

Care Coordination for Patients with Asthma

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Commissioner's Medical Grand Rounds,
March 3, 2020



New York State Children's
Environmental Health Centers



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Financial Disclosure

I have no relevant financial relationships to disclose.



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Objective

- Explain how to organize and implement a care coordination team in a primary care practice



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Providing Perfect Asthma Care

Clinical Guideline for the Diagnosis, Evaluation and Management of Adults and Children with Asthma

Color Key

■ Four Components of Asthma Care

- Classifying Asthma Severity, Assessing Asthma Control and the Stepwise Approach for Managing Asthma in Children Aged 0–4 years
- Classifying Asthma Severity, Assessing Asthma Control and the Stepwise Approach for Managing Asthma in Children Aged 5–11 years
- Classifying Asthma Severity, Assessing Asthma Control and the Stepwise Approach for Managing Asthma in Children ≥12 Years of Age & Adults
- Long-Term Control Medications: Estimated Comparative Daily Dosages
- Long-Term Control Medications: Usual Dosages
- Quick-Relief Medications

Guidelines are intended to be flexible. They serve as recommendations, not rigid criteria. Guidelines should be followed in most cases, but depending on the patient, and the circumstances, guidelines may need to be tailored to fit individual needs.

National Asthma Education
and Prevention Program
Expert Panel Report 3

Guidelines for the Diagnosis and Management of Asthma



U.S. Department of Health and Human Services
National Institutes of Health
National Heart, Lung, and Blood Institute



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Are Guidelines Enough?

- You can provide perfect, guideline-aligned care in the office...
- ...but what's really happening to your patient when they leave...
- ...how are all your patients with asthma doing as a group?



Effective Asthma Control

- Is as dependent on patient behavior as it is on guideline-based asthma therapies
- Requires patients to be actively engaged
 - Self-monitoring of symptoms
 - Use of Asthma Action Plan
 - Environmental control
 - Adherence to prescribed medications
 - Appropriate device technique



Challenges Facing Providers

- Successful long-term asthma management is challenging
- Minority groups have hospitalization and ED visit rates 3x greater than white children (Kercsmar et al, 2017)
- Up to 20-40% of controller prescriptions are NEVER filled (Bollinger et al, 2013)



Challenges Facing Providers

- Poor adherence with asthma self-management is common
 - 30-70% adherence to prescribed controller medications (Bender et al, 1997)
 - <50% of patients successfully complete environmental control measures (Gergen et al, 1999)
 - More than half of children with asthma (54%) are exposed to secondhand smoke in the home. (Quinto et al, 2013)



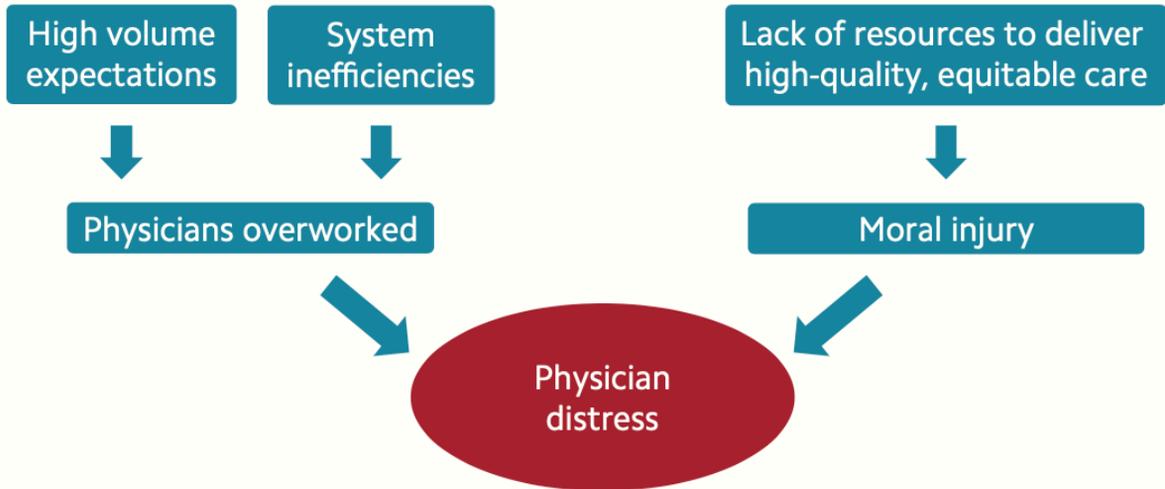
Challenges Facing Providers

- Adequate time for patient education
- Access to data on patient medication adherence.
- Value-based programs
- Formulary changes/medication coverage
- Protected administrative time to address health care system-related issues



System-Induced Distress

HOW THE HEALTH CARE SYSTEM CAUSES PHYSICIAN DISTRESS



Source: Winner and Knight 2019

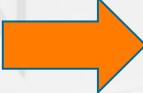


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Care Coordination for Asthma

- Changing healthcare system mindset
- Passive  Proactive
- “The health outcomes of a group of individuals, *including the distribution of such outcomes* within the group.” (Kindig and Stoddart 2003)



Care Coordination: It Works!

