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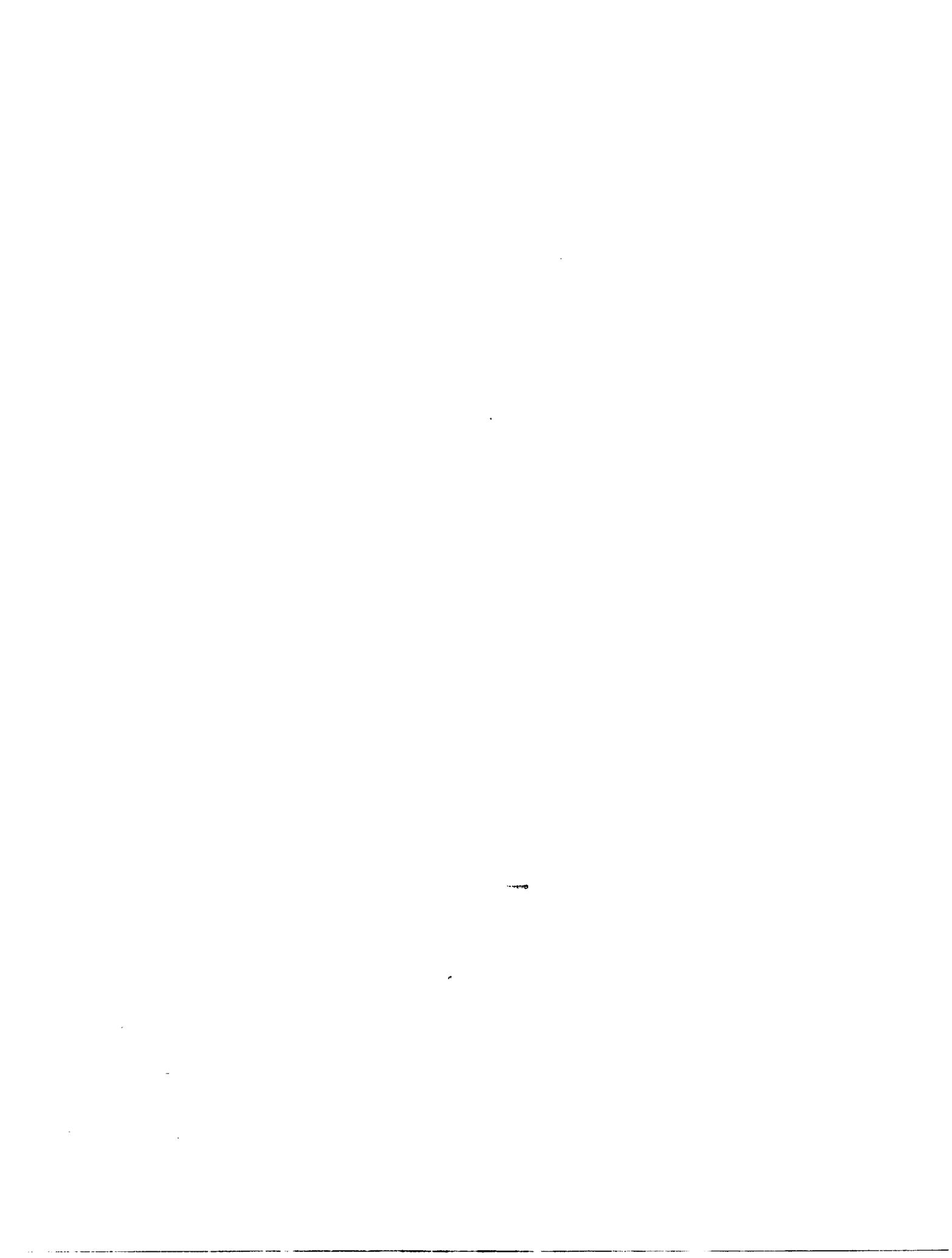
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**Women's medical knowledge and health care practices
concerning the most common respiratory illnesses. A case study
of a rural community in northern Germany**

Löhn, Christina, M.A.

The University of Arizona, 1991

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WOMEN'S MEDICAL KNOWLEDGE AND HEALTH CARE PRACTICES
CONCERNING THE MOST COMMON RESPIRATORY ILLNESSES. A CASE
STUDY
OF A RURAL COMMUNITY IN NORTHERN GERMANY.

by
Christina Löhn

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A Thesis Submitted to the Faculty of the
DEPARTMENT OF ANTHROPOLOGY
In Partial Fulfillment of the Requirements
For the Degree of
MASTER OF ARTS
In the Graduate College
THE UNIVERSITY OF ARIZONA

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April 1, 1991
Date

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TABLE OF CONTENTS

LIST OF TABLES.....	6
LIST OF FIGURE.....	8
LIST OF ABBREVIATIONS.....	9
ABSTRACT.....	10
INTRODUCTION.....	11
Methods.....	16
Interview.....	17
Description of Setting.....	20
The Sample.....	22
SEVERITY, FREQUENCIES AND SEASONALITY OF THE MOST COMMON RESPIRATORY ILLNESSES.....	27
EPIDEMOLOGICAL CONCEPTS.....	35
MAIN SYMPTOMS OF SNIFFLES, COUGH, FLU, COMMON COLD, SORE THROAT/ TONSILLITIS, BRONCHITIS AND SINUSITIS.....	41
ILLNESS-CHANGES.....	47
TREATMENT DECISIONS.....	52
TREATMENTS.....	56
Degree of Physical Activity.....	56
Dressing Habits.....	58
Eating Patterns.....	61
Drinking Patterns.....	62
Therapeutical Drinks.....	64

TREATMENTS (continue)	
Massages.....	75
Inhalation Treatments.....	77
Warming Baths, -Poultices and Infrared Light Therapy.....	79
<u>Hals-</u> and <u>Brustwickel</u> ".....	80
Fever-Reducing Treatments.....	81
Gargling Therapy.....	86
Oral Intake of Self-Prescribed Drugs.....	87
Other Treatments.....	90
INFORMANTS' KNOWLEDGE OR ESTIMATIONS ABOUT THE TOTAL LENGTH OF COMMON RESPIRATORY ILLNESSES.....	92
INFORMANTS' BELIEFS ABOUT THE NECESSITY TO CONSULT A DOCTOR IN CASE OF A COMMON RESPIRATORY ILLNESS.....	99
CONSULTATION OF DOCTOR IN CASE OF FEVER.....	102
INFORMANTS' EXPECTATIONS AND REASONS TO CONSULT A DOCTOR IN CASE OF A FEVER/INFLUENZA.....	112
PREVENTION OF COMMON RESPIRATORY ILLNESSES.....	118
ADDITIONAL RESULTS: INTERVIEW WITH LOCAL PHYSICIANS, PHARMACIST(S) AND SCHOOL PRINCIPLE.....	125
SUMMARY AND CONCLUSIONS.....	136
APPENDIX A: THE MAIN INTERVIEW QUESTIONS.....	149
LIST OF REFERENCES.....	153

LIST OF TABLES

Table	Page
1. Types and Frequencies of Respiratory Illnesses.....	27
2. Identification and Estimation of Severity of the <u>M</u> ost <u>C</u> ommon <u>R</u> espiratory <u>I</u> llnesses (MCRI).....	30
3. Incidence of MCRI.....	32
4. Seasonality of MCRI.....	33
5. MCRI and their Eteological Concepts.....	35
6. Summary of Main Symptoms of MCRI.....	45
7. Illness-Changes.....	49
8. MCRI and Degree of Physical Activity.....	56
9. MCRI and Dressing Habits.....	59
10. MCRI and Eating Patterns.....	61
11. MCRI and Drinking Patterns.....	63
12. MCRI and Therapeutical Drinks.....	65
13. MCRI and Massages.....	75
14. MCRI and Inhalation Treatments.....	77
15. List of Fever-Reducing Treatments.....	81
16. Fever Treatment: Informants Usage of Heat and/or Coldness in Correlation with the Body (Fever) Temperature.....	84
17. MCRI and Gargling Therapy.....	86
18. MCRI and Prevalence of Self-Prescribed Drugs.....	88
19. List of Self-Prescribed Drugs.....	89
20. Other Treatments for MCRI.....	91

21.	MCRI and Estimation about Necessity to Consult a Doctor....	99
22.	MCRI and Doctors Influence on Illness Length.....	100
23.	<u>Consultation with Doctor</u> in Case of Fever (Cons. w/ Doc.)..	102
24.	Average number of Pseudoyears of Care-Taking Experience Correlated with Cons. w/ Doc.....	103
25.	Average Age of Informants Correlated with Cons. w/ Doc.....	104
26.	Average Number of Children Correlated with Cons. w/ Doc....	104
27.	Average Level of School Education Correlated with Cons. w/ Doc.....	106
28.	Average Degree of Employment Correlated with Cons. w/ Doc..	107
29.	Average Availability of Driver's Licence and Car Correlated with Cons. w/ Doc.....	108
30.	Average Rural- or Urban Origin Correlated with Cons. w/ Doc	109
31.	List of Informant's Reasons/Expectations of a Doctor in Case of a Fever/Influenza.....	112
32.	List of Prescribed and Nearly Unused Drugs for MCRI.....	116
33.	Concepts about the Prevention of Common Respiratory Illnesses.....	118
34.	List of Most Frequently Obtained Drugs from Pharmacy.....	133
35.	Typical Examples of Fees Charged by a Physician for MCRI...	134

LIST OF FIGURES

Figure	Page
1. Demographic Structure of Heitbek.....	21
2. Main Illness-Changes.....	51
3. Treatment Decisions within Households.....	52
4. Informants' Estimations about Illness-Length.....	94
Map: Native Places of Informants (Non-immediate Environment of Heitbek.....	25

LIST OF ABBREVIATIONS

Br = Bronchitis

CC = Common Cold

Co = Cough

Cons. w/ Doc. = Consultation with Doctor in Case of Fever

Fl = Flu/Influenza

MCRI = Most Common Respiratory Illnesses

Si = Paranasal- or Frontal Sinusitis

Sn = Sniffles

ST = Sore Throat/Tonsillitis

ABSTRACT

In order to stop the rising health care expenditures, 81 villagers and their health professionals were interviewed about their medical knowledge (etiology, symptoms, treatment, illness-length, prevention, necessity to consult a doctor, etc.) and health care practices concerning the most common respiratory illnesses. According to informants, sniffles, cough, flu, common cold, sore throat/tonsillitis, bronchitis and sinusitis are the most common respiratory illnesses. All of them are regarded to be caused by several mechanisms of getting cold and/or wet. Despite the general disbelief in the Germ theory and the prevention of contagion among household members, informants have an extensive knowledge about effective treatments and consult health professionals when home-remedies fail or when a doctors' excuse is needed. Due to the effectiveness of home-treatments and self-containment of many respiratory infections, this study concludes that health insurance companies should restrict the reimbursement of prescriptions for Bagatellmedizin, inhalation apparatus and home-remedies.

INTRODUCTION

Respiratory illnesses are extremely prevalent in Germany as well as in other industrialized countries (Young, 1977:181, 322, 368). According to the ICD statistics of the second largest German health insurance company (DAK) 21.74% of all members in northern Germany experienced one or more respiratory illnesses during the year 1989. The ten most common reasons for a sick-leave have been influenza (32.34%), bronchitis (24.20%), acute infection of the upper respiratory tract (10.15%), tonsillitis (8.10%), chronic sinusitis (5.12%), acute bronchitis or bronchiolitis (4.5%), acute sinusitis (2.9%), tracheitis or laryngitis (2.1%), pharyngitis (1.88%) and common cold (1.68%) of which male adults constituted 74.4% and females 25.6%. These percentages represent only a fraction of the total number of individuals contracting upper respiratory illnesses. The average physician, for example, sees patients of all ages, and children below the age of 15 account for 36% and adults above 65 years account for 23 % (41% are evenly spread between the age of 15 and 65) (Arnold, 1986:78). Moreover, the majority of the most common respiratory illnesses like sniffles or cough are most often treated by lay-people without the intervention of a physician (Landolt-Theuss, 1986:646).

These high percentages of common respiratory illnesses cause 1.) a significant loss of economic productivity for the whole society, 2.) extremely high expenses for health insurance providers as well as their members who finance them and 3.) a time consuming responsibility for

women who, traditionally, are the primary health care providers for families/households.

In order to contain the rising health care expenditures in an acceptable manner, it is necessary to analyze women's medical knowledge and health care practices as they pertain to the most common respiratory illnesses. Due to the variability in availability, and access to physicians, rates of female employment, variability in household/family composition, etc. this research should be conducted in rural and urban settings representative of former West- and East Germany. In order to get more information about contemporary medical concepts and health care practices this research was conducted in a typical village of northern (West) Germany, which has no physician, no public transportation to the nearest physician, no school, no kindergarten and no grocery stores.

Although a literature review showed that no one has studied women's medical knowledge about common respiratory illnesses in Germany, the findings of several authors are relevant to this study. A Swiss physician found that the majority of sniffles cases are treated at home without consulting a physician (Landolt-Theuss,1986:647). Other studies indicate that self-care is not limited to harmless illnesses like sniffles, but the basic health behavior in all societies past and present (Dean,1981:673-687). Its effectiveness, however, seems to vary from one nation to the other. Whereas a Danish physician found that 90% of the self-treatments have a relevant impact and that two-thirds of his patients who treated themselves used fully or partially effective remedies (Peterson, quoted in Dean,1981:678), an American study claims

that women's knowledge about illnesses and health care practices is quite limited (Litman, quoted in Dean,1981:679). A cross national investigation of self-medication practices gave evidence that 48% of the respondents from the USA had used a medication 2 days prior to the interview compared to 38% of the British- and 19% of the Yugoslavian respondents (White et al, quoted in Dean,1981:680).

Regional and possible age, climate and/or class related differences exist also with regard to rhinovirus infection rates. Whereas adult insurance employees from Virginia have an infection rate of 0.77 per year, adults from Seattle have despite of the cold and humid climate a low infection rate of 0.2 (Gwaltney,1983:336-339). In contrast to US adults, children from Belgium have an annual incidence rate of 2.43 for a common cold/infectious rhinitis (van Cauwenberge,1985:273). The latter author also found that children of non-employed mothers have the lowest annual incidence of a common cold (lower than mother laborers and mother employees or mother with an higher profession and humid houses) and that humid and cold climates are favouring a higher annual incidence rate of upper respiratory infections (van Cauwenberge,1985:278,279).

Some studies indicate that lay people and health professionals define specific illnesses in different ways. Whereas American lay people suffer from fever, headache, sore throat, runny nose and myalgia when they have the "flu", epidemiologists define a flu as an infection which is caused by an RNA virus (McCombie,1987:988). In case of sniffles, the definitions seem to vary even among physicians. Whereas

some use the label "sniffles" for a "runny nose", others use it for a "blocked nose" or a "rhinorrhoe induced by cold" (Landolt-Theuss:1986:647).

Local eteological concepts of illness causation can influence the readiness to accept responsibility for one's own health as well as the type of treatment a sick person gets (Pill and Scott,1982:48). The physician Cecil G. Helman pointed out that eteological concepts and particularly the Germ theory of disease are far from challenging the folk model about colds and fevers. In his suburban community in England, patients treated colds by adding warmth in the form of hot drinks, hot water bottles,etc. Fevers are treated by a) drinking hot tea, milk and honey, hot water, cough medicine, etc to "wash out", "liquify" or "sweat out" the germ, b) by reducing the food intake to "starve out" the germ and c) by taking antibiotics to kill the germ in situ without the need to expel or starve (Helman,1978:121,122). He also points out that most of the 6 million gallons of annually prescribed cough medicines are relatively useless, very sweet, brightly colored and have a syrupy consistency in order to echo the traditional cough medicine of warm milk with honey or herbal teas with honey. In the winter they can form the single largest group of drugs prescribed under the N.H.S.(Helman,1978:128). In Germany the treatment of common respiratory infections is even more expensive for health insurance companies because pneumologists like O. P. Schmidt recommend for bronchitis a topical therapy which includes the prescription of drugs plus treatments like

respiratory gymnastics, inhalation, short wave electrotherapy, vibration massages, etc. (Schmidt, 1981:361).

In general the most inexpensive treatments are the ones which can be prevented in the first place. With regard to common respiratory infections, vaccinations against whooping cough or flu can give a relatively high level of immunization or protection. However, every nation seems to have different opinions about the extent of preventive medical interventions. In contemporary America, for example, one "should" get an annual physical examination and make sure that the immunizations are up to date (Foster, 1976:779). In contemporary Germany, by contrast, preventive medical interventions are more precisely targeted. Instead of emphasizing a general annual examination and vaccinations for everyone, the German department of public health emphasizes vaccinations against, for example, whooping cough only for children who are "especially endangered" (Gesundheitsamt, 1987), (Hoppe and Preston, 1985:776). In addition, several West German health insurance companies send a health magazine to all their members on a regular basis. These magazines often recommend individual health care practices like regular physical exercise instead of hydrotherapeutic preventive practices, although studies from East Germany give evidence that the regular application of small and medium hydrotherapy (including sauna bath) for children reduces their liability to catarrhal infections and the number of complications during the course of individual infections (Krauss et al, 1981:485). More recent studies indicate that the temporary rise of body temperature during a sauna bath, for example, might be able

to destroy certain types of viruses (Stini,1991,personal communication) which could explain why sauna baths are effective in preventing catarrhal infections.

This brief literature review shows that, due to geographic and cultural differences as well as differing self-care responses to illnesses, it is necessary to conduct a detailed case study in one location and to interview the same informants about their medical knowledge and health care practices (eteology, symptoms, treatment, prevention, etc) in order to develop a list of suggestions which can effectively reduce the health care expenditures for common common respiratory illnesses in the future.

Methods

During a three months period (June-Sept.1990) 81 women (92% of all households with women) were interviewed in their homes. Seven women (8%) were unavailable for interview because they went on vacation, had a full time employment, were sick or refused to participate. Due to the widely spread fear in Germany that collected data and especially computerized data can be misused, interviews were not taped and informants were assured that they would not have to sign something and that their anonymity would be protected by the use of pseudonyms. Under these preconditions almost all women in the village volunteered for an open-ended interview in High or in Low German, which took between 1 and 1.5 hours.

The Interview

In order to determine possible factors which might influence the medical knowledge/-concepts and health care practices in case of a common respiratory illness, informant's name, -age, -number of children, -type and length of school education, -vocational training, -occupation, -degree of employment, occupation of husband (boy-friend if unmarried and living in the same household), -type of health insurance, -years of residence in Heitbek, -urban or rural origin and its distance and direction from Heitbek, number-, sex-and age of present household members, availability of separate sleeping-rooms for children, age of the house, type of heating system, single - or double glassed windows as well as the general hygiene and residence of their family physician were directly or indirectly investigated during the interview.

I expected the informant's last name to give me information about kinship relations; the age to indicate the time when the informant grew up (during or after a war); the number of children to indicate the amount of health-care experience; the type of school education, vocational training, degree of employment and occupation to influence the type of- or timing of the health seeking behavior; the husband's (or boy-friend's) occupation to influence the amount and usage of prescriptive- or over the counter drugs; the type of health insurance to give indirectly information about the financial resources of a family and to control indirectly the degree of the informant's employment; the years of residence, urban- or rural origin as well as distance from Heitbek to influence the type of health care and usage of (herbal) home

remedies; the number of -, age- and sex of present household members and the availability of separate sleeping-rooms for children to influence the transmission patterns of infectious respiratory diseases; the age of the house and the insulation of the windows to influence the humidity and inside temperature of the house, and the type of heating system to influence the general hygiene and prevalence of common respiratory illnesses.

