

## **Perception and Practice of Health Care Providers on Asthma Management in the Community of Bangladesh**

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### **Summary :**

*More than 7% children (4 million) and 5% adults are suffering from asthma in Bangladesh. The management of asthma has already been formulated globally. We need to know the management of asthma at every level of health care facility of the country.*

*The study was done to look into the current perception and practice of Health Care providers (HCP) on asthma management.*

*It was a cross sectional survey. Multistage cluster sampling design was followed for the selection of HCPs from all over Bangladesh. A total of 288 HCPs were selected including 120 patients and 69 pharmacists. Data were collected by trained physicians through a structured questionnaire from HCPs with face-to-face interview.*

*Asthma was considered as a common health problem by all HCPs. All HCPs thought respiratory distress (92.2%-100%)*

*and cough (63.6%- 90%) to be most important features for the diagnosis of asthma. Chest x-ray was the only investigation advised in 49.1%-75% cases to support the diagnosis of asthma. Use of nebuliser was limited to the consultants and RPs (53.5%-86.4%) in acute asthma. Use of rescue course of oral corticosteroids was minimum (14%-45.6%). Antibiotics use was found in 77.7%-100% cases. Oral salbutamol, aminophylline and kitotifen were found very common for asthma management. Use of inhalers by the patients was found low and limited only to salbutamol and beclomethasone. The aspect of asthma education was confined only to advising 'avoiding triggering factors'. HCPs suggested for organization of asthma/ respiratory centers in different health facilities and their training on asthma management.*

*The modern management of asthma is not widely practiced by the physicians of Bangladesh.*

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### **Introduction :**

Asthma is a substantial health problem among children and adults worldwide<sup>1</sup>, with high and increasing prevalence rates in many countries like UK and Australia<sup>2,3,4</sup>. It affects approximately one in five children and one in ten adults in Australia<sup>5</sup>. The prevalence of asthma in Bangladesh is also substantial. More than 7% children (4 million) are suffering from asthma (attacks of wheeze in last 12 months) according to the first National Asthma Prevalence Study<sup>6</sup> and the first ever ISAAC study conducted in the schools of Dhaka district by Kabir et al<sup>7</sup>. Asthma is more prevalent in coastal areas than the city/ town areas of Bangladesh<sup>8,9</sup>. The

management of asthma has already been formulated globally. Many countries are now managing asthma in accordance to their own national guidelines<sup>10,11</sup>. Inhalation therapy is the mainstay of management of asthma now recommended for both acute and persistent asthma cases. Salbutamol, ipratropium bromide, sodium chromoglycate, nedocromil sodium, salmeterol, formoterol, beclomethasone, budesonide, fluticasone etc. all are now available and recommended for inhalation therapy. The concept of asthma as a disease characterized by airway inflammation had explored the tremendous role of corticosteroids in the management of asthma even in childhood<sup>12,13</sup>. Systemic corticosteroid therapy is a valuable adjunct in the treatment of acute severe asthma in children responding poorly to treatment with nebulised  $\beta_2$  agonist. Moreover, antibiotics are not routinely recommended in the management of acute asthma<sup>14</sup>. The Asthma Association of Bangladesh has already formulated a guideline<sup>15</sup>. In the contrary, asthma is being managed in the traditional way in most of our situation by prescribing

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suspension of salbutamol and antibiotics, which has even been recommended in the manual of ESP (Essential Service Package)<sup>16,17</sup>.

To optimize the management of asthma it is essential to explore the present situation of asthma treatment all over the country starting from tertiary health care centre down to grass root level community.

### Methodology :

It was a cross sectional study conducted during July 2000 to June 2001. Multistage cluster sampling design was followed for selection of the HCPs. Three national level institutions (BSMMU, DSH, NIDCH) and 8 medical colleges selected randomly from 13 govt. medical colleges, 12 districts hospitals from six divisions (the districts where the medical colleges are non-existent) were randomly selected, 12 upazilla health complexes (one from each district was randomly selected), 12 unions (one from each upazilla) and 12 villages (one from each union).

A total of 288 HCPs consultants 103, registered physicians (RPs), like assistant registrars (AR) working at the medical college hospitals 40, medical officers (MO) working at the district hospitals and upazilla health complexes 44, private practitioners (PP) 36 and unregistered physicians like quacks at the village level 57, 120 asthma patients and 69 pharmacists were also interviewed.

Trained physicians took face-to-face interview of HCPs, and asthma patients from aforesaid areas. Data were collected on asthma prevalence, diagnostic features, investigations, drugs prescribed (oral and inhaler), and use of drugs by the patients. Another written questionnaire was used to collect data from local drug dispensers about cost and availability of drugs. All data were double entered into two computers by two data enterers into Epi-info program and subsequently the values were merged to minimize the errors. Analysis was done using SPSS software program.

