

Case Study 1

ENVIRONMENTAL HEALTH SYMPOSIUM

25TH APRIL 2018

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Case Study - History

You are a pediatrician working in a clinic and assess 9 year old Hawa.

Diagnosed with asthma 5 years ago

Generally well controlled on inhaled steroids combined with a long-acting beta-agonist with a short acting beta-agonist if needed for wheeze or breathlessness.

Case Study - History

Hawa reports that she has had episodes of breathlessness in the last 2 weeks responding to extra beta-agonist.

Her compliance with her daily inhaler is good.

You decide to ask about asthma triggers. Please compile a list of triggers that you think may be relevant.

Case Study – Triggers?

Case Study – Triggers?

INDOOR TRIGGERS

- Smoking/Second hand smoke
- Molds (floods, roof or plumbing leaks, wet basements...)
- Dust mites (bedding, carpets...)
- Cockroaches
- Animal allergens (cat/dog dander+saliva, rodent urine...)
- Wood smoke (fireplace/burning stove)
- Nitrogen oxides (space heaters/gas-cooking fuel stoves)
- Volatile organic compounds (building/insulation materials, cleaning agents, solvents, sealants...)

OUTDOOR POLLUTANTS

Outdoor triggers

- Pollens (seasonal)
- Molds
- Ozone, particulate matter (combustion sources such as motor vehicle exhaust)

Exercise-induced

Cold air

Case Study – Triggers?

Hawa has been accepted on the school track team and has been training alternate days in the school playground for the past 2 weeks.

Symptoms seem to be less troublesome when she is not training but home more after school.

You conclude that as the symptoms are better when she is home it is unlikely that the triggers for her asthma symptoms are in the indoor home environment.

Case Study – Triggers?

Could outdoor air pollution be a trigger for Hawa's asthma exacerbation?

What Paediatric Environment Health History questions would you ask to explore outdoor environment triggers?

Case Study – Triggers?

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Where does your child **typically spend time** i.e. home, daycare, school, activities or hobbies outside of school and home, etc

What is the **location of your child's home and school** (i.e., urban or rural)?

How close is your child's home/school/daycare to **main road, traffic stop, idling vehicles** etc?

How close is your child's home/school/daycare to **industry, power plants, smoke stack emissions, water treatment plant**, etc?

How close is your child's home/school/daycare to **trees, parks, farm, golf course etc?**

Is your child exposed to a **windy dusty environment** when she is spending time outside?

Do you use **herbicides** in your home garden ? Are herbicides applied in the schoolyard?

Case Study – Triggers?

Hawa's parents are divorced and she spends equal time with her mother and her father.

Her 2 homes are in quiet neighborhoods not in close proximity or downwind from traffic or industrial facilities.

No pets/roaches/vermin/smoke/gas appliances in either home.

Her Dad's home is in a mature neighborhood and her Mom's amidst brand new construction.

Both homes are close to either a park or a golf course.

The yard in the older home is regularly sprayed with herbicides as is the school track training ground.

The school is on a busy street and close to a traffic light.

Vehicles often leave their engines running while dropping off or picking up passengers.

Case Study – Triggers?

It is likely that triggers in the school playground are contributing to her asthma exacerbation

However, the school playground has already been sprayed with herbicides.

Proximity of the school playground to a street busy with traffic as well as a stop light where typically motor vehicle emissions are higher

Parents are picking up children after school in front of the playground and leave their car engines running or idling while they wait.

Case Study – Advice?

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Play outdoor sports away from highways, stop signs and traffic.

Insist on “no-idling” when vehicles are stationary.

Advocate for banning use of herbicides where appropriate.

Play outdoor sports away from and upwind from industrial emissions.

Avoid areas and times where pollen is visible/seasonal.

Consider relocating outdoor activities away from dusty, windy environments

Learn whether pollens affect your child and be able to identify the plants/trees.

Play outdoors in areas less likely affected by pollen.

Case Study – Outcome?

School principal agrees to put in place a no-idling policy by the school.

Parents visit city hall to discuss repositioning of traffic lights.

Parents visit Ministry of Environment to discuss motor vehicle emission regulation in Kenya and discover possibility of updating to new stricter regulations.

Parents advocate to stop herbicide spraying on playground.

Dad voluntarily discontinues herbicides in his own compound.

Parents discuss with teachers and track coach the possibility of relocating training to school gym on days when Air Quality Index is not ideal for outdoor activities

The End