- Kercsmar et al. 2017
- Multifaceted approach
- Improved outcomes through 3 phases
 - Hospital-based inpatient care redesign
 - Outpatient-based care enhancements
 - Community-based supports and partnerships

JAMA Pediatrics | Original Investigation

Association of an Asthma Improvement Collaborative
With Health Care Utilization in Medicaid-Insured
Pediatric Patients in an Urban Community



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Kercsmar et al. 2017

- Inpatient interventions:
 - Medication-in-hand (30-day supply)
 - Home Health Pathway
 - Social worker
 - Environmental assessment
 - Home nurse visits



Kercsmar et al. 2017

- Outpatient interventions:
 - Care coordination
 - 1 or more asthma-related hospitalizations
 - 2 or more ED visits
 - Linking inpatient home health pathway to accept outpatient referrals
 - EMR enhancements
 - Standard visit template
 - Pre-visit screening



Kercsmar et al. 2017

- Community interventions:
 - Partnership with Cincinnati public schools
 - Partnership with DOH School Asthma Program
 - Building QI capacity in schools
 - Read-only access to EMR



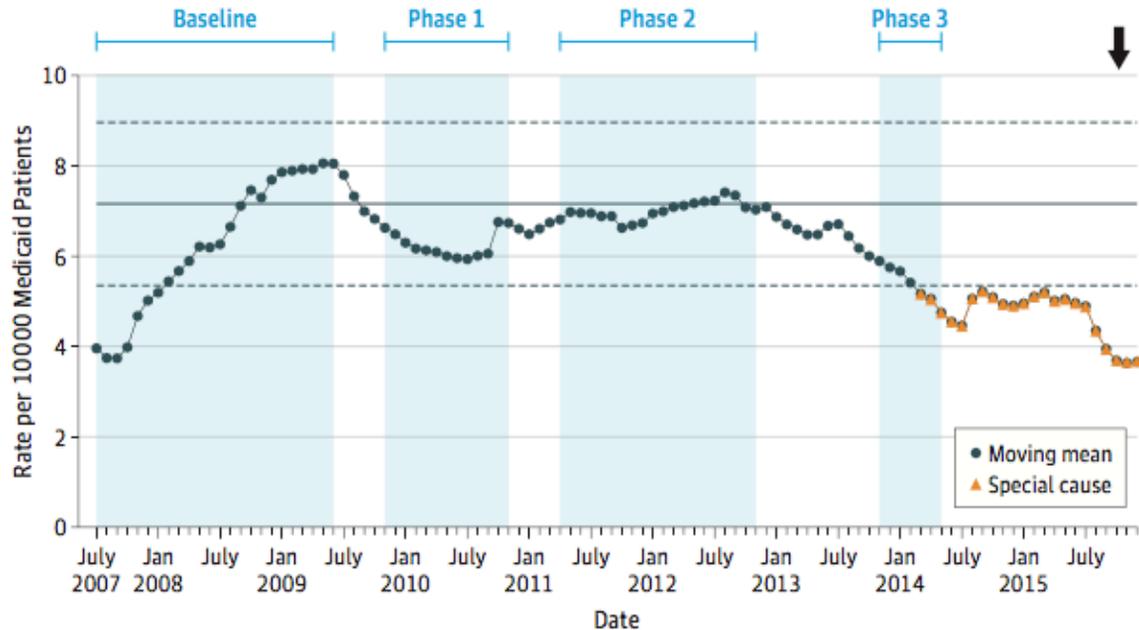
Kercsmar et al. 2017

- Reduced asthma-related hospitalizations
 - 8.1 to 4.7 per 10,000 Medicaid patients/mo.
- Reduced asthma-related ED visits
 - 21.5 to 12.4 per 10,000 Medicaid patients/mo.

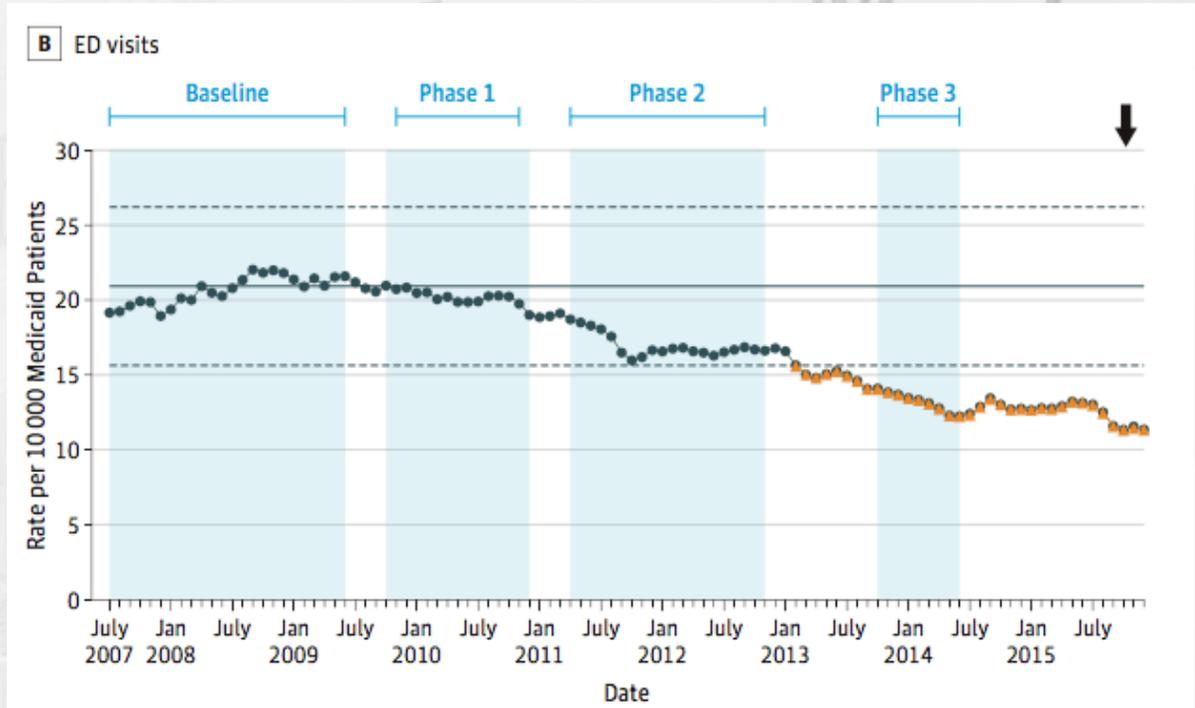


Kercsmar et al. 2017

A Hospital admissions



Kercsmar et al. 2017



How Do We Measure Success in Pediatric Asthma Care?