### Results :

Asthma was considered to be a common disorder by every level of HCPs (76.6%-86.6%). For diagnosis of asthma, all categories of HCPs considered respiratory distress (93.2%-100%) and cough (73.7%-90.3%) to be most important features. Wheeze was less recognized by the quacks (26.3%), but night cough waking and chest tightness were also less recognized by the RPs (Table-1). Only investigation of chest x-ray was thought to be required by all level of HCPs (49.1%-76.7%). Spirometry (0%-12.6%) and pulse oximetry (0%-2.5%)

were almost non-existent. The use of nebuliser in acute asthma was found to be limited exclusively to RPs and consultants (53.5%-86.4%). Use of rescue course of oral corticosteroids was minimum (14%-45.6%). Other drugs used were salbutamol inhaler (66.7%-96.8%), parenteral hydrocortisone (50.9-94.2%), oxygen (10.5%-80.9%) and parenteral aminophylline (35.1%-75.9%). The quacks mostly (80.7%) referred the cases to better centres for further management (Table-2). The most commonly prescribed preventers were beclomethasone (14%-83.3%), sodium chromoglycate (1.8%-65%) and salmeterol (1.8%-28.2%). Prescription of common oral medications for the management of asthma by the HCPs were salbutamol (88.3%-100%), aminophylline (53.4%-87.7%) and kitotifen (59.2%-82.5%). It was also reflected by the asthma patients experience as to using oral asthma drugs of salbutamol, aminophylline and kitotifen (Table-3). Antibiotics were prescribed by all quacks and RPs but 77.7% of consultants, mostly ampicillin/ amoxicillin (48.5-78.9%).

The most common inhalers available in all areas were reliever salbutamol, and preventer beclomethasone. Spacers were not available in areas beyond medical college and town areas (Table-4). This finding was also substantiated by the asthma patients' experience of using available inhalers of salbutamol and beclomethasone (Table-3).

Almost all HCPs responded positively when asked about providing asthma education to the patients (93%-99%). But the asthma education was limited mostly telling 'to avoiding things' like allergens, cold, food and dust. The education did not cover well the topics like explaining the nature of disease, the technique of using inhalers, importance of long-term use of inhalers and follow up visits (Table-5).

The HCPs identified certain limitations about the barriers of good asthma management. These were limited facility for asthma management at the working health care facility-availability of nebulisers, spirometers, inhalers and poverty on the part of the patients. They also emphasized on the problems of providing asthma education because of ignorance about asthma diagnosis, asthma education to motivate patients about the importance of inhalers, long-term therapy, technique of inhaler use. However, the HCPs suggested for organizing an asthma/respiratory center in different health facilities and training of HCPs on different aspects of asthma management (Table-6).

**Table-I**

<i>What were the features HCPs consider for the diagnosis of asthma?</i>			
Asthma features	Consultants (103) %	RPs (120) %	Quacks (65) %
Wheeze	93.2	84.1	26.3
Resp distress	93.2	98.3	100
Cough	90.3	74.3	73.7
Night cough waking	72.8	41.7	5.3
Chest tightness	70.9	40.3	12.3

**Table-II**

<i>How did HCPs manage acute asthma?</i>			
Modes of treatment	Consultants (103) %	RPs (120) %	Quacks (65) %
Salbutamol nebuliser	86.4	53.5	00
Ipratropium bromide	36.9	18.5	00
Salbutamol inhaler	93.2	96.8	66.7
Parenteral hydrocort/ oradexone	88.3	94.2	50.9
oral prednisolone/ oradexone	45.6	29.4	14
Inj Aminophylline	55.3	75.9	35.1
Oxygen	74.8	80.9	10.5
Referral	16.5	17.0	80.7

**Table-III**

<i>Patients' experience about asthma</i>				
Modes of treatment	Town / Medical College areas (n=36) %	Upazilla (n=32) %	Villages (n=21) %	Total (89) %
<b>Oral asthma medication</b>				
Salbutamol	100	81.2	85.7	89.8
Aminophylline	38.8	28.1	52.3	38.2
Theophylline	16.6	21.8	4.7	15.7
Kitotifen	38.8	40.6	4.7	31.6
Corticosteroids	36.1	31.2	9.5	28.0
<b>Inhalation therapy</b>				
Salbutamol	50.0	37.5	42.8	43.8
Beclomethasone	22.2	9.3	4.7	13.4

