COMMUNICATION vs INFLAMMATION: 
Critical Behavioral Aspects of Asthma in 2018

Randall W. Brown, MD MPH AE-C
Association of Asthma Educators Annual Conference
July 20, 2018
Phoenix, Arizona

FACULTY/DISCLOSURES

Randall Brown, MD MPH AE-C
Director, Asthma and COPD Programs
Center for Managing Chronic Disease
University of Michigan
Ann Arbor, MI

Board of Directors, NAECB (2013 – 2017)
Board of Directors, Allergy and Asthma Network (current)

Research Grants: NIH, COPD Foundation, JPB Foundation
Advisor: AstraZeneca, SpiroSure
Speaker: AAN, Integrity CME, National Jewish Health, AstraZeneca
Sunovion, Teva
The Asthma Spectrum Disorder


Asthma Pathophysiology

Eosinophilic asthma

Normal

Noneosinophilic asthma

Paucigranulocytic

Th1 + Th17 neutrophilic inflammation

Mixed granulocytic asthma

IgE, immunoglobulin E; IL, interleukin; Th2, T helper type 2 cell; TSLP, thymic stromal lymphopoietin; PGD2, prostaglandin D2; Th17, T helper cell type 17.

United States

United Kingdom

Australia

Brazil

Canada

Portugal

Australia

Taiwan

China

Malta

South Africa

Hong Kong ROC

Chile

Venezuela

Cambodia

Japan

Korea

Philippines

Bangladesh

GINA Assembly

Burden of Asthma

24 MILLION Americans diagnosed

1 in 10 CHILDREN

$56 BILLION annual costs

3,600 DEATHS annually

13.8 MILLION missed school days per year

14.2 MILLION missed work days per year

3 in 5 limit their physical activity due to asthma

71% MISUSE inhalers

1 in 5 CANNOT AFFORD medications

Allergy and Asthma Network, 2018: allergyasthmanetwork.org
Asthma: A Chronic Inflammatory Disease of Mostly Small Airways

Large Airways:
- Trachea
- Bronchi
- Bronchioles

Small Airways:
- Terminal bronchioles
- Respiratory Bronchioles

Asthma Pathophysiology

INDIVIDUAL
- Genetic predisposition
- Innate vulnerability
- Atopy/allergy
- Environmental triggers

IMPACT
- AHR=airway hyperresponsiveness
- Inflammation underlies disease processes
- Phenotype varies by individual and over time
- Clinical symptoms also vary by individual and over time

AHR=airway hyperresponsiveness

GINA Global Strategy for Asthma Management and Prevention

- Not a guideline, but a practical approach to managing asthma in clinical practice
- A global strategy, relevant to both low and high resource countries
- Evidence-based and clinically-oriented
- Provides clinical tools and measurable outcomes

Global Strategy for Asthma Management & Prevention 2018

<table>
<thead>
<tr>
<th>Evidence category</th>
<th>Sources of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Well-designed RCTs or meta-analyses of relevant studies</td>
</tr>
<tr>
<td></td>
<td>Consistent pattern of findings in the population for which the recommendation is made</td>
</tr>
<tr>
<td></td>
<td>Substantial numbers of large studies</td>
</tr>
<tr>
<td>B</td>
<td>Limited number of patients, post hoc or sub-group analyses of RCTs or meta-analyses</td>
</tr>
<tr>
<td></td>
<td>Few RCTs, or small in size, or differing population, or results somewhat inconsistent</td>
</tr>
<tr>
<td>C</td>
<td>Uncontrolled or non-randomized studies</td>
</tr>
<tr>
<td></td>
<td>Observational studies</td>
</tr>
<tr>
<td>D</td>
<td>Panel consensus based on clinical experience or knowledge</td>
</tr>
</tbody>
</table>
### GINA resources - 2018

