Asthma Care Across the Health Care Continuum: ED to Discharge and Follow Up

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Conflicts of Interest

None
Objectives

- List three barriers to recommended home self-care for pediatric asthma patients
- Understand and discuss the importance of patient/care giver education throughout the health care system and it’s impact on improving asthma outcomes and control
- Identify four components of evidence based asthma discharge education
Pediatric Asthma

- One of the top three reasons for ED visits and hospital admissions in kids\(^1\)
  - Approximately 334 million cases in the world
  - 8.3 % children in the U.S.\(^2\)
    - 6.1 million children
Pediatric Asthma

- WHO, national, state, & local agencies tasked with improving asthma care
  - GINA
  - NAEPP
    - Clinical Practice Guidelines for Asthma Management
  - Maryland Asthma Control Program
  - Greater Baltimore Asthma Alliance, Impact DC
  - Your state or local area?
  - Multiple professional organizations: ALA, AAAIA, AAFA….CDC
Pediatric Asthma

- **Cost**
  - 2013 direct care cost US: 50.3 Billion dollars
  - Indirect care costs:
    - 3 Billion dollars in missed work/school days
    - 9 deaths per day from Asthma
Pediatric Asthma

- Children with poor asthma control
  - Minorities
  - Urban
  - Poverty level incomes
  - Rural areas with poor access to health care

- Similar statistics in large cities throughout the country
  - St. Louis
  - Cleveland
  - LA
  - Baltimore
  - Philadelphia
Factors That Influence Asthma Outcomes & Control

- Inappropriate use of medications\(^3\):
  - Wrong medication
  - Incorrect technique with inhaler
  - Lack of spacer
  - Using too much albuterol before seeking care

- Lack of medications (financial, lack of ability to get to pharmacy, or failure to fill prescriptions)\(^4,5\)
Factors That Influence Asthma Outcomes & Control

- Lack of adherence to medications prescribed\(^4,5\)
  - Why?
  - Parental concerns re: effects of medications
- Inability to recognize asthma exacerbation early
- No medical follow up\(^6,7\)
- Children administering own medication without supervision at a young age\(^8\)
Factors That Influence Asthma Outcomes & Control

- Lack of preventive measures:
  - Trigger avoidance
  - Written asthma action plan (WAAP)
  - Use of daily controller medication

- Inadequate health literacy

- Lack of parent interest or understanding
  - Why?
Health Literacy

- **Affordable Care Act:** The degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions\(^\text{11}\)
Anyone who **needs** health information and services also needs health literacy skills to:  

- Find information and services  
- Communicate their needs and preferences and respond to information and services  
- Process the meaning and usefulness of the information and services  
- Understand the choices, consequences and context of the information and services  
- Decide which information and services match their needs and preferences so they can act
Health Literacy

- Anyone who *provides* health information and services to others, such as a doctor, nurse, dentist, pharmacist, or public health worker, also needs health literacy skills to:
  - Help people find information and services
  - Communicate about health and healthcare
  - Process what people are explicitly and implicitly asking for
  - Understand how to provide useful information and services
  - Decide which information and services work best for different situations and people so they can act
Health Literacy Impact on Asthma Management

- Inadequate health literacy impacts:
  - Medication administration and adherence
  - Health care follow up: When and where to seek care
  - Crisis Treatment vs Prevention
  - Cost of health care

- Overcome inadequate health literacy:
  - Time
  - Education and resources

- Decrease ED utilization & hospital admissions & improved asthma outcomes in low literacy population shown with strong education\textsuperscript{12}
Presentation to the ED

- Presentation to ED varies
  - Mild wheezing or cough
  - Ran out of medicine
  - Medicine not working
  - Wheezing
  - Respiratory Distress
  - Full arrest
Presentation to the ED

- History of asthma exacerbation progression
  - Treatment prior to arrival
    - Severity of exacerbation
  - Family/patient ability to recognize exacerbation and severity
  - Family/patient knowledge
    - Treatment
    - Seeking medical care and location
  - Compliance and availability of medications
    - If not compliant-why?
Recommended Initial Treatment for Asthma Exacerbation: NAEPP

- Initial treatment:
  - 3 treatments: inhaler or nebulizer
    - Albuterol 2.5-5 mg combined with Ipratropium 500 mcg
  - Steroids
    - PO, IM, or IV

- Adjunct Therapy
  - Epinephrine IM or Terbutaline Sub Q
  - Magnesium
  - Continuous Albuterol
  - Terbutaline drip IV
  - BiPAP
Monitoring During Asthma Treatment

- Varies with severity of exacerbation
  - Mild asthma
    - Recheck RR and pulse ox prior to discharge or after treatment
  - Basic asthma pathway
    - Vital signs including RR, HR, and SaO₂ & reassess between treatments and minimum of every 2 hours while in ED
    - Ideal pulse oximetry monitoring
Monitoring During Asthma Treatment

- Requires escalation of care
  - CR monitor with continuous pulse oximetry
  - Respiratory distress ETCO$_2$ can be helpful
  - Magnesium: Frequent BP monitoring
  - Terbutaline Drip IV: Cardiac enzymes prior to initiating, monitor cardiac rhythm, frequent BP when titrating dose.

