Facilitating Home Visit Referrals Using an Asthma Clinical Decision Support Tool within the Electronic Health Record: Key Considerations

association of clinicians for the underserved

in partnership with:

ALLIANCE OF CHICAGO Community Health Services, LSC

Introduction

When integrated into the electronic health record (EHR) and clinical workflow, clinical decision support (CDS) can enhance health care quality and improve patient outcomes.[1] Using computerized alerts, reminders, forms, templates, data reports, evidence-based protocols, and other tools, CDS organizes, filters, and presents clinical knowledge and patient-specific information to guide decisions at the point of care.[2] This brief discusses how an asthma CDS tool can promote the consistent use of clinical practice guidelines for asthma, and how incorporating a referral form template can promote wider use of in-home asthma programs as an effective complement to asthma care in clinical settings.

How was the asthma CDS tool developed?

Through a cooperative agreement with the U.S. Environmental Protection Agency (EPA), the Association of Clinicians for the Underserved (ACU) teamed with the Alliance of Chicago Community Health Services (Alliance) to create an asthma CDS tool for use within a Patient-Centered Medical Home (PCMH) setting. Leveraging the centrally hosted EHR system developed and managed by the Alliance, and used by more than 100 community health center sites in a dozen states, the ACU-Alliance project engaged subject matter experts, usability testers, and the clinical user community in an iterative process that distilled recommendations from the 2007 National Asthma Education and Prevention Program (NAEPP) clinical guidelines[3] into a succinct CDS format for the EHR.[4,5]

The CDS tool supports adherence to six PCMH standards that also provide a useful framework for putting the NAEPP guidelines into practice: 1) access, 2) care management and care coordination, 3) self-care and community resources, 4) patient tracking, 5) population health management, and 6) quality improvement measures (Figure 1).[6] By presenting the right information, to the right person, in the right format, at the right place, and at the right time (the five "rights" of CDS),[7] the CDS tool encourages optimal asthma care, and helps satisfy Medicaid and Medicare requirements for meaningful use of EHRs.[8]

To enhance use of the CDS tool and its workflow integration, the ACU-Alliance project created a training module and helped sites redesign care processes as needed. The project also refined the CDS tool based on pilot testing, user feedback surveys, and de-identified data reports on asthma content use and outcomes. Users scored the resulting CDS tool positively on five usability principles: simplicity, naturalness, consistency, efficiency, and readability.

Figure 1: Six Standards for PCMH Recognition

More information about the PCMH care model is available from the National Committee for Quality Assurance (NCQA) at: http://www.ncqa.org/Home/PatientCenteredMedicalHome.aspx.

Why include CDS for asthma home visits?

Asthma is a chronic disease that inflames and narrows the airways, making them extra-sensitive to environmental

and other factors that can trigger recurring episodes, or attacks, of wheezing, chest tightness, coughing, and shortness of breath. Most commonly starting in childhood, asthma affects nearly 1 in 10 children in the United States (U.S.) and is often poorly controlled. Of the 25 million people with asthma in the U.S., including about 7 million children under age 18, more than half had at least one asthma attack in the past year. Poorly controlled asthma contributes to medical expenses that cost the U.S. an estimated $3,300 per person with asthma each year.[9]

The indoor environment is a strong contributor to poor asthma control and asthma-related hospitalizations and emergency department visits, particularly among children from minority and low-income inner-city households.[10,11] Common indoor triggers include allergens, such as dust mites, cockroaches, pet dander, pollen, and molds, and irritants, such as tobacco smoke, nitrogen dioxide (from fireplaces and gas stoves), cleaning chemicals, paints, and perfumes. However, less than half of people with asthma report being taught how to avoid or reduce exposure to their asthma triggers. Additionally, almost half of adults instructed to avoid asthma triggers did not follow most of that advice.[9]

As clinicians and patients review treatment options, CDS can prompt them to consider asthma home visits, a proven but often overlooked intervention that can help patients reduce or eliminate their exposure to indoor asthma triggers and better manage their asthma (Figure 2). For children and adolescents, home-based multi-trigger, multi-component interventions with an environmental focus improve asthma symptoms and reduce school days missed due to asthma, with cost savings ranging from $5.30 –$14.00 for every dollar invested.[12] A recent study suggests that home visits are also effective for adults with asthma.[13]

How does the CDS tool help manage asthma?

