IMPROVING ADHERENCE IN ASTHMA

Isabel Virella-Lowell, MD

Professor, Pediatric Pulmonology and Sleep Medicine

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ADHERENCE IN ASTHMA- THE FACTS

- Adherence with controller therapies in adult and pediatric asthma patients ranges from 30-70%.[1]
- Less than half of families complete environmental control measures to reduce exposure to triggers e.g. cleaning measures,[2] and dust mite covers
- 1 in 5 families report willingness for pet removal[3].
- Up to 55% of patients with asthma still have frequent exposure to nicotine, despite intensive intervention. [4]

1. Bender B, Milgrom H, Rand C. Nonadherence in asthmatic patients: is there a solution to the problem? *Ann Allergy Asthma Immunol.* 1997;79:177–185
2. Gergen PJ, Mortimer KM, Eggleston PA, Rosenstreich D, Mitchell H, Ownby D, Kattan M, Baker D, Wright EC, Slavin R, Malveaux F. Results of the National Cooperative Inner-City Asthma Study (NCICAS) environmental intervention to reduce cockroach allergen exposure in inner-city homes. *J Allergy Clin Immunol.* 1999;103:501–506
3. Marks GB, Mihrshahi S, Kemp AS, Tovey ER, Webb K, Almqvist C, Ampon RD, Crisafulli D, Belousova EG, Mellis CM, Peat JK, Leeder SR. Prevention of asthma during the first 5 years of life: a randomized controlled trial. *J Allergy Clin Immunol.* 2006;118:53–61.
4. Halterman JS, Borrelli B, Tremblay P, Conn KM, Fagnano M, Montes G, Hernandez T. Screening for environmental tobacco smoke exposure among inner-city children with asthma. *Pediatrics.* 2008;122:1277–1283.

CONSEQUENCES OF POOR ADHERENCE

- greater asthma morbidity and mortality.-
- increased symptoms and healthcare utilization
- more frequent oral steroid bursts.

- Exposure to secondhand smoke associated with:
  - lower quality of life scores
  - greater rescue inhaler use
  - lower lung function
  - greater risk for emergency room visits, hospitalization and intensive care unit admission.

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ADHERENCE

- **increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in medical treatments.**

-World Health Organization

ASSESSING ADHERENCE

- Clinician's judgement
  - only get it right 49% of time
- Verbal assessment
- Self report, diaries
- Refill histories
- Electronic monitoring devices " gold standard"
  - 50% of patients referred to a tertiary severe asthma clinic had previously undiscovered nonadherence with controller therapy.[1]

1. Irwin RS, Curley FJ, French CL. Difficult-to-control asthma. Contributing factors and outcome of a systematic management protocol. *Chest.* 1993;103:1662–1669

ELECTRONIC MONITORING DEVICES

Doser

CareTRx

eMDI powered by Cohero

HeroTracker

Clip-Tone E

Propeller Health

Inspair

SmartTouch

Respiro sense range

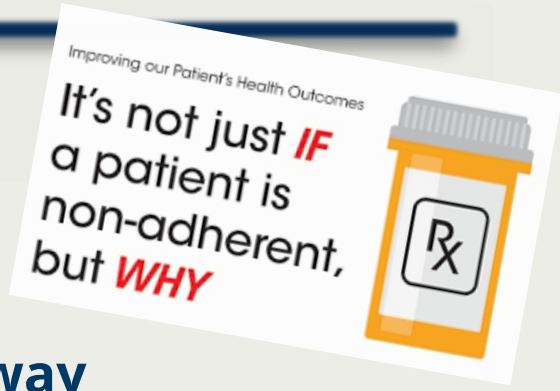
~$100-$500, for most part not covered by insurance

PATIENT REPORT NOT ALWAYS ACCURATE

MONITORING DEVICE

- **Inhaler monitoring devices, also known as smart inhalers, can cost between $100 and $500, depending on the device. Here are some examples of smart inhalers and their costs:**
- **ProAir Digihaler**
  - With a GoodRx coupon, this inhaler can cost around $150.
  - Teva offers a savings program that can reduce the cost to as little as $20 per prescription for those with commercial insurance.
- **CapMedic**
  - The sensor for this inhaler costs around $100, plus there are fees for using the app. There is a $30 sign-up fee, and then a $49 charge every 6 months for 2 years.
- **Propeller sensor**
  - This sensor costs around $300, but it's only available through a few health plans and sponsors. Fee for using app as well. Usually prescribed