PCMH

School

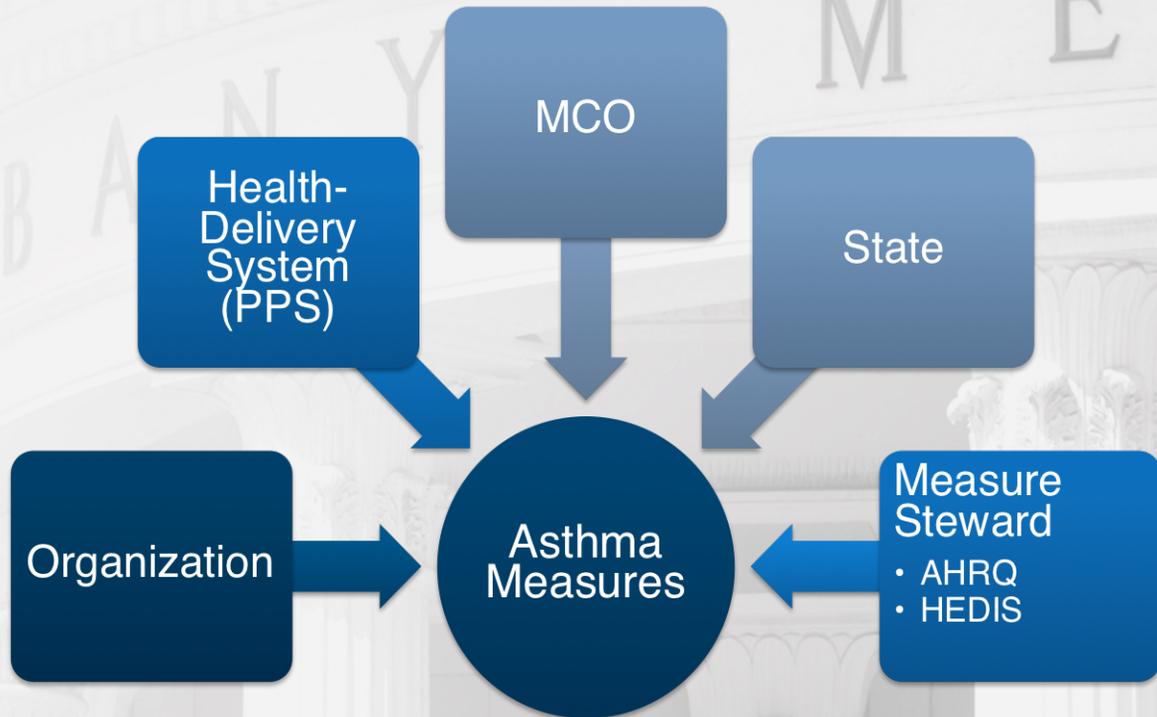
Patient

Government

MCO



Identify Your Asthma Measures



Where Do Measures Come From?

- National Committee for Quality Assurance (NCQA)
 - Healthcare Effectiveness Data and Information Set (HEDIS)
 - 90+ measures
- Agency for Healthcare Research and Quality (AHRQ)
 - U.S. Dept. of Health and Human Services



Asthma Measures

MEASURE	CATEGORY	LOCATION
Asthma Admission Rate	Outcome	ED/Inpatient
Asthma Medication Ratio	Outcome	Ambulatory
Medication Management for Asthma-75%	Outcome	Ambulatory
SABA Overutilization	Outcome	Ambulatory/Pharmacy
Pharmacologic Therapy	Process	Ambulatory/ED/Inpatient
Engaged Patients	Process	Ambulatory/ED/Inpatient
Influenza Vaccine	Process	Ambulatory
Asthma Control Test	Process or Outcome	Ambulatory

Asthma Medication Ratio (AMR)

- Ratio of controller to controller + rescue medication fills for asthma
- Generally calculated over 12 months
- Ranges from 0 (no controller) to 1 (ideal)
- Ratios <0.5 associated with increased utilization (ED visits or hospitalization) and lower quality of life

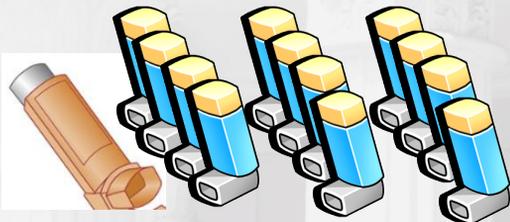
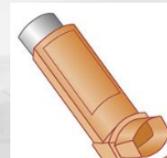


Asthma Medication Ratio (AMR)

Low AMR (<0.50)



High AMR (>0.50)



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AMR Predicts Future Utilization

Exhibit 4. Logistic Regression Models¹ Predicting Asthma Emergent Care Visits if Asthma Medication Ratio is <0.5

	Hospitalizations		ED Visits		Hospitalization or ED Visit	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
2007–2008²						
3 month	1.9	(1.1–3.4)	1.6	(1.2–2.0)	1.6	(1.3–2.0)
6 month	2.0	(1.3–3.0)	1.5	(1.3–1.8)	1.6	(1.3–1.9)
12 month	1.8	(1.3–2.5)	1.5	(1.3–1.8)	1.6	(1.4–1.8)
2008–2009³						
3 month	<i>1.1</i>	<i>(.69–1.9)</i>	1.5	(1.2–1.9)	1.5	(1.2–1.9)
6 month	<i>1.1</i>	<i>(.66–2.4)</i>	1.6	(1.4–2.0)	1.6	(1.4–1.9)
12 month	1.7	(1.2–2.5)	1.7	(1.4–1.9)	1.7	(1.5–1.9)

NOTES: ¹All models controlled for age, gender, race, and rurality and all models except italicized were significant with $p < .001$

²Ratios calculated with 2007 data predicting 2008 emergent care visits.

³Ratios calculated with 2008 data predicting 2009 emergent care visits.

SOURCE: South Carolina Medicaid Data, 2007–2009.

