

Asthma in Sports Medicine

Rebecca Lee, CRNP

UAB Pediatric Pulmonary Division

Objectives

- Define asthma
- Recognize players with asthma
- Utilize quick-relief correctly
- Respond to asthma symptoms appropriately
- Recognize asthma triggers
- Report asthma symptoms to family and other coaching staff
- Identify available resources

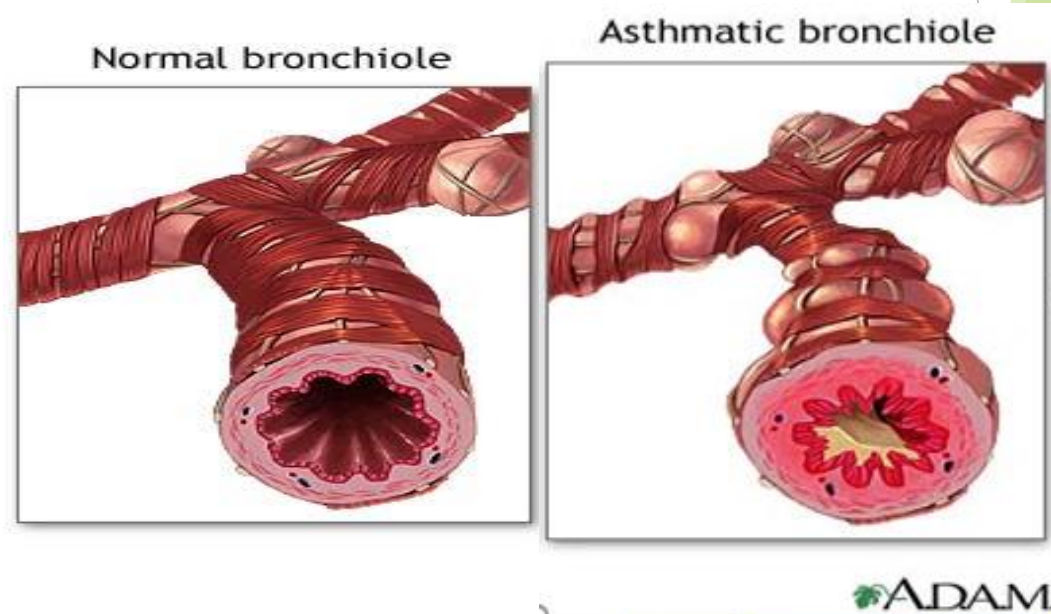
Pediatric Asthma

- Asthma is the most common chronic disease of childhood affecting ~7% of children.
- Asthma disproportionately affects children with families below the poverty level.
- Asthma disproportionately affects minority children:
 - ~11.6% American Indian/ Alaska Native
 - ~9.7% African American
 - ~6.1% Hispanic

https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm

Defining Asthma

- Asthma is a chronic inflammatory disease of the lower airways that is characterized by:
 - Airway edema
 - Mucous production
 - Bronchoconstriction
 - Airway hyper-responsiveness



Recognize Asthma Symptoms

- Leads to variable and recurring symptoms including:
 - Cough/nocturnal cough, wheeze, shortness of breath, and chest tightness
 - Symptoms are more common during the night, early morning, with activity, and with trigger exposure
- Encourage families to communicate when a player's asthma is not under good control at home

Types of Asthma

- Two Categories of Asthma:
 - Intermittent: rare times of airway inflammation and fewer symptoms
 - Persistent: airway inflammation present everyday and symptoms are more frequent (further defined into mild, moderate and severe categories)

High Risk Asthma

- Players with poor control of symptoms.
- Recent hospitalizations, especially in an ICU.
- Frequently missed school days.
- Frequent ER visits or doctor visits.
- Players who are poor perceivers of their asthma symptoms.