The main section of the open-ended interview consisted of 18 questions (see Appendix A). This sequence of questions:

- 1.) elicits informant's illness-categories and illness labels;
- 2.) probes about additional age related illnesses like whooping-cough;
- 3.) requests informants to estimate the severity of the most common respiratory illnesses a), b), c);
- 4.) calculates the incidence rate and seasonality of the most common respiratory illnesses of the informant (alternatively another household member);
- 5.) assesses informant's awareness of common illness sequences/ transmission patterns of infectious diseases;
- 6.) elicits informant's etiological concepts;
- 7.) explores the symptoms of the most common respiratory illnesses;
- 8.) inquires about informant's ideas about illness-changes (location changes);
- 9.) investigates the extent to which rural women are responsible for health care decisions;

- 10.) examines the extent to which women are actually providing health care for sick family/household members;
- 11.) investigates informant's concepts about the type of treatment/health-care practices (incl. working-, dressing-, eating- and drinking patterns as well as other treatments);
- 12.) probes for particular treatments used for cough and what triggered consultation of a doctor or pharmacist;
- 13.) examines informant's medical knowledge and usage of fever-reducing methods prior and/or in lieu of a doctoral consultation;
- 14.) compares informant's knowledge or estimations about the normal length of a common respiratory illness treated at home with the length of the same type of illness treated by a physician;
- 15.) investigates informant's concerns (beliefs) about the necessity to consult a doctor;
- 16.) studies the length of time between the occurrence of an estimated severe symptom (e.g. fever) and the time of the actual consultation of a doctor;
- 17.) inquires about informant's expectations of actions taken by the doctor consulted with a severe symptom or illness;
- 18.) explores informant's medical knowledge and ideas about possible methods to prevent the most common respiratory illnesses of the particular household.

Description of the Setting

The village of Heitbek (pseudonym) is located in northern (West) Germany around 50km away from Hamburg. The nearest physician, dentist and priest are located in the neighboring village of Ahrensberg (pseudonym), which can be reached within a five minute car drive. Medical specialists (e.g. an ear-nose-throat doctor) or a hospital can be reached within a 15 minute car drive.

Heitbek (altitude 35m) is located at a transitional zone between a maritime- and a continental climate. Typical for this area are cool summers with an average July-temperature of 16.3 C and relatively cold winters with an average January-temperature slightly above 0 C. The prevailing westerly winds have a high annual average speed of 6.3m/sec, the humidity a high average of 84%, the precipitation an annual average of 701mm (Fick,1952:9,10). All of these climatic factors play an important role for the folk concepts about illness causation and prevention.

Due to the sandy ground, climatic factors, the increasing elimination of the native mixed-oak forest and the increasing dominance of sheep breeding during the Middle Ages, the general vegetation changed to extended areas of heath, birches and small pine tree cover (Fick,1952:12-13) before the area around the village was plowed for agricultural purposes during the 19th century. Village records indicate that the main subsistence of people from Heitbek was based on agriculture during the last centuries. In 1530 Heitbek had 3 farms, in 1640: 4 farms, in 1730:10 farms, in 1830:17 farms and in 1930: 24 farms.

By 1990 the number of farms generating a full income dropped to 10 farms. Most of the other farm-owners lease out their land to others and/or generate additional income from non-agricultural pursuits. Despite the environmental and economic shift most of the households still grow their own garden vegetables and fruits, use wool to knit shawls and sweaters, and use honey (which has traditionally been generated from local bee hives) for preventive or curative purposes.

According to the 81 interviews (excluding the households which did not participate in this study) Heitbek has a population of 110 males and 105 females. The demographic structure

(figure 1) shows a significant drop in the population above 65 which is probably due in part to the Second World War, whereas the preponderance of men between the age of 20 and 30 is probably due to an increasing age of marriage and the custom that the oldest son will inherit the farm of his father. The generally small number of people below the age of 20 is in part due to commonly practiced birth-control. In this regard it is interesting that 98% of the population is Protestant, whereas 2% have no religion according to the village school records.

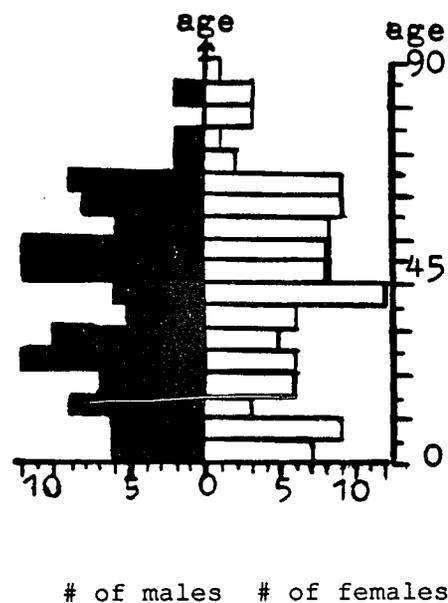


Figure 1: Demographic Structure of Heitbek

The Sample

The sample consists of 81 women ranging in age between 19 and 90 years (mean = 47.4 years). Most of the informants have several children. One woman has 5 children, 13 women have 4 children, 11 have 3 children, 31 have 2 children, 12 women have 1 child and 13 women have no children. In sum, the average number of children is 2.01 per woman. All women with more than 3 children are older than 46 years, whereas the ones with no children are between 19 and 37 years old and have usually a better education than the average.

The educational background varies: 1 woman (1%) finished the "Sonderschule", a special school for weak scholars; 53 women (65%) finished the "Volksschule", the main school which lasts 9 years and is more challenging than the "Sonderschule", but less challenging than the "Mittelschule". Whereas 22 women (27%) finished the "Mittelschule", a school which lasts 10 years, 5 women (6%) went to the "Gymnasium", a school which lasts 13 years and is much more challenging than the "Mittelschule" and allows one to continue an academic career at a "Pädagogische Hochschule" (PH) or at the university. Whereas 4 women (5%) graduated from a PH or university, 77 (95%) have a non-academic background: 57 women (70%) got a vocational training after graduating from the "Volksschule" or "Mittelschule" and 20 women (25%) worked in one or more households before getting married. With regard to the vocational training 13 women studied rural house keeping/domestic science, 20 women graduated in a commercial profession, 6 in a medical

or social profession and 18 graduated in another profession like tax advisor assistant, tailor, etc.

The degree of women's employment outside their own households varies: 33 informants (41%) do not work outside their own households because they are retired, have small children or work on the farm of their husbands. Twenty-six women (32%) have a part time job which improves the financial situation of the women and/or family. Although part time jobs provide a tax free income as long as the income is not higher than 300 US Dollars per month, they have the serious disadvantage of not providing any type of social or medical benefits. In case of a sickness or disability these women lose their income. In contrast to the part-time employment, the full-time employment is an insured income which will also be paid during a sick-leave, maternity-leave and during 6-8 weeks of annual vacation. According to the data, 21 women (26%) have full-time employment.

The education of the women's husbands (or boy-friends) is in 42 cases (52%) equally high, in 20 cases (25%) higher and in 3 cases (4%) lower than the female's one. The remaining 16 women (20%) are either widowed or unmarried.

Every informant and her family is fully covered by a health insurance company. In case of an illness a visit to the doctor is free and prescribed drugs or other medical treatments like physical therapy can be obtained for a token payment of 2 US Dollars per drug or treatment. In case of hospitalization a patient has to pay a daily token of 6 US Dollars. Everything else (surgery, tests, x-rays, food, care,

etc.) is completely covered by the health insurance company. According to the interviews 95% of the informants are covered by a federal health insurance company (36% are covered by the AOK, 20% DAK, 14% LKK, 10% BKK 9% by the LKK 4% by the BEK, 3% TKK and 1% is covered by the health insurance of former East Germany) whereas 5% are covered by a private health insurance company which offers a slightly better service/treatment for a patient and a higher income to physicians.

The length of time informants have been living in Heitbek varies between 2 months and 79 years (mean = 23.88 yrs). Most of the women who were not born in Heitbek, moved to the village shortly before or after their marriage, at the end or shortly after the Second World War as refugees from former German territories like East Prussia or shortly after 1972 when women (couples, families) with an urban origin moved to rural areas like Heitbek where they could afford to build their own house. Before 1972 all women moving to Heitbek were born and raised in a rural environment. With regard to the whole sample 14 women (17%) were born and raised in Heitbek, whereas 67 women (83%) were born and raised outside of the village. Among the latter group 49% grew up within a 25km distance to Heitbek, 13% of the Non-Heitbeker grew up in the East and 37% came from other (usually southern) places which are further away than 25km. The map of Germany (next page) shows the native places of the informants who grew up outside of the immediate circle of Heitbek.

Map: Native Places of Informants (excluding Heitbek and immediate environment)



• = location of native place --- = former German borders (before 1945)

The number of households as well as their size is difficult to analyze. If one defines a household by the presence of a kitchen, bathroom, sleeping and living-room, this sample consists of 72 households. If one defines a household as a socioeconomic unit, 81 women from 69

households have been interviewed. The discrepancy is due to the former tradition of patrilocal postnuptial residence, so that two or three generations are living in one household. Within the last 10 years this traditional pattern has changed. Young couples who own or will inherit a farm tend to separate the older generation from the younger one by the additional construction of a kitchen and a bathroom for themselves or for their parents in order to have more privacy. Usually, this spatial separation exists as long as both parties can take care of themselves. As soon as the daughter-in law or her mother-in-law get sick, a family member gets injured or disabled, children need to be looked after or during seasonal peaks of agricultural work, however, this spatial separation between the generations is removed immediately. Due to this mutual comprehensive assistance between the older and younger generation, I prefer to use the socioeconomic definition of a household. It follows that the household size varies between 1 and 7 people: 4 households have 1 person, 24 have 2, 12 have 3, 16 have 4, 6 have 5, 4 have 6 people and 2 households have 7 people. Despite the relatively high number of household members, in all but one case children have their own room, which theoretically lowers the risk of getting infected by a sibling in case of an infectious disease.

SEVERITY, FREQUENCIES AND SEASONALITY OF THE MOST COMMON RESPIRATORY
ILLNESSES

When the informants were asked to mention examples of respiratory diseases/illnesses (lay people use both terms interchangeably in German), informants mentioned between 5 and 18 different diseases, illnesses or other conditions affecting the respiratory tract. Table 1 shows the different types and frequencies in percentages.

Table 1: Types and Frequencies of Respiratory Illnesses

1. Cough (<u>Husten</u>)	95%	2. Sniffles (<u>Schnupfen</u>)	93%
3. Pneumonia (<u>Lungenentzündung</u>)	86%	4. Common Cold (<u>Erkältung</u>)	80%
5. Asthma (Asthma)	65%	6. Flu/Influenza (<u>Grippe</u>)	64%
7. TB (TB)	62%	8. Whooping Cough (<u>Keuchhusten</u>)	57%
9. Bronchitis (Bronchitis)	56%	10. Tonsillitis (<u>Mandelentzündung</u>)	51%
11. Lung Cancer (<u>Lungenkrebs</u>)	48%	12. Frontal Sinusitis (<u>Stirnhöhlenentzündung</u>)	48%
13. Paranasal Sinusitis (<u>Nasennebenhöhlenentz.</u>)	41%	14. Otitis Media (<u>Mittelohrentzündung</u>)	35%
15. Hay-Fever (<u>Heuschnupfen</u>)	28%	16. Diphtheria (<u>Diphtherie</u>)	27%
17. Bronchial-catarrh (<u>Bronchialkatarrh</u>)	19%	18. Pleurisy (<u>Rippenfellentzündung</u>)	17%
19. Pseudo-Krupp (Pseudo-Krupp)	16%	20. Lung-Embolicism (<u>Lungenembolie</u>)	14%

21. "Lung Disease" (<u>Lungenkrankheit</u>)	14%	22. Sore Throat (<u>Halsschmerzen</u>)	14%
23. Nasal Polyps (<u>Nasenpolypen</u>)	12%	24. Scarlet Fever/Angina (<u>Scharlach/Angina</u>)	11%
25. Hoarseness (<u>Heiserkeit</u>)	11%	26. Smoker's Cough (<u>Raucherhusten</u>)	11%
27. "Bronchial Disease" (<u>Bronchialkrankheit</u>)	11%	28. "Water in Lungs" (<u>"Wasser in den Lungen"</u>)	7%
29. Lung Emphysema (<u>Lungenemphysem</u>)	6%	30. Bronchial Cancer (<u>Bronchialkrebs</u>)	6%
31. Goiter (<u>Kropf</u>)	6%	32. Nose (lumen) narrowing (<u>Nasenverengung</u>)	4%
33. Bronchial Asthma (<u>Bronchialasthma</u>)	4%	34. Lung Catarrh (<u>Lungenkatarrh</u>)	4%
35. Dust Lung (<u>Staublunge</u>)	4%	36. Dust Allergy (<u>Stauballergie</u>)	4%

(an additional 35 respiratory illnesses/conditions were mentioned by 1%-2%)

(Source of translation from German to English: Schöffler/Weis, 1973)

According to this quantitative analysis almost every woman mentioned cough (95%) and sniffles (93%). These respiratory illnesses were followed by pneumonia (86%) and a common cold (80%). Nearly two-thirds of the sample mentioned asthma (65%), "flu" (64%) and/or tuberculosis (62%). Whooping-cough and bronchitis were mentioned in 57% and 56% of the cases. Around half of the women mentioned tonsillitis (51%), lung cancer (48%) and frontal sinusitis (48%), which are followed by paranasal sinusitis (41%), earache/otitis media (35%), hay-fever

(28%) and diphtheria (27%). Less commonly mentioned respiratory illnesses are listed in table 1 and will not be repeated in the text.

When the informants were asked whether or not one could get these respiratory illnesses at any age, 78% have stated that one could get all of these illnesses in any age, whereas 22% of the sample listed one or more exceptions of illnesses which are related to specific age groups. Twenty to forty-four percent of the latter group claim that whooping cough is a childhood disease, whereas smoker's cough is an adult disease and lung emphysema, "water in the lungs", lung embolism and bronchial cancer are respiratory illnesses which are associated with old age.

Based on the hypothesis that people have the most distinct medical knowledge about the most common illnesses, all informants were asked to list the three most common respiratory illnesses within their household and to estimate their relative degree of severity. In case of different degrees of severity, informants were asked to rank them into a "least serious", "moderately serious" and "most serious". Table 2 (next page) lists the most common respiratory illnesses and their estimated severity.

Similar to the table 1, sniffles (75%) and cough (72%) were the most commonly mentioned respiratory illnesses among household members. Flu (36%) and a common cold (33%) follow on rank 3 and 4. The majority of the informants listed these illnesses in the following pattern: 1.) sniffles as the most common and least serious illness; 2.) Cough as the second most common and moderately serious illness and 3.) flu as the

least common but most severe illness of the common respiratory ones. Bronchitis, tonsillitis, sore throat, paranasal- or frontal sinusitis cover the ranks 5-9 with 21%, 16%, 10%, 6% and 5%, respectively. In terms of severity, frontal sinusitis seems to be even more serious than paranasal sinusitis. This might be due to the belief: "the more common a disease is the less harmful it is". According to the interviews and estimated degree of severity, a painful throat seems to be a milder form of or a prestage of tonsillitis. The percentages of 38% versus 62% seem to underline this statement. In case of bronchitis the opinions seem to be divided between 47% of the informants believing bronchitis to be the least serious disease and 35% estimating that bronchitis is the most serious disease. It could be that some women use the term "bronchitis" instead of "cough" to sound more sophisticated. The analysis of the next questions should give further answers.

Table 2: Identification and Estimation of Severity of the Most Common Respiratory Illnesses (MCRI)

<u>Illnesses</u>	Respondents least			moderately most	
	<u>#</u>	<u>%</u>	<u>serious</u>	<u>serious</u>	<u>serious</u>
1. Sniffles/Rhinitis	61	75	67 %	28 %	5 %
2. Cough	58	72	12 %	71 %	18 %
3. Flu	29	36	3 %	10 %	86 %
4. Common Cold	28	33	46 %	18 %	36 %
5. Bronchitis	17	21	47 %	18 %	35 %

6. Tonsillitis	13	16	23 %	15 %	66 %
7. Sore Throat	8	10	38 %	25 %	38 %
8. Paranasal Sinusitis	5	6	-	40 %	60 %
9. Frontal Sinusitis	4	5	-	25 %	75 %
10. Asthma	5	6	60 %	20 %	20 %
11. Hay-fever	3	4	33 %	67 %	-

Although only a small number of informants mentioned asthma, hay-fever, otitis media, hoarseness, smoker's cough or dust allergy as the most common respiratory illnesses within their household, it should be mentioned that all of them seem to be aware about the general distinction between chronic and acute illnesses. Chronic conditions like smoker's cough, dust allergy, asthma and hay-fever were in the majority of cases estimated as the least serious illnesses, whereas acute illnesses like otitis media or hoarseness were in all cases estimated as most serious respiratory illnesses.

In question number four informants were asked about the annual frequency and seasonality of the most common respiratory illnesses. In case the informant did never get sick with illness x, the illness frequency of the actual suffering family/household member was taken into account. Table 3 shows the incidence range, the mean and the adjusted mean (which removes the two highest data points of the incidence range).

Table 3: Incidence of MCRI

<u>Illnesses</u>	<u>Incidence Range</u>	<u>Mean</u>	<u>Adjusted Mean</u>
Sniffles (Sn)	0.3-10.0	2.1	1.8
Cough (Co)	0.5-4.0	1.4	1.3
Flu (Fl)	0.03-3.5	0.7	0.5
Common Cold (CC)	0.5-8.0	1.6	1.34
Sore Throat/Tonsillitis (ST)	0.25-8.0	2.0	1.5
Bronchitis (Br)	0.3-12.0	2.5	1.05
Paranasal/Frontal Sinusitis (Si)	0.3-12.0	2.5	1.1

According to the data, most informants suffer twice a year from sniffles and only once every two years from a flu, whereas the other respiratory illnesses occur between 1.05 and 1.5 times a year. The extremely high frequencies of the incidence range are primarily due to a small number of informants who have a household member with a chronic disorder like asthma, hay-fever or dust allergy; secondarily due to an higher occupational health risk involved in having to work with a huge number of toddlers; and thirdly due to the presurgical incidence rates in case of tonsillitis. Whereas the adjusted incidence rates and means reflect the illness frequencies of the majority of the sample, the non-adjusted give the possible illness frequencies and means of the whole sample.

Table 4: Seasonality of MCRI

<u>Season</u>	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
Winter	55%	49%	71%	62%	70%	35%	60%
Spring	18%	18%	8%	11%	3%	26%	10%
Summer	3%	6%	-	11%	17%	13%	-
Fall	24%	27%	21%	17%	10%	26%	30%
sum in percentage	100%	100%	100%	100%	100%	100%	100%

The table above shows that the majority of all informants suffers primarily during the winter time and secondarily during the fall from common respiratory illnesses like sniffles, cough, flu, common cold, sore throat/ tonsillitis, bronchitis and/or sinusitis. In terms of monthly distinctions, the months March and November or the turn from fall to winter (November-December) or from winter to spring (March-April) were most often mentioned. In contrast, hardly anyone suffers from a respiratory illness during the summer time.