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Asthma Control Test	Process or Outcome	Ambulatory

SABA Overutilization

- Increasing use of albuterol is associated with increased risk of death in patients with asthma (Spitzer et. al 1992)
- Use of >1 canister every 1-2 months is associated with increased risk of ED visit or hospitalization (EPR-3)
- **RED FLAG:** >1 canister/month



SABA Overutilization

MDI	Dose (size)
ProAir	200 actuations (8.5g)
ProAir RespiClick	200 actuations
Ventolin	60 actuations (8g)
Ventolin	200 actuations (18g)



Do The Math:

- ◆ Intermittent: ≤ 2 days/week
 - 4 puffs/week (208/year)
- ◆ Exercise Pre-treatment (daily)
 - 2 puffs/day (60/month)
 - **3 months or longer**

Asthma Measures

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Asthma Control Tests

- Patient questionnaires
- Gives you the ability to monitor your patient's level of asthma control over time
- Identifies patients with poorly controlled asthma in need of follow-up or outreach from care manager



Asthma Control Tests

- Two Questionnaires:
 - Childhood Asthma Control Test (C-ACT)
 - Ages 4-11 years
 - 7 questions
 - Asthma Control Test (ACT)
 - Ages 12 years+
 - 5 questions



Asthma Control Test (ACT)

- Developed in 2004 (Nathan et al)
- Tool specifically designed for use in clinical practice
- Good diagnostic accuracy for assessment of controlled and not well-controlled asthma



Asthma Control Test (ACT)

1. In the past **4 weeks**, how much of the time did your **asthma** keep you from getting as much done at work, school or at home?

All of the time	1	Most of the time	2	Some of the time	3	A little of the time	4	None of the time	5
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2. During the past **4 weeks**, how often have you had shortness of breath?

More than once a day	1	Once a day	2	3 to 6 times a week	3	Once or twice a week	4	Not at all	5
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3. During the past **4 weeks**, how often did your **asthma** symptoms (wheezing, coughing, shortness of breath, chest tightness, or pain) wake you up at night or earlier than usual in the morning?

4 or more nights a week	1	2 or 3 nights a week	2	Once a week	3	Once or twice	4	Not at all	5
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4. During the past **4 weeks**, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

3 or more times per day	1	1 or 2 times per day	2	2 or 3 times per week	3	Once a week or less	4	Not at all	5
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5. How would you rate your **asthma** control during the past **4 weeks**?

Not controlled at all	1	Poorly controlled	2	Somewhat controlled	3	Well controlled	4	Completely controlled	5
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The American Lung Association supports the Asthma Control Test and wants everyone 12 years of age and older with asthma to take it.

Copyright 2002, by QualityMetric Incorporated.
Asthma Control Test is a trademark of QualityMetric Incorporated.

Total

Childhood Asthma Control Test

- Self-administered tool for identifying children 4-11 years whose asthma is inadequately controlled
- Developed and validated in 2007 (Liu, et al)
- Not mentioned in EPR-3 (published 2007)



Childhood Asthma Control Test

1. How is your asthma today?

 0 Very bad	 1 Bad	 2 Good	 3 Very good	<input type="checkbox"/>
--	---	--	--	--------------------------

2. How much of a problem is your asthma when you run, exercise or play sports?

 0 It's a big problem, I can't do what I want to do.	 1 It's a problem and I don't like it.	 2 It's a little problem but it's okay.	 3 It's not a problem.	<input type="checkbox"/>
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3. Do you cough because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.	<input type="checkbox"/>
---	--	--	--	--------------------------

4. Do you wake up during the night because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.	<input type="checkbox"/>
---	--	--	--	--------------------------

Please complete the following questions on your own.

5. During the last 4 weeks, on average, how many days per month did your child have any daytime asthma symptoms?

 5 Not at all	 4 1-3 days/mo	 3 4-10 days/mo	 2 11-18 days/mo	 1 19-24 days/mo	 0 Everyday	<input type="checkbox"/>
--	---	--	---	---	---	--------------------------

6. During the last 4 weeks, on average, how many days per month did your child wheeze during the day because of asthma?

 5 Not at all	 4 1-3 days/mo	 3 4-10 days/mo	 2 11-18 days/mo	 1 19-24 days/mo	 0 Everyday	<input type="checkbox"/>
--	---	--	---	---	---	--------------------------

7. During the last 4 weeks, on average, how many days per month did your child wake up during the night because of asthma?

 5 Not at all	 4 1-3 days/mo	 3 4-10 days/mo	 2 11-18 days/mo	 1 19-24 days/mo	 0 Everyday	<input type="checkbox"/>
---	--	---	--	--	--	--------------------------

TOTAL

SCORE

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Please turn this page over to see what your child's total score means.

Scoring

- Score of **19 or less** indicate asthma is not well-controlled for both ACT and C-ACT
- Scores may be used to guide therapy*

	Well-Controlled	Not Well-Controlled	Very Poorly-Controlled
ACT	≥20	16-19	≤15
C-ACT	≥20	13-19	≤12
	<ul style="list-style-type: none">• No change• Follow-up 1-6 months	<ul style="list-style-type: none">• Step-up 1 step• Follow-up 2-6 weeks	<ul style="list-style-type: none">• Step-up 1-2 steps• Follow-up 2 weeks



Building a Care Coordination Team

- **Useful frameworks for planning**
- Assembling your team(s)
- Asthma measures in action (ACT/C-ACT)
- Office (and organization) mobilization

