

Social, political, economic and health consequences of environmental treatment of house dust mites

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Allergic diseases are prolonged and often chronic and lead to loss of physical, mental, social and financial resources to a varying degree. Like all other prolonged and chronic diseases, treatment of allergic diseases requires a comprehensive view, to remedy and compensate for lost resources.

The responsibility for the weak has served as a model in social policy practice and in medical ethics for many years (1, 2). The social policy intentions of the Danish Social Assistance Act (3) have been to remedy and compensate for lacking or lost financial, social, intellectual, mental and physical resources. Similar intentions are behind World Health Assembly resolution 30.43 adopted in May 1977 (4) - "the main social target of governments and WHO in the coming decades should be the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life".

BACKGROUND TO CURRENT PRACTICE

During the past 10-15 years there has been a tradition in Denmark and in other countries of "clearing for" house dust mites in private homes through a number of different measures.

For a number of years it has been possible in Denmark to obtain financial aid for "clearing for" house dust mites in homes with children and adults with asthma and allergy to house dust mites in accordance with rules laid down in the Danish Social Assistance Act.

The Danish Ministry of Social Affairs has published the following as an expression of its social policy goals:

1. "Guide to aid under Section 48 of the Danish Social Assistance Act" (5) - "aid to cover additional expenditure in connection with providing for children with major physical or mental handicaps or diseases of long duration, including serious and strenuous allergy, in their own homes".
2. "Guide to provision of aids under Section 58 of the Danish Social Assistance Act" (6) - "aids that can contribute to giving persons with permanently reduced or lacking ability to live a more normal and independent life in the sense that the aids compensate for or to a greater or lesser extent remedy the reduction of the ability to function and thus substantially ease the daily life of these persons - or make it possible for them to take on a job".
3. "Circular concerning assistance in equipping private homes under Section 59 of the Danish Social Assistance Act" (7) - "necessary assistance in equipping private homes in order to make them better suited as residence for people disabled or chronically weak because of disease or old age".

In November 1987 the National Board of Social Affairs, after prior medical professional advice from the National Board of Health (8), made a statement to the Appeals Board for Vejle Coun-

ty concerning the granting of a mechanical ventilation system with heat recovery (9).

MEDICAL PROFESSIONAL ADVICE IN CURRENT PRACTICE

The National Board of Health acts as medical professional adviser to the National Board of Social Affairs. The Social Board of Appeals and the county boards of social appeal have medical advisers attached to them.

In appeal decisions from the Social Board of Appeals and consequently also in appeal decisions from the county appeals boards, the applicants' positive experience carries heavy weight in the total assessment. Decisions are based on the current rules laid down in the Danish Social Assistance Act and very seldom on medical scientific documentation of positive and negative effects (10-19).

Many municipalities have medical advisers attached to their social and health administrations. The medical advice given has closely followed medical recommendations obtained from hospitals, specialists and general practitioners. Only to a limited extent have the medical recommendations obtained been subjected to independent medical assessment. In municipalities without medical professional advice, the decisions taken have often been based exclusively on the applicants' needs and assumptions about positive effects - based on earlier applications of a similar nature - and on the attitudes and "medical knowledge" of the individual administrative social worker handling the application.

EXPENSES FOR TRADITIONAL CLEARING OF HOUSE DUST MITES ACCORDING TO CURRENT PRACTICE

Expenses for financial aid under the Danish Social Assistance Act are payable by the municipalities. The municipalities pay for expenses for grants in accordance with given sections of the Act. Grants for expenses under Sections 48, 58 and 59 of the Danish Social Assistance Act for different types of assistance, aids and measures in connection with fitting up homes and clearing for house dust mites are "hidden" in total expenditure on aid under Sections 48, 58 and 59

respectively. In other words, the size of expenses for traditional clearing for house dust mites is not known for certain. In the Municipality of Århus a survey has been made of financial and social consequences of medical recommendations for extra cleaning and other clearing of houses as part of the treatment of asthma with known allergy to house dust mites (20). The survey was an analysis of 195 "allergy cases", out of which 122 were cases where assistance had been granted for "clearing" on the basis of medical recommendation. The survey can only give an estimate of the annual expenses for traditional clearing, as the "cases" only partly constitute a representative section of the "allergy cases" in the Municipality of Århus. A total of 147 of the "cases" are from the North District Office, and the other 48 especially "difficult allergy cases" from 3 of the 8 district offices in the Municipality of Århus, and furthermore, an unknown number of "cases" have been handled in all district offices without resort to a medical adviser. The different aids and measures granted for fitting up the homes have therefore been divided into groups according to how often they have been granted (without regard to the expediency of the grant or scientific documentation of the expected effect):