In order to find out what kind of knowledge lay people have about the transmission of an infectious diseases all informants were asked whether they were the only person who got sick with one of the most common respiratory illnesses. In case of a "No-answer", informants were asked to list the usual consecutive order of the household members who got sick at the same time. The analysis showed that 52 informants (64%) claimed that they would not be the only sick person, whereas 29 (36%) claimed that they would be the only person within their household

affected by one of the most common respiratory illnesses. Depending on the household size, age of the family members, degree of employment outside the own household, and gender, several main patterns were mentioned. In case of a two-member-household spouses or unmarried couples infect each other. In case of parents with young children the typical illness sequence starts with the school- or kindergarten child infecting siblings and the mother before the father gets infected. In case of an employed adult son, the father and siblings seem to get infected before the mother gets infected by her husband. A sick employed adult daughter is likely to infect her mother (and siblings) before the illness gets passed on to the father. Although many lay people have only a vague idea about the contagiousness of an infectious disease and the mechanisms of its transmission, they are fully aware of a consecutive sequence and the family member who "catches" sniffles, cough, cold, and/or flu at school, kindergarten or at work and brings "it" home.

ETEOLOGICAL CONCEPTS

In order to investigate lay-people's eteological concepts, all informants were asked about causes of the most common respiratory illnesses. The 438 answers of 81 informants can be divided into 8 main groups. Table 5 shows on the right side the total number of answers per concept as well as the percentage of informants who mentioned one or more examples.

Table 5: MCRI and their Eteological Concepts

	#	%
1.) Causes which reduce the general or local body temperature	267	96%
2.) Infection by a sick person	88	85%
3.) Causes which increase the body temperature and are often followed by a reduction of the body temperature	45	56%
4.) Deficient body resistance	16	19%
5) Cold and/or wet weather	12	15%
6.) Mal- or undernutrition	5	6%
7.) Inhalation of dust or mold	4	5%
8.) Inherited disposition	4	5%

The most frequently mentioned etiological concept of respiratory illnesses consists of several mechanisms or situations which cause the reduction of the body temperature. The most popular example seems to be

getting cold by standing in a draught. Seventy-four percent of the whole sample claim that this condition can happen if two doors or windows are open and cold air wind will flow through the house. Other "risky" places exist outside the house at the house edges located parallel to the wind direction or between buildings where the wind blows through. Grandparents (or other relatives or good friends) tease their grown-up grand children when they suspect that for example a sore throat of a teenager has been caused by "standing last evening in a draught behind the house edge with her/his loved one". Draught, evening temperature plus leaning against a cold house wall would add up in getting cold. For the teasing part/joke it seems irrelevant whether or not the loved one had already a sore throat prior to the time spent in the draught and whether kissing might have been a way of getting infected. The main cause remains: to get cold.

Another way of getting cold is by walking from a warm or overheated house outside into the cold. This behavior is especially risky if the person has just washed her/his hair and walks outside or if the person is used to overheated inside-temperatures and walks outside without being properly dressed. Fifty-one percent of the informants claimed that one can get a common cold if one is not warmly enough dressed to withstand the coldness of the wind and/or outside-temperature. One third of the informants also claimed that one can get a common cold after being soaked by rain. Thirty-six percent of the informants said that one can easily get a cold by walking barefoot on

cold floor-stones, by running around in a wet bathing suit or by swimming too long in very cold water.

The body temperature can be reduced by exposing the whole body or part of the body to coldness and/or wetness. According to 40% of the sample, some parts of the body are more sensitive to the exposure to coldness than others. Hundred percent of them mentioned the feet, 50% the neck, 31% lower abdomen/bladder and kidneys, 28% head/ears, 13% the back, 9% the hands and 3% upper trunk and pulse. All of these body parts have a higher risk of being exposed to coldness, wetness or a combination of the two. In case of the feet, lower abdomen/bladder, kidneys, head/ears, hands, trunk and pulse 75-100% of the informants are concerned about getting cold, whereas in case of the neck and back 75% and 100% of the informants are more concerned about the combination of getting wet and cold. The feet seem to be the only body part which can become cold by getting wet. Because of the high frequency of which the feet were mentioned (100%) and the highest number of different causal mechanisms, it is safe to say that feet are regarded to be the most sensitive/vulnerable part of the body with regard to the exposure of coldness and/or wetness.

Another possible way to get sniffles, cough, a common cold, flu, bronchitis, sore throat/tonsillitis or sinusitis is by getting infected. Several women say that one can catch a cold by being sneezed or coughed at. Other commonly mentioned examples are: shaking hands with a sick person, waiting in a doctor's waiting room and breathing the same air as patients who have already a cold. Ten percent of the informants

mentioned that germs, viruses or bacteria can cause a cold. Nine percent claim that the "flu is a virus", which is in the air. Overall, the flu was more often associated with the causal mechanism of infection than a common cold, bronchitis, tonsillitis, cough or sniffles.

Common respiratory illnesses are also thought to be caused by an increase of the normal body temperature which is often followed by a reduction of the body temperature. Fifty-two percent of the sample claim that one could catch a cold after an exhausting physical activity due to sweating while standing in a draught/wind. Four percent of the informants claim that an overheated room or blowing heated air can dry out the mucous membranes of the nose and thereby cause a cold or other respiratory illnesses.

According to the data, the fourth cause for getting sniffles, cough, common cold, flu, bronchitis, sore throat/tonsillitis or sinusitis is by having a deficient body resistance. Nineteen percent of the informants claim that the normal body resistance can be weakened by deficient sleep, by working too much or too long, by being stressed/psychologically imbalanced, by taking the tonsils out, smoking too many cigarettes which will "burn off" the respiratory hair of the tracheal epithelial tissue, by having AIDS which can cause a life threatening cough (*Pneumocystis carini*) or by not nursing a baby. According to the informants one of these conditions is already enough to cause a common respiratory illness.

The fifth cause for a respiratory infection seems to be the cold-wet climate of northern Germany. Fourteen percent of the sample "blame"

the cold and/or wet weather for causing sniffles, cough, cold, flu, bronchitis as well as tonsillitis. According to one informant (1%) it is especially risky to be outside on foggy-cold days (November) because one could inhale germs. It seems that this informant tried to incorporate her ideas about germs into the climatic eteological concept, whereas all other informants of this group claim that a common respiratory illness can be caused by cold-wet weather.

Five informants (6%) pointed out that malnutrition or undernutrition can be the cause for a "lung disease". All of them had experienced food shortages and hunger during the end- and after the Second World War.

According to 5% of the sample (excluding the agents for asthma and hay-fever!) sniffles or a cough can be caused by the inhalation of dust or mold. Lifting straw bales into (up to) the barn attic with a pitch fork has been mentioned as one example to get a cough (or sniffles) because of dust. Turning old hay with a pitch fork raises often mold (which has formerly been attached to the wet side of the hay) is one example of how mold can cause a cough among farmers.

Five percent of the informants believe that an inherited disposition can be the cause for catching a cold because "their grandparents were also frequently suffering from a cold".

Due to the high number of different causes for a common respiratory illness, every informant was questioned whether all of these causes have to happen at the same time to get a cold or flu or whether standing in the draught/wind is enough to catch a cold or flu. An

overwhelming majority of 94% believes that standing in a draught/wind is enough to cause a cold or flu, whereas 4% claim that a deficient resistance of the body plus the reduction of the body temperature (getting cold) plus an infection have to come together to cause a cold or flu. The remaining informant (1%) claims that a psychological imbalance has to come together with an infection to cause a common cold or flu. None of the informants from Heitbek and only one out of two physicians from the neighbor village believe that an infectious respiratory disease can only be caused by getting infected by a virus or bacteria.

THE MAIN SYMPTOMS OF COMMON RESPIRATORY ILLNESSES

To find out what kind of illness concept lay people have when they talk about illnesses like sniffles, cough, common cold, flu, bronchitis, tonsillitis or sinusitis, all informants were asked to list all the symptoms one has, if one suffers from them.

Sniffles (Schnupfen)

From a lay peoples perspective the illness "sniffles" consists mainly of a "runny nose" (76%) and/or a "blocked nose" (61%), "headache" (70%), "feeling groggy" (44%) and of having "less or no appetite" (46%). Less common seem to be the symptoms of "difficulties in breathing through the nose" (27%), "having to blow ones nose"/to sneeze" (20%), "suffering from a general unwell feeling" (15%), "having pains in the limbs" (14%) "earache" (14%), "suffering from a red and inflamed area below the nose" (14%) or "feeling unmotivated" (12%).

Cough (Husten)

Fifty-eight informants (72%) described the illness "cough". From a lay people's perspective a cough is in 38% of these cases experienced as a dry cough, in 36% as a mucus-producing cough and in 22% as being dry in the beginning and as mucus producing in the end of a cough illness. Fifty-three percent of the cough-informants described the color of the mucus as either being "clear" (3%), "clear-white" (2%), "first clear and then yellow" (3%), "white" (5%), "white-yellow" (7%), "yellow" (21%) or "yellowgreen" (12%). However, from a lay-peoples perspective the illness

"cough" consists mainly of the symptom "cough" (100%) which is usually worst just after going to bed, "sore throat/scratching feeling within the throat" (45%), "less or no appetite" (47%) and of "being groggy" (33%). Less common symptoms seem to be "a slightly increased body temperature (21%) (only 3% mentioned a fever of 39 C - 39.8 C, "a painful thorax" (26%) or a "headache" (21%).

Common Cold (Erkältung)

Twenty-eight informants (=35% of the whole sample) described the main symptoms of a common cold. According to them a common cold consists of "sniffles" (100%), "cough" (89%), an "average fever of 38.5 C" (74%), "less or no appetite" (77%), "being tired / groggy" (77%), "suffering from a sore throat" (63%), "painful coughing" (48%), "headache" (44%) and/or "painful limbs" (41%). Due to the fever or dry throat 19% of the informants include "being thirsty" into their description of a common cold. A similar number of informants (22%) associate a "general unwell-feeling" with a common cold. All other symptoms were mentioned by only 3%-5% and can therefore not be considered as main symptoms of a common cold.

Flu/Influenza (Grippe)

According to 29 informants (36% of the whole sample), a flu is a more severe respiratory illness than a common cold. From a lay-people's perspective the main symptoms of a flu are: "a fever with an average of 39.2 C" (97%) instead of a "slightly increased temperature", "no appetite" (97%) instead of mainly "less appetite", "painful limbs" (90% instead of 41%), "being tired" (86%) instead of "being tired or groggy",

suffering from "sniffles" (72%), "cough" (69%) and/or "headache" (55%). Less common symptoms seem to be "painful thorax"(24%), "sore throat" (24%), "being thirsty" (24%) and/or "being weak" (21)%, "earache" (17%), "general unwell feeling" (17%) and/or a "headache"(16%).

Bronchitis (Bronchitis)

Bronchitis is considered to be also one of the more severe illnesses which is in 17 cases (21% of the whole sample) one of the three most common respiratory illnesses. According to this sample of lay-people the main symptoms of bronchitis consist of a "cough" (100%) which is a mucus producing cough or a dry cough which later often turns into a productive cough. Characteristic for bronchitis seems to be that the cough is worst during the night. Seventy-one percent of the informants experience cough-attacks which cause breast-, lung-, bronchial-, abdominal pain, a "shooting pain where the ribs come together"(epigastric angle) and/or lactated abdominal muscle pain due to high frequencies of coughing/cough-attacks. In addition to "painful coughing attacks", 71% suffer from "fever" ranging from slightly increased (38.0 C) to a very high (39.5 - 41.0 C). Two-thirds of the informants suffer from "breathing difficulties, especially during inhalation" (65%). Fifty-nine percent of the sample describe the sound of the cough (breathing?) as a "rattling sound" (18%), a "barking sound" (12%), "gargling sound" (12%), as a "whistling inhalation" (12%), "hollow" (6%) or as a "severe and rough" (6%) coughing sound. In addition to these symptoms 65% of the informants suffer from "being tired" and from "no or less appetite" (59%). Less common symptoms seem

to be "headache" (29%), "painful limbs" (24%), "sore throat" (29%), "headache" (24%), "painful limbs" (18%) and/or "being thirsty" (18%).

Tonsillitis/Sore Throat (Mandelentzündung/Halsschmerzen)

The analysis of 8 cases of "sore throat" and 13 cases of "tonsillitis" shows that some informants use the term "sore throat" synonymously with the term "tonsillitis", whereas others seem to describe the initial phase of "tonsillitis" when they use the illness term "sore throat". Because of this overlap I will treat these two illness terms as one group, consisting of 21 informants (26% of the whole sample). According to the data the main symptoms of sore throat/tonsillitis consist of "painful tonsils" (90%), "no appetite" (71%), "swallowing difficulties" (67%), "being tired/groggy" (66%) and/or "having swollen tonsils" (43%).

Paranasal- and Frontal Sinusitis

(Nasennebenhöhlenentzündung/Stirnhöhlenentzündung)

(Nasennebenhöhlenvereiterung/Stirnhöhlenvereiterung)

Nine informants (11% of the whole sample) described the main symptoms of a paranasal or frontal sinusitis. The German terms for sinusitis include already the main symptoms (inflammation or suppuration) and the precise area which is mostly effected (paranasal or frontal sinus). However, according to the informants the main symptoms of a paranasal or frontal sinusitis are: "(frontal) headache" (73%), "a blocked nose" (64%), "difficulties in breathing through the nose" (55%), "less or no appetite" (55%) and/or a "pressure sensitivity/pain at the forehead or eyes" (36%).

Table 6: Summary of the Main Symptoms of MCRI

<u>Sniffles</u>		<u>Cough</u>	
		dry	38%
1. runny nose	76%	1. cough mucus producing	36%
2. headache	70%	1. dry , 2. mucus	26%
3. blocked nose	61%	2. less (or no) appetite	47%
4. less (or no) appetite	46%	3. sore throat	45%
5. feeling groggy	44%	4. feeling groggy	33%
		5. painful thorax	26%
 <u>Common Cold</u>		 <u>Flu/Influenza</u>	
1. sniffles	100%	1. fever (average 39.2 C)	97%
2. cough	89%	2. no appetite	97%
3. no appetite	77%	3. painful limbs	90%
4. being tired/groggy	77%	4. being tired	86%
5. increased temperatur	74%	5. sniffles	72%
6. sore throat	63%	6. cough	69%
7. headache	44%	7. headache	55%
8. painful limbs	41%	8. painful thorax/lungs	28%
9. painful coughing	40%		

Bronchitis

1. cough	100%
2. painful cough attack	72%
3. increased - high fever	71%
4. breathing difficulty	65%
5. being tired	65%
6. no appetite	59%

Tonsillitis/Sore Throat

1. sore throat	86%
2. no appetite	68%
3. swallowing difficulties	64%
4. increased temp. (ø 38.7 C)	64%
5. being tired/not fit	59%
6. swollen tonsils	41%
7. hoarseness	41%

Paranasal-/Frontal Sinusitis

1. (frontal) headache	73%
2. blocked nose	64%
3. breathing difficulties	55%
4. less (no) appetite	55%
5. pressure pain on forehead	36%

ILLNESS-CHANGES

Can a respiratory illness turn into another one?

When the informants were asked whether it is possible that a respiratory illness can turn/change into another one, all 81 informants agreed and gave on average three to four examples which add up to 297 examples and 73 different types of illness changes. Table 7 shows that sniffles can change into 14 different illnesses, cough into 11, common cold (combination of sniffles and cough) into 13, influenza into 6, bronchitis into 5, tonsillitis/sore throat into 4, pneumonia into 2 and earache and all the changes listed under "others" can change into one or two different illnesses. The total number (#) of informants mentioning a particular illness change is listed behind every illness change. In case of the most commonly mentioned respiratory illnesses of sniffles, cough, common cold, flu and bronchitis, the total number of changes is also converted into percentages. The sign "-" on the right side of some illness changes (e.g. behind the change from sniffles to frontal sinusitis) indicates that once an illness has changed to for example frontal sinusitis, it cannot get worse anymore, because it reached a place where it cannot spread further (e.g. a cavity), becomes chronic or seems to be already such a severe illness that it might lead to a disability (i.e. deafness) or to death. The location of initial illnesses depends on the frequency and/or severity of the final illness in which they can turn to. The mildest and/or most frequently mentioned

illnesses are listed at the top of the page, whereas the most severe and/or rarely mentioned illness changes are listed at the bottom of the page. Not surprisingly, the latter group has the highest number of "dead-end" signs (-). Instead of analyzing the group of severe illnesses which most of the lay-people have never experienced, I will only analyze the illness-changes of the most common respiratory illnesses within this study.

According to the data the most common illness (sniffles) can change to 1.) frontal sinusitis (34%), 2.) paranasal sinusitis (22%), 3.) cough (19%) and 4.) to otitis media (7%). In every case the second illness is more severe than sniffles or causes and causes additional or different major symptoms in another area, which is connected to the nose. All informants of this sample believe that the sinuses are connected to the nose. In case of the change to cough, the main location of sniffles changes from the symptoms "headache" and "runny nose" to a "sore throat" and "cough", from the upper- to the medium part of the respiratory tract. In case of the change from sniffles to otitis media, most of the informants seem to be a bit puzzled by the anatomy on one side and the experienced symptoms on the other side. With regard to the anatomy all informants know that there cannot be a direct connection between the respiratory tract and the ears because "one cannot breathe through the ears". However, they know that one can get earache or otitis media during or after they have had sniffles.