- Consider Fluid Status
Fluid Status

- Monitor Fluid Status
  - History
    - How long have they been ill?
    - PO intake?
    - Voiding?
    - RR and HR?
  - Concerns?
    - Increased insensible loss?
  - What do Magnesium and Terbutaline do to systemic vascular resistance?
Admission or Discharge?  
That is the question!

- Safely space to q 4 hour treatments
- No Oxygen requirement
- Breathing is comfortable and unlabored
Admission

- Do they need observation overnight, hospital admission, or PICU?
  - Requirements for location vary by facility
  - Protocol for asthma care can expedite care and discharge
  - Education should start in ED and continue through inpatient stay and during follow up
    - Difficult with PICU level patient due to parental concern and anxiety
    - Don’t absorb information well
Inpatient Care

- Asthma admission protocol
- Asthma patients 2-21 yrs of age admitted for asthma exacerbation on a general care unit
  - Exclusions: infection, airway pathology, vent dependent, C.F., cardiac, immune disorders
  - Caution: co-morbid diagnosis of pneumonia
Inpatient Care

- Protocol orders written by provider
  - RT guided weaning (collaboration with nursing and MD)
    - Specific criteria using asthma score for weaning
    - Dosing algorithm (weight based)
    - Primarily used with MDI and spacer (may give nebs when sleeping)
  - Provider may discontinue at any time
  - Provider must evaluate readiness for discharge
Education

- Works to improve patient outcomes and asthma control
  - Done at every care interaction
    - ED, PICU, Floor, Follow up appt, in home
    - Sustained impact on asthma control & care
    - Feasible in area of care
- Multi-modal
  - Given in way family best learns
- Asthma Educators
Education

- Listen to Family and their questions
  - What are their concerns and thoughts
    - Family identifies needs that are different from medical personnel\(^\text{13}\)
  - Clear up confusion
  - Ensure they have learned what you taught
    - e.g. return demo of inhaler administration
Considerations with Education

- Personalized to need of patient and family
  - What do they already know
  - Where are their gaps in knowledge
  - Learning assessment: how do they learn best?
    - Multimodal education
    - Chunk information together
    - Don’t overwhelm parent with too much information at once
Education Content

- What is asthma
  - Chronic disease with acute flare ups
    - View of asthma impacts treatment by parent: crisis vs prevention mode\(^1\)\(^2\)
  - Severity: i.e. not just a little asthma
  - Children die from asthma every day
- What are signs of asthma exacerbation
  - Recognition of asthma signs
  - Recognition of severity of exacerbation
- When do I call the Dr vs going to the ED?
How do I treat an exacerbation?

- Medication
  - Controller vs Rescue Inhaler
    - When to use what medication
  - Administration of medication via inhaler
  - Confusion re differing instructions (medical terms)
  - Include child
  - Ensure child knows to tell parent about inhaler use or symptoms worsening

- Hands on return demonstration of parent &/or patient administration of MDI/nebulizer

- Parent and patient teach back
Education Content

- Patient follow up
  - Rates
    - Improved with knowing severity of asthma exacerbation at time of D/C from ED
    - Stress why needed

- Prevention vs crisis management
  - Parents have crisis focus
  - Avoiding Triggers
  - Use of controller medications
  - What is controlled asthma
    - Parents consistently overestimate control of child’s asthma
Well Controlled Asthma

Providing Education to Improve Post Discharge Asthma Self-Management

- Utilize variety of teaching methods
  - Explanation
  - Handouts Picture options
    - Hearing and vision disabled, language barriers, color blind
  - Demonstration
  - Return Demonstration
  - Teach back
  - Video
  - Computer learning programs/games
Providing Education to Improve Post Discharge Asthma Self-Management

- Don’t assume they know the information!
- Repetition
  - Improves retention
- Written Materials
  - 5th grade level
Asthma Resources

- [https://tools.cdc.gov/podcasts/media/mp3/Kidtastics_Asthma_ENG.mp3](https://tools.cdc.gov/podcasts/media/mp3/Kidtastics_Asthma_ENG.mp3)
- [https://www.youtube.com/watch?v=von7cyXcj2c](https://www.youtube.com/watch?v=von7cyXcj2c)
- [https://www.youtube.com/watch?v=RpBPlohxPus](https://www.youtube.com/watch?v=RpBPlohxPus)
- [https://www.youtube.com/watch?v=lfEsOiR9K_s](https://www.youtube.com/watch?v=lfEsOiR9K_s)
- [https://www.youtube.com/watch?v=-kEkt_8XILA](https://www.youtube.com/watch?v=-kEkt_8XILA)
- [https://pbskids.org/arthur/health/asthma/](https://pbskids.org/arthur/health/asthma/)
Asthma Resources

- https://iggyandtheinhalarers.com/
Resources

- https://kidshealth.org/en/kids/asthma.html?WT.ac=ctg#catwhat
Resources

- https://www.aaaai.org/conditions-and-treatments/just-for-kids
- https://www.aaaai.org/conditions-and-treatments/just-for-kids/mr-nose-it-all's-word-game
Written Asthma Action Plans
Questions?

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