Asthma Disparities: A Global Perspective

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Chair of the International Study of Asthma and Allergies in Childhood (ISAAC) and the Global Asthma Network

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85% of the world’s 7.2 billion people live in low and middle income countries (LMICs)
Asthma is one of the commonest global respiratory diseases.

Asthma is the 14th most important disorder in terms of global years lived with a disability (YLD)
Are there global disparities?

- Asthma burden
- Environmental factors
- Asthma management
Prevalence of asthma symptoms in children - until 1991 there were few studies
ISAAC*: 306 research centres in 105 countries

*The International Study of Asthma and Allergies in Childhood
Prevalence

ISAAC found that:

- asthma occurs everywhere in the world
- is more common than was thought
- there are large variations
Lai CKW et al. Thorax 2009; 64: 476-83. © GAN
Prevalence changes over time

ISAAC found that

- asthma overall is increasing
- increases are more common in LMICs
Severity

Wheezing in the past 12 months and at least one of:

- >4 attacks of wheeze
- >1 night per week sleep disturbance from wheeze
- Wheeze limiting speech
ISAAC found that asthma is more commonly severe in LMICs
Symptoms of Severe Asthma Among Current Wheezers 13-14 Year Age Group

Symptoms of Severe Asthma Among Current Wheezers 13-14 Year Age Group

ISAAC Phase Three

WHO: Asthma Mortality Data

Poorer quality data in LMICs

WHO Detailed Mortality Database, February 2014 update
WHO: Asthma Mortality Data

Poorer quality data in LMICs

Higher mortality in LMICs
The economic costs of asthma are very large

- Health care costs and productivity losses increase with poor asthma control
- Productivity losses are at least as large as health care costs
- Little known from LMICs
Environmental factors suggested by ISAAC

Inverse associations of asthma symptoms with:

- breast feeding in non-affluent countries
- fresh fruit and vegetable intake
Environmental factors suggested by ISAAC

Positive associations of asthma symptoms with:

- open fire cooking
- farm animals
- high intensity truck traffic exposure
- tobacco smoke exposure
- dampness in homes
- burger/fast food intake
- obesity
- paracetamol/antibiotic use
### Cooking with ‘open fire only’ and current wheeze

<table>
<thead>
<tr>
<th>Age of children</th>
<th>OR (95%CI)</th>
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<tbody>
<tr>
<td>6-7 yrs</td>
<td>2.17 (1.64-2.87)</td>
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<tr>
<td>13-14 yrs</td>
<td>1.35 (1.11-1.64)</td>
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# Farm animals and current wheeze

<table>
<thead>
<tr>
<th>Countries</th>
<th>In pregnancy</th>
<th>In 1st year of life</th>
</tr>
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<tbody>
<tr>
<td>Non-affluent</td>
<td>1.38 (1.21-1.58)</td>
<td>1.27 (1.12-1.44)</td>
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<tr>
<td>Affluent‡</td>
<td>0.95 (0.84-1.08)</td>
<td>0.96 (0.86-1.08)</td>
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© ISAAC 2012
Launched at the UN Summit on NCDs Sept 2011
Global Asthma Network

http://www.globalasthmanetwork.org

- Established 2012
- Builds on the work of ISAAC and the International Union of Tuberculosis and Lung Disease (The Union)
- Current funding - The Union
Global Asthma Network
248 centres in 113 countries
All countries invited

Global Asthma Network
Collaborating Centres

Provisional
April 2014
Global Asthma Network Targets

Decrease severe asthma by 50% by 2025

- proportion of symptomatic people with asthma not on ICS*
- time off work/school because of asthma
- unplanned visits for asthma
- hospital admissions for asthma
- severity of asthma
- mortality from asthma

* Inhaled Corticosteroids
Asthma Management Guidelines available in 89% of 103 countries

Low and Middle Income Countries

High Income Countries
Asthma Management Guidelines available in 89% of 103 countries.
National Asthma Strategies for adults in 23% of 103 countries
Global Asthma Network Targets

Increase access to quality-assured essential asthma medicines by 2018:

- On the WHO prequalification list - 2014
- On National Essential Medicines Lists - 2015
- Available in all countries - 2018
- Affordable in all countries - 2018
Why are these targets important?
Essential asthma medicines survey 2011 in 50 LMICs
72% LMICs did not have both Salbutamol and ICS on Essential Medicines Lists
LMICs: Poor availability of salbutamol and ICS

- **Salbutamol 100µg**
- **ICS (Beclometasone or Budesonide)**

[Bar chart showing availability of medications in different settings: Private Pharmacy, National Procurement Centre, Public Hospital Pharmacy.]
If drugs are available, are they affordable?
Salbutamol 100 µg inhaler
No. days minimum wage to buy one

[Diagram showing the number of days minimum wage to buy one unit of Salbutamol 100 µg inhaler in different countries, with private pharmacy national procurement and public hospital pharmacy highlighted.]
Beclomethasone 100µg inhaler
No. days minimum wage to buy one

© GAN
Budesonide 100µg inhaler
No. days minimum wage to buy one

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<tr>
<th>Country</th>
<th>Days to Buy</th>
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<tbody>
<tr>
<td>Brazil</td>
<td>0</td>
<td>Burkina Faso</td>
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<tr>
<td>Burkina Faso</td>
<td>0</td>
<td>Cambodia</td>
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Unaffordable asthma medicines not just a problem in LMICs

“….the cost of a steroid inhaler without insurance in the USA varies from $139 to over $300, depending on the brand and the dose required.”
Poor quality of manufacture of the intricate components of MDIs more likely in LMICs
To reduce disparities in asthma we must increase access to affordable quality - assured essential asthma medicines
The ADF has been making it possible to obtain quality-assured essential medicines at affordable prices in LMICs including:

- Benin
- Burundi
- El Salvador
- Honduras
- Kenya
- Sudan
- Vanuatu
- Vietnam
In summary, global asthma disparities which particularly affect LMICs include:

- Changes over time in prevalence
- Severity
- Mortality
- Knowledge of economic costs
- Environmental factors
- National asthma strategies
- Essential medicines (availability, affordability, quality)
Would you like to join us?

http://www.globalasthmanetwork.org