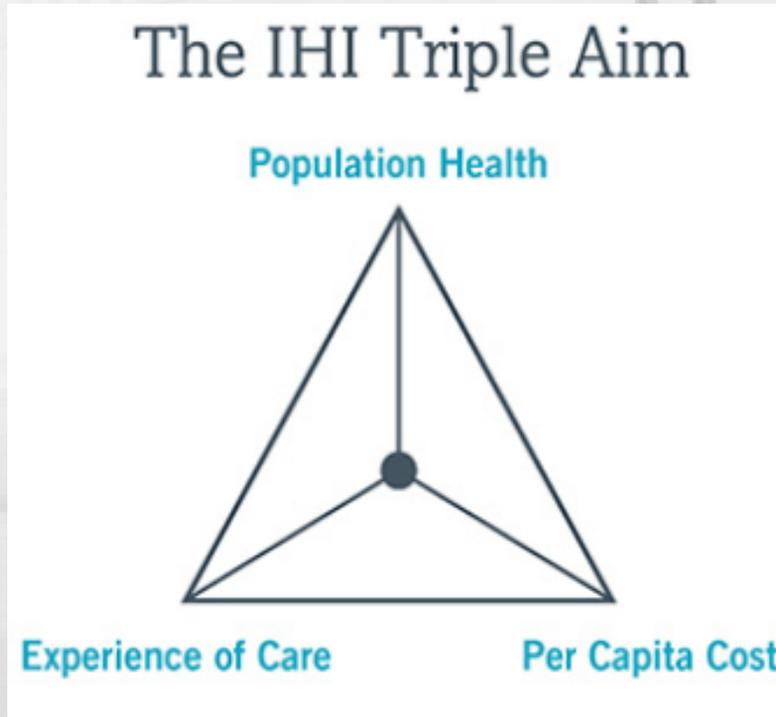


Useful Frameworks for Planning

- Institute for Healthcare Improvement (IHI) Triple Aim (or “Quadruple Aim”)
- Chronic Care Model
- CDC CCARE & E.X.H.A.L.E. framework
- NYS DOH Project BREATHE NY
- Quality Improvement



The IHI Triple Aim

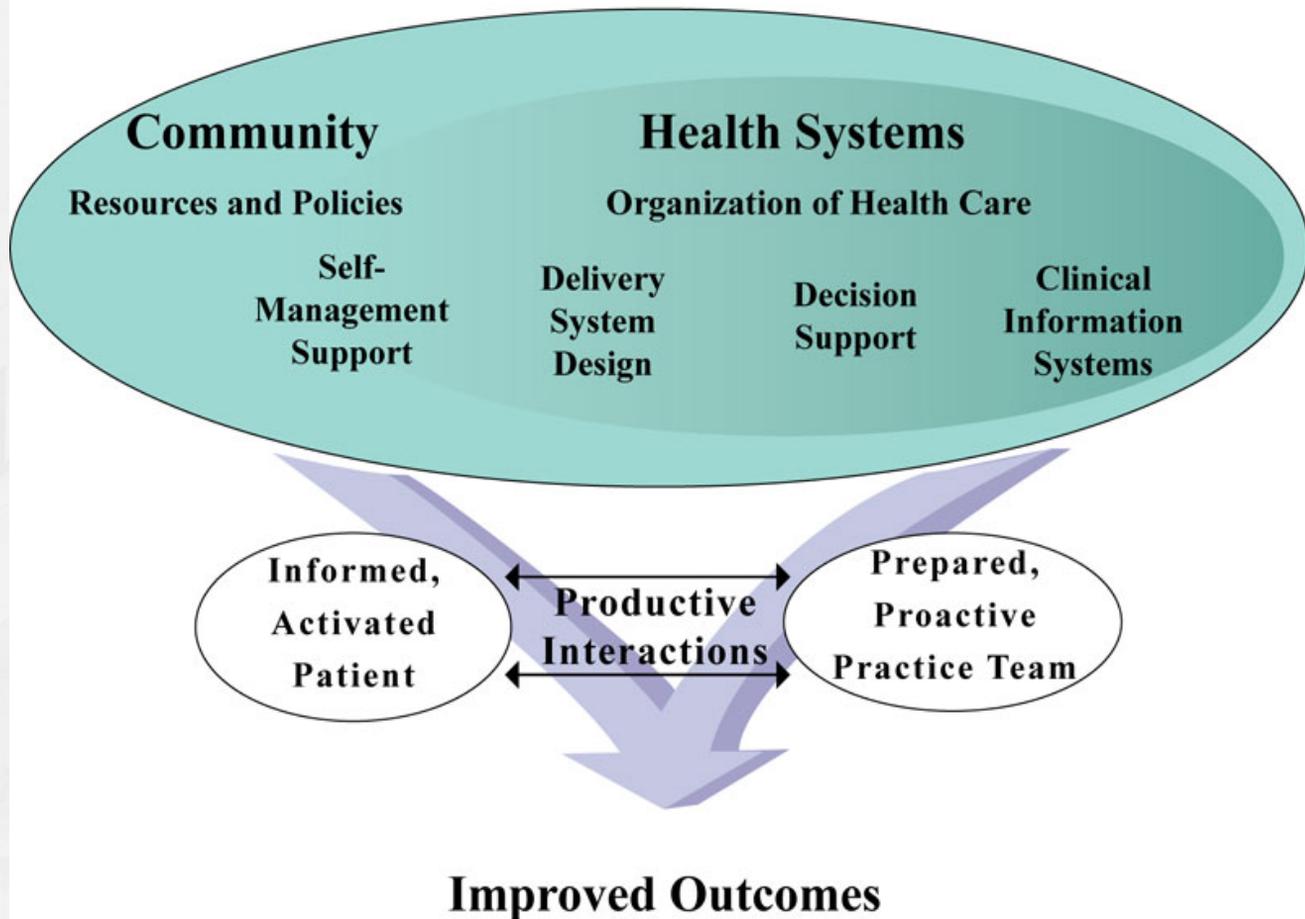


Chronic Care Model (CCM)

- Framework developed by in 1998 to address deficiencies in chronic disease management
 - Rushed practitioners not following established practice guidelines
 - Lack of care coordination and planned care
 - Lack of active follow-up to ensure the best outcomes
 - Patients inadequately trained to manage their illnesses



The Chronic Care Model



CDC CCARE and E.X.H.A.L.E.