Step by step, the CDS tool guides the health care team in developing a comprehensive asthma management plan, in partnership with the patient and family, based on the four essential components of asthma care recommended by the NAEPP guidelines:

- Assessment and monitoring
- Patient education
- Medication management
- Control of environmental factors and other conditions that can worsen asthma

Figure 2: Asthma Home Visit Programs: Evidence and Recommendations

The Community Preventive Services Task Force recommends the use of home-based multi-trigger, multicomponent environmental interventions for children and adolescents with asthma, based on strong evidence of their effectiveness in improving overall quality of life and productivity. The programs reviewed by the Task Force featured:

- Assessment of the home environment
- Changing the indoor home environment to reduce exposure to asthma triggers
- Education about the home environment

Most programs also included one or more of the following additional non-environmental activities:

- Training and education to improve asthma self-management
- General asthma education
- Social services and support
- Coordinated care for the asthma client

Source: Guide to Community Preventive Services. 2008. http://www.thecommunityguide.org/asthma/multicomponent.html.

The CDS tool also facilitates coordinated team-based asthma care before, during, and after the patient visit by:

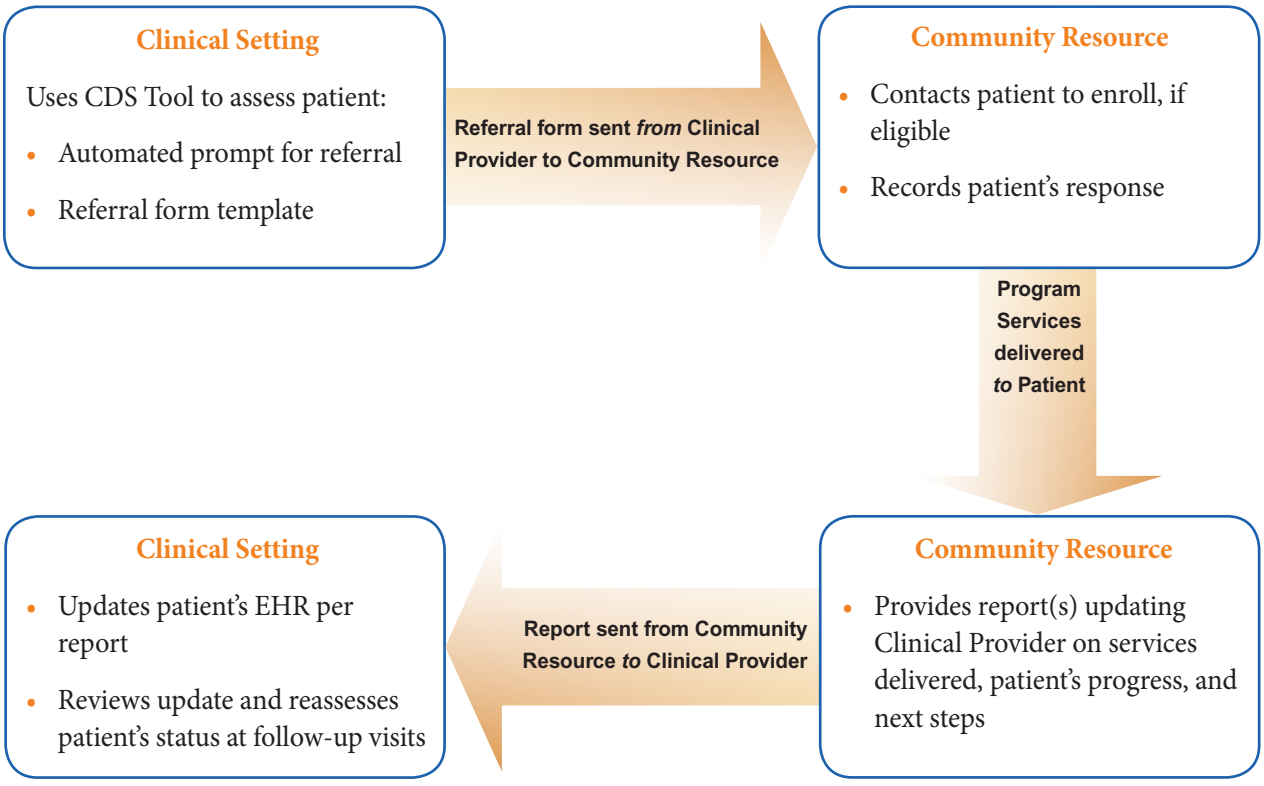
- Capturing and organizing clinical information
- Prompting clinicians towards NAEPP guidelines
- Providing tailored diagnostic and treatment recommendations at the point of care
- Facilitating information sharing within the health care team

