Schoolteachers' perceptions and knowledge of asthma in primary schoolchildren

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SUMMARY. Schoolteachers are known to be concerned about asthma in their pupils but their opinions about the best method of addressing this concern have not previously been investigated. Eleven headteachers and 76 class teachers from 11 primary schools in the Southampton area — eight from the state sector and three private day schools — completed questionnaires. These enquired about the organization of care for asthmatic pupils, the teachers' knowledge, concerns and training regarding the disease, and their perceptions of the need for and source of further education for teachers about asthma. All 10 National Health Service school health services in the Wessex region and 16 teacher training colleges responded to questions about their provision of such education for teachers. The results demonstrated that asthma care in the 11 schools was generally disorganized, with the responsibility for keeping and administering inhalers falling on the school secretary in seven of the schools. All but two of the 11 headteachers and 89% of the class teachers were concerned about asthma, primarily in managing emergencies. Levels of knowledge were low, particularly regarding exercise, and education about asthma was almost non-existent. The great majority of class teachers (86%) wanted more information about asthma and most (67%) looked to the school health services to provide this. None of the school health services in Wessex and only one teacher training college had any planned education about asthma for teachers.

Clearly, schools need to receive more information about asthma, both to enable them to cope more ably with their asthmatic pupils and to allay the anxieties of teachers. The NHS school health services are well placed to provide this education, but need to work in conjunction with other resources.

Keywords: asthma; schoolchildren; teacher knowledge; information needs; training needs.

Introduction

FROM the age of five years, children spend up to 30% of their day at school under the care and supervision of teachers acting *in loco parentis*. Asthma is the commonest chronic medical condition schoolteachers have to deal with in their pupils, affecting in excess of 10% of children.[1] Teachers may need to supervise inhaler administration, decide on the need for extra treatment in acute attacks, consider whether children should take part in school games or go out in cold weather, and may have to send sick children home or to health care professionals.

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Submitted: 30 September 1991; accepted: 2 March 1992.

Previous studies have shown that teachers in Lewes, East Sussex,[2] Liverpool[3] and inner London[4] have little knowledge of asthma and its treatment and have recommended that this be remedied. The teachers' views on how this may be best achieved have not been explored nor have private schools been included in those sampled. This study examined how the care of asthmatic children was organized in primary schools in the Southampton area, investigated the level of knowledge and anxiety teachers had about asthma, and teachers' opinions about the potential sources of further information about the disease. Schools from both the state and private sectors were included. The current provision of training about asthma in teachers' education was also surveyed as was the role of the National Health Service school health services in the Wessex region.

Method

Two questionnaires were designed, one to be completed by headteachers and a second to be completed by class teachers and other members of staff involved in the care of asthmatic children. A small pilot study was conducted and refinements were made to both questionnaires. The headteachers' questionnaire concentrated mainly on factual information about asthma care in the schools and comprised closed questions requiring either numerical replies (for example 'How many asthmatic children are there in your school at present?') or a response to be ticked. The class teachers' questionnaire also used closed questions to gather information but included four open questions: 'Can you tell me in your own words what you know about asthma?', 'Do you know of any factors which may exacerbate asthma?', 'What do you understand about the drug treatment of asthma?' and 'Can you tell me in your own words how you would recognize a child having an acute attack?' The qualitative data thus collected were then aggregated under headings reflecting broadly similar responses as far as possible. The question on asthma treatment did not produce data which could be reported easily in this way, so the possession of some knowledge pertaining to treatment for relief or prevention was recorded as a categorical response.

Ten state primary schools, selected at random from the 75 primary schools on the Southampton local education authority list, and all six private primary schools (one also secondary; five day schools and one day and boarding) in the Southampton area were invited to participate in the study. After an initial postal contact, the headteachers who agreed to participate were visited and questionnaires were left for the relevant staff. When the questionnaires were collected, informal interviews were carried out with groups of teachers and they were shown inhaler devices and asked about them.

