication between pediatricians and families; lower asthma flare ups; fewer work day losses for parents; [8] attainment of optimal care; and more positive view towards pediatricians [12, 15]
   - Many pediatricians reported nurses as effective as physicians with asthma education [4]
   - Telephone asthma program (TAP) study under care of community pediatricians found 24% of patients were well-controlled, 20% partially controlled and 56% poorly controlled; 74% of patients needed a higher step level of medication based on asthma guidelines and level of asthma control; lower QOL for both parents and children [3]
     - National Asthma Education and Prevention Program (NAEPP) guidelines recommend use of peak flow meters (PFMs), asthma action plans (AAPs), and spirometry in asthma management; poor adherence to NAEPP guidelines found among pediatricians [19]
     - Fifty-seven pediatricians responded to survey - 88% reported following NAEPP guidelines, but only 37% used PFM, 83% wrote AAP, and 19% used spirometry [19]
     - Pediatricians reported asthma monitoring devices improved clinical judgment, but 58% still did not use PFM and 81% did not use spirometry [19]
     - Majority of providers did not demonstrate or assess child use of metered dose inhalers, turbuhalers, diskuses, or peak flow meters during pediatric asthma visits [23]
     - Most common reason cited was that they took too much time to perform [19, 22]
     - Only 8.1% of children performed all metered dose inhaler steps correctly [22]
     - Acculturation for Latino population [17] and ER/primary care communication [20] for improved pediatric asthma care

Does this research fit within PCORI and AHRQ funding priorities?

This research aligns with the following four PCORI funding priorities:

- Comparative Clinical Effectiveness Research,
- Conditions that place a heavy burden on individuals, families, specific populations, and society,
- Children, and
- Residents of rural areas. [27]

The project also aligns with the following AHRQ's funding priorities:

- AHRQ has priority interests in funding PCOR research into practice;
- AHRQ has priority interests in CER. CER projects that seek to compare different ways of organizing and delivering health care are a priority for AHRQ (e.g. SBHCs performance versus pediatricians' offices); and
- Children and minorities are priority populations for AHRQ.

The funding priorities were found by accessing the "Funding and Grants" and then "Funding Priorities" and then "Funding Opportunity Announcement (FOA) Guidance." [28]

Has the research been funded by PCORI?

The titles and executive summaries of all 570 funded PCORI grants from 2012 to 2016 were reviewed. [28] Any grants that included a focus on rural settings (n = 6), community-based health-care services (n = 20), asthma (n = 8), or pediatrics (n = 7) were selected. Of the 8 projects funded by PCORI that study asthma, 2 focused on pediatrics:

- Improving Asthma Outcomes Through Stress Management, funded $2,287,149 in 2013; and
- Redesigning Ambulatory Care Delivery to Enhance Asthma Control in Children, funded $1,936,897 in 2013.

There were no asthma and pediatric projects with a focus on rural populations or clinic based care.

Has the research been funded by AHRQ?

No specific research has been done comparing the SBHCs and pediatrician offices, but there have been 33 grants funded for children and asthma totaling $42,534,428.

In order to search for AHRQ grants that were similar to the research topic under investigation, the following steps were taken:

1. Accessed the Grants On-Line Database – Search tab
2. Selected AHRQ Research Grants – 5864
3. Selected priority population as “children” – 1169; then entered “asthma” in abstract text box. Thirty-three grants found totaling $42,543,428 - no grants specifically about SBHCs or pediatricians and asthma.
4. Entered “school based health centers” in abstract text box - one grant on obesity care
5. Entered “pediatrician” in abstract text box. Fifteen grants totaling $2,278,424 – no grants specifically on pediatricians and pediatric asthma. [30]

Is this study feasible to do in Georgia?

There are currently seven SBHCs in Georgia. From 2010 to 2016, Partners for Equity in Child and Adolescent Health awarded planning grants to 37 sites representing over 36 counties around the State of Georgia to explore the creation of additional SBHCs. [31] We would need data on primary health care providers’ patients and SBHCs’ patients which have pediatric asthma and compare various outcomes between the two (ER visits, absenteeism, hospitalizations, healthcare costs, activity tolerance, provider adherence to National Heart, Lung and Blood Institute asthma care guidelines, etc.). For the alternate question, we would need information on SBHCs’ children who have pediatric asthma and compare to other similar demographic area schools’ children with pediatric asthma who do not have SBHCs on similar outcomes.

Literature Search Methodology

A literature search was conducted to find studies exploring the effectiveness of school based health centers (SBHC) versus pediatrician offices for treating pediatric asthma in rural communities. The two databases searched were Medline (Pubmed) and the Cumulative Index to Nursing and Allied Health Literature (CINAHL). A timeframe of approximately 17 years was

used, starting January 1, 2000 and ending January 25, 2017. Search terms included the following: school based health centers (SBHC), pediatric asthma, asthma, rural and pediatrician. Inclusion criteria were those studies that reported on asthma care outcomes provided by SBHCs or pediatricians in rural United States. Additional inclusion criteria were that the study report be written in the English language and be either a primary peer-reviewed article or a dissertation. No studies met the entire inclusion criteria so two groups of articles were extracted based on the search terms of “pediatricians and pediatric asthma” and “School-based health centers and asthma”. The SBHC and asthma search terms yielded 41 reports from the two databases. After transferring the selected reports into EndNote reference management software, removing duplicates, and reviewing titles and abstracts, nine primary reports and one systematic review met the expanded inclusion criteria. The search using pediatricians and pediatric asthma yielded 52 reports. After transferring the selected reports into EndNote reference management software, removing duplicates, and reviewing titles and abstracts, 14 reports met the expanded inclusion criteria.

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