Table 7: Illness-Changes			Legend	
Sniffles →	#	%	-	= illness does not change
frontal sinusitis	31	34	#	= number of informants
paranasal sinusitis	20	22	%	= percentage of informants who mentioned initial illness
cough	17	19		
otitis media	6	7		
influenza	5	6		
"bronchial illness"	2	2		
common cold	1	1		
bronchitis	1	1		
sore throat	1	1		
pneumonia	1	1		
earache	1	1		
tonsillitis	1	1		
hay fever	1	1		
chronic sniffles	1	1		
Cough →			#	%
bronchitis	31	37		
pneumonia	23	27		
sniffles	9	11		
whooping cough	7	8	-	
chronic bronchitis	5	6		
influenza	3	4		
chronic cough	2	2	-	
smoker's cough	1	1		
otitis media	1	1		
TB	1	1	-	
pleuricy	1	1		
Bronchitis →			#	%
pneumonia	16	62		
allergy/asthma	4	15		
chronic bronch.	3	12	-	
pleuricy	2	7		
lung emphysema	1	4	-	
Pneumonia →			#	
pleuricy	1			
exudative pleuricy	1		-	
Others:			#	
Thrombosis →				
lung embolism	1		-	
Pleuricy →				
TB	1		-	
Asthma →				
pneumonia	1		-	
suffocation	1		-	
Measles →				
meningitis	1		-	
AIDS →				
life threatening				
cough	1		-	
Smoker's Cough →				
lung cancer	4		-	
Chronic Bronch. →				
lung cancer	1		-	
Sore Throat →	#			
scarlet fever	1		-	
tonsillitis	1			
common cold	1			
earache	1			
Earache →			#	
otitis media	3			
Common Cold →			#	%
pneumonia	22	47		
influenza	10	21		
bronchitis	4	9		
frontal sinusitis	2	4	-	
pleuricy	2	4		
measles	1	2		
earache	1	2		
otitis media	1	2		
ear inflammation	1	2		
bronchial catarrh	1	2	-	
diphtheria	1	2	-	
tonsillitis	1	2		
chronic cold	1	2		
Influenza →			#	%
pneumonia	11	65		
bronchitis	2	12		
"lung mucusation"	1	6	-	
pleuricy	1	6		
common cold	1	6		
stomach oversensitivity	1	6		
Tonsillitis →			#	
angina	2		-	
myocarditis	2		-	
bronchitis	1		-	
meningitis	1		-	
Chronic Cold →				
lung cancer	1		-	
Operation →				
lung embolism	1		-	
Allergy →				
cough	1		-	
bronchitis	1		-	
Otitis Media →				
deafness	1		-	

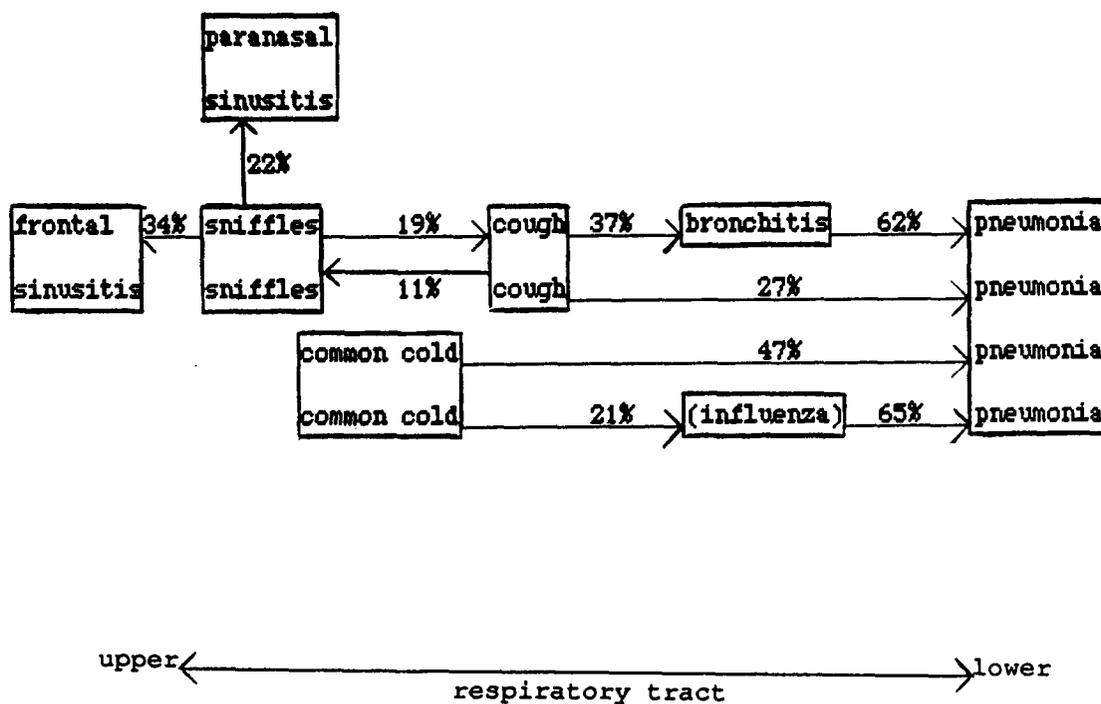
The most commonly listed changes for a cough are: 1.) bronchitis (37%), 2.) pneumonia (27%) and 3.) sniffles (11%). According to the lay-people, the change from cough to bronchitis seems to involve a symptomatic change from a simple "non-painful cough" and a "sore throat" to "painful coughing attacks" effecting the bronchial-, lung-, breast-, abdominal area as well as an increase of the blood temperature which effects the whole body. The change from a cough to pneumonia seems to involve a location change from the medium- to the lower part of the respiratory tract, because the main symptoms change from a "sore throat" to an "inflammation of the lungs" (Lungenentzündung). The facts that cough can change to bronchitis (37%) and bronchitis can change to pneumonia (62%) seem to give evidence that the change from cough to pneumonia is a more severe one than the change from cough to bronchitis. The illness change from cough to sniffles (11%) is less common than vice versa (19%). However, it involves a location change from the medium to the upper respiratory tract and a possible symptomatic change from a "sore throat" to a "runny nose".

A common cold, a combination of sniffles and cough, changes primarily to pneumonia (47%) and secondarily to influenza (21%). In the former case the illness changes from an upper/medium- to a lower respiratory illness; in the latter case from an upper/medium respiratory- to an illness which effects the whole body due to its main symptoms of high fever and painful limbs.

The primary and most important change of influenza is the one to pneumonia (65%). Because common cold, bronchitis and influenza can,

according to the lay-people, turn into pneumonia, and the fact that informants described in 99% of the cases changes from milder to more severe illnesses, it can be deduced that the symptoms of pneumonia are more severe than the symptoms of the "initial" illnesses. The following figure (figure 2) illustrates the main illness-changes:

Figure 2: Main Illness-Changes



TREATMENT DECISIONS

The analysis of the question: "Who decides in your family/household about the type of treatment a sick person gets?" shows that this responsible role depends largely on the variable whether or not the informant has children and to a lesser degree on the fulltime employment of the informant. The tree diagram (figure 3) illustrates the results.

Figure 3: Treatment-Decisions within Households

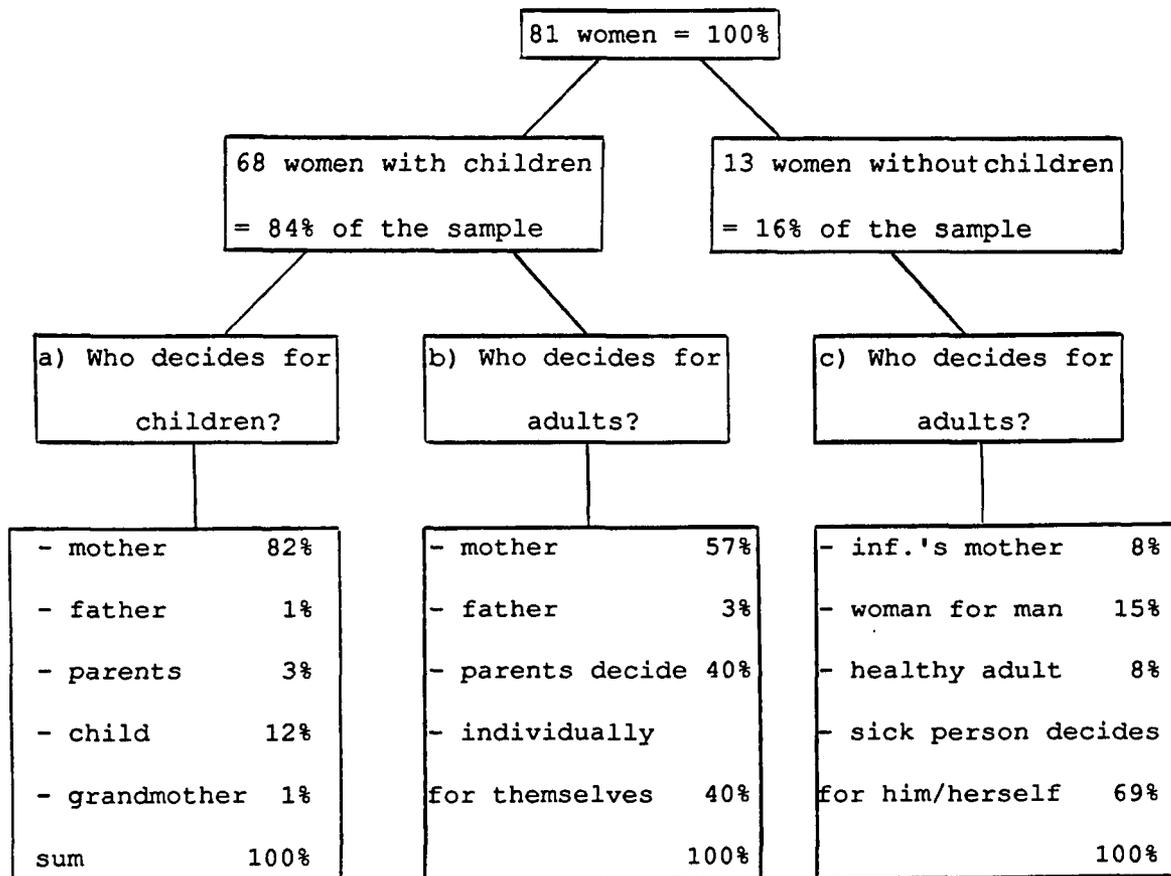


Figure 3 separates informants with children (84%) from informants without children (16%). In case of the informants with children, the mother decides in 82% of these households about the type of treatment a sick child gets, whereas adult children (age > 18) decide upon themselves. In very rare cases the father or both parents are responsible for the health-care decisions for their children. Although only one informant said that the grandmother (her mother in law) decides upon the treatment of the (grand) children, the role of the grandmothers within a three-generation household of for example farmers should not be underestimated. Traditionally, young inexperienced mothers have often been influenced by the medical knowledge and experience of their mothers in law (grandmother of the household) and have depended on their decisions and care when the mothers had/have to work outside of the house. Naturally the influence and assistance of the grandmother decreases over time. The older the grandmother and the grandchildren get, the less help the grandmother can offer and the less help the grandchildren need. However, with regard to the whole sample, the mothers are primarily responsible for the decisions upon the type of treatment for their children (82%) as well as for their husbands or other adult household members (57%). These numbers are followed by 40% of the households where parents or grandparents decide for themselves. Only in 3% of the cases the father decides what kind of treatment his wife should get.

Among the childless informants 69% of the informants said that the sick adult decides by him/herself upon the type of treatment, whereas 8%

said that the healthy adult would decide for the sick one. Fifteen percent of the informants claim that the woman decides for her husband or boy-friend upon the type of treatment. In the remaining cases (8%) the informant's mother decides upon the type of treatment she gets.

Women do not only play the most important role for the decision upon the type of treatment a sick household member receives, they are also in almost all cases (89%) the persons who are actually treating/taking care of sick (or disabled) household members. When the informants were asked who would take care of a sick household member, 81% of the whole sample said that the mother is taking care of a sick person, 4% said that the daughter in law takes care and 2% said that the grandmother takes care of a sick household member. The healthy partner is in 9% of the cases taking care of the sick partner. Only in one case (1%) both parents share the responsibility and burden to take care of a sick household member. The remaining informant (1%) takes care of herself when sick.

Due to the high prevalence of "mother" answers all informants were also asked who would take care of a sick person if the main health care provider (the mother) would be sick. Forty percent of the whole sample said that they still have a mother or mother in law who is living in the same house or in the vicinity of Heitbek and is young enough to come and take care of the informant and her family. Seventeen percent of the informants said that their husbands are taking care of them, whereas 14% said that they would have to take care of themselves as well as for another family member who is sick. Nine percent of the informants stated

that their adult daughter or daughter in law would come to take care of them and 9% said that their female neighbors would come over to take care of them if needed. 5% stated that all other household members would take care of them (the sick informant), whereas 4% said that their children would share the responsibility to take care of their sick mother and/or other sick household members. Only in 1% of the cases the husband would take care of sick family members. The remaining woman (1%) would drive home so that her mother could take care of her.

In sum, in case of an emergency (when the normal health care provider of a household and possibly a second household member e.g. a child are sick) the health care would in 77% of the cases still be provided by an adult woman. The difference between the primary and the secondary/emergency health care provider is that most of the primary ones are younger women (usually mothers) whereas the emergency health care providers are older but more experienced women who are above 55 years old and enjoy a latent source of manpower.

TREATMENTS

In order to investigate how women treat the most common respiratory illnesses within their household, all informants were questioned about a) the degree of physical activity, b) dressing habits, c) eating and d) drinking patterns as well as e) specific treatments for the most common respiratory illnesses.

a) Degree of Physical Activity

The following table shows to what extent the most common respiratory illnesses are effecting a sick person's level of physical activity.

Table 8: MCRI and Degree of Physical Activity

	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
work normally	90%	84%	-	32%	33%	18%	22%
work less/not so hard	7%	14%	17%	46%	38%	35%	56%
don't work/stay home	3%	2%	10%	7%	14%	-	22%
stay in bed/couch	-	-	41%	114%	14%	47%	-
sleep a lot	-	-	32%	-	-	-	-
sum in percent	100%	100%	100%	99%	99%	100%	100%

In case of sniffles, the overwhelming majority of informants (90%) continues to work as usual. Only less than 7% of the informants work less than usual and 3% stay at home. Most of the latter two groups of women are either retired or suffering from additional chronic disorders like hay-fever or asthma.

Cough seems to affect the physical strength a little bit more than sniffles. Two percent of the informants stay at home and 14% try not to work so hard at home, but continue to work as usual in case of an (part-time) employment outside the own household. A large majority of informants (84%) do not change their work habits.

In contrast to cough and sniffles, influenza restricts all informants from continuing their normal physical activities. Eighty-three percent of the informants stay at home, 41% stay in bed or on the couch and 32% sleep also a lot during the day to get healthy again. An unfortunate group of 17% tries to work as little as possible, but are unable to rest completely because they have to take care of small children and/or live stock.

In case of a common cold the majority of the informants are working as usual (32%) or less than usual by decreasing the length of their working schedule or by postponing unnecessary physical activities. The remaining 21% of the sample who suffer from a "bad cold" are staying at home to give their body a rest.

One third of the informants suffering from a sore throat or tonsillitis continue their normal working habits, whereas 38% try to reduce their physical activities by decreasing the length or intensity

of their work. The remaining 28% seem to suffer from more severe symptoms and therefore stay at home (14%) or in bed (14%). It is noteworthy that all of the informants who stay at home because of a sore throat or tonsillitis have a full-time employment which ensures them their full income during a sick-leave.

Bronchitis seems to divide lay-people into two different groups: 53% of the informants continue more or less their normal work, whereas 47% stay in bed. It would be an error to assume that all women from the latter group are suffering from more severe symptoms. In fact the latter group consists of 18% young mothers/women who seem to be overly concerned about a cough and a slight increase in temperature (38.0 C), whereas the other 39% are older and more experienced mothers who suffer from painful coughing attacks and severe high fever of 40.0 C when they stay in bed because of a bronchitis.

A paranasal or frontal sinusitis seems to have no effect (22%) or a small effect (56%) on the physical strength of the informants. The remaining 22% of the informants discontinue to work full-time by taking a sick-leave to be able to stay at home.

b) Dressing Habits

The table below shows to what extent informants are changing their dressing habits when they suffer from sniffles, cough, flu, common cold, sore throat/tonsillitis, bronchitis or sinusitis.

Table 9: MCRI and Dressing Habits

	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
dress normally	28%	33%	45%	18%	19%	24%	56%
dress differently	72%	67%	55%	82%	81%	76%	44%
sum in percent	100%	100%	100%	100%	100%	100%	100%
examples:							
dress warm(er)	66%	72%	75%	57%	35%	77%	100%
wear woolen shawl	30%	33%	31%	57%	71%	15%	-
woolen sweater	14%	13%	13%	4%	-	31%	25%
woolen socks	2%	6%	-	4%	12%	-	-

The analysis of the results presented in the preceding table shows beyond doubt that the majority (67%-81%) of all informants suffering from sniffles, cough, common cold, sore throat/tonsillitis or bronchitis dress differently once they are sick. In case of flu and sinusitis the informants seem to be divided into two groups: one half claims to dress differently (usually warmer) whereas the other half claims that they dress adequately warm depending on whether they go outside or stay in bed. In all cases the informants seem to be more afraid of getting too cold than too warm. In order to prevent themselves from getting too cold or treat themselves after getting too cold, woolen shawls, -sweaters, ski-caps, rheuma underwear, extra panty hose, woolen socks and/or woolen underwear are worn. These items are often hand-knitted and have to be ideally made out of 100% natural sheep wool to keep especially the head, neck, breast, kidneys and feet warm and to ensure that in case of

sweating the sweat can be directly absorbed. Traditionally, pure wool has been and is used for treatment as well as prevention of being/getting cold.

In case of a sore throat/tonsillitis, 81% of the informants dress differently; 35% would dress warmer, 71% would wear a shawl around the affected area (the neck), and 12% would wear woolen socks to protect their feet from getting cold (again) or to ensure that the feet get warm after getting cold causing the sore throat. In the latter case it seems that informants are trying to neutralize the effect of having cold feet by warming up the area where the sore throat/tonsillitis "entered" the body. Hence, the curing concept seems to be more complex. In case of a sore throat, which is the major symptom of tonsillitis (86%), the third major symptom of a cough (45%) and the sixth major symptom of a common cold (63%), the same woolen socks are, after warming up the feet in 12% of the "sore throat-cases" (6% of the cough-cases and 4% of the common cold cases), worn around the neck to cure the sore throat. From this point of view it seems that the illness of a sore throat/tonsillitis can be cured by treating 1.) the area where the illness "entered" the body (the feet) and 2.) the area where it effected the body (the neck) to restore a displaced body balance. Because of the high prevalence of the eteological concept that sore throats/tonsillitis can be caused by getting cold and/or wet feet, the prevalence to dress differently (81%) by wearing a woolen shawl (71%) and/or woolen socks (12%) around the neck, and the traditional as well as contemporary ideal to wear 100% wool, it is likely that the custom to wear a woolen shawl in case of a

Type:

eat usual type of food	66%	67%	21%	29%	62%	35%	44%
eat different food	34%	33%	79%	71%	38%	65%	56%
sum in percent	100%	100%	100%	100%	100%	100%	100%

examples:

eat more fruits (+vegetables)	15%	12%	21%	18%	5%	24%	22%
eat lighter foods	8%	9%	48%	32%	24%	41%	11%

In case of a common cold or bronchitis the drop in food intake is around 10% less and the change to lighter foods is 7-16% less frequent than in case of flu. In case of a sore throat/tonsillitis the reduction of food intake is in many cases due to swallowing difficulties. According to subject # 77, swallowing is especially painful in case of "Vollkornbrötchen" or other coarse grained rolls or breads. In case of a sore throat several informants cook an elderberry-soup or apple-soup and/or eat lots of honey on a fine grained wheat-bread, whereas informants with sinusitis are likely to eat more oranges. Despite the common knowledge that oranges and other citrus-fruits have a high content of Vitamin C, most rural people buy them only when someone is sick or during the Christmas season when no fruits grow in their own gardens and citrus-fruits are most affordable.

d) Drinking-Patterns

The following table shows to what extent informants are changing the amount and type of drinks once they suffer from one of the most common respiratory illnesses.

Table 11: MCRI and Drinking Patterns

Quantity:	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
drink normal amount	57%	57%	21%	21%	29%	29%	67%
drink less than normal	8%	9%	10%	7%	14%	6%	-
drink more than normal	34%	34%	69%	71%	57%	65%	33%
sum in percent	99%	100%	100%	99%	100%	100%	100%
Type:							
drink usual drinks	18%	2%	10%	4%	5%	6%	33%
drink something else	82%	98%	90%	96%	95%	94%	67%
sum in percent	100%	100%	100%	100%	100%	100%	100%

Table 11 shows that more than half of the informants continue to drink their normal amount of liquids in case of sniffles, cough and sinusitis, whereas more than two-thirds increase their liquid intake once they suffer from flu, common cold, bronchitis and/or to a lesser extent in case of sore throat/tonsillitis. In addition to the increase of the liquid intake, almost all informants change the type of liquids once they suffer from cough, common cold, sore throat/tonsillitis, bronchitis and flu.