Letters were written to all of the teacher training colleges attended by the respondents to the questionnaire asking about their current provision of education about asthma. The consultant community paediatricians of the 10 health districts in the Wessex region (school health services) were sent a letter asking about their policies for the management of asthma in schools and the availability of training programmes designed to educate teachers about the disease.

The study was approved by the local ethics committee and

all analysis was carried out using the *SPSS-X* package[5] on the University of Southampton's IBM 3090-150 mainframe computer. Descriptive statistics and the chi square test were used as appropriate.

Results

Headteachers

Fourteen of the 16 headteachers agreed to participate in the study but at only 11 schools were questionnaires available for collection — eight state schools and three private day schools. The number of pupils in the schools ranged from 86 to 260 with a mean of 182 (standard deviation 60), with ages ranging from school entry to 12 years.

Seven of the 11 schools kept a formal record of their asthmatic pupils. All 11 schools were informed about the condition by parents and in seven schools headteachers could not remember receiving information about the children's asthma management from any other source. The percentage of children known by headteachers to be asthmatic varied from 0% to 15% with a mean of 7%; the percentage known to be using inhalers at school varied from 2% to 13%. Responsibility for the routine care of asthmatic children fell on the school secretary in seven schools; inhalers were kept in his or her office in nine schools and used there in eight of these nine schools. Five schools allowed some children to look after their own inhalers. In five schools, no specific person was designated to deal with an acutely ill asthmatic child and in four schools no member of staff had any form of first aid training.

None of the headteachers remembered receiving any specific educational material about asthma, although they all reported possessing a copy of *Health matters*[6] which contains some information about asthma. Ten headteachers felt specific educational material would be useful. All but two of the headteachers expressed concern about asthma, primarily with managing emergencies. Ten headteachers felt that the school health service was the preferred source of more information.

Class teachers

A total of 128 questionnaires for class teachers were distributed. Of these 94 were returned (response rate 73%); 76 were completed by class teachers, six by headteachers (who were also class teachers), six by school secretaries and six by others (a variety of assistants). The following results apply only to the 76 class teachers (52 in state schools, 24 in private schools).

The teaching experience of the 76 teachers varied from less than one year to 38 years with a mean of 16 years (standard deviation nine years). The mean class size of the teachers was 24 pupils and the mean age of the pupils was seven years. The number of children with asthma known to be in their classes when they completed the questionnaire varied from none to seven. Only seven teachers were unaware of teaching an asthmatic child at any time.

Sixty eight teachers (89%) were unhappy about their knowledge of asthma and ability to manage it and 52 (68%) were concerned about having asthmatic children in their class. Only nine teachers (12%) were confident about handling an acute attack. Sixty eight (89%) had had no training in the care of asthmatic children, and although 11 (14%) had spoken to a school doctor or nurse about an asthmatic child only 19 teachers (25%) could remember the name of both the school nurse and school doctor. The factors mentioned when the teachers were asked what they knew about asthma, what exacerbates it and how an acute attack may be recognized are shown in Table 1.

Twenty one teachers (28%) looked after inhalers for children but only 10 (13%) kept any treatment record. Forty two teachers (55%) reminded children to take their inhaled medication but only 24 (32%) supervised them while they did so. Sixty four teachers (84%) had had no instruction in the correct way to administer therapy although 54 (75%) felt this would be useful.

Table 1. Categorized responses to open questions.

Factor	% of teachers mentioning factor ($n = 76$)
Asthma symptoms	
Difficulty breathing	68
Wheeze	12
Cough	7
Pathological aspects	
Lungs	16
Narrowing of tubes	14
Association with eczema	5
Excessive mucus	3
Inflammation of airways	1
Blockage of airways	1
Wrong ideas	9
Do not know	7
Exacerbating factors	
Anxiety/stress	68
Exercise	47
House dust	26
Cold weather	21
Allergies	21
Pets	11
Pollen	11
Viral infections	8
Excitement	7
Smoke	5
Others	13
Wrong ideas	3
Do not know	5
Features of an acute attack	
Breathlessness	58
Distress	22
Wheeze	13
Blue lips	12
Shallow/noisy breathing	5
Inability to speak	4
Heaving chest	4
Vague ideas only	9
Wrong ideas	5
Do not know	8

n = total number of respondents.