Granted in 76-100 % of cases:

- Washable pillow and comforter
- Washable mat

Granted in 51-75 % of cases:

- Mattress
- Removal of carpet in bedroom - and planing of floor or laying of linoleum flooring
- Closed wardrobe

Granted in 26-50 % of cases:

- Hanging of smooth-surface washable wallpaper in bedroom
- Vacuum cleaner - with "allergy filter" or "extra suction power"

Granted in 1-25 % of cases:

- Removal of carpets in other rooms - and planing of floors or laying of linoleum flooring

Hanging of smooth-surface washable
 wallpaper in other rooms
 Painting with water-based paint
 Washable curtains
 Washable blinds
 Washable furniture (leather furniture)
 Ion generator
 Hygrometer
 Reversing valve
 Washing machine
 Tumble-drier
 Moving from "concrete housing"
 Mechanical ventilation system with heat
 recovery
 "Allergy filter" for ventilation system
 Water bed
 Dust analysis for mould fungi and house dust
 mites
 Domestic help for extra cleaning
 Financial coverage of lost earnings by extra
 cleaning of own house

Other municipalities in Denmark have granted financial assistance for similar aids and measures on the basis of medical recommendations or after decisions in county appeals boards or the Social Board of Appeals (9-12, 14-16). The practice for granting aid has varied widely from municipality to municipality - some have been very restrictive and others have been very generous.

The costs of individual "allergy cases" in the Municipality of Århus have ranged between DKK 1000 and 45,000. Each "case" has on average cost between DKK 5000 and 10,000 annually (estimated).

In the Municipality of Århus (255,000 inhabitants) there have been 500-1000 new "allergy cases" annually with applications for financial assistance for aids and measures for "clearing for" house dust mites (including new applications in "old cases"). Calculations have been based on 147 cases in one district office over a 20-month period (01.12.1986-31.07.1988) - not including an unknown number of cases handled without consulting a medical adviser.

The estimated costs for the Municipality of Århus have on an annual basis been a minimum of $((500-1000) \times (\text{DKK } 5000-10,000))$

= DKK 2.5-10 million. In Denmark, estimated costs have on an annual basis been in the range of DKK 50-200 million - provided that estimated costs for the Municipality of Århus can be generalized for the whole country.

PSYCHOSOCIAL CONSEQUENCES OF TRADITIONAL CLEARING FOR HOUSE DUST MITES ON MEDICAL RECOMMENDATION

An examination of 195 "allergy cases" in the Municipality of Århus (20) with an analysis of medical as well as social journals and an analysis of conversations with parents in 12 of the cases clearly showed that both parents and children were mentally and socially burdened by the substantial extra cleaning.

PRACTICE UNTIL NOW FOR INSTALLATION OF MECHANICAL VENTILATION SYSTEMS

Earlier on, mechanical ventilation systems (automatic ventilation systems and air renewal systems) were regarded by the National Board of Social Affairs primarily as "tools of treatment supplied by hospitals on the recommendation of a specialist ward" (21). Against this background, only a few mechanical ventilation systems have been installed to treat "patients with serious year-round asthma with ascertained allergy to house dust mites and/or mould, whose homes have an ascertained high air humidity - where the air humidity of the homes cannot be reduced in any other way".

The guiding statement by the National Board of Social Affairs to the Appeals Board of Vejle County on the granting of financial assistance for purchasing mechanical ventilation systems with heat recovery under Section 59 of the Danish Social Assistance Act in November 1987 (9) led to a changed practice. It was now imposed upon the individual municipalities to grant mechanical ventilation systems and bear the costs involved. In June 1988 the Ministry of Social Affairs stated that "ventilation or air renewal systems can only be considered as tools of treatment if installed with patients who would otherwise be chronic hospital patients".

The practice for granting mechanical ventilation systems has differed considerably from municipality to municipality. Many municipalities have been very reluctant to grant them and have awaited the awards of county appeals boards. In different county appeals boards there has been uncertainty about the practice for granting mechanical ventilation systems – and decisions in appeal cases have awaited official guidance from the Ministry of Social Affairs.

In June 1988 the Ministry of Social Affairs stated that “the Ministry does not intend to publish any more guidance or circulars – the Board of Social Affairs does not find the area suited for a more detailed guidance, as there are so many factors interacting in these cases. By way of example can be mentioned “the type and extent of the disease; the physical layout and condition of the home; the life lived in the home, including cleaning and general ventilation” (22).