A comparison between the amount and type of liquid intake indicates (especially in case of sniffles and cough) that informants change the type of drink before they increase the amount of liquid intake. A further comparison between the eating and drinking patterns shows that informants (lay-people) change both patterns in the most radical way in case of influenza, a "bad cold" or bronchitis. Almost all

informants eat (much) less than normal, more than two-thirds eat a different type of food, increase the liquid intake and almost all informants change the type of liquid intake to treat these respiratory illnesses. The combination of these factors plus the degree of the reduction of physical activities are likely to determine the severity and intensity in which a particular illness is treated. Due to the general reduction of food intake and the high prevalence of an increased liquid intake as well as the radical change of the type of liquid intake, I will investigate the effectiveness of therapeutical drinks in the following section.

e) Specific Treatments: Therapeutical Drinks

Table 12 gives a full list of hot and cold therapeutical drinks which are given to people who suffer from common respiratory illnesses. Commonly consumed drinks like hot coffee, (sometimes black tea), cold milk, milk with cacao, fruit juices, mineral water, cold beer or-wine are excluded. The calculation of the percentages is based on the total number of informants who suffer from a particular respiratory illness and change the type of liquid intake.

A comparison between the total number of hot versus cold drinks shows that the most common respiratory illnesses are treated by serving almost exclusively hot drinks. According to the interviews, cough is treated with 28 different drinks, common cold with 25, sniffles with 20, flu with 19, sore throat/tonsillitis with 15, bronchitis with 14 and sinusitis only with 4 different drinks. This rank-order suggests that

Table 12: MCRI and Therapeutical Drinks

<u>Hot Drinks</u>	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
milk and honey	26	47	30	48	30	2	-
milk+ honey + piece of butter	6	7	8	-	-	-	-
milk + cacao	-	2	-	-	-	6	-
elderberry-grog	44	56	54	67	40	38	17
elderberry-grog + dash of rum	8	12	15	7	10	13	-
elderberry-grog + lemon	2	-	8	7	-	6	-
elderberry blossom tea	4	5	4	7	5	-	-
fresh lemon juice+water+honey	30	39	42	44	40	38	33
peppermint-tea (+lemon)	22	21	23	30	15	31	-
camomile-tea (+honey)	34	30	4	26	30	25	-
lime-blossom-tea (+honey)	2	5	-	4	5	-	-
fennel-tea (+honey)	4	7	12	7	5	13	-
bronchial-tea (+honey)	-	9	8	11	-	13	-
dog-rose-tea (<u>Hagebutte</u>)	6	2	8	-	-	-	-
nettle-tea	-	2	-	4	-	6	-
advents-tea (clover,coltsf.)	2	2	-	4	-	-	-
sage-tea (<u>Salbei</u>)	-	-	-	4	-	-	-
ribwort-tea (<u>Spitzwegrich</u>)	-	2	-	-	-	-	-
wormwood-tea (<u>Wermut</u>)	-	2	-	-	-	-	-
mauve-tea (<u>Malve</u>)	2	-	-	4	-	-	-
fruit-tea+lemon (for children)	6	7	4	4	10	6	-
yarrow-tea (<u>Schafgarbe</u>)	-	2	-	4	-	-	-
Irish-moss-tea	-	-	4	4	-	-	-

camomile-tea+drop of JHP oil	-	-	-	4	-	-	-
beef-broth	2	5	-	4	5	13	-
chicken-broth	2	-	-	-	-	-	-
" <u>Glühwein</u> "	6	5	-	-	10	-	-
" <u>Eisbrecher</u> "	2	3	8	4	-	-	-
redwine+1 egg yolk	-	2	-	-	-	-	-
"my husband drinks" rum-grog	-	3	15	7	-	-	-
"my husband drinks a hot beer"	-	2	-	11	5	-	-

<u>Cold Drinks</u>	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
elderberry-juice	-	-	4	-	-	-	-
cherry-juice	-	-	7	-	-	-	-
fresh orange-juice	8	7	12	22	10	6	17
lemon-juice+water	-	-	-	4	-	-	-
fennel-honey-juice	-	2	-	-	5	-	-
anise-juice	-	2	-	-	-	-	-
number of diff. cold drinks	1	3	3	2	2	1	1
sum (hot and cold drinks)	20	28	19	25	15	14	4

lay-people have the most extensive knowledge and probably experience in treating a cough or a common cold by serving different types of hot drinks, whereas the least extensive knowledge or positive healing experience might exist in case of sinusitis. However, from a lay-people's perspective all of these common respiratory illnesses are primarily caused by getting cold and therefore treated by serving a hot

drink to warm up (or overheat) the "cold" person to become healthy again.

Hence, it is not only the hot temperature of a drink but almost always the combination of drinking a hot drink with pharmaceutical ingredients which are fully or partially effective in curing the main symptoms of a cough or common cold or other respiratory illnesses.

In case of sniffles, the primary home-remedy seems to be elderberrygrog, a hot drink which contains 1/3 of homemade elderberry concentrate plus 2/3 of boiling water. Whereas 44% of the informants drink plain elderberry-grog, an additional group of 8% add a dash of rum and 2% a dash of lemon-Juice to the grog. In sum, elderberry-grog is used by more than 50% of the informants during a sniffles episode.

The second most common home-remedy against sniffles seems to be camomile-tea (34%), the third most common drink is a hot lemon juice drink (30%) which consists of 1/3 freshly pressed lemon juice plus 2/3 of boiling water and a spoon full of honey. On rank four and five are the home remedies of hot milk with honey (26%) and peppermint-tea (22%). All teas are usually sweetened with natural honey, alternatively with sugar or candies. In case of hot milk with honey, an additional group of 8% is adding a piece of butter to enrich the "honey-milk". Less commonly used are teas made out of elderberry blossoms, lime blossoms, fennel, dog-rose, mauves, fruits, yarrow, broths, hot red wine with spices, red wine + rum-grog or advents-tea. Whereas most of the herbal teas have a positive pharmaceutical effect on sniffles, all alcoholic drinks are

given "to sweat out the cold" once the sick person has taken a hot bath and is ready to go to bed.

Elderberry-grog is not only the primary and most frequently used home-remedy against sniffles (54%) or a sore throat (50%), it is even more frequently used against cough (68%), flu (77%), common cold (81%) and bronchitis (57%). If one adds the consumption of elderberry-blossom tea and elderberry-soup, elderberries are used by 64% of the informants to treat sniffles, by 77% to treat cough, 89% to treat flu, 88% to treat a common cold, by 60% to treat sore throat/tonsillitis and by 57% of the informants to treat bronchitis. Why do lay-people (as well as some health professionals) prescribe elderberries? If one asks rural people why they use elderberries, the most common answers are: "we have always used them against coughs and colds", "elderberry-grog warms one up", "elderberries make you sweat" or "my grandmother has already used them to prevent or treat colds". Usually their medical knowledge is based on a very old empirical practise, a knowledge which has been passed down from one generation to the next. Despite the increasing availability of "cough-medicines" in pharmacies, many rural women are still picking the elderberries or blossoms which are often growing behind their houses, agricultural buildings or along the dirt roads between the fields. Older people (still) feel reluctant to cut down the 3 - 7 meter high elderberry-trees or bushes around their property although they are probably not anymore aware the traditional belief that elderberry plants used to provide the domicile for the gods who are protecting their houses. This superstition has disappeared but the proven value of

elderberries as an effective medicine against respiratory infections remains (Pahlow, 1989:173).

The second most commonly used therapeutical drink is made out of 1/3 freshly pressed lemon juice plus 2/3 boiling water plus honey or sugar to sweeten it. Thirty to forty-four percent of the informants prepare this vitamin C containing lemon drink when a household member suffers from a common respiratory illness. Coughs and common colds seem to be the only exceptions where hot milk with honey is more frequently served (56%, 48%) than the hot lemon drink.

Peppermint tea is most frequently prepared in case of bronchitis (31%) or a common cold (30%). Unlike elderberry-grog and hot milk with honey, peppermint tea has no pharmaceutical ingredients which cure respiratory symptoms. Instead, it is a good tasting tea which can by itself or in combination with camomile effectively be used against gastrointestinal disorders like vomiting and nausea (Pahlow, 1989:259).

Camomile tea (plus honey) is given to 30-34% of the family members/ informants suffering from sniffles, cough or a sore throat, in 25-26% to people suffering from bronchitis or a common cold. Although camomile-tea is an effective antiphlogisticum, it has only a minor effect in curing a sore throat if it is drunken as a tea. In case of gargling, camomile-tea could effectively be used against a sore throat. However, with regard to most common respiratory illnesses the most effective therapeutical application of camomile would be the inhalation of camomile vapor (Pahlow,1989:189). The popularity of a camomile steam

bath is probably one reason why many informants also use camomile tea in case of a respiratory illness.

Fennel-tea (with honey) seems to be primarily used in case of bronchitis (13%), secondarily in case of influenza (12%) and thirdly in case of cough and common cold (7%). Its primary use against bronchitis and other cough related illnesses is not surprising if one considers that fennel is one of the most effective herbs against cough because it contains up to 6% ethereal oils and 50-70% of sweet tasting trans-anethol and fenchon. Due to its sputum-solving effect and its sweetness, fennel is one of the most common ingredients of cough medicines for children as well as for adults (Pahlow, 1989:136).

Bronchial tea (with honey) contains fennel, coltsfoot, lime blossoms, ribwort and/or other pharmaceutical effective drugs against colds, bronchitis and other cough related illnesses (Pahlow, 1989:136, 176, 222, 316). Informants use this tea mixture primarily in case of bronchitis (13%), secondarily against a common cold (11%) and thirdly against cough (9%). The non-use of bronchial tea against sniffles, sore throat and sinusitis indicates that the users of self-prescribed bronchial tea are likely to follow the medical instructions of the tea-box. However, the fact that most informants sweeten bronchial tea by adding honey instead of sugar might indicate that informants trust the effectiveness of "supermarket-bronchial-tea" more if they add the proven home remedy of local honey instead of refined sugar to the tea.

Lime blossom tea (with honey) is only used by 5% of the informants to treat a cough or sore throat/tonsillitis, by 4% to treat a common

cold and by 2% of the informants to treat sniffles. All these respiratory illnesses are considered to be caused by getting cold. According to Pahlow lime-blossoms have also an immune-system-activating ability which can even be increased by the combined intake of aspirin and lime-blossom-tea (Pahlow, 1989:223).

The other herbal teas are used by 2%-7% (10%) of the informants to cure cough-related illnesses. All of them have different pharmaceutical effects. For example, dog-rose tea has a high content of vitamin C and other vitamins (A, B1, B2, K, P) which are essential for an effective treatments of wounds and infections (Pahlow,1989:153). Nettle tea contains acetylcholine, histamine, formic acid, vitamins and minerals which increase the body's metabolism and has no specific effect on respiratory infections. Advents-tea contains a mixture of cloves, orange pieces, lemon peel and has due to clove a disinfectant effect on pharyngeal infections (Pahlow, 1989:413). Sage is is used as a spice as well as a drug. It contains etherical oils (tannin) which have also a disinfectant effect on pharyngeal inflammations (Pahlow, 1989:277). Ribwort-tea is an excellent drug against cough due to its antibiotic effect, whereas wormwood-tea has only an indirect effect on colds by reducing the illness length due to its appetite stimulating effect (Pahlow,1989:316,357). Mallow contains a small amount of etherical oil and tannin and has a desensitizing effect on cough (Pahlow, 1989:233). A fruit-tea (with lemon) is a mixture of different dried fruits like apple, blackberries and/or other fruits which contain different types and degrees of vitamins and other ingredients which are supposedly good

for respiratory illnesses. According to the informants fruit-tea is more often used for children than for adults. Yarrow-tea and Irish-moss-tea are sometimes used to treat a cough, flu or common cold. Due to the antiphlogistic effect of azulene, yarrow can be used to treat wounds and gastrointestinal disorders (Pahlow,1989:287), whereas Irish-moss contains bromine and iodine which milden the symptoms of respiratory- or intestinal infections (Pahlow,1989:448).

JHP oil is a Japanese healing plant oil which contains 95% menthol. This menthol containing oil can be bought in every pharmacy without a prescription. Some of the informants add a drop of JHP-oil into camomile-tea or just into hot water once they have a common cold, although this tea mixture has a primary effect on gastrointestinal disorders.

In case of bouillon, 8 informants drink a beef bouillon, whereas 6 informants drink a chicken bouillon to warm up the body which has been exposed to the cold. Depending on the recipe a homemade bouillon or soup will primarily consist of water, salt, beef (or chicken), fat and proteins.

Hot alcoholic drinks are offered in 28 cases to adults who suffer from being cold or from sniffles, cough, flu, common cold or sore throat. In all cases the hot drink is made to "heat up" the body or to "sweat out" the cold. In case of "Glühwein"(literally translated as "glowing wine") red wine is heated up together with orange- and lime slices, sugar, cloves, cinnamon, anise and other spices. This good tasting red wine is only served during the coldest season of the year to

treat or prevent sniffles, cough or sore throat.-- Whereas only one informant treats a cough by drinking hot redwine plus one egg yolk, 6 informants prefer the combination of hot redwine with a dash of rum to warm up a person who got "ice-cold". Not surprisingly this redwine-rum drink is called "Eisbrecher" (literally translated as "ice-breaker"). Rum-grog is usually drunken by men who suffer from flu (15%), common cold (7%) or a cough (2%) to "sweat out the fever" and/or to "clean out the body because alcohol disinfects". A rum-grog contains usually one-third rum plus two-thirds of boiling water plus additional sugar to sweeten it. Although alcohol has a dilating effect on the capillaries and therefore a possible fever-reducing effect as well as a disinfectant effect , it is very questionable whether negative effects can be avoided if the patient consumes additional antibiotica prescribed by a physician. Compared to a rum-grog, a heated beer has a much lower alcohol content, but is much more disliked because of its awful taste. However, often people say: "medicine tastes always awful, but helps". It seems that common colds caused by ones own fault (e.g. by not being dressed properly when going outside) can also be cured by drinking a hot drink which warms up the body and "punishes" the guilty behavior of the person by tasting awful.

Although common respiratory illnesses are almost exclusively treated by serving hot drinks, there are also six cold drinks which might have or have a limited pharmaceutical effect. Among the cold drinks the most commonly served drink is a freshly pressed orange juice. This high vitamin C containing drink is most frequently consumed in case

of a common cold (22%) and sinusitis (17%). Cold elderberry juice and cherry juice are only used against flu. Whereas elderberry juice is an effective drug against respiratory infections, homemade cherry juice is considered to have a fever-reducing effect. According to one informant people even used to make a medicinal drink out of cherry bark, honey and other ingredients to cure a severe bronchitis with high fever. Unfortunately I did not find a pharmaceutical source which has (already) evaluated this possible fever reducing effect of cherry juice or the cherry-bark mixture. Cold fennel-honey juice is used by 2% of the informants to treat a cough and in 5% of the cases to treat a sore throat. Both, the etherical oil of fennel as well as honey are very effective in curing respiratory inflammations (Pahlow,1987:24). Cold freshly pressed lemon juice plus water and anise juice are both only used by one informant. Nevertheless, fresh lemon juice has a high content of vitamin C and anise contains anethol which mildens cough related symptoms. Although anise is less effective than fennel, anise tastes better and is therefore often part of a tea mixture against cough (Pahlow,1989:189).

From a pharmaceutical perspective the informants of this rural sample are using 31 hot- and 6 different cold drinks of which 3 are highly effective, 14 are effective, 15 have are partially or indirectly effective and 2 have no specific positive effect for the treatment of the most common respiratory infections. Despite the huge variety of drinks with effective pharmaceutical ingredients, the overwhelming majority of informants is using primarily hot elderberry-grog against

example:

massage breast and	24%	100%	78%	29%	40%	90%	--
back with " <u>Wick</u> "							

The table shows that massages are primarily applied to persons suffering from bronchitis, cough, and common colds (53-50%) and less frequently to persons suffering from flu (31%), sniffles (28%), sore throat (24%) or sinusitis (22%). The areas which are massaged are the areas which are usually mainly effected by the respiratory illness. In case of sniffles and headache both sides of the nose bridge and the area above the eye bows are massaged with Wick, JHP oil or fresh peppermint leaves. In case of cough or bronchitis almost all women massage the breast and back with "Wick" (Vick) or "Bronchoforton". Both are vaseline-based ointments which contain menthol camphor and eucalyptus oil. Whereas "Wick" contains also traces of etherical nutmeg-oil, cedarwood-oil and thymol, "Bronchoforton" contains additional templin and pineneedle-oil. Eucalyptus-oil, camphor, nutmeg-oil, tymol, templin as well as pineneedle-oil have a positive pharmaceutical effect on cough, bronchitis and common colds. Menthol adds the popular and refreshing peppermint smell (Pahlow, 1989:259,333,388,410,454,468), which is sometimes also used by itself when informants rub JHP-oil (a mint-concentrate) over the breastcage. Alternatively to the vaseline based ointments, butter, lard or milking-fat are and/or have been used by some informents to massage the breastcage. All of these oily substances provide good lubricants which prevent skin irritations and enable the

masseur to massage deeper (lying) muscular tissues of the breast and back. Depending on the length and speed, a massage decreases the muscular pain of lactated respiratory muscles (caused by anaerobic muscle contractions due to frequent cough attacks) by increasing the local blood circulation. In addition a massage relaxes the respiratory muscles, decreases the frequency of cough attacks and can therefore improve the whole lung ventilation of the sick person (Hamann,1980:335). Judged by the description of the thorax- and forehead massages (Bahr, 1976:89,91), all lay-masseurs are likely to archive a positive physiological-, psychological- and in case of Wick and Bronchoforton also a pharmaceutical healing effect.

2.) Inhalation Treatment/Steam-Bath

Table 14 shows the percentages of informants who use a steam-bath or other inhalation treatments to cure a respiratory illness.

Table 14: MCRI and Inhalation Treatment

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	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
use inhalation	67%	38%	28%	79%	5%	65%	67%
don't use inhalation	33%	62%	72%	21%	95%	35%	33%
sum in percent	100%	100%	100%	100%	100%	100%	100%

The table shows that inhalation treatments are very often used in case of common colds (79%), sinusitis (67%), sniffles (67%) and

bronchitis (65%). Among the different inhalation methods the traditional homemade camomile-steambath is still the most commonly used method although both physicians from Ahrensberg have been prescribing expensive, equally or less effective inhalation apparatus for the last years to patients from Heitbek.

The traditional steambath consists of a high bowl or cooking pot filled with 1-2 l of boiling water and a handful of camomile blossoms. The vessel is then placed in front of the person who suffers from a blocked nose, sinusitis or other respiratory symptoms. The hot camomile vapor is then inhaled for 5-10 minutes by putting the face above the vessel and by covering the head and vessel with a towel. Some informants add instead of camomile-blossoms JHP-oil, peppermint- or eucalyptus drops, salt, "Heublumensamen" (hay flower pollen) or Bronchoforton in order to "better get air".