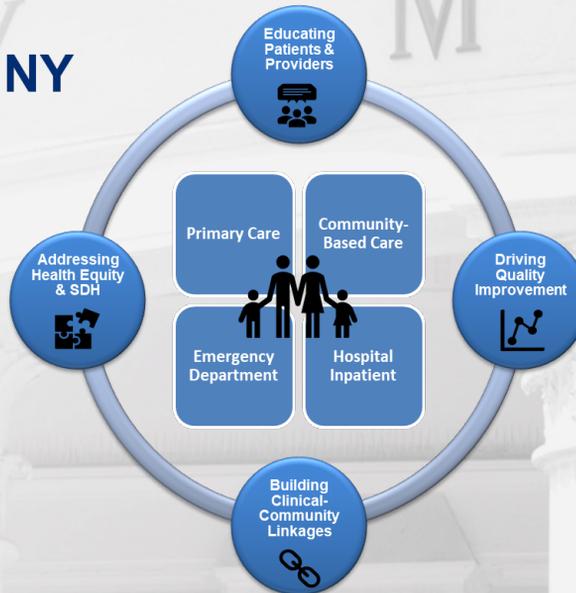
EXHALE		
	Strategy	Approach
E	Education on asthma self-management	<ul style="list-style-type: none"> Expanding access to and delivery of asthma self-management education (AS-ME)
X	X-tinguishing smoking and secondhand smoke	<ul style="list-style-type: none"> Reducing tobacco smoking Reducing exposure to secondhand smoke
H	Home visits for trigger reduction and asthma self-management education	<ul style="list-style-type: none"> Expanding access to and delivery of home visits (as needed) for asthma trigger reduction and AS-ME
A	Achievement of guidelines-based medical management	<ul style="list-style-type: none"> Strengthening systems supporting guidelines-based medical care, including appropriate prescribing and use of inhaled corticosteroids Improving access and adherence to asthma medications and devices
L	Linkages and coordination of care across settings	<ul style="list-style-type: none"> Promoting coordinated care for people with asthma
E	Environmental policies or best practices to reduce asthma triggers from indoor, outdoor, and occupational sources	<ul style="list-style-type: none"> Facilitating home energy efficiency, including home weatherization assistance programs Facilitating smokefree policies Facilitating clean diesel school buses Eliminating exposure to asthma triggers in the workplace whenever possible Reducing exposure to asthma triggers in the workplace (if eliminating exposures is not possible)



NYSDOH Asthma Control Program

Project BREATHE NY

Integrating sustainable evidence-based asthma care coordinated across settings.



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Quality Improvement

- Education, tools, and training available from a variety of sources
- Performance improvement activities required for MOC (FM, IM, Peds)
- Institute for Healthcare Improvement
 - [IHI Open School Online Courses](#)



Building a Care Coordination Team

- Useful frameworks for planning
- **Assembling your team(s)**
- Asthma measures in action (ACT/C-ACT)
- Office (and organization) mobilization



Assembling your Team(s)

- 2012
 - AMC Pediatric Asthma QI Team*
- 2015-17
 - Asthma Control Test in clinic
 - EMR Enhancements
- 2018
 - Asthma Care Coordination Team
 - Asthma Community Pharmacy Coalition
- 2020
 - ED/Hospital Transition of Care



AMC Pediatric Asthma QI Team

- Multidisciplinary team
 - AMC Physicians: ED, Hospitalist, Pulmonary
 - Ambulatory Pediatrics (Asthma Coordinator)
 - Nursing
 - Pharmacy
 - RT
 - Data Analytics
 - Community Partners: PPS, VNA
 - DOH



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AMC Pediatric Asthma QI Team

- 2020: Improving discharge process
 - Referral to case-management
 - Performing Provider System (PPS) Case Manager
 - VNA
 - DOH
 - Healthy Neighborhoods Program
 - Referral to home-based asthma environmental and educational services
 - Healthy Neighborhoods Program
 - Aligned with Project BREATHE NY



Asthma Care Coordination Team

- Stephanie Iati, RN
- Kate Musto, RN
- Shared position:
 - Gen Peds
 - Pediatric Pulmonary
- Patient Education
- Care Coordination
- Community Outreach



Asthma Care Coordination

- Process “gap lists” from managed care organization
- Track high-risk patients (e.g. ACT ≤ 19)
- Ensure transition of care
 - ED/Hospital to PCP
 - PCP to Specialist
 - Referral to home education services
 - Environmental health related services