Fifty seven teachers (75%) supervised physical exercise classes but only seven (9%) made any special provision for asthmatic children before exercise. Thirteen (17%) permitted inhalers to be taken to the gym or playing field. Six teachers (8%) felt that it was important for asthmatic children to take treatment before exercise but 43 (57%) did not know whether it was important or not; 16 (21%) felt it was not important, four (5%) stated that it depended on the severity of the asthma and seven gave no answer. When teachers were asked what they understood about the drug treatment of asthma, 23 (30%) knew something about relief medication and eight (11%) something about preventive medication.

Sixty five teachers (86%) wanted more information about asthma, particularly about administering treatment and inhalers. Forty teachers (53%) suggested that leaflets would be a useful source of information while 34 (45%) would have liked television or video programmes and 27 (36%) lectures. Fifty one teachers (67%) felt that such information should be provided by the

school health service, 26 (34%) that it should be provided by the National Asthma Campaign, and 20 (26%) by teacher training colleges.

Subgroup analysis of the class teachers' responses by private versus state schools, long versus short teaching experience, having had specific training in the care of asthmatic children versus no training, and having had family contact with asthma versus no contact, showed no significant differences.

The informal interviews with teachers revealed that they did not feel that the information given by parents about asthma was reliable. Some worried that children would use inhalers too frequently and become dependent or overdose; others were worried that inhalers would be passed around the rest of the class like a new toy, for everyone to try. When presented with a selection of inhalers few teachers knew the differences between those for prevention and those for relief or how to use them properly. Teachers did not underestimate the seriousness of asthma, with the majority recognizing that it could be fatal but most had no idea of how common the problem is.

Teacher training colleges and school health services

Of the 33 teacher training colleges contacted, 16 replied. Eleven of these offered no asthma training, although three had plans to introduce a health care component into courses. One college had a specific asthma care course for their students.

Replies from six of the 10 consultant community paediatricians revealed that only one was aware of previous asthma education sessions for teachers in their area. None offered any planned education, tending to react to demands for help rather than attempting any proactive outreach to teachers. None of the districts had a policy for the management of asthma in schools.

Discussion

There have been a number of calls for the care of asthma in the community to be improved[7,8] but the potential opportunity for improvement implicit in children's attendance at school does not seem to have been properly addressed. Younger children are particularly dependent on their teachers and may thus be very susceptible to their influence about chronic health problems such as asthma. However, the results of this study confirm those of previous studies[2-4] in that many asthmatic children attending primary schools are unknown to their teachers, organized care is almost non-existent, and teachers not only have insufficient knowledge of the disease but are concerned about their lack of knowlege. This study has extended the work reported by Bevis and Taylor[4] in that schools in a health district recognized as a centre of excellence for asthma research have been studied and private schools have been included for the first time. Moreover, teachers' opinions about potential sources of further information concerning asthma have been canvassed.

The mean percentage of children known to headteachers to be asthmatic in this sample of Southampton schools was 7%, far less than other recent estimates of the prevalence of asthma in childhood.[9] Parents were perceived as the sole source of information in the majority of schools, but in many cases teachers did not feel the information given was reliable. A clear system does exist for picking up asthmatic children diagnosed in the pre-school years, namely the school entry medical which is offered to all children whether going to state or private schools. Most schools had no set plan regarding the administration of asthma treatment and five of the 11 schools allowed some children to look after their own treatment, despite the fact that teachers expressed concern about this.