- **Global Strategy for Asthma Management and Prevention 2018**
  - Full report with many clinical tools/flow-charts, and Online Appendix
  - Fully revised in 2014, updated 2015, 2016, 2017, 2018
  - Diagnosis of asthma-COPD overlap syndrome (ACOS): a project of GINA and GOLD. Published within GINA report and separately

- **Pocket Guides 2018**
  - Asthma Management and Prevention, adults and children >5 years
  - Asthma Management and Prevention, children ≤5 years
  - Dissemination and Implementation Toolkit

- **All materials available on the GINA web site [www.ginasthma.org](http://www.ginasthma.org)** can also be ordered in hard copy
  - Use ‘Contact us’ link at bottom of webpage to order materials

- **Additional dissemination and implementation tools will be added to the website during 2018**
FOLLOWING THE GUIDELINES

- Noreen Clark, PhD (1944-2013)
- Lara Thomas, MPH
- Melissa Valerio, PhD
- Alan Baptist, MD
- Harvey Leo, MD
- Dr. Jenna Jones
- Bruce Bender, PhD
- Other Heroes in Life and Pediatrics...
ADHERENCE

Patient Persistence on Medication in Chronic Diseases

Across classes, 20% - 35% loss in patient base after fill of initial prescription

- Multiple Sclerosis (Biologic)
- High Cholesterol (Statin)
- Hypertension (CCB)
- Osteoporosis (SERM)
- Depression (SSRI)
- Asthma (Inhaled Steroid)

CCB = calcium channel blocker; SERM = selective estrogen receptor modulator; SSRI = selective serotonin reuptake inhibitor.

Asthma Adherence 2018:
An Epidemic of Behavioral Concern

- **COMMON**
  - More than Diabetes, Hyperlipidemia, Osteoporosis, Depression, Hypertension
  - Up to 75% of Patients
  - Less about Race, Ethnicity, SES and Education

- **PERSISTENT**
  - Rarely Rigorously Addressed in Care
  - Associated with Exacerbations, Hospitalization, Death
  - Where are the Guidelines?

---

Maxims on Adherence

- The less patients have to do, the more likely they are to do
- To know is not to do
- Anxiety and depression decrease adherence
  - A lot, so look for it
- Physician access and response (communication) are determinants of adherence
- Cost is an important burden…do you ask?
- The clinician is not the patient’s parent…or grandparent
Some Non-Adherence is Thoughtful

$$\text{Adherence} = f(\text{Relationship} \times \text{Disease Burden} / \text{Therapy Burden})$$

Relationship = communication + access

Disease Burden = severity* x deviation in QoL** + cost (direct + indirect)

Therapy Burden = (cost + inconvenience + side effects*) / effectiveness*

It’s not just patients and medication.  
*Clinicians and Payers can be non-Adherent, too!

Physician-Patient Discordance  
What medical school did your patient attend?

• ½ the time patients and physicians disagree on what the problem is.
• ¼ of all problems mentioned by the patient are not recognized at all by the physician.
• > 2/3 of the time patients and physicians disagree on what the goals of treatment are.
• Patients must be involved in all aspects of care, from defining the problem to determining therapy.
Patient-Centered Collaborative Care

‘If physicians view themselves as experts whose job is to get patients to obey in ways that reflect that expertise (knowledge), both will continue to be frustrated…‘

‘Once physicians recognize patients as experts on their own lives, they can add their medical expertise to what patients know about themselves to create a plan that will help patients achieve their goals.’