**Table-IV**

<i>Availability of inhalers as per pharmacists' opinion</i>			
Available	Town / Medical College areas (n=16) %	Upazilla (n=22) %	Villages (n=31) %
<b>Relievers</b>			
Salbutamol	100	95	71
Ipratropium bromide	62.5	27.2	00
<b>Preventers</b>			
Sodium chromoglycate	81	59	06.4
Beclomethasone	100	95	55
Salmeterol	94	82	29
Spacers	68.7	21.7	3.2

**Table-V**

<i>What asthma educations were given by the HCPs to the patients</i>			
Asthma education topics	Consultants (103) %	RPs (120) %	Quacks (65) %
Avoid allergens	36.8	35	5.2
Avoid cold	24.2	32.5	43.8
Avoid food	13.5	19.1	26.3
Avoid dust	14.5	45	53.8
Explaining the disease	17.4	6.6	4.6
Technique of use of inhalers	18.4	2.0	00
Long-term use of inhalers	9.7	2.5	00
Follow up visit needed	01	00	00

**Table-VI**

<i>Suggestions of HCPs to improve the management of asthma</i>			
Suggestions	Consultants (103) %	RPs (120) %	Quacks (65) %
Organising center with facilities for management of respiratory/ asthma cases-lung function tests, nebulisers, inhalers	85.5	74.1	24.6
Training of HCPs	87.3	40	33.8
Media coverage on asthma	38.8	18.3	4.6

**Discussion :**

This is a nationwide study to explore the prevailing situation of asthma management all over the country. All asthma features are not well recognized by all category of HCPs. Use of nebuliser is not widespread in the management of acute asthma. Use of oral asthma drugs are at rampant. Inhaler use is limited only to salbutamol and beclomethasone. Asthma education is at fault with advising only to 'avoid things'. HCPs opined for organization of health centers and training of themselves.

A multi-stage stratified random sampling design was followed for the selection of study population and areas. Trained physicians were involved in taking interviews and filling up of questionnaires in the field with the respiratory physician in the overall supervision. Respiratory physician had to take interview of the senior consultants in order to avoid any scope of cursory interview and difficult situations to be faced by the trained physicians.

HCPs, particularly the registered physicians' inability to recognize the features of asthma like night cough waking and chest tightness was striking. Night cough waking is an important asthma feature<sup>18</sup> and chest tightness<sup>15</sup> also complained by the older group of patients. Because of non-availability of other investigative facilities like spirometer and pulse oximeter, only chest x-ray was considered important for the diagnosis of asthma by the HCPs. Use of salbutamol nebuliser was found limited to consultants and registered physicians to some extent but the quacks were found not at all acquainted with use of this popular therapy of asthma. Salbutamol nebuliser is an integral part of acute asthma management in the modern therapy<sup>15</sup>. The service had not reached to the far-flung areas of Bangladesh. The liberal prescription of the rescue course of prednisolone was not observed in the community. There is an undue fear on the part of the HCPs about the use of corticosteroids, which certainly do not cause much harm to the patients if used for a very short period, than chronic hypoxia resulting from persistent asthma. The popularity of oral medications of asthma in the community might be because of non-compliance for inhalers, which in turn due to poor quality of asthma education and costs of the inhalers. High rate of prescription of antibiotics in asthma

might be resulting from confusion about the diagnosis of asthma on the part of the HCPs. Spacers need to be made available to every level of health care facilities so that HCPs have the opportunity to prescribe this to the small asthma kids.

Asthma education was found totally inadequate in our situation. The education was mainly limited 'to avoiding things' and contained very little about explaining the nature of disease, technique of inhaler use, need of long term inhaler and follow up (Table-VI). This might be due to lack of knowledge of HCPs about the aspects of asthma education which covers all aspects of asthma<sup>®</sup>. Carefully designed asthma education program for patients can improve parents' and patients' understanding of the condition and its treatment modalities leading to increase in the confidence that the condition can be controlled, thereby increasing the adherence to the treatment regimen and management of symptoms<sup>19</sup>.

The HCPs of all levels pointed out the problems faced by them as to limited facility of lung function tests, availability of nebuliser, cost of drugs for poor patients. The quacks did not show their prudence in regard to mentioning the problems faced by them while managing the asthma patients. The HCPs suggested for improvement of asthma management in their respective facility. They suggested for organization of respiratory / asthma centers, facility for lung function tests, availability of nebulisers and inhalers.

**Conclusions :**

The perception of HCPs about the diagnosis and treatment are not up-to-date and their practice are naturally at fault. The logistics for asthma management are costly and not available everywhere. There is demand for better organization of health care facility and more training of HCPs for asthma management.

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