EMR Reporting Team

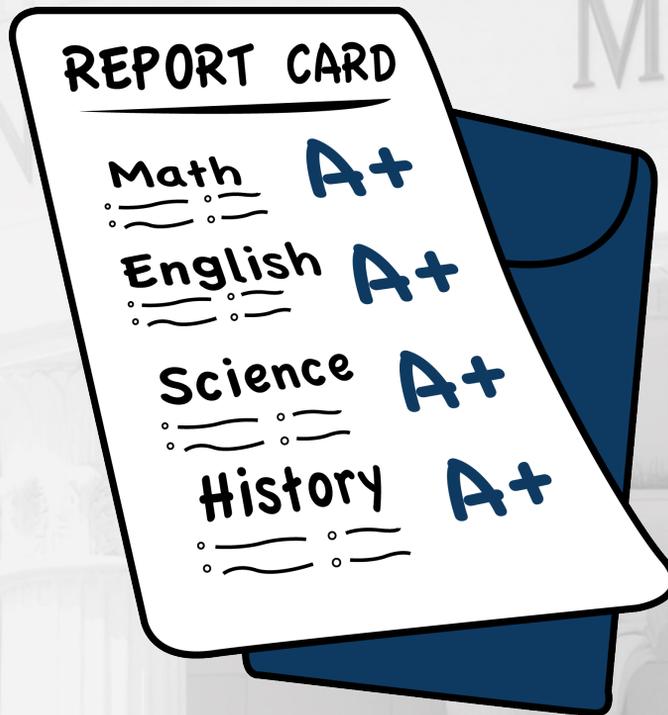


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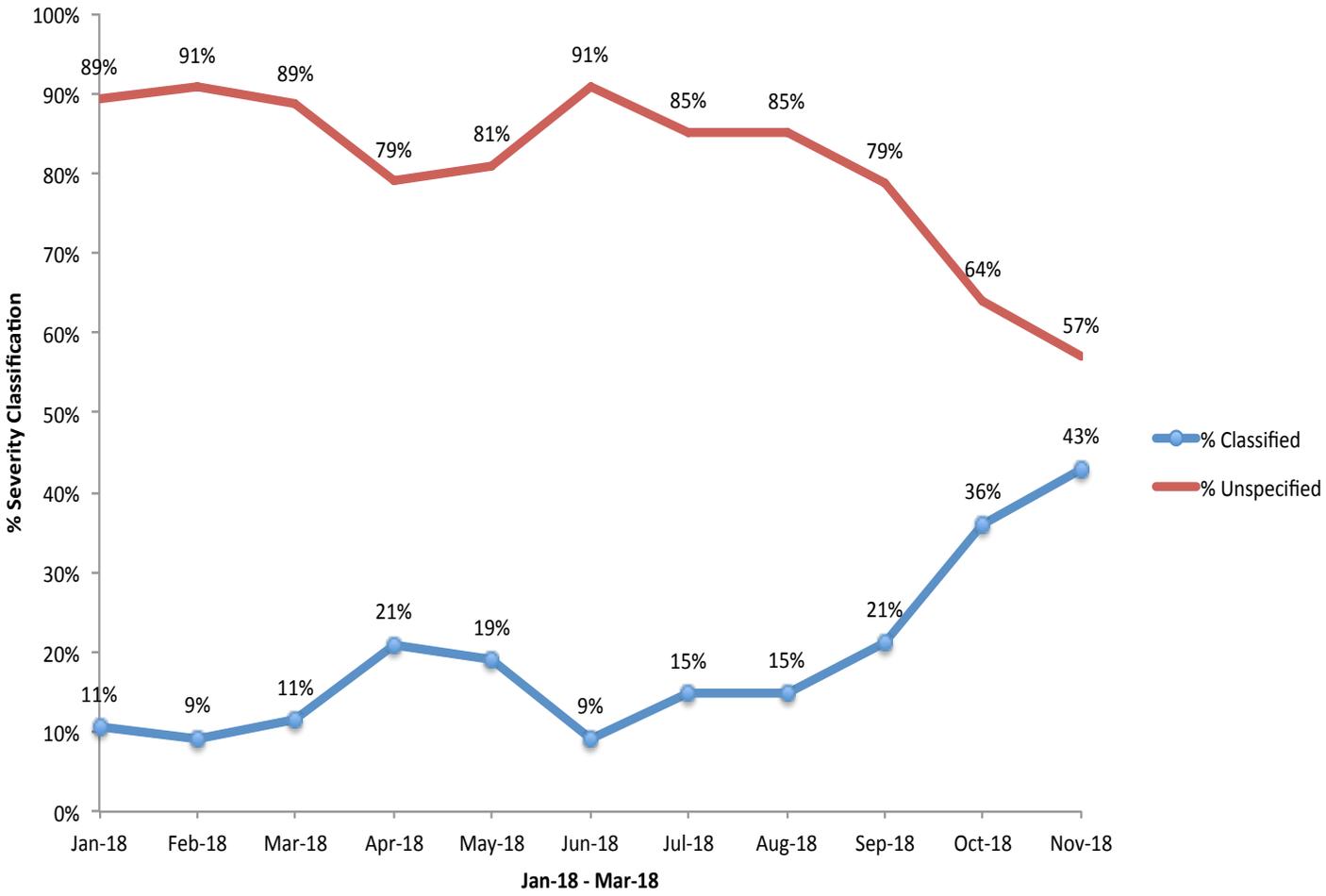


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Asthma Population Health Report



Run Chart: Asthma Severity Classification



Community Pharmacy Coalition

- Collaboration with:
 - Local, regional, and national pharmacy chains
 - College of Pharmacy
 - Managed Care Organizations
- Improve patient education and medication adherence



Building a Care Coordination Team

- Useful frameworks for planning
- Assembling your team(s)
- **Asthma measures in action**
- Office (and organization) mobilization



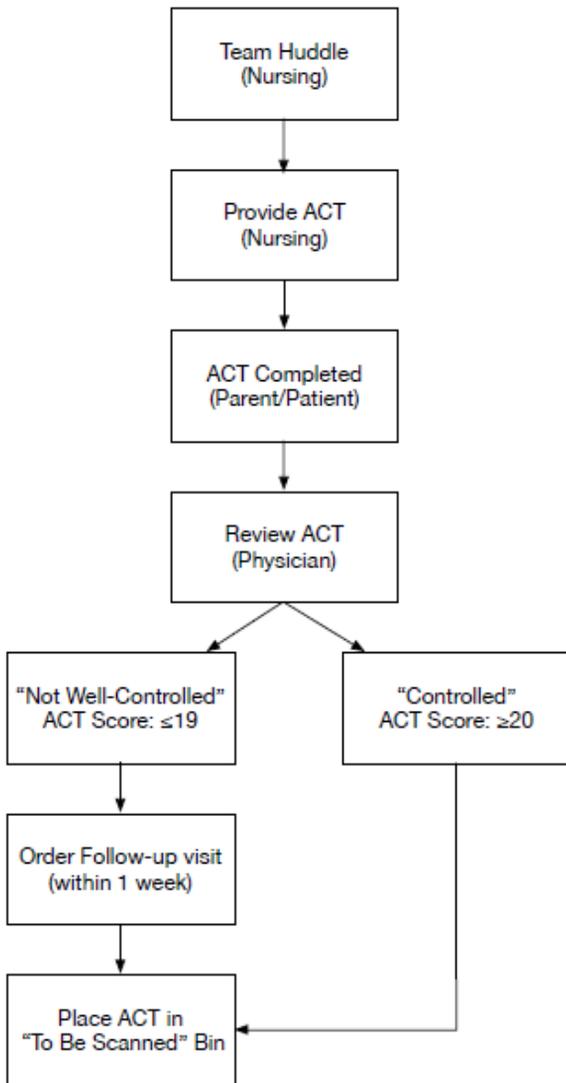
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EMR Enhancements