Bodenheimer et al JAMA November 20, 2002—Vol 288, No. 19

Asthma Disparity: Adherence

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Mean % adherence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milgrom et al</td>
<td>1996</td>
<td>40</td>
</tr>
<tr>
<td>Cheng and Naya</td>
<td>2000</td>
<td>64</td>
</tr>
<tr>
<td>Jonassen et al</td>
<td>2000</td>
<td>46.9</td>
</tr>
<tr>
<td>Bender et al</td>
<td>2000</td>
<td>52</td>
</tr>
<tr>
<td>McQuaid et al</td>
<td>2003</td>
<td>48</td>
</tr>
<tr>
<td>Walker et al</td>
<td>2005</td>
<td>46</td>
</tr>
<tr>
<td>Bender et al</td>
<td>2007</td>
<td>47</td>
</tr>
<tr>
<td>Kriebel et al</td>
<td>2012</td>
<td>58</td>
</tr>
<tr>
<td>Mosen et al</td>
<td>2015</td>
<td>19</td>
</tr>
<tr>
<td>Bender et al</td>
<td>2015</td>
<td>36</td>
</tr>
</tbody>
</table>

Asthma Disparity: Adherence

CLINICIAN BEHAVIOR

The Most Vulnerable Among Us...
Barriers To Effective Communication

**Studies show that patients often:**

- Feel they are wasting the clinician’s valuable time
- Omit details they deem unimportant
- Are embarrassed to mention things they think will make them look bad
- Don’t understand medical terms
- May believe the clinician has not really listened and therefore doesn’t have the information needed to make a good treatment decision
- Believe the clinician doesn’t understand their social and cultural experience
Communication Strategies

1. Nonverbal attentiveness
2. Eliciting underlying fears
3. Addressing immediate concerns
4. Reassuring messages
5. Interactive conversation
6. Tailoring the regimen
7. Planning for decision-making
8. Setting short-term goals for treatment
9. Setting goals with the long-term treatment plan
10. Nonverbal encouragement and verbal praise

http://www.nhlbi.nih.gov/health/prof/lung/asthma/pace

Evidence

**PACE** produced significant outcomes for physicians, parents and children with asthma as demonstrated in both efficacy and effectiveness trials.

http://www.nhlbi.nih.gov/health/prof/lung/asthma/pace
Evidence

Physicians who participated in PACE spent...
no more time
...with their patients than other physicians

http://www.nhlbi.nih.gov/health/prof/lung/asthma/pace/

Same Problem, New Decade

- 39% more likely to have asthma severity underestimated – US Managed Care
- 125% more likely (OR 2.25) not to have ICS prescribed – US
- 68% more likely not to be told what to do during severe asthma attack – US
- (2016) morbidity/severity of African American children worse upon initial presentation to specialist – 100% more hospitalizations, 50% more ICU status

OKELO. ACADEMIC PEDIATRICS 2016;16:64–67
So What Must the System Do?

- Promote, provide and pay for education that is interactive
- Formulary decisions to include adherence factors
- Co-pays used to promote effective care
- Facilitate depression screening and Rx
- Improve access to skilled clinicians
- Facilitate communication and Shared Decision Making with great Decisional Aids

The Clinician's Job

- Get the Patient Preference Info:
- What bothers you about the asthma?
- Do you think you need better asthma control?
- What are you looking for from the therapy?
- Clinicians should consider what features of the available therapies and side effect profiles meet the patient’s needs with Decisional Aids and Shared Decision Making
Creating a new system

- Specialty controlled triage
  - Focus on high risk populations
  - Modern tools, including depression & adherence
- Give PCP limited, straightforward disease management skills
  - Use technology to assist at Point Of Service
- Teach and foster Behavioral Medicine
- Provide a system which facilitates/rewards
- Monitor outcomes and redirect patients
  - Use technology to monitor and advise

An office visit is NOT a final exam! As long as the patient and clinician...