The trust in this effective (Pahlow,1989:189) and inexpensive home-remedy has lately been questioned by several informants because their physicians prescribed them a "new" inhalation apparatus which has a nose-shaped opening to inhale the steam. Whereas some (especially younger) women have switched completely to the inhalation apparatus, other informants seem to "collect" this expensive item (20.-DM) and use it only once because this single purpose container gets dusty and unattractive due to its non-use during most of the year. Multi-purpose cooking pots or bowls have the advantage of being used and cleaned on a daily basis. From a pathological point of view the intended longterm- and multiusage of the inhalation apparatus involves another health risk

because lay people/informants do neither believe in the Germ theory as the only cause for an infectious disease, nor that they believe in the concept that a transmission of an infectious disease can be prevented among family/household members. Infact, it is very likely that the usage of this inhalation apparatus can promote the transmission of different types of germs and cause a superinfections, if it is used by more than one family member for preventive- or curative purposes during the peak seasons of respiratory illnesses because lay-people have neither the understanding nor the facilities to sterilize a plastic apparatus properly.

3.) Warming Baths, -Poultices and Infrared Light

Informants as well as officially trained balneo-or hydrotherapists apply water as well as poultices in a large variety of ways to cure a sick person. In case of common respiratory illnesses 20% of the informants use a hot foot bath or a hot water bottle to heat up cold feet, whereas an additional 23% heat up the whole body by taking a hot bath in case of sniffles, cough or common cold.

In contrast to these water based heat applications, warming breast poultices or neck poultices (made out of boiled potatoes) are occasionally prepared to treat a cough, bronchitis, sniffles or sore throat. Depending on the the specific application this type of poultices can conduct heat to the applied area for 15-20 minutes (Gillert,1982:71).

Infrared light is used by up to 28% of all informants as a home treatment against common cold, sinusitis, bronchitis, sniffles and/or cough. In all of these cases the effected area, usually the forehead or breast, is warmed by electromagnetic waves of the infrared light (depending on the individual's compatibility) for 5-10 minutes. This high prevalence of self-prescribed infrared light-therapy is on the first view surprisingly high. However, if one considers that a) an infrared light is a standard equipment for every farmer who owns or has owned life-stock, b) many women own a tanning machine which produces IR- as well as UV light and c) if one considers that infrared light-therapy is frequently prescribed by one of the physicians of Ahrensberg in case of acute upper respiratory infections, one understands why this type of treatment is very familiar and frequently used by the population of Heitbek.

4.) "Hals- and Brustwickel" (Warming or cooling Breast- and Neck-
"Wrappes")

In contrast to poultices which contain a several cm thick layer of boiled (slightly pressed) potatoes, etc. a "Wickel" contains usually no additional inside-admixture. A "Wickel" effects the area on which it is applied to (wrapped around to) by its degree of moisture, -temperature, insolation and length of its application. In case of a sore throat/tonsillitis seven out of nine informants put a thin (dish) towel into cold water, wring it slightly, fold it lengthwise and wrap it around the neck. A dry (dish) towel is then wrapped around the wet one

to insulate it. This cooling neck-wrappe is well known for its antiphlogistic healing effect (Gillert, 1982:56).

Breast-wrappes are used by 35% of the sample to treat a common cold, cough or bronchitis. Depending on the degree of moisture, - temperature and length of application, breast wrappes have either a warming or cooling effect. Whereas the warming effect is archived by the application of a hot lard wrappe or the combination of a thorax massage with Wick and a dry wrappe, the cooling and fever reducing effect is archived by the application of a cold or luke-warm breast wrappe (Gillert, 1982:57).

5.) Fever-Reducing Treatments

The table below shows what kind of methods informants use (or are able to use) to reduce a (high) fever.

Table 15: List of Fever-Reducing Treatments

1. Calf-"wrappe" (wet, luke-warm or cold)	84%
2. Sweat Therapy (hot drink plus warm blankets)	51%
3. Take suppository against fever	32%
4. Put cold wet compress on forehead	16%
5. Use light blanket if person is sweating	14%
6. Control fever often with thermometer	12%
7. Change clothes if wet, wear 100% natural fibers	10%
8. Body-"wrappe" (wet, luke-warm)	4%

9. Breast-"wrappe" (wet, luke-warm)	4%
10."Beinguß" (water temperature 2 C colder than fever temp.)	1%
11."Armguß" (water temp. 2 C colder than fever temp.)	1%
12. Rub legs, trunk or arms with wet (cool) wash cloth	1%
13. Wrap ice-pack in towel and then around calves	1%
14. Bath hands in cold water	1%
15. Take full bath for 5 min., reduce water temp. from 37 to 32 C	1%
16. Put cool-pack on breast of a nursing mother with fever	1%
17. Dip feet into cold water	1%
18. Dip feet alternating into cold water	1%
19. Leg-"wrappe" (wet, luke-warm)	1%
20. Arm-"wrappe" (wet, luke-warm)	1%
21. Neck-"wrappe" (wet, cold)	1%
22. Put plastic bag with ice cubes on forehead	1%
23. Wrap butter on trunk prior to wrapping trunk with linen sheet, then wrap ice-pack in towel and put it on belly (or back) and cover person with warm blanket	1%
24. Contact physician if fever cannot be reduced/is too high	100%

When the informants were asked: What do you do when you have a fever?, all informants tried to describe specific mostly hydro- or balneotherapeutic treatments in order to reduce the fever. The table above shows that a calf-wrappe is the most commonly used home-remedy against a fever. 84% of the whole sample prepare this wrappe usually by wrapping a wet, luke-warm or cold inside-towel and a dry outside-towel

around the calves prior to covering the feverish person with a blanket. Depending on the water temperature, length- and repetition of the "wrappe", it can effectively reduce a fever (Gillert,1982:60).

Sweat therapies seem to be the second most frequently used method to reduce a fever. According to the data 51% of the whole sample cover the feverish person with warm blankets and give him/her a hot drink (elderberry-grog) and/or in order to enhance the sweating reaction. Most of the informants use this type of treatment in the evening so that they can "sweat out the fever over night" (Gillert, 1982:53).

Thirty-two percent of the informants give a suppository to the feverish person (usually a child) , whereas 16% of the informants cool the forehead of the feverish person with a wet-cold compress. Although almost all informants measure the temperature of a person with a flushed face, glassy eyes first by putting the palmar-or volar side of the hand on the forehead, 10%-12% of the sample pointed out that they would measure the temperature more often and wear 100% cotton clothes which can absorb the sweat. All of the other 16 fever-reducing methods are used by 1-4%. Judged by the description of the specific methods, all methods are likely to have a local or general fever-reducing effect (Gillert, 1982:47,51,56,57,60,62,88,91,125,126,130,138). Whereas a cold hand-bath has the smallest effect, taking a full bath while reducing the water temperature from 37 C to 32 C within a five minute period is the most efficient technic to reduce a high fever (Gillert,1982:138).

Table 16: Fever-Treatment: Informants Usage of Heat and/or Coldness in Correlation with the Body (Fever) Temperature

Fever Temperature	HEAT			COLDNESS		
	a	b	a/b	a	b	a/b
40.5 C		1			2	
40.0 C			1	2	9	6
39.5 C	5	4	0.5*	2	11	7.5*
39.0 C	6		2.5*	1	9	10.5*
38.5 C	10	1	4	5		6
38.0 C	4			1	1	3
37.5 C	2					
sum :	27	6	8	11	32	33

a = informant uses this method first

b = informant uses this method later (in case of a further rising fever)

a/b = informant uses this method only

* = 2 informants use heat for adults and coldness for children

Due to the high prevalence of effective hydro- and balneo- and kryotherapeutic fever-reducing methods which use the application of heat or coldness, I will further investigate the reasons for- or timing of lay-people's actual usage of heat and/or coldness. According to the data, 41% of the sample use the application of coldness-, 41% use first heat and in case of a further rising fever temperature coldness-, 10%

use only heat-, 6% use first coldness and in case of a rising temperature heat, whereas the remaining 2% use neither heat nor coldness but sleep in order to reduce the fever. The main reason for these different types of fever-treatments seems to depend on the actual body temperature which "needs" to be reduced. Whereas medical professionals distinguish between an "increased body temperature" for body temperatures below 38.5 C, "fever" for temperatures between 38.5 C and 39.5 C and a "high fever" for temperatures above 39.5 C, informants (lay-people) use the term "fever" for body temperatures ranging from 37.5 C to 40.5 C (99.5-104.9 F). However, the majority of the informants starts to treat body temperatures above 38.5 C, fever.

A comparison between the heat- and coldness treatments (table 16) shows that a heat therapy is started to be used at a lower body temperature (37.5 C) than the coldness therapy (38.0 C) and that the majority of the "heat users" is changing to a coldness therapy once the fever reaches 39.0-40.0 C. The preference for the coldness therapy gets extremely obvious at 40.0 C fever temperature when 17 informants (21%) use the application of coldness, whereas one person (1%) uses the sweat therapy. However, in cases of an even higher fever of 40.5 C (104.9 F), one informant switches over to the sweat therapy and two informants switch over to the application of coldness. All three argue that the other treatment that they switched to would be more effective. Although both methods can effectively be used in the reduction of fever, the application of a sweat therapy is at 40.5 C more risky and should therefore only be used by a medically experienced person.

6.) Gargling Therapy

The table on the following page (table 17) shows that gargling is primarily used by persons suffering from a sore throat/tonsillitis, secondarily in case of a common cold or cough, where a sore throat is one of the leading symptoms, and rarely in case of sniffles. The fact that gargling is neither used in case of influenza, nor in case of bronchitis or sinusitis underlines the earlier finding that lay-people/informants treat the main symptom of an illness. According to the pharmacists of Ahrensberg, gargling with saltwater, camomile or sage-tea, as well as with chemical solutions of Chinosol, Hexoral or diluted hydrogenperoxid has a positive effect on pharyngeal inflammations. However, despite the common prescription of "Hexoral" by both physicians of Ahrensberg, it is saltwater which seems to be most frequently used.

Table 17: MCRI and Gargling Therapy

<u>gargle with:</u>	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
saltwater	2	3	-	7	10	-	-
strong camomile-tea	-	-	-	-	5	-	-
sage-tea	-	3	-	4	5	-	-
Chinosol	-	3	-	-	5	-	-
Hexoral	-	5	-	4	5	-	-
diluted hydrogenperoxid	-	-	-	4	-	-	-

7.) Oral Intake of "Self-Prescribed Drugs"

Table 18 shows the percentage of informants who are using "self-prescribed drugs" in case of common respiratory illnesses. According to the data the oral intake of self-prescribed drugs is most prevalent in case of cough, where almost two-thirds (60%) of the whole sample have used or use homemade cough-medicine, non-prescribed cough-juice, cough drops or lozenges from pharmacies or supermarkets or medications which were prescribed during an earlier illness episode. Although most of the informants did not mention that they would also use these home-medicines for a common cold and/or bronchitis, it is very likely that several informants will also use them at least during the initial phase because "cough" is the primary symptom of bronchitis and the secondary most important symptom of a common cold. The rare intake of self-prescribed drugs in case of sniffles (11%) and in case of flu (10%) seems to have different reasons. Whereas almost all informants are convinced that sniffles "is nothing to worry about", flu is usually perceived as a severe illness which requires the consultation of a physician at some point. Due to the high prevalence of self-prescribed drugs in case of cough, I will list and describe the homemade cough medicines and most frequently used lozenges, but omit the description of cough medicines which can be obtained by prescription.

Table 18: MCRI and Prevalence of Self-Prescribed Drugs

	<u>Sn</u>	<u>Co</u>	<u>El</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
use self-prescribed drugs	11%	60%	10%	18%	19%	18%	22%
do not use them	89%	40%	90%	82%	81%	82%	78%
sum in percent	100%	100%	100%	100%	100%	100%	100%

Table 19 shows that 27% of the informants make (or able to make) their own cough-medicine. The majority of them prepares it by cutting up one onion real fine, spreading it on a saucer before sugaring it with two spoon full of sugar and covering it with another saucer to put a little pressure on it. After around eight hours (over night) this onion-sugar combination has produced three to four spoon full of onion juice, which is taken orally as a cough medicine during the day. Alternatively to sugar, one can also take honey. Instead of cutting up one onion, one can hollow out an onion and put one table spoon of sugar into the onion or use pressed onion-juice with sugar. Two informants make a syrup by boiling three onions with sugar and would take one tea-spoon full per hour in case of a cough. Another informant prepares a syrup by boiling radish and onions with sugar. Finally, one women said that they used to hollow out a "Runkelrübe" (a special type of beet), fill it with brown "Kandis" (sugar-candy) and leave it over night. On the following day the sick person would take three times one spoon full of the extracted juice to treat his/her cough and sore throat. All of these technics have in common that they extract onion (radish or beet) juice via sugar, honey

or sugar candy in order to produce an excellent remedy against cough (Pahlow,1989:373).

Table 19: List of Self-Prescribed Drugs

1. make cough medicine out of onion and sugar	20%
2. make cough medicine out of onion and honey	3%
3. make cough medicine out of onion+radish+sugar	2%
4. make cough medicine out of " <u>Runkelrübe+Kandis</u> "	2%
5. suck eucalyptus lozenges	27%
6. suck peppermint lozenges	2%
7. suck honey lozenges	2%
8. suck malt lozenges	2%
9. take one drop of JHP oil	3%
10. take some drops of " <u>Klosterfraumelissengeist</u> "	2%
11. take "green drops" (a peppermint concentrate)	2%
12. take one tea spoon full of freshly pressed parsley/day	2%
13. take one tea spoon full of honey per day	2%

The second most commonly used remedy (33%) consists of sucking eucalyptus-lozenges, peppermint-, honey- and/or malt-lozenges. In reality, the consumption of for example eucalyptus-lozenges is probably much higher because many people suck them on a regular basis especially during the cold (and/or wet) season of the year without being aware of their preventive and curative function (Pahlow,1989:389).

The oral intake of JHP-oil, "Klosterfraumelissengeist" and "green drops" has been mentioned by 7% of the informants. These three tinctures have a high mint content in common; their degree of effectiveness has already been described.

Honey is not only used in combination with hot milk, -lemon-juice and in combination with herbal teas, but also by sucking honey lozenges and by eating a spoon full of honey three times a day to cure a cough. The frequent use of natural honey in home-remedies is probably not only due to its well known medical value to milden common respiratory illnesses (Pahlow,1976:25), but also to its traditional high value because in the last centuries heath-honey was the only and relatively rare item which could be used to sweeten a diet.

8.) Other Treatments

Table 20 (next page) shows miscellaneous aspects of a treatment which could not be categorized in the previous sections. According to the interviews 10-12% of the informants believe that light physical in fresh air like going on a walk is "good" in case of sniffles, cough or common cold. This perception seems to decrease to 5-6% in case of a sore throat and bronchitis, and has not at all been mentioned in case of flu or sinusitis. Hence, fresh air is not only a concern for people who are still able to walk outside, but also for sick people who are (have to be) treated inside. Table 20 shows that 14% of the informants would open the bed-room window a bit for a person who is resting in bed due to an influenza.

Table 20: Other Treatments

	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>
1. Light physical activity in fresh air	10	12	--	11	5	6
2. Give body time to fight disease	2	12	7	--	5	--
3. Open window a bit to get fresh air	2	2	14	--	--	6
4. Support upper body in elevated pos.	2	2	3	--	5	6
5. Turn the heater on or higher (wint.)	2	2	--	--	--	6
6. Smoke less cigarettes	--	2	--	--	--	6
7. Humidify air of bed-room	--	2	3	--	--	--
8. Cry	2	--	--	--	--	--

(no informant used "other" methods in case of sinusitis)

In case of cough 12% of the informants give the body (body's immune system) time "to get rid of a cough" without any other active intervention. In case of flu, sore throat and sniffles this answer has been given in 7%, 5% and 2%, respectively. Other informants support the upper body of a sick (older) person in an elevated position to milden any kind of breathing difficulties caused by a common respiratory illness. Turning the heater on or higher, smoking less cigarettes, humidifying the air of a central heated room which is too dry, or "crying" are illness responses which were seldom mentioned.

INFORMANTS' KNOWLEDGE OR ESTIMATIONS ABOUT THE TOTAL LENGTH
OF COMMON RESPIRATORY ILLNESSES

In question # 14 all informants were asked to estimate the usual length of "their" most common respiratory illnesses a) when they cure themselves at home by using home-remedies and b) when they visit a physician and follow his/her advice. The seven histograms on the following pages (figure 4a-g) show the detailed results of the answers given by the informants suffering from a) sniffles, b) cough, c) flu, d) common cold, e) sore throat/tonsillitis, f) bronchitis and g) paranasal- or frontal sinusitis. The x-axis indicates the length of a respiratory illness in days (weeks) and the y-axis the number of informants. Each column is divided into one to three different sections which reflect the number of informants who believe that the same illness episode would be shorter if treated by a physician (black color), would last equally long if treated by a doctor (white color) or even would last longer if treated by a doctor (black diagonal line). For a general comparative purpose a vertical scale has been placed on the right side of every histogram to translate absolute numbers into percentages. The main results will be described in the following paragraphs.

a) Sniffles

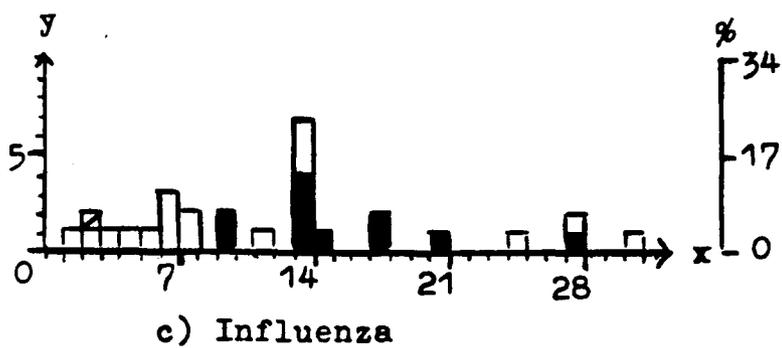
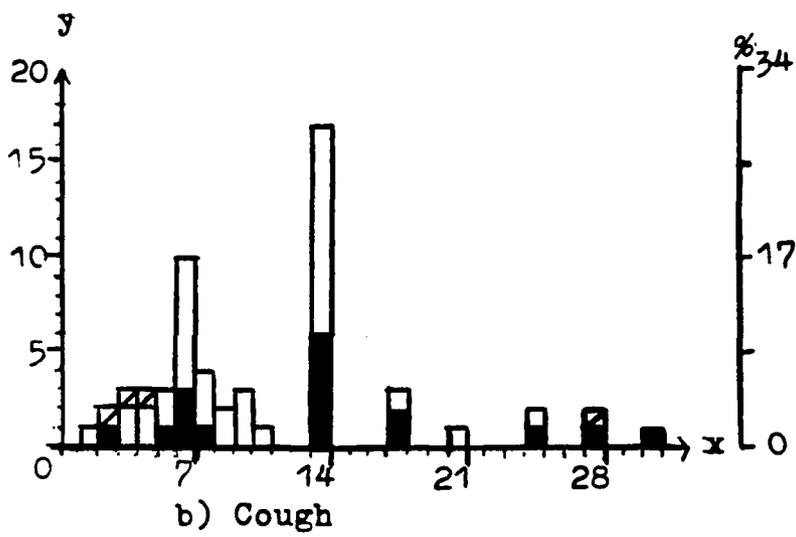
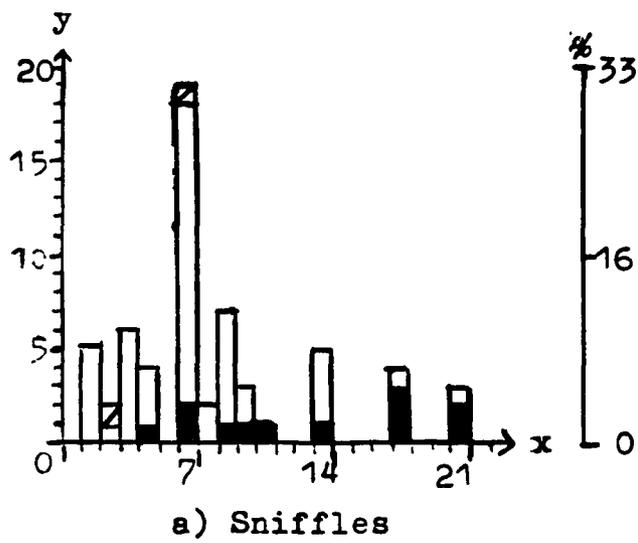
According to the interviews sniffles can last between 2-21 days. For 25% of the informants it lasts only between 2-5 days, for 50% it lasts 7-9 days and for the remaining 25% sniffles has a usual length of 10-21 days. It is especially this latter group who claims that their