Asthma Medications

Asthma Medicine Pictorial



- Quick-relief medication
- Controller medication
- Targeted biologic therapy

Quick-Relief Medicines		Controller Medicines			
					
Ventolin™ (Albuterol)	Proventi™ (Albuterol)	Flovent HFA™	Alvesco™	Asmanex HFA™	Dulera™
					
ProAir® RespiClick (Albuterol)	ProAir™ (Albuterol)	Symbicort™	Advair HFA™	Advair Diskus™	
					
Xopenex™ (Levalbuterol)	Qvar Redihaler™	Asmanex™ Twisthaler	Plumicort Flexhaler™		
					
Xopenex™ (Levalbuterol) for Nebulizer	Budesonide (Pulmicort™) for Nebulizer	Spiriva Respimat™	Breo Ellipta™		
					
Albuterol for Nebulizer					
Spacers:					
 					

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New Asthma Guidelines

- National Heart, Lung, and Blood Institute (NHLBI) published 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group
- Global Initiative For Asthma (GINA) published 2021 GINA Report, Global Strategy for Asthma Management and Prevention
- Bottom line: Some controller medicines may also be used as quick-relief medicines.

Asthma Medications: Quick-Relief

- Quick-relief: Short Acting Beta Agonists that relax the airway muscles to provide prompt relief of symptoms
- Quick-relief is also used to “pre-treat” symptoms when exercise is a trigger
- **All players with asthma need quick-relief medicine at practice and games**
- What does quick-relief **NOT** do:
 - address inflammation
 - prevent symptoms from returning

Quick-Relief Medication

- Give a treatment dose when player is having symptoms even if player has pre-treated before exercise per their MPPA (medication prescriber/parent authorization) form
- Expect improvement within 20 minutes and reassess
- When a dose does not keep the players breathing comfortable for 4 hours, severity of airway obstruction is worsening and it is time to call the parent or 911 based on your assessment

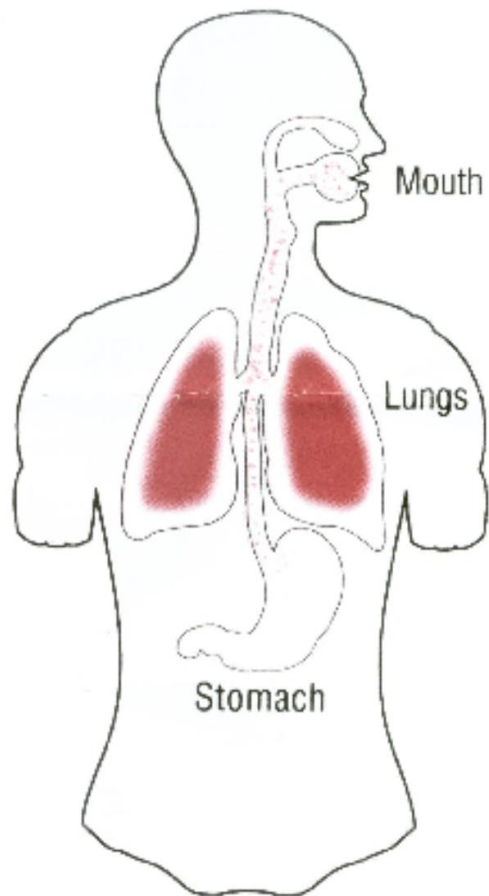
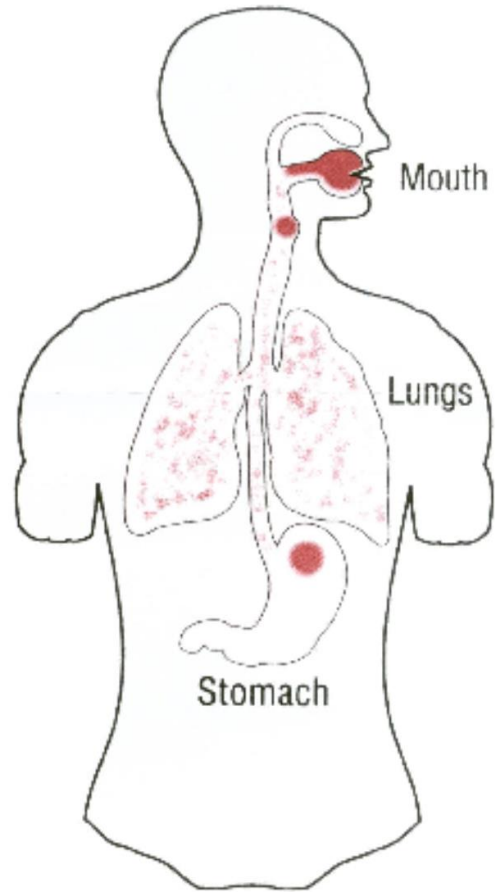
Quick-Relief Medicine