- Have an on-going relationship
- Agree upon goals
- Engage in on-going monitoring and shared decision making
- Understand the heterogeneity of response and expect the possibility of non-response and heightened susceptibility to adverse effects
Summary: Adherence & Communication

- Excellence in medical therapy is worthless if patient doesn’t take medication
- Clinicians can’t predict who will and won’t
- Most MDs believe they are good communicators
- Most patients feel communication is inadequate
- The system, the doctor and the patient must ALL assume responsibility for solving the problem
- We must do Shared Decision Making well

TAKE ACTION: Information

Percentage of Children with Active Asthma Who Used QRMs Frequently

CDC Behavioral Risk Factor Surveillance System (BRFSS), Asthma Callback Survey, 2006–2010
TAKE ACTION: Awareness

- Age 7: 20% of Daily Medication Responsibility
- Age 11: 50% of Daily Medication Responsibility

Directed Education:

-- What tools do you utilize for child education?
-- Use child education as the means to teach the “inner child” for the whole family
-- Most importantly, target at-risk groups in need

Orelli-Valente et al. Pediatrics 2008;122:e1186–e1192

TAKE ACTION: Communication

- Disparity/Cultural Awareness
- Health Beliefs
- Health Literacy
- Health Numeracy
- Adherence Estimation
- Shared Goal/Decision
- Financial questions
- Environmental advocacy
- Community Engagement

PACE/Women Breathe Free/Women of Color with Asthma/BWWP

Join the Discussion Board
Case Study

Mrs. Jones is an grandmother who brings her 14-year old grandchild, Charles, in to see you.

Charles has a history of numerous asthma hospitalizations and emergency department visits over the past year. You find Charles uses his medications faithfully as prescribed by his prior physician, and even uses a spacer with his combination (inhaled steroid-LABA) medication.

His grandmother has switched to you as his doctor because Charles has been in such poor health over the past year. Also, she says she has recently learned one of the components of Charles' daily medication "can cause death…"
**ASTHMA: TAKE ACTION. TAKE CONTROL.**

**WHAT IS ASTHMA?**
If you have asthma, the tubes that bring air into the tiny air passages in your lungs are too tight, which makes it hard to breathe. Sometimes, you have trouble breathing; you could be having an asthma flare.

**YOUR ASTHMA MIGHT BE DIFFICULT TO CONTROL IF:**
- You use short-acting asthma medicine 2+ times a week
- Your asthma wakes you up 2+ times a month
- You run out of quick-relief medicine 2+ times a year

**TAKE ACTION:**
- Many different triggers can cause an asthma flare. You should learn about the things that make you sick so you can stop an asthma flare before it happens.

**TAKE CONTROL:**
- Practice your action plan with your caregivers.
- Asthma shouldn’t hold you back! If you still have trouble breathing, talk to your doctor or caregivers.

**Messages for Older Students**
Build an empowered student!

**Messages for Younger Students**
What students need to know!

2018: http://asthma.chestnet.org
Communicating Across Disparity

- Clearly communicate allergy and asthma and risk to your patients and family. Prudently screen, diagnose and monitor for disease, especially among high-risk groups.

- Seek to understand how patient experience, environment, family and culture may influence allergy and asthma diagnosis and management.

- Plan a strategy with your patients that includes their opinions and concerns about disease, therapy, side-effects, activity, and cost.

Communicating Across Disparity

- Regularly aim to improve cultural competence for your practice.

- Regularly review samples of your practice’s cases of allergy and asthma diagnosis, management and control – especially from populations that face disparity.

- Entertain multidisciplinary approaches to disparity reduction. Consider aggressive patient education and supplemental assessment and intervention (including at home, school and work).
Asthma: A Disease of Communication

- **24 MILLION** Americans diagnosed
- **1 in 10 CHILDREN**
- **$56 BILLION** annual costs
- **3,600 DEATHS** annually
- **3 in 5** limit their physical activity due to asthma
- **13.8 MILLION** missed school days per year
- **14.2 MILLION** missed work days per year
- **71% MISUSE inhalers**
- **1 in 5 CANNOT AFFORD medications**
- **13.8 MILLION** missed school days per year
- **3,600 DEATHS** annually

Allergy and Asthma Network, 2018: allergyasthmanetwork.org

**Questions?**

**1 in 10 children in the US have asthma.**
THANK YOU