ASSESSING ADHERENCE



Key : partner with patient and family

- **Listen**
  - **ask about adherence in a nonjudgmental way**
  - **show empathy if the patient reports nonadherence**
  - **Find out why- barriers to taking meds**
- **Respond to concerns and educate**
- **Personalize therapy**
  - **the best therapy is often the one that the patient will take, not necessarily what you prefer**

FACTORS CONTRIBUTING TO NONADHERENCE

Clinician modifiable

(i) Complex regimen
(ii) Multiple inhalers
(iii) Inhaler technique
(iv) Efficacy time to onset
(v) Side effects (and fear of)
(vi) Cost

Accidental

(i) Age-related factors
(ii) Forgetfulness
(iii) Misunderstood directions
(iv) Comorbidities
(v) Health literacy

Intentional

(i) Perception of treatment/ illness
(ii) Denial/anger about disease
(iii) Inappropriate expectations
(iv) Dissatisfaction with HCPs
(v) Cultural/religious issues

PERCEPTION VERSUS SYMPTOMS

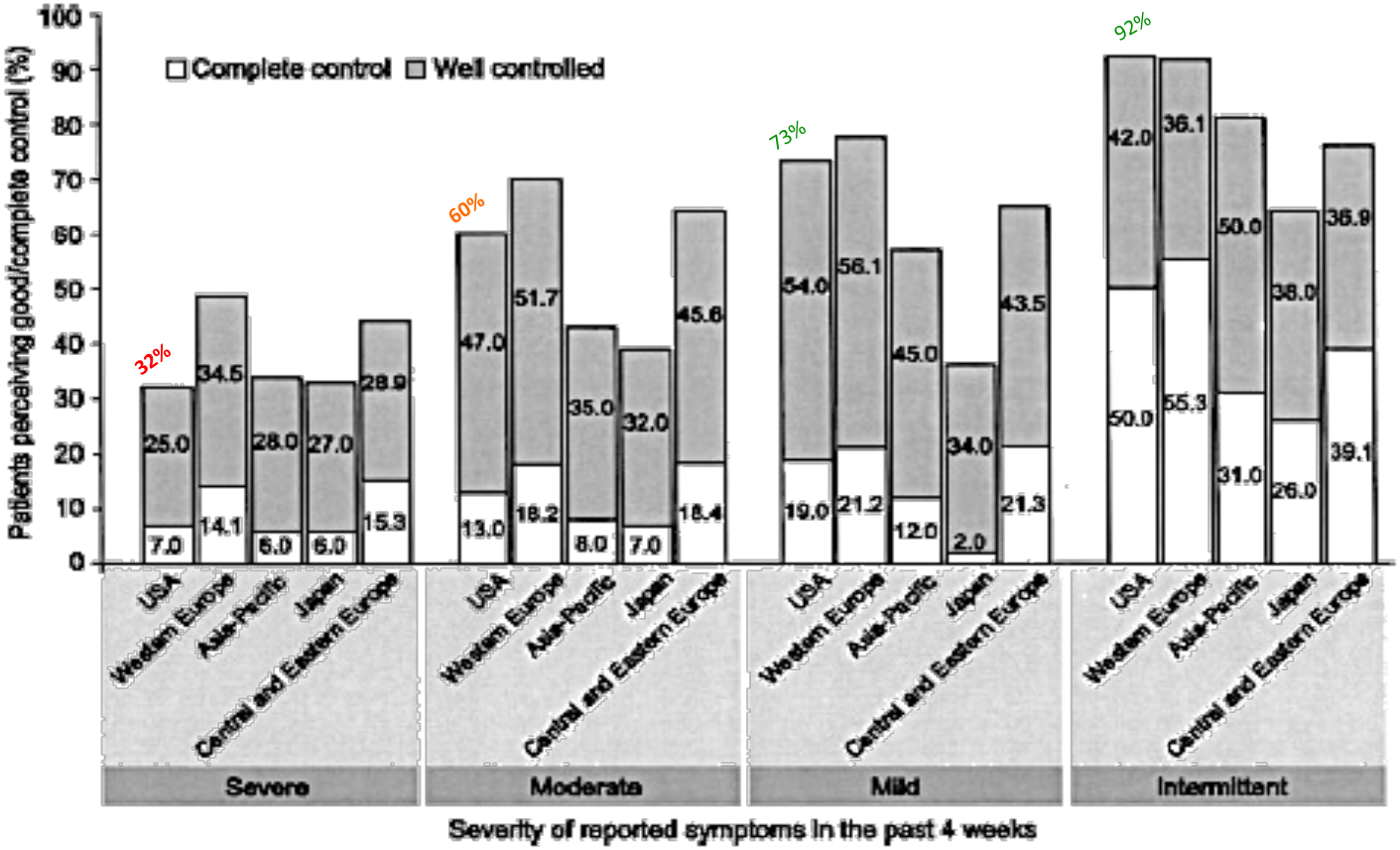


FIG 2. Patients' perception of asthma control against actual symptom severity among regions.