FINANCIAL CONSEQUENCES OF INSTALLING MECHANICAL VENTILATION SYSTEMS WITH OR WITHOUT HEAT RECOVERY

Whether mechanical ventilation systems should be installed with or without heat recovery depends on assessments based on considerations of energy and economy.

There are no surveys that can form the basis of reliable calculations of the number of persons for whom the granting of mechanical ventilation systems may be recommended (asthma with allergy to house dust mites, considerable exposure to house dust mites in the home and so serious symptoms that daily activities are reduced despite optimal treatment). The practice until now for granting mechanical ventilation systems and decisions in county appeals boards has included the same category of persons as described in section Vb: “House Dust Mites and Hygienic Measures in the Indoor Environment” (16–18, 23–26).

In 1987 and 1988 a suburban municipality of Århus with 9500 inhabitants granted 9 mechanical ventilation systems with heat recovery. In the Municipality of Århus, with

255,000 inhabitants, there is an expected need for granting 200–300 mechanical ventilation systems over a 3-year period – based on the applications submitted – again, one mechanical ventilation system per 1000 inhabitants (27).

In 1986 the chief consultants of the Department of Respiratory Disease and Section of Allergology of Århus Kommunehospital (University Hospital for Århus County) estimated a need to install mechanical ventilation systems in 200 homes in Århus County (585,300 inhabitants), corresponding to one system per 3000 inhabitants (27).

By granting one mechanical ventilation system with heat recovery per 1000 inhabitants, the costs of establishment will amount to DKK 255 million (5111 plants at an average price of DKK 50,000). By granting one system per 3000 inhabitants, the costs of establishment will amount to DKK 85 million.

The costs of conducting technical building assessments are unknown. In Denmark, the practices for technical assessment are obtainable from the Danish Building Research Institute. It will often be possible to have the assessment conducted by the technical administration of the municipality. In complex cases it will be possible to recruit the necessary assessments from specialist firms and institutions with the necessary specialized equipment – such as the Mobile Quality Testing Laboratory for the Building Sector and the Mobile Laboratory for Indoor Climate Measurement.

Extra current expenses for electricity for operation of mechanical ventilation systems with heat recovery amount to between DKK 1200 and 1800 annually.

PSYCHOSOCIAL CONSEQUENCES OF INSTALLING MECHANICAL VENTILATION SYSTEMS IN HOMES

So far, there are no scientific surveys describing the health and psychosocial consequences of installing mechanical ventilation systems with or without heat recovery in newly erected or existing housing.

PRACTICAL PROBLEMS OF INSTALLING MECHANICAL VENTILATION SYSTEMS IN HOUSES WITH RISING DAMP

In housing with rising damp it will in some cases for economic reasons not be possible to reduce the air humidity by means of mechanical ventilation systems. It will often be necessary to take technical measures. In some cases the only solution will be moving to another home (8).

The economic costs in connection with moving from a home because of rising damp will often be substantial. Furthermore, there are political, ethical and health problems connected with rehousing on account of rising damp (28, 29).

PRACTICAL PROBLEMS OF INSTALLING MECHANICAL VENTILATION SYSTEMS IN APARTMENT BUILDINGS

In apartment buildings it is often not practically possible to install mechanical ventilation systems. There may also be legal obstacles where private owners and apartment house associations refuse to permit the installation of mechanical ventilation systems. Moving to another home is then the only solution.

SOCIAL POLICY CONSIDERATIONS

All people need good, warm and well-ventilated homes – not only children and adults with asthma and allergy to house dust mites (29, 30). On the contrary, it has been scientifically documented that there is a greater risk of incurring mental as well as physical diseases, especially in the respiratory organs, for children and adults living in damp homes (28). Greater knowledge about ideal housing for children and adults with allergy to house dust mites may give greater knowledge about ideal housing for everyone.

There is every reason to intensify the pedagogical efforts to promote changes in people's housing habits. The causes of too high air humidity in homes may be an unnecessarily large production of humidity and/or insufficient air

exchange. Some problems related to too high air humidity may be solved by an expedient change of the family's housing habits.

Grants of mechanical ventilation systems ought to be accompanied by scientific surveys of positive and negative effects and consumption of all types of resources. Scientific surveys of the positive and negative effects of less resource-demanding measures to fight house dust mites in homes should continue to be conducted.

CONCLUSION

It is absolutely necessary to establish uniform guidelines for medical professional advice to social authorities – and uniform practice for the granting of financial and practical assistance to remedy and compensate for all forms of lacking or lost financial, social, mental and physical resources in connection with allergic diseases, including asthma and allergy to house dust mites. Where practice for granting financial and practical assistance does not rest on a scientific basis, practice ought to continue as part of controlled, systematic, scientific surveys of any necessary type.

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