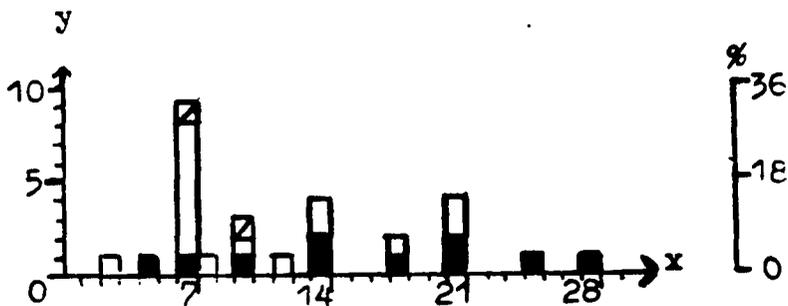
sniffles episode would be shorter when they visit the doctor. Almost all of the other informants, whose illness lasts less than 10 days, believe that a doctor's treatment would not be able to shorten the "normal" length of sniffles because as some informants pointed out: "Sniffles comes 3 days, stays 3 days and leaves within 3 days".

b) Cough

Several informants used the same saying in case of cough. Infact, histogram b) seems to confirm that around 50% of the cough illness episodes lasts 2-10 days and have a high peak at 7 days. A second high peak occurs at 14 days because 29% of the informants estimate that cough has a usual length of 14 days (2 weeks). The remaining 16% of the informants claim that cough lasts 2.5-4.5 weeks. A comparison between the home - and the doctor's treatment shows that a majority of 64% believe that the doctor's influence would not shorten the length of cough, 29% believe that it would shorten the illness episode and 7% of the informants claim that the doctor's influence would prolong the cough episode because it would suppress the symptoms and therefore "take longer to get rid of the cough". Whereas the latter statement occurs usually in respiratory illness episodes estimated to last 2-10 days, one informant claims in case of a 28 days long cough that the doctor's intervention would cause the cough to last even longer.

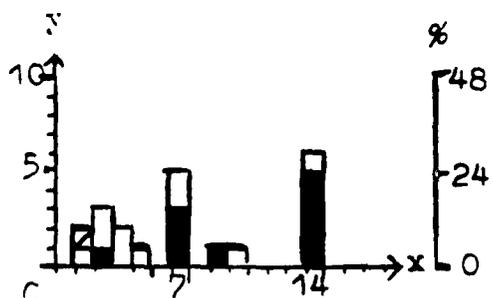
Figure 4 a-g: Informants Estimations about Illness-Length



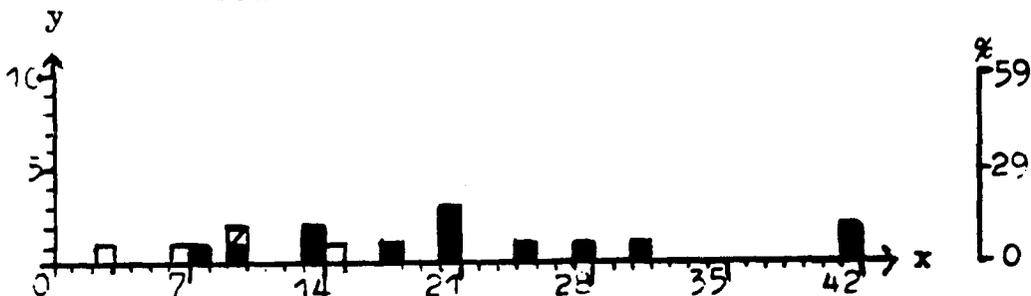


d) Common Cold

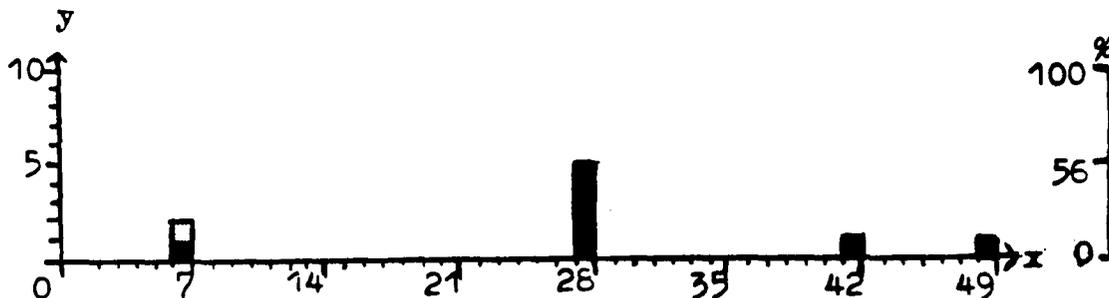
Legend:



e) Sore Throat
'Tonsillitis



f) Bronchitis



g) Paranasal- or Frontal Sinusitis

c) Flu/Influenza

Histogram c) shows that influenza can last 2-31 days. In case of a short "flu-episode" of 2-8 days, all informants claimed that the treatment of a physician would not be able to shorten the length of flu, whereas in case of a 10-31 day lasting flu-episode the majority of the informants claim that the doctor's treatment shortens the length of an influenza episode.

d) Common Cold

In contrast to flu's high peak of 14 days, a common cold has a high peak of 7 days and a total range of 3-28 days, which is 4 days shorter than the total range of a flu. Both facts suggest that a common cold can be cured in a shorter time than a flu. A comparison between the home-treatment and the doctor's treatment shows that a majority of 57% believe that both treatments are equally effective, 36% believe that a common cold can be shortened by a doctor's treatment and 7% believe that a common cold would last longer if it would be treated by a doctor. The turning point where informants change from favoring the home-treatment to favoring the doctor's treatment starts at common cold episodes lasting longer than 14 days.

e) Sore Throat/Tonsillitis

In case of a sore throat/tonsillitis the turning point is reached at 7 days. The main reason for the early shift from home-remedies to a doctor's treatment seems to be a painful throat and a repeating experience of hardly being able to swallow anymore. Histogram e) shows that a sore throat/tonsillitis can last between 2 and 14 days and 48% of

the informants believe that the illness length is shorter in case of a doctor's treatment (prescription of antibiotics), 48% believe that home remedies are equally effective in comparison to the doctor's treatment and 5% of the informants believe that the doctor's intervention prolongs the total length of a sore throat/tonsillitis episode.

f) Bronchitis

Histogram f) shows that bronchitis can last between 3-42 days. Whereas half of the informants claim that it lasts between 3 and 15 days, the other half claims bronchitis lasts usually between 2.5 and 6 weeks if it is not treated by a doctor. The opinions about the effectiveness of a doctor's treatment vary in case of the former half: 50% believe that bronchitis lasts equally or longer if treated by a doctor, and 50% believe that the doctor's intervention is shortening the total length of bronchitis.

g) Paranasal- or Frontal Sinusitis

The overall trust in the higher efficiency of a doctor's treatment seems to be highest in case of a paranasal- or frontal sinusitis where 89% of the informants experienced that a surgical procedure of an ear-nose-throat specialist cures their symptoms within a short time. Without this surgical intervention 56% estimated that sinusitis would last 4 weeks and 22% estimated that it lasts 6-7 weeks. Only in case of a 7 day long episode of sinusitis, 11% claimed that sinusitis lasts with or without a doctor 7 days, whereas the other 11% believe that a doctor can shorten the total length of sinusitis.

A comparison of all histograms indicates that all common respiratory illnesses are usually expected or experienced to last up to one week, no matter whether they are treated by home-remedies or by the advice of a medical professional. However, if a respiratory illness lasts longer than one week (in case of sniffles longer than two weeks), the majority of the informants believes that the (additional) treatment of a doctor shortens the total length of their respiratory illness.

INFORMANTS' BELIEFS ABOUT THE NECESSITY TO CONSULT A DOCTOR IN
CASE OF A COMMON RESPIRATORY ILLNESS

In order to give specific recommendations about feasible health care expenditure cuts it is necessary to find out a) what kind of beliefs lay people have about the necessity to consult a doctor in case of a specific respiratory illness and b) what kind of factors are likely to influence their beliefs about the necessity to consult a doctor. Whereas the first part of this section will compare different variables with the seven most common respiratory illnesses, the second part will use informants beliefs about the necessity to consult a doctor in case of a high fever and test different variables which might influence informants beliefs about the necessity to consult a doctor in case of a fever.

Table 21: MCRI and Estimations about the Necessity to Consult a Doctor

	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
Consultation necessary	7%	16%	72%	39%	38%	82%	100%
Consult. not necessary	93%	84%	28%	61%	62%	18%	--%

Table 21 shows that all or the majority of the informants believe it to be necessary to consult a doctor in case of sinusitis (100%), bronchitis (82%) and influenza (72%), to a much lesser extent in case of a common cold (39%) and sore throat/tonsillitis (38%) and seldom in case

of cough (16%) and sniffles (7%). Table 22 shows (except for influenza) almost the same order and frequency for the belief that a doctor's intervention shortens the total length of a respiratory illness, thereby giving evidence that the ability to shorten the illness length (table 22) is a major determinant for informant's belief in the necessity to consult a doctor. The extremely high percentages of the necessity to consult a doctor in case of sinusitis and bronchitis might also be influenced by informant's overestimation of the usual length of an acute bronchitis and/or the understandable avoidance to suffer for such a long time if a free medical- and/or surgical treatment is available (figure 4f-g).

Table 22: MCRI and Doctors Influence on Illness-Length

	<u>Sn</u>	<u>Co</u>	<u>Fl</u>	<u>CC</u>	<u>ST</u>	<u>Br</u>	<u>Si</u>
doctor shortens illness	18%	29%	41%	36%	48%	76%	89%
illness equally long	79%	64%	55%	57%	48%	18%	11%
doctor prolongs illness	3	7%	3%	7%	5%	6%	--%

A comparison between cough and fever shows that the necessity might also be determined by informant's perception about the severity and the usual length of a symptom because (only) 15% of the sample consult a doctor in less than one week in case of a cough, whereas 99% of the sample consult a doctor in less than a week in case of a fever. This sharp contrast indicates that informants perceive fever as a much more severe symptom than cough.

Hence, even an original mild illness or symptom like a cough can turn into a severe one and will eventually compel 82% of the sample to consult a doctor, provided that the cough persists up to 2 (4) weeks (in one case up to 12 weeks). Despite the possible increasing severity of a cough 18% of the informants claimed that it is not necessary to consult a doctor in case of a several week persisting cough, because the "cough will go away by itself".

The necessity to consult a doctor can also be influenced by the German law which requires employed sick people to consult a doctor in order to take a paid sick-leave. In case of cough, the interviews revealed that almost all of the 15% who consult a doctor in less than one week because of a cough, are partially- or fully employed and claimed to need a doctor's excuse to get their full income during a sick-leave lasting more than two days. Although it is up to the doctor to decide whether or not a coughing patient is unable to work, it is the cough- (or sometimes the sniffles) patient who decides to consult the doctor on the second or third day with his/her mild symptoms and attempts to convince the doctor about the "severity" in order to increase the chances of getting a doctor's excuse. One physician of the neighbor village of Heitbek, Ahrensberg, admitted that a doctor's excuse is a main reason why employed patients with mild and/or severe symptoms are consulting him/her. However, due to the low employment rate of women, the occurrence of a high fever is a much more important reason for 99% of the informants to consult a doctor.

CONSULTATION OF A DOCTOR IN CASE OF FEVER (INFLUENZA)

In case of a high fever the necessity to consult a doctor can be influenced by the informant's age, -number of children and degree of personal experience with the treatment of severe symptoms. Table 23 shows that informants seem to determine the severity of a fever (and therefore the necessity to consult a doctor) by the actual temperature and the length of its occurrence.

Table 23: Consultation with Doctor in Case of Fever (Cons. w/ Doc.)

<u>day:</u>	<u>a) < 38.5 C</u>	<u>b) 38.5-39.5 C</u>	<u>c) > 39.5 C</u>
four	--	10	7
three	--	14	14
two	1	11	10
one	5	9	20
sum in percent	6	44	51

If one compares the two extremes of informants who consult a doctor on the fourth day of a fever above 39.5 C with the ones who believe it to be necessary to consult a doctor immediately in case of a nearly normal body temperature of 37.5 C, one finds that the first group of women has an average age of 61.5 years and has brought up 3.17 children, whereas the latter group has an average age of 37.75 and 1.25 children. These numbers show that the first group has much more care-

taking experience because of their higher age, higher number of children and their general practice to take over the care-taking responsibility for more days and for more severe fever temperatures than the latter group.

A further investigation confirms that the amount of the informant's care-taking experience has a direct influence on the informant's belief about the necessity to consult a doctor. If one calculates the average number of pseudoyears of care-taking experience by taking every informant's age minus 5 years (because informants do not remember what kind of home-treatments they got during the first five years of their life), plus the age of every child of an informant (maximal 15 years per child because older children decide usually to an increasing extent on their own) to get an average number of pseudoyears of care-taking experience for each group, one gets the following results:

Table 24: Average # of Pseudoyears of Care-Taking Experience Correlated with Cons. w/ Doc.

<u>day:</u>	<u>a) < 38.5 C</u>	<u>b) 38.5-39.5 C</u>	<u>c) > 39.5 C</u>
four	--	100	103
three	--	50.6 *	72.4
two	--	74.6	64.4
one	48.5	69.0	61.8

Table 25: Average Age of Informants Correlated with Cons. w/ Doc.

day:	a) < 38.5 C	b) 38.5-39.5 C	c) >39.5 C
four	--	54.5	61.5
three	--	38.6	48.7
two	--	51.9	44.9
one	37.8	47.0	47.1

The main result of table 24 and 25 is: The more care-taking experience informants have, the higher the fever temperature and the longer the length of home-treatment before they seek professional help to reduce a fever. The only exception to this rule is one group of informants (*symbol) who consults a doctor with a medium fever on day three, although they have only an average rate of 50.6 pseudoyears of care-taking experience. A detailed inquiry of this exception shows that the "deficient" care-taking experience is due to their relative young age (38.6 yrs) and their small number of children (1.64).

Table 26: Average Number of Children Correlated with Cons. w/ Doc.

day:	a) < 38.5 C	b) 38.5 C-39.5 C	c) >39.5 C
four	-	3.5	3.17
three	-	1.64*	2.00
two	-	2.0	1.75
one	1.25	2.0	1.63

However, the lack of care-taking experience seems to be compensated by a significant higher level of general education (table 27) and higher percentage of informants who have completed a vocational training. Whereas the whole sample contains 64% of informants who have graduated from the Volksschule, 27% who have graduated from the Mittelschule and 70% who have completed a vocational training, the group in question (*symbol) contains 50% with Volksschule, 45% with Mittelschule and 82% of informants who have completed a vocational training. These differences suggest that the general level of education might also be a factor which influences informants beliefs about the necessity to consult a doctor in case of a fever. It also suggests that the lack of care-taking experience can at least partially compensated by a higher education.

A comparison between the average pseudoyears of care-taking experience (table 24) and the general level of school education (table 27) indicates that there is a positive correlation in case of informants who consult a doctor with a medium fever and those who consult a doctor with a high fever on the first-, second- or third day. However, in case of the two extremes, education seems to cause an opposite effect, because the group of informants who consults the doctor on day four of a high fever is between 43 and 80 years old, has the highest general education (10.5 yrs) and has the best/longest care-taking experience, whereas the other group who consults a doctor on day one with a nearly normal temperature is between 23 and 49 years old, has the second best general education (10.0 yrs) but the lowest care-taking experience.

Unfortunately, their relative higher education does not seem to encourage them to take up the responsibility and treat a nearly normal temperature by themselves.

Table 27: Average Level of School Education Correlated with Cons. w/ Doc.

day:	a) < 38.5 C	b) 38.5-39.5 C	c) > 39.5 C
four	--	9.13	10.5
three	--	9.45*	9.0
two	--	9.33	9.25
one	10.0	9.29	9.73

9.0 or less years = Volksschule

10.0 years = Mittelschule

13.0 years = Gymnasium

The following table shows that the degree of informant's employment (1.0 = full; 0.5 = partial; 0.0 = no employment outside of household) seem to be a major reason, why the latter group is unable- or disinterested in taking up the responsibility to treat a minor increased temperature, instead of giving the health-care responsibility immediately away to the doctor. The table also shows that informants who treat a medium- or high fever up to four days have the lowest rates of employment and therefore probably more time to treat a family/household member at home. However, the group with the second highest employment

rate (0.591) shows that many informants are still able to take care of a family/household member with a medium high fever for three days despite their more than partial employment responsibilities outside their own household. This finding suggest that the availability of time is one influencing factor for a long term home treatment, whereas commitment for a possible double responsibility for work and care-taking might be a factor for a medium term home-treatment.

Table 28: Average Degree of Employment Correlated with Cons. w/ Doc.

day:	a) < 38.5 C	b) 38.5-39.5 C	c) > 39.5 C
four	--	0.25	0.17
three	--	0.59	0.41
two	--	0.39	0.44
one	0.75	0.57	0.34

1.0 = Full Employment

0.5 = Partial Employment

0.0 = No Employment Outside Of Household

Table 29 shows that in case of a high fever (>39.5 C) the necessity of consulting a doctor on the second, third and fourth day might also be influenced by the average availability of a driver's licence and a car (table 29), because these informants (33% of the whole sample) have the second-, third- and fourth lowest rates of driver's licence plus car to provide them individual access to the health care

facilities of the neighbor village. These low rates of access contrast with the group of informants who have the best- (1.0) and second best (0.88) access, but treat their family/household members with a medium high fever for three to four days on their own. Interestingly, the group of informants who believe it to be necessary to consult a doctor on a first day of a minor increased temperature have the worst access to consult a doctor on their own, but the highest expectations that this would be necessary. This discrepancy might be caused by informants different place of origin.