The CDS tool further optimizes asthma care by helping the health care team identify when needed services could be provided more effectively via referral to community resources outside the clinical setting. In addition to referral for asthma home visits, for example, patients with asthma might benefit from referral to specialists to conduct spirometry and allergy testing, cessation programs to cut tobacco use, and prescription assistance programs to enable access to medications.

What makes a successful referral process?

A successful referral process hinges on a strong relationship among the referring clinician, the patient, and the community program. Successful referrals link patients with asthma to effective community resources—and report back to referring clinicians on the results (Figure 3).

Figure 3: Example of a Clinical-Community Referral Process Using the Asthma Clinical Decision Support Tool



A review of the literature and lessons learned from programs conducting care coordination from the PCMH perspective suggests several key steps for assuring successful referrals:

- Build **relationships and agreements** between the PCMH and community resources that lead to shared expectations for communication and care
- Provide **patient support** through the PCMH to facilitate timely access and follow-up for referrals
- Develop **connectivity** through electronic or other pathways for timely and effective information flow between clinical and community providers
- Assume **accountability** within the PCMH for coordinating and tracking referrals to completion[14]

The asthma programs featured in EPA's Communities in Action Asthma Change Package illustrate the importance of collaborative relationships and clear agreements between clinical and community programs. (Figure 4). Such high-performing collaborations, enabled by committed champions and strong management support,[15] can reduce asthma morbidity and mortality by:

- Helping **patients** access support services
- Helping **clinicians** ensure that patients receive care that best suits their needs
- Helping **PCMHs** integrate services through care coordination and communication
- Helping **community programs** connect with clients that can benefit from their services[16]

Figure 4: A Systems-based Approach to Delivering High-Quality, Patient-Centered Asthma Care

Source: U.S. Environmental Protection Agency. Communities in Action Asthma Change Package. Version 3. http://www.asthmacommunitynetwork.org/interact/changepackage.

How does the CDS tool facilitate referrals?

In order for a patient to actively and successfully participate in his/her own asthma management plan, clinicians should work inclusively by using resources that are outside the clinic office and are often underutilized.—National Heart, Lung, and Blood Institute. Guidelines Implementation Panel Report. 2008.[17]

Lack of knowledge of community resources, lack of reimbursement for time spent on referrals, and lack of inter-organizational agreements that ease patient access to coordinated services are among the barriers to successful referrals (Table 1).[18,19,20] These factors make it harder for clinicians to connect patients with community programs, for community programs to recruit clients, and for patients to access community services.