- The family can request that the provider prescribe quick-relief to dispense 2 inhalers at one time so an inhaler is available for both home and school/sports
- All MDIs require priming with 2-4 puffs when new or if unused for 2 weeks
 - Follow product directions for number of puffs needed to prime
 - **Monitor dose counter and expiration dates**



MDI Without Spacer

MDI With Spacer



BENEFITS OF USING A SPACER/CHAMBER DEVICE



Small



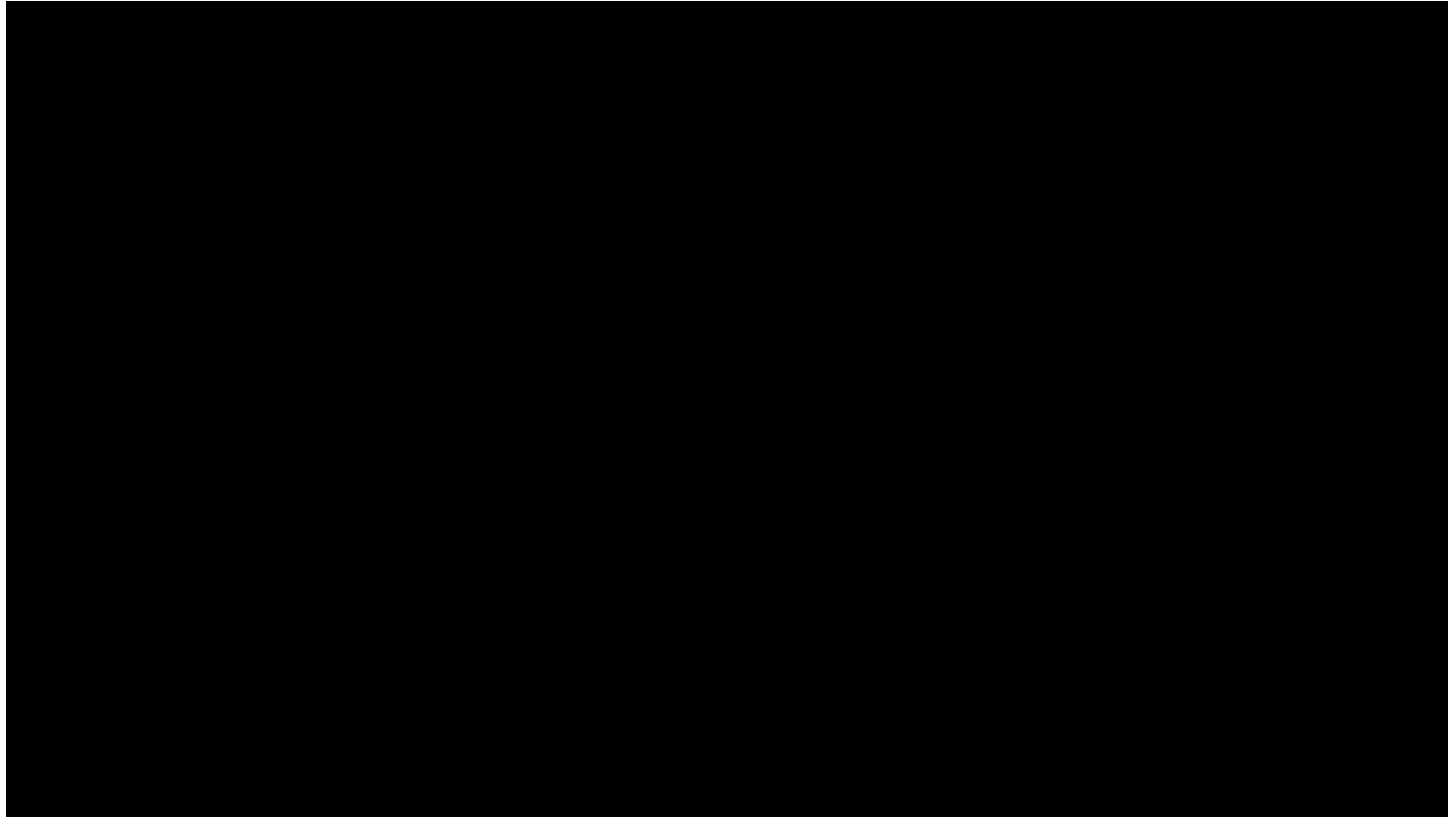
Medium



Large



Spacer with a Face Mask

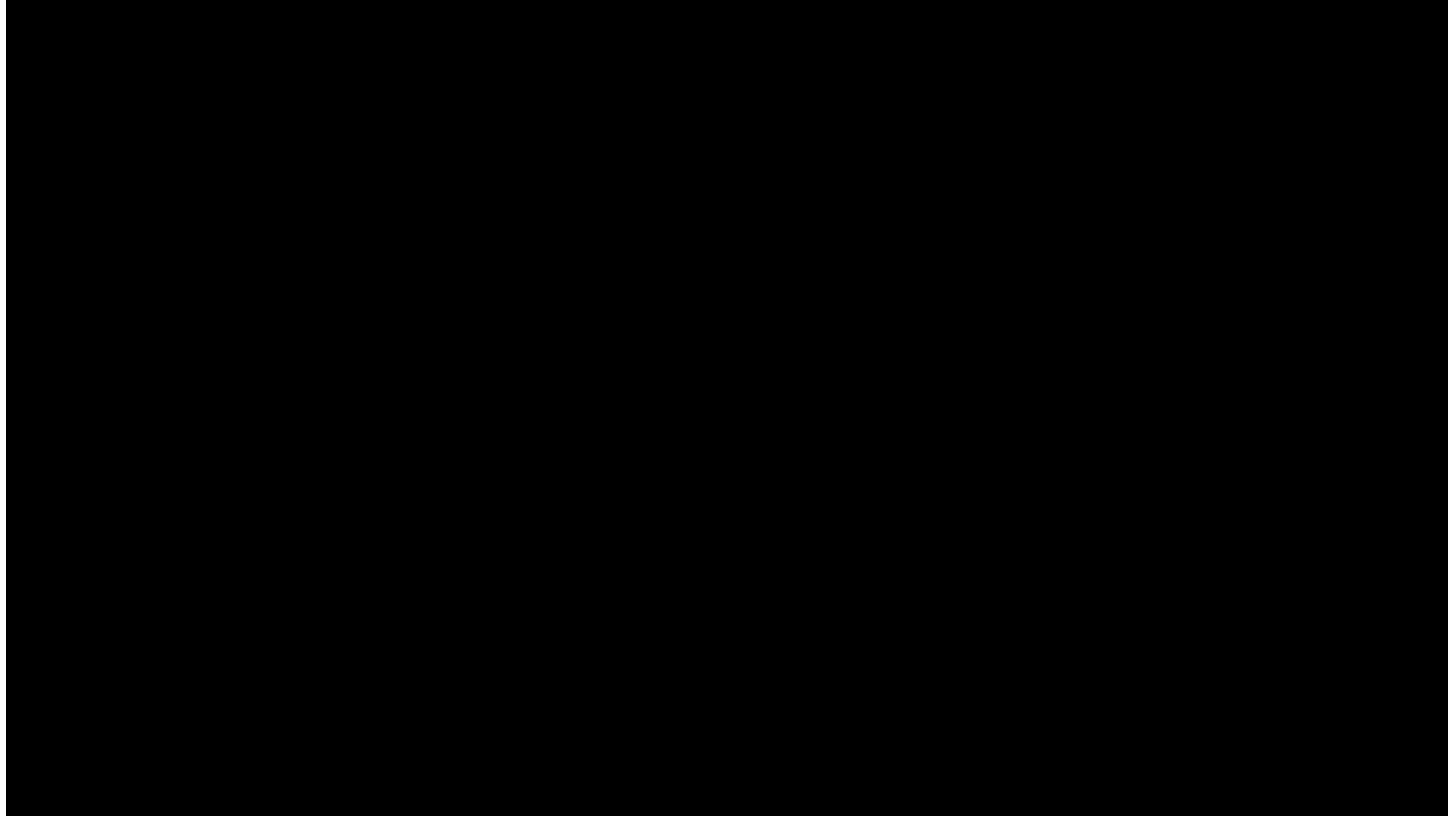


Key Points for Utilizing Spacer with Facemask

- Ensure that there is a good seal over the players mouth and nose
- Only administer 1 puff of medication at a time
- Continue to hold the mask sealed on the face while the player breaths 6 normal breaths
- Remove mask and wait 1 minute before administering another puff