STRATEGIES FOR IMPROVING ADHERENCE

- **Address beliefs, misconceptions and expectations**
  - **what asthma is, how meds work and side effects, goals of treatment**
  - **What do you know about asthma, what are your concerns?**
    - **May believe child should not exercise or go outside,**
    - **May believe will outgrow asthma**
    - **Fears regarding steroids**
- **Be aware of and try to work with**
  - **family's cultural influences, health beliefs**
  - **family influences- supportive, present parents/caretaker vs nonsupportive or absent caretakers, divorce, substance abuse, and family chaos/stress**

STRATEGIES FOR IMPROVING ADHERENCE

- **Schedule frequent office visits**
  - in asthma shown to be related to improve patient adherence and self-management-
- **Engage the patient and family**
  - Motivational interviewing, education, co-production
  - Normalize nonadherence
  - Simplify regimens whenever possible- several studies demonstrate patients prefer once a day and are more adherent so consider when an option

STRATEGIES FOR IMPROVING ADHERENCE

- Tailor education & provide easy to read/understand educational materials
  - "tell me back" to confirm understanding.
- Use reminders
  - electronic reminders on the inhaler or mobile phone- apps, SMS
  - interactive phone messaging systems (Interactive Voice Recognition) can reach large populations at low cost to deliver tailored adherence promotion messages to patients.
    - In at least one study improved adherence by 32%
- Teach proper inhaler technique- demonstrate

STRATEGIES FOR IMPROVING ADHERENCE

- **Assess Financial obstacles**
  - **Coupons, patient assistance programs, sign up for Medicaid if eligible**

CASE

- 5 y.o. year old male patient with a history of of eczema, allergies, and severe persistent asthma that is not well controlled- First visit to clinic (no PFTs done)
- Diagnosed at 3 y (symptoms prior to that)
- Has had multiple hospitalizations in the past (3x this year) at Helen Keller for status asthmaticus with hypoxia- usually with illness as a trigger. Never intubated or in ICU.
- Received steroids multiple times in the past year (exact number unclear >3), most recent prescribed 1.5 weeks ago in ED (10 days of prednisolone)
- Recently increased from Symbicort 80/4.5 to Symbicort 160/4.5 BID by PCP , also on Zyrtec 5 mg daily

CASE

- Gets albuterol 3-4 times a week at baseline. More if ill or increased triggers
- Baseline nighttime cough unclear –per dad most nights but dad only has him on weekends. With mom rest of the week. Spoke to mom briefly on phone but not in person.
- Coughs and wheezes with exercise when weather is hot or very cold but OK when weather is temperate
- Has allergy symptoms that may be worse around pets (has cats in both homes, dad also has dog that sometime sleeps with child
- Asthma Triggers: changes in the weather or temperature, allergens , exercise, infection, and smoke exposure
- Mom vapes inside and in car and stepdad and GP smoke
- FHX of asthma in paternal uncle

QUESTIONS?

- Knowledge of asthma/acceptance of diagnosis
  - Ok. Not very knowledgable , accept diagnosis for now- expect he will outgrow it
- Technique and spacer
  - Poor technique, not using spacer (told he no longer needed to)
- Missed doses
  - Uncertain, parents very unclear about what happens in the others household and don't feel empowered. Seems to only have gotten it once daily or less a majority of the time
- Coordination of care
  - Bag of meds travels with him, but some meds can be missing
- Attitude towards medications-
  - Want minimal meds, asked if can get Dupixent alone because that would be much easier
- Financial
  - Medicaid, parents work, no concerns

INTERVENTIONS

- Asthma education, action plan and booklets
- Technique taught and reinforced need for spacer
- Encouraged parents to find ways to remember to give meds and communicate medication administration to each other – notebook , "go bag" action plan for each
- Tried to switch to once daily but poor technique so stayed with Symbicort
- Increased Zyrtec to BID
- Got IgE, CBC with diff and upper resp allergen panel to assess for Dupixent eligibility, allergies and possible ABPA,etc (Eos and IgE very high)
- No dog in bed. No smoking/vaping in same room or car. Dad has quit. Others are not ready to try