Table 1: Factors that May Hinder Successful Referral to Community Resources

Primary Care Clinicians and PCMHs	Patients and Family Members	Community Resources
Belief: Lack of confidence that the referral for services (such as home visits) will improve patient outcomes.	**Understanding:** Lack of agreement or misunderstanding about the need for referral.	**Utilization:** Difficulties in recruiting clients. Referrals may not match program eligibility criteria.
Knowledge: Unaware of available local community resources. No prompt for referrals at point of care.	**Support:** Poor hand-off. Lack of patient support to address logistical and other barriers to referral.	**Availability:** Community resources are not always available where patients live or are willing to go.
Time: Added time to identify right resource and to find, fill out, and submit referral forms is a burden.	**Preference:** Patient may prefer not to be referred, or to self-refer to other community resources.	**Relationships:** Absence of formal agreements with referring clinicians may deter effective collaboration.
Reimbursement: Effort to achieve effective referral not reimbursed, or health plan limits provider network.	**Accessibility:** Time, financial, and other concerns, such as language and cultural differences.	**Sustainability:** Funding issues may limit program capacity and affordability.
Communication: Privacy concerns and lack of clear processes hamper two-way communication with outside providers to coordinate care.	**Satisfaction:** Patient may feel abandoned by referring clinician. Care may suffer if providers do not share relevant patient information.	**Connectivity:** Lack of processes and secured mechanisms for timely and effective information sharing between providers.

To demonstrate how the CDS tool could be used to promote wider use of community-based in-home asthma programs, the ACU-Alliance project designed an **automated prompt for referral** (Figure 5) and a customizable **referral form template** (Figure 6). The automated prompt is intended to remind clinicians to identify and refer patients to community resources as appropriate. In addition, the referral form template, when placed within the normal workflow of the electronic health record, aims to reduce the time it takes to submit referrals.

Figure 5: Sample Automated Prompt for Referral

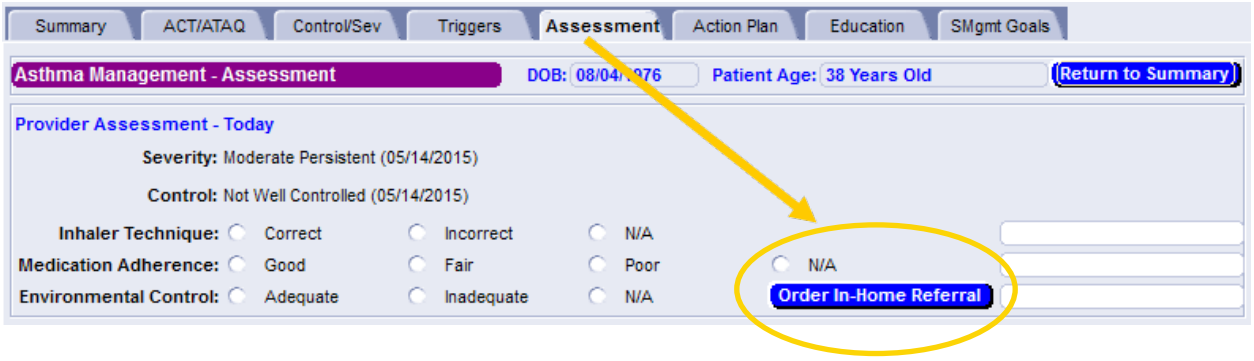


Figure 6: Sample Customizable Referral Form Template

Wellness Internal Medicine
520 NE Valley Point, Hillsboro, OR, USA 97123
(503) 555-0010 Fax: (503) 555-0011

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Referral Form

Referral Form

Authorizing Provider:	Mana C. Eccleston MD	**Service Provider:**	In-Home Asthma Referral
Signing Provider:	Mana C. Eccleston MD		
Phone:	503-555-0010	**Phone:**	503-555-0056
Fax:	503-555-0011	**Fax:**	503-555-0057

Patient Name:	Jonese Donelan	**DOB:**	3/16/2009	**Age:**	6 Years & 2 Months Old
Phone:	(H): (971) 555-0068	**Sex:**	F		
Resp. Provider:	Mana C. Eccleston MD		**Visit Id:**		

Primary Insurance		**Secondary Insurance**	
Company:	Best Health Insurance Company	**Company:**	
Plan:	Futura	**Plan:**	
Group #:	FR94D4	**Group #:**	
Policy #:	XOF12343275	**Policy #:**	
Insured Party:	Jonese Donelan	**Insured Party:**	