- Daily asthma pre-visit planning report
- ACT/C-ACT as a vital sign
- Asthma Population Health Report
- Electronic referral order to NYS DOH Healthy Neighborhoods Program





Nursing reminds physicians to review ACT on eligible* patients

*Eligible for ACT if age ≥4 years AND any of the following diagnoses:
 -Asthma
 -Reactive Airway Disease
 -Wheezing
 -SABA in medication list

There are two versions:
 Age 4-11 years: C-ACT
 Age 12 years+: ACT

Physician may elect to also manage asthma at time of visit instead of scheduling a follow-up visit

Clerical will save copy of ACT for QI Project Coordinator for tracking

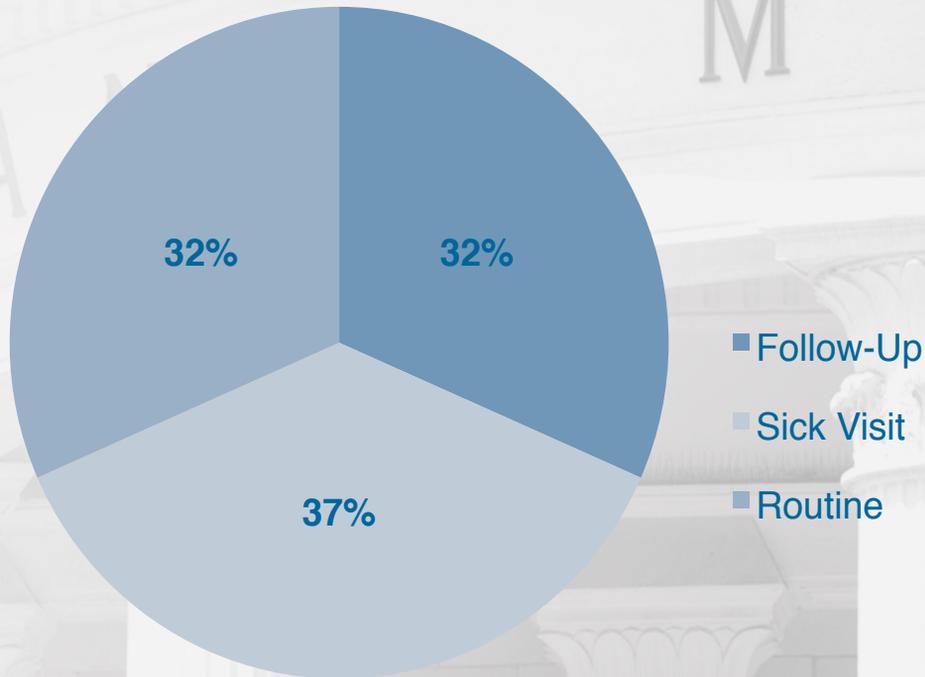
ACT as a Vital Sign

Health Management Plan

	Select	30 Jan 2017	11 Oct 2016	14 Jul 2016
Vital Signs/Findings				
Normative Growth	<input type="checkbox"/>		130 , RUE,...	
BP Comment	<input type="checkbox"/>		72 , RUE,...	
Temperature	<input type="checkbox"/>		98.8 F , Oral	
Heart Rate	<input type="checkbox"/>		68 , R...	
Pulse Quality	<input type="checkbox"/>		Regular , R...	
Respiration	<input type="checkbox"/>		20	
Respiration Quality	<input type="checkbox"/>		Normal	
Height	<input type="checkbox"/>		4 ft 6 in	4 ft 2 in
2-20 Stature Percentile	<input type="checkbox"/>		97 %	80 %
Weight	<input type="checkbox"/>		62 lb 4 oz	55 lb
2-20 Weight Percentile	<input type="checkbox"/>		76 %	68 %
BMI Calculated	<input type="checkbox"/>		15.01kg/m2	15.47kg
BMI Percentile	<input type="checkbox"/>		34 %	50 %
BSA Calculated	<input type="checkbox"/>		1.05m2	0.94m2
Weight Comment	<input type="checkbox"/>			
Scale	<input type="checkbox"/>		GP Scale A	
Head Circumference	<input type="checkbox"/>			
Pain Scale	<input type="checkbox"/>		0	
Pain Comment	<input type="checkbox"/>			
O2 Saturation	<input type="checkbox"/>		98 , RA	
Gait (in seconds)	<input type="checkbox"/>			
Risk Strat Score	<input type="checkbox"/>			7
ACT 4-11 years total score	<input type="checkbox"/>	19		



Low Score by Visit (n=19)



Low Score by Visit (n=19)

VISIT TYPE	REASON	ACT SCORE
Routine	N/A	4
Routine	N/A	9
Follow-Up	Contraception	11
Sick	Asthma	12
Sick	Vomiting	14
Sick	Gastroenteritis	14
Follow-Up	Contraception	14
Sick	Pharyngitis	15
Sick	Cough	16
Follow-Up	Asthma	16
Routine	N/A	17
Follow-Up	Asthma	17
Sick	Scabies	18
Follow-Up	Constipation	18
Sick	Tinea capitis	18
Routine	N/A	19
Follow-Up	ADHD	19
Routine	N/A	19
Routine	N/A	19

Building a Care Coordination Team

- Useful frameworks for planning
- Assembling your team(s)
- Asthma measures in action
- **Office (and organization) mobilization**



Office (organization) mobilization

- Identify physician champion(s)
- Meet regularly
- Executive “sponsorship”
- Funding sources
- Protected time



In Summary

- Care coordination is important for patients with asthma
- Collaboration between organizations and across health care settings is essential
- Together, we can make a difference



*“Because if you can’t breathe,
nothing else matters...”*



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