Spacer with a Mouthpiece



Key Points for Utilizing Spacer with Mouthpiece

- Only administer 1 puff of medication at a time
- Player should take a slow deep breath in over 3-5 seconds
- Player should hold their breath for 10 seconds
- Remove mouthpiece and wait 1 minute before administering another puff
- Note: If player is too short of breath to hold their breath, have them take 6 slow breaths through mouthpiece for each 1 puff of medicine and wait 1 minute between puffs



ProAir RespiClick®

- BAI (breath actuated inhaler)
- No spacer is needed
- Instructions:
 - Open: you will hear it click
 - Inhale: have player take a full breath in and hold for 10 seconds
 - Close: if multiple doses are needed the player must close and then reopen inhaler
- Be careful not to place hands over the vent
- Do not blow back into inhaler as it will cause medication to clump



Key Points Regarding use of Quick-Relief in the Sports Setting

- A spacer is recommended to be utilized with all MDIs regardless of players age.
 - Exception: ProAir RespiClick® should not be utilized with a spacer
- Correct technique matters, not using a spacer with MDI reduces the effectiveness of the dose.
- If a player self carries their quick-relief inhaler → check-off their technique.
- Try your best to return the players spacer and inhaler at the end of the school year.

Asthma Medications: Controllers

- **Controllers:** used to treat persistent asthma by reducing airway inflammation
- Come in various doses and strengths to meet the patient's needs
- Taken as a scheduled daily medication for disease control
- Goal is to reduce the frequency and severity of asthma flares
- Controllers medications are NOT used for:
 - Pretreatment prior to activity
 - Quick-relief of symptoms
- Typically, controller therapies should not be in the sports setting. However as new guidelines emerge this may change.

Targeted Biological Therapies

- These medications are for more severe difficult to control asthma
- They will often miss sports activities for reoccurring injections(s) in a specialist office
- All these medications carry a risk of hypersensitivity reaction (<1%) and require the student to carry an EpiPen
 - Omalizumab (Xolair™)
 - Mepolizumab (Nucala™)
 - Benralizumab (Fasenra™)
 - Dupilumab (Dupixent™)

Asthma Action Plan

- Is a written plan that is developed with the players asthma provider to help control asthma. It tells the player how to take their asthma medicine(s) and what actions to take when symptoms flare-up or become severe.

Asthma Action Plan

Child's Name: _____ Date: _____

Doctor's Name: _____ Phone: _____

Doctor's Signature (if required): _____

Please bring all Medicines and Spacer to Office Visit.

Green Zone

Child is well.

Take these controller medicines every day, sick or well.

Child has all of these:

- Breathing is good
- No cough or wheeze
- Can play or exercise



- _____
- _____
- _____
- _____

If your child has symptoms with exercise, use quick-relief medicine with spacer ____ puffs 15 minutes before play.

Yellow Zone

Child is not well.

Continue controller medicines and add quick-relief medicine.

Child has any of these:

- Cough
- Wheezing
- Chest is tight or hurts
- Short of breath
- Symptoms disturb sleep



- _____
- _____
- _____
- _____

Red Zone

Child has severe symptoms.

Give quick-relief medicine right away!

Child has any of these:

- Struggling to breathe
- Rib or neck muscles pulling
- Nostrils flare open
- Can't walk or talk well

- _____
- _____
- _____
- _____

When a Player comes to you due to Asthma Symptoms

- Some players do not perceive their asthma symptoms. Do not rely on player's report that they are "fine"
- To get a better understanding of their recent asthma control may ask questions such as:
 - Are you coughing or feeling short of breath during P.E.?
 - How often are you using your quick-relief medication?
 - Are you waking up throughout the night due to cough or shortness of breath?
 - Are you coughing or feeling short of breath when waking up in the morning?

When a Player comes to you due to Asthma Symptoms

- Distinguish between mild vs severe respiratory symptoms
 - Mild: cough, wheeze, chest pain, chest hurting, shortness of breath that does not resolve after 5-10 minutes of rest
 - Severe: rib, abdominal, or neck muscles pulling, nostrils flaring, or difficulty walking or talking due to shortness of breath

When a Player comes to you due to Asthma Symptoms

- Respond with a respiratory assessment
- Try to talk to the player and elicit current symptoms
- Give quick-relief per the MPPA
- If player has asthma symptoms:
 - Stop activity or limit activity the remainder of the sport event or practice
 - Reassess response to quick-relief by listening to airflow if possible and reassessing work of breathing
 - Reassess to decide if player can remain at sport event or practice