Class teachers clearly have concerns about their asthmatic pupils and on the whole seem keen to remedy their lack of knowledge concerning asthma. The fact that 68% of teachers mentioned anxiety as a trigger factor for an asthma attack and only 8% mentioned viral infections, demonstrates that teachers have misconceptions about the nature of the disease. Furthermore, although 47% mentioned exercise as a trigger factor, few teachers understood the potential importance of treatment before exercise and made appropriate provisions — only 17% allowed children to take their inhalers to the gym or playing field. Thus, many asthmatic pupils may have their activities curtailed unnecessarily.

It is clear that this situation needs to be remedied, and indeed the National Asthma Campaign has made available both leaflets and record cards which may prove helpful. Planned education, both during teacher training and at regular intervals in-service, is desirable and it is evident that both headteachers and class teachers look to the school health services to provide this. However, with teachers spending most of their day in the classroom, there may be little opportunity for communication with the school doctor or nurse when they visit the school. There is clearly a need for more meetings to be facilitated between teachers and these health professionals. Teacher training colleges appear to provide little information on the management of asthma, despite the importance of this being recognized in the early 1980s.[10] Since asthma is bound to form part of every teacher's health experiences with the children in their charge, it seems important that this situation is rectified. Colleges could seek help from local branches of the National Asthma Campaign, members of The General Practitioners in Asthma Group, or from the Asthma Training Centre in Stratford upon Avon.

In-service training appears to be required on three different levels. First, headteachers need to be made aware of the problem of asthma in schools and more importantly avenues for remedying the difficulties that are highlighted. Secondly, detailed instruction is required for a designated asthma carer in each school; this seems likely to be the school secretary in most cases. Thirdly, class teachers need to be given enough information to both alleviate their concerns and allow them to deal with emergencies and help administer treatment where necessary. Leaflets and television or video programmes were suggested by teachers as possible methods of providing education about asthma but the effectiveness of these in the absence of personal contact with health professionals is doubtful.

Private schools do not currently have access to school health services and make a variety of medical arrangements for their pupils including employing general practitioners and nurses. It was not clear from the results of this study whether teachers in private schools were referring to the service pertaining in their particular school when they selected the school health services on the questionnaire or whether they believed that the district school health service should have a role within private as well as state schools. Whichever is the case, it is necessary to ensure that certain minimum standards of care for asthmatic children exist in all schools.

In conclusion, it seems clear that schools are not currently in a position to provide optimum care for their asthmatic children during the school day, but teachers appear keen to remedy this situation. Schools need to receive more information about asthma, both to enable them to cope more ably with their asthmatic pupils and to allay the anxieties of teachers. The NHS school health services are well placed to provide this education, but need to work in conjunction with other resources. The service screens most children for asthma at both school entry and again at the age of 11–13 years. It also targets particular asthmatic children known to have continuing problems with their disease. Beyond this however, the service is completely reliant on general practitioners, paediatricians and/or parents for in-

formation about newly diagnosed asthmatic children. General practitioners and hospital paediatricians need to examine their own practices in relation to providing information to the school health service or encouraging parents to do so. Furthermore, all health professionals involved in the management of asthmatic children, especially those in primary care, need to assist parents in their understanding of asthma and in their ability to pass this information on not only to teachers but to anyone who may be caring for their children.

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Useful addresses

National Asthma Campaign, Providence House, Providence Place, London N1 0NT.

The General Practitioners in Asthma Group, The Medical Marketing Interface, Bath Brewery, Toll Bridge Road, Bath BA1 7DE (contact Alison West).

Asthma Training Centre, Winton House, Church Street, Stratford upon Avon, Warwickshire CV37 6HB.

Acknowledgements

We would like to thank all the headteachers and teachers of the schools studied for completing the questionnaires and giving up their time to discuss their concerns. We would also like to thank Marianne Middleton, Elizabeth Murphy, Professor Ann-Louise Kinmonth, Dr Christine Smalley, Professor John Warner and all the computing staff at Southampton General Hospital for their helpful advice and encouragement during this study.

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