Code	Description	Diagnoses
ASTH01	In-Home Asthma Referral	ASTHMA, UNSPECIFIED WITH (ACUTE) EXACERBATION (ICD-493.92) (ICD10-J45.901)

Order Number:	22-1		
Auth#:			
Maximum Visits	3		
Start Date:	06/10/2015	**End Date:**	
Duration:			
Electronically signed by:	Mana C. Eccleston MD		
Signed on:	06/10/2015 9:12:13AM		

Reason:
Asthma sx in past 4 weeks: [x] Yes [ ] No
Severity: [ ] Intermittent [ ] Mild Pers [x] Moderate Pers [ ] Severe Pers
AAP: [x] Yes [ ] No
Chamber/Spacer: [x] Yes [ ] No
Peak Flow Meter: [ ] Yes [x] No
Med for LTC: Advair Diskus 100/50
Med for Quick Relief: Ventolin HFA
Med Other Asthma: Singulair 5mg
Triggers: [ ] Dust Mites [ ] Cockroaches [x] Tobacco Smoke
[ ] Animals/Pets [ ] Mice/Rats [ ] Mold/Moisture [x] Grass/Trees/Weeds
[x] Other: Hayfever

Report run by Mana C. Eccleston MD

How can you tailor the CDS tool for your use?

Experienced home visit programs suggest keeping referral forms as short and simple as possible to facilitate their use.[21,22] The customizable referral form template developed for the CDS tool includes commonly requested information, namely, date, patient and clinician contact information, and patient's condition. Moreover, the format makes it easy for clinicians to add pertinent information on the patient's asthma triggers, medications, and other self-management tools, including an asthma action plan, peak flow meter, and valved holding chamber or spacer.

A community program and referring clinical practice working in collaboration may also find it beneficial to tailor the referral form template for their specific information needs and agreed-upon referral protocols. Users of the EHR-embedded CDS tool who would like to customize the referral form template, or to incorporate one or more existing program-specific referral forms, can request assistance by contacting ACU as indicated below.

Further enhancements to the CDS tool will be made as time and funding permit. For example, developing a fully integrated electronic referral system would allow organizations to seamlessly share relevant patient information in accordance with the privacy and security provisions of the Health Insurance Portability and Accountability Act of 1996 ("HIPAA").[23]

For more information on using the Asthma Clinical Decision Support Tool in your clinic or organization, contact the Association of Clinicians for the Underserved by e-mail at acu@clinicians.org or call (844) 422-8247.

Resources

U.S. Environmental Protection Agency

- EPA's Coordinated Approach on Asthma: http://www.epa.gov/asthma
- EPA's Developing a Home Visit Program: http://www.epa.gov/asthma/homevisits.html
- Share, learn, and connect with asthma programs across the U.S.: http://www.asthmacommunitynetwork.org

Association of Clinicians for the Underserved, Inc.

- Asthma Clinical Decision Support Tool: http://clinicians.org/acu-asthma-clinical-decision-support-tool
- Comprehensive Asthma Resource List: http://clinicians.org/comprehensive-asthma-resource-list

Alliance of Chicago Community Health Services, L3C

- Electronic Health Records and Clinical Decision Support: http://www.alliancechicago.org/initiatives

Agency for Healthcare Research and Quality

- Clinical-Community Linkages: http://www.ahrq.gov/professionals/prevention-chronic-care/improve/community/index.html

Guide to Community Preventive Services, The

- Home-based environmental interventions: http://www.thecommunityguide.org/asthma/multicomponent.html

Healthy Housing Solutions, Inc.

- National Healthy Homes Training Center and Network: http://healthyhousingsolutions.com/hhtc

National Center for Education in Maternal and Child Health at Georgetown University

- Community Services Locator: An Online Directory for Finding Community Services for Children and Families: http://ncemch.org/knowledge/community.php

National Heart, Lung and Blood Institute

- Guidelines for the Diagnosis and Management of Asthma (EPR-3): http://www.nhlbi.nih.gov/health-pro/guidelines/current/asthma-guidelines

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