When a Player comes to you due to Asthma Symptoms

- Treatment response:
 - **Good response:** players respiratory symptoms have resolved, sound clear on respiratory exam, and have a normal respiratory rate
 - May consider reducing activity and reassess player later
 - **Incomplete response:** player experiences continued symptoms and may experience dyspnea (difficult or labored breathing) or tachypnea (rapid breathing).
 - Have guardian pick up player and follow up with provider urgently

When a Player comes to you due to Asthma Symptoms

- Treatment Response continued:
 - No response: player may experience marked breathlessness, inability to speak more than short phrases, use of accessory muscles, or drowsiness
 - Repeat quick-relief dose if MPPA allows
 - Call 911

Communication is KEY

- Report to other coaches when a player is experiencing an increase in asthma symptoms but remains at practice or sport event
- Report to family when a player has asthma symptoms, what treatment was administered, and their response to the treatment
 - Assist family to recognize uncontrolled asthma and encourage them to contact the player's care provider if they are not well controlled
- When EMS arrives, hand-off your assessment and what care has been administered to that point

Asthma Triggers

- Any exposure that causes a player's asthma to flare-up.
- Triggers vary person to person.
- Identifying and reducing exposure to triggers is an important preventative key to maintaining good asthma control.

Asthma Triggers

- **Allergens:** pollens (grass, tree, and weed), animal dander, dust mites, molds, and pests (cockroaches, mice, rats)
 - Consideration in sports setting:
 - Player may have more asthma symptoms during high pollen seasons.
 - Monitor for mold in locker rooms.



Asthma Triggers

- Irritants:

- Smoke: (tobacco, fire places, campfires, and grills)
 - Consideration in sports setting:
 - Monitor for smoke of any kind around players
- Extreme temperatures and weather changes:
 - Consideration in sports setting:
 - Cover mouth with a scarf or shirt when first going out into cold weather.
 - Breathe through nose with a closed mouth to help airways transition



Asthma Triggers

- Irritants:

- Strong emotions: Laughing, crying, stress
 - Consideration in sports setting:
 - Take slow, deep breaths in and out through the nose.
 - Use quick-relief medicine if needed
- Strong odors:
 - Consideration in sports setting:
 - Advocate for scent free environment, avoid perfume/cologne, heavily scented products or cleaners/paint around players



Irritants: Exercise

- This is the only trigger NOT to avoid!
- Strenuous activity can cause asthma symptoms.
 - It is important to exercise regularly to maintain a healthy weight and a strong body.
- Consideration in sports setting and suggestions for control:
 - Pre-treat with quick-relief medicine if needed
 - Warm up before exercise and cool down afterwards
 - Reduce activity when having an exacerbation



Asthma Triggers

- **Respiratory Infection:**
 - Colds and flu are the most common trigger in children
 - Consideration in the sports setting:
 - Promote annual flu vaccine
 - Encourage good hand hygiene



Well Controlled Asthma

- Symptom free most of the time and not needing quick-relief medicine frequently
- Able to exercise and play like other children
- Sleeping through the night
- Not missing school or work due to asthma

Well-Controlled Asthma

- How can a family help a child have well controlled asthma
 - See their asthma provider every 3-6 months
 - Everyone who cares for the player should know when and how to give their medication
 - Follow their Asthma Action Plan
 - Have quick-relief medication available at all times and if prescribed a controller therapy take as prescribed

COA Printable Resources

- www.childrensal.org/asthma → Education and Resources
- Available in English and Spanish
 - Asthma Basics
 - Asthma Triggers
 - Asthma Medicines and Asthma Medicine Pictorial
 - Asthma Spacers Instructions (mask and mouthpiece)
 - Well-controlled Asthma
 - Sample Asthma Action Plans
 - COA Guide to Asthma Booklet

COVID-19

- Encourage families of players with asthma to initiate a conversation with their care provider in order to identify an individual plan
- Follow CDC and specific state Department of Public Health guidelines
 - Encourage frequent hand hygiene
- Vaccination for those that are eligible

Conclusion

- Recognize when a player is experiencing asthma symptoms
- Respond with a respiratory assessment and use of quick-relief medication
- Report when a player experiences asthma symptoms to other staff and families
- Resources are available

Have fun knowing your players are breathing better!!

Questions?