Table 29: Average Availability of Driver's Licence and Car Correlated with Cons. w/ Doc.

day:	a) < 38.5 C	b) 38.5-39.5 C	c) >39.5 C
four	--	0.88	0.67
three	--	1.00	0.64
two	--	0.77	0.63
one	0.50	0.86	0.81

1.0 = Informants Have Driver's Licence And Available Car

0.0 = Informants Have Not Driver's Licence And Available Car

Table 30 shows that an urban origin might have two different opposing effects on the health care seeking behavior, because the group with the highest number of informants with an urban origin (0.67) takes care of a family/household member who has a (very) high fever for four

days, whereas the group with the second highest number of informants with an urban origin (0.75) consist of the other extreme: informants who consult the doctor immediately in case of a minor increased temperature. Why can an urban origin cause this opposing effects?

Table 30: Average Rural- Or Urban Origin Of Informants Correlated with Cons. w/ Doc.

day:	<u>a) < 38.5 C</u>	<u>b) 38.5-39.5 C</u>	<u>c) > 39.5 C</u>
four	--	0.94 (21%*)	0.67 (38%*)
three	--	0.95	0.91 (25%*)
two	--	0.83	0.94
one	0.75	0.93	0.88 (13%*)

1.0 = Rural Origin

0.5 = Urban Origin

* = Percentage Of Informants With Eastern Origin (e.g. Prussia)

This discrepancy can at least partially be explained by a comparison of the average age of informants and the actual degree of access to health care facilities at the time they grew up. Whereas the younger group of informants with an average age of 37.75 grew up during a very prosperous- and peaceful time in cities which have an abundant number of physicians, the older group with an average age of 61.5 years grew up during the Second World War when food resources were extremely limited in cities, urban health care facilities were severely understaffed and

devastating bombardments like the destruction of Hamburg (1944) forced lay people to increase their empirical medical knowledge by taking care of the wounded and sick. The survival of the escape from the East (former German territories like Prussia) seems to have been another factor which increased the medical care taking skills of informants with an eastern origin. Table 30 shows that almost 90% of the informants who survived the escape from the East during the end of the Second World War are among the three groups who treat the most severe cases of fever at home. In case of the informants who consult a doctor on the fourth day of a very high fever, 50% of the informants are survivors of the escape from the East (*symbol). These examples indicate that times with an extreme shortage of- and extremely high need for professional health care can force lay people to take up the full health care responsibility during an emergency time and to maintain a life-long high level of health care responsibility....as well as a different opinion about the necessity to consult a doctor.

In sum, informants beliefs about the necessity to consult a doctor in case of a respiratory illness and/or symptom like fever can be influenced by the following variables:

1. doctor's ability to shorten the illness,
2. doctor's ability to lengthen, but milden the illness,
3. an overestimation of the "normal" illness length,
4. individual perception about the severity of a symptom or illness measured in length, degree, suddenness of onset or deterioration,

5. employee's requirement of a doctor's excuse in case of a sick-leave,
6. informant's age,
7. informant's number of children,
8. informant's amount of care-taking experience (pseudoyears),
9. informant's level of general education,
- 10.informant's degree (amount) of employment,
- 11.informant's availability on a driver's licence plus -car,
- 12.informant's rural- or urban origin and time of upbringing,
- 13.informant's degree of commitment to take up the full care-taking responsibility during emergencies and/or times with an extreme shortage of- and extreme need for professional health care.

INFORMANTS' EXPECTATIONS AND REASONS TO CONSULT A DOCTOR IN
CASE OF A FEVER (INFLUENZA)

After analyzing the variables which are likely to influence the informant's beliefs about the necessity to consult a doctor, I will analyze the actual answers to the question: What can/shall the doctor do, once you suffer from a severe symptom of a respiratory illness? Due to the large data base on fever and the fact that fever is the leading symptom of influenza I will examine informant's expectations and reasons to consult a doctor in case of influenza.

Table 31: List of Informant's Reasons/Expectations of a Doctor in Case of Fever (Influenza).

1. Prescribe (free) drugs	86%
(pills 38%, antibiotics 24%, cough-syrup 24%, "fever-reducing drugs", 14%, fever-suppository 10%, nose-drops 10%, drops for inhalation therapy 5%, drops against nausea 5%, lozenges 5% or drugs against no appetite, sniffles, circulatory disturbances (each 5%))	
2. Give a doctor's excuse	43%
3. Give an injection	29%
4. Prescribe infrared light therapy	19%
5. Prescribe bed-rest	14%

6. Prescribe inhalation therapy against sniffles	14%
7. Doctor should be reserved with prescription of hart drugs (=drugs with many side-effects)	14%
8. Prescribe Calf-"wrappe"	10%
9. Reassure patient that illness will go away	10%
10. Prescribe electrotherapy (short wave therapy)	10%
11. Auscultate the lungs	5%
12. Examine the patient and diagnose the illness	5%
13. Give a referral to specialist (ear-nose-throat doctor)	5%
(informants gave on average 2.6 answers)	

Table 31 on the following page shows that the prescription of drugs (86%) and a doctor's excuse (43%) seem to be the two most important reasons for informants to consult a doctor. Other treatment aspects like the prescription of an injection, infrared light therapy, bedrest, inhalation therapy, the expectation that the doctor should be cautious with the prescription of hart drugs and better prescribe calf-wrappe and/or reassure the patient that he/she will soon be healthy, are reasons of secondary importance. In the following part I would like to focus on the most frequently mentioned reason to consult a doctor: the prescription of drugs.

Whereas 38% of the informants said that they consult a doctor to get a prescription for "pills", other informants have given more specific answers: 24% expect to get a prescription for antibiotics which can otherwise not be bought over the counter and 24% expect to get

a prescription for cough-syrup although physicians are not anymore allowed to prescribe "Bagatellmedizin" (a term for a relatively expensive drug against trifling symptoms) like cough-syrup to adult patients with a simple cough. The interviews showed that a significant number of informants still believes that health insurances companies pay for cough-syrup and/or claim that their doctor still gives them a prescription for cough-syrup once they have a cough. - From a physicians- and health insurance point of view, a cough can have different levels of severity. Therefore health insurances are still willing to pay for cough syrup or cough drops in case of bronchitis. Hence, because lay-people/informants used to get better-tasting cough syrup gratis and doctors usually try to satisfy their patients' expectations, some physicians might use the term "bronchitis" for a "cough" in order to justify the prescription of a cough syrup for adults. A young physician from Kiel admitted that several colleagues are using this method to satisfy the demands of their patients in order to secure their income in an urban area with a high number of physicians. However, a further investigation would be necessary to provide evidence for such practices.

Whereas 14% of the informants would like to get a prescription for "fever-reducing drugs", 10% expect to get fever suppository or nose drops. Drops for an inhalation therapy, lozenges and drugs against "no appetite" or circulatory disturbances have seldom been requested. All of these prescribed drugs can be obtained for a token of 4.- DM (2.70 US\$) per item at any pharmacy.

Due to the German law, bottles or packages of drugs do neither reveal the patient's name nor the time when the drug has been bought. Often the packages and bottles do not even show the production and/or expiration date in a non-coded way. Due to this limitations I conducted only one drug-inventory check up in a three member household where the mother is the only person who frequently consults the doctor in Ahrensberg because of a respiratory illness. According to this mid 50 year old informant most of her drugs against respiratory illnesses were obtained "fairly recently" because her adult daughter had thrown the obviously outdated drugs (drugs with a yellowish package or cough drops where parts of the liquid medicine had settled down to the bottom of the bottle) around two years ago. Despite this clean-out action, the household's medicine cabinet contained 12 different types of drugs against upper- and medium respiratory infection. Judged by the size and prescribed modus of usage, Japanese Healing Plant-oil, Wick-balsam, Bronchoforton balsam and "Doregrippin" (pills against common colds and influenza like symptoms) seem to have been used primarily because one-fourth to one-third of the original volume had gone, whereas all drugs listed in table 32 were nearly- or completely unused.

If one assumes that doctor W is not prescribing two bottles of cough drops or nose sprays at once and that old drugs were thrown away two years ago, this informant seems to have suffered four times from cough or bronchitis, six times from sniffles and two times from a common cold or influenza during the last two years. These respiratory illness

frequencies are fairly close to the average annual incidence rates of sniffles, cough, common cold and flu.

Table 32: List of Prescribed and (Nearly) Unused Drugs for MCRI

1. 1 x 10ml bottle of "Bronchicum" (cough drops),
2. 3 x 10ml bottle of "Olynth" (nose-spray against sniffles and hay-fever),
3. 3 x 10ml bottle of "Vibrocil" (nose-spray against sniffles),
4. 1 x 300g of an unused package of "ACC 200" (package did not mention the indication of the drug, but its side effects of nausea, vomiting and/or diarrhea) antibioticum?
5. 1 x 20 pill size package of "Condalgon" (pills against sore throat and pharyngeal inflammations),
6. 1 x 50g tube of "Transpulmin-Balsam" (balsam to be put onto the thorax or to be used for an inhalation therapy),
7. 1 x 25ml bottle of "Expectal S Tropfen" (drops with codeine and thyme against cough and bronchitis),
8. 2 x 30ml bottle of "Optipect" (drops against respiratory illnesses, coughs, bronchitis and influenza).

(information in brackets gives the indication of the pharmaceutical companies written on the label of the drug)

The drug-inventory check up raises many questions about lay-peoples/informants usage of drugs, preferences for home-remedies as well as their general compliance to medical advices from professional health-care providers. It also questions seriously whether the prescription of drugs is really the main reason for sick people consult a doctor. During many interviews I got the impression that the prescription of bed-rest (with or without doctor's excuse), the reduction of high fever and/or pain and especially the doctor's reassurance that the patient will soon be healthy again, are the primary reasons for many informants to consult a doctor in case of flu or bronchitis as well as a "bad cold".

PREVENTION OF COMMON RESPIRATORY ILLNESSES

The following table (table 33) lists the answers of question #18:
How can one prevent to get a common respiratory illness/disease?

Table 33: Concepts about the Prevention of Common Respiratory Illnesses

1. Transmission of an contagious disease is not really preventable among family/household members or at work	58%
2. Warm up the body immediately after getting cold	43%
- by taking a hot bath	28%
- by taking a hot drink (e.g. elderberry- <u>grog</u> , redwine- <u>grog</u>)	12%
- by taking a hot shower	11%
3. Increase body-resistance (<u>Abhärtung</u>)	40%
- walk frequently outside in fresh air/all weather conditions	17%
- take once a week a sauna bath	14%
- do physical exercise	9%
- <u>Wechseldusche</u> (take shower, alternate betw. hot and cold water)	6%
- take a cold shower in the morning	5%
- don't overheat a room in the winter	5%
- walk barefoot on lawn's dew in the morning	3%
- <u>Wechselfußbad</u> (foot-bath, alternation betw. hot and cold water)	1%
- walk barefoot on snow (around 1 minute)	1%
- <u>Kneippscher Guß</u> (technic where cold water is poured in specific way over parts of the body)	1%
- do every morning gymnastics in front of open window	1%

- constant contact with sick people increases immune resist. 1%
- overcome illnesses increase body's resistance 1%
- 4. Always eat fruits and vegetables because of their vitamins 31%
- 5. Dress adequately warm for every weather condition 30%
- 6. Keep distance from sick people (ø 3m) 22%
- 7. Stay away from crowds (bus station, doctor's waiting room) 12%
- 8. Vaccinations can sometimes prevent getting a flu 11%
- 9. Avoid skin contact with sick people 9%
- 10. Wash hands frequently after contact with sick person 6%
- 11. Put hand or handkerchief in front of mouth when coughing 5%
- 12. Put on dry clothes after used ones got wet by sweat 5%
- 13. Drink elderberry-grog in winter 4%
- 14. Don't use same paperhandkerchief more than once 4%
- 15. Don't shake hands after coughing into them 2%
- 16. Don't get tonsillectomy because one gets cough more often 2%
- 17. Get always enough sleep (7-8 hours) 2%
- 18. Maintain mental balance 2%
- 19. Drink Kombucha mushroom + tea + sugar mixture 2%
- 20. Keep a well ordered life 1%
- 21. Suck eucalyptus lozenges during wet and/or cold weather 1%
- 22. Drink redwine plus spices-grog in winter 1%
- 23. Drink small glass of cognac every night: alcohol disinfects 1%
- 24. Drink often hot lemon drink with honey in winter 1%
- 25. Gargle often with salt water in the evening 1%
- 26. Two people should not drink out of one glass 1%

27. Moisten air of heated room, that nasal mucous membranes
 don't dry out 1%
28. Take lateral position to sick person to avoid being coughed at 1%
29. Sleep on sheep wool blanket during cold/wet season 1%
30. Drive to North Sea in case of smog alarm/avoid asthma attack 1%
31. Avoid sitting in front of fire-place because smog triggers
 cough attack in case of bronchial asthma 1%
32. Allergies are a birth defect, oversensivity remains life-long 1%
33. "Bind herbal bag around neck when whooping cough is going around" 1%
- (all percentages indicate the percentage of the entire sample of 81 informants)

During the interview all informants who mentioned contagion as one cause for the onset of a common respiratory illness were asked in the "prevention-section" whether one could prevent getting sick due to contagion. Whereas many informants have listed several methods which can minimize the contagion risk, 58% of the entire sample claimed that one cannot really prevent getting infected by a sick family member because a sick person would feel bad if family members would talk to the person by keeping a distance of 5m, touch him/her with gloves or take care of him/her while wearing a face mask. Contagion can also not be prevented at kindergarten, school, work or in the doctor's waiting room where sick children, pupils, colleagues, customer and/or sick patients come in close contact with healthy ones. Because there are many non-avoidable contacts with sick people, it used to be a common practice to put a

healthy sibling into the same bed with a sibling who had whooping-cough or another infectious childhood disease. This infection promoting practice saved a mother much time, because all children instead one child after the other were sick for six week periods. Due to the focus on the most common respiratory illnesses I have hardly any data on contemporary care taking strategies in case of childhood diseases like whooping-cough. It is possible that this infection promoting method is still used in families with more than one child, because the German Health Department recommends the pertussis vaccination only for "especially endangered children" (Gesundheitsamt Stade,1987), which results in very low pertussis vaccination rates (Hoppe and Preston,1985:776).

However, for informants infection is just one cause, whereas the reduction of the body temperature is another cause of getting a common respiratory illness. The most frequently mentioned preventive method is therefore the immediate warming up of the body (or body part) which got cold. Forty-three percent of the whole sample take either a hot bath (28%), a hot shower (11%) a hot drink (preferably elderberry-grog) or a combination of them to prevent "getting a cold". Before the availability of hot water from the tap, people used to warm up their feet with a specific "warming stone" (Wärmstein). According to a 65 year old informant, this (20x30cm oval and 4cm thick) natural black stone was able to conduct heat for several hours. Due to its storage place, the recess of a stove, the Wärmstein was always ready to be used when people were at risk of getting a cold.

The second most important preventive concept consists of the increase of one's own body resistance. All of these preventive methods are closely related to informants' etiological concepts as well as to their balneo- and hydrotherapeutic treatment concepts. According to the informants the body resistance can be increased: by regular outside walks to keep (or get) the body used to all weather conditions, regular sauna baths, -physical activity, -Wechseldusche, -cold morning showers, by not overheating rooms in the winter time, by regular brief morning walks on dew or snow, -Wechselfußbad, -Kneip-Guß, morning gymnastic in front of open window, by regular contact with sick people or simply by overcoming illnesses.

Except for the latter two examples all body-resistance increasing methods have in common that they expose the healthy body/person or the most temperature-sensitive part of the body (the feet) for a limited time on a regular base to the possible causes of a common respiratory illness: to rain, wind, dew, snow, ice, sweat, cold water or the alteration between cold- and hot water. In all of these cases the length- and type of the exposure to the possible causes for a common respiratory illness depend on the individual and its body's level of being adapted to these exposures. Whereas former studies have given evidence that the regular application of small and medium hydrotherapeutic treatments including sauna baths, effectively reduces the liability to catarrhal infections (Krauss et al, 1981:485,488), more recent studies seem to indicate that the temporary rise of the body temperature (for example the application of a sauna bath) can destroy

certain types of viruses (Stini,1991,personal communication) and would thereby from a biomedical point of view explain why hydrotherapeutic treatments can effectively prevent respiratory illnesses.

Whereas the body-resistance increasing activities are usually additional voluntary activities, maintaining a healthy diet by the regular consumption of vitamin containing vegetables and fruits is an "every day activity". Nevertheless, 31% of the informants emphasize that a high consumption of vitamin containing fruits and vegetables is important in order to prevent common respiratory illnesses.

Thirty-one percent of the informants are convinced about the importance of dressing adequately warm for every weather condition in order to prevent getting cold and being exposed to the risk of getting a common respiratory illness.

Twenty-two percent of the sample said that a common respiratory illness could theoretically be prevented by keeping a distance of several meters to the sick person. However, all of them know that there are many situations in real life when this method cannot be applied. Related methods have been expressed by an additional 12% of the informants who claim that staying away from crowds like bus- or railway stations, schools or doctor's waiting rooms can prevent common respiratory illnesses and by 9% who pointed (specificly) out that one should avoid skin contact with sick people.

Eleven percent of the informants know that "flu-shots" can give only a partial protection of getting influenza. Expressions like "some people can be protected by a flu-vaccination but my husband got a flu-

vaccination last year and got the flu afterwards" are often used to explain why informants are not getting vaccinated against flu and why they, the health-care taker of the family, are not encouraging "flu-shots" for other family members.

All of the other 24 preventive methods against common respiratory illnesses were mentioned by only 6%-1%. Although many of these methods can reduce the risk of acquiring a respiratory infection, it is very unlikely that one can prevent getting whooping cough by binding a herbal bag around the neck during the time when "whooping-cough is going around". Although placebo medications are well known for being able to cure certain symptoms, it has never been proven that they might also be able to prevent the onset of an infectious disease like whooping-cough. Nevertheless, I was surprised to find this type of preventive method by a young, well educated woman who is closely associated with the "official medical health care system". Later on I found out that this informant as well as several other informants get part of their herbal knowledge from one of the two controversial medicinal plant books written by Maria Treben, an author who sold already over one million copies of her books in Germany. Although pharmacists and physicians have heavily criticized the herbal treatment against cancer (Frohne,1982:371) they cannot stop the continuously growing and currently booming interest of lay-people in buying all kinds of herbal books in order to acquire information about the use and preparation of herbal remedies.

ADDITIONAL RESULTS: INTERVIEWS WITH LOCAL PHYSICIANS,
PHARMACIST(S) AND SCHOOL PRINCIPLE

During the interviews of the informants it became apparent that 95% of the informants and their household members consult one of the two physicians of the neighbor village Ahrensberg. In order to get a more complete picture of local medical practices, I have also interviewed the people who influence or can influence the general local health seeking behavior in case of the most common respiratory illnesses: the local physicians (W and X), pharmacist (Y) and the principle of the school (Z). I will briefly summarize the results of these four informants who are in one case female and in three cases male. According to the interviews they are between 36 and 50 years old, have in three cases children, went all to the Gymnasium and graduated from university, are fully employed in their profession, have in three cases a private health insurance (one case non-private), have been living in Ahrensberg between 8 and 33 years, have in 3.5 cases a rural origin (one said 50% rural, 50% urban) and are living in a household with one to four other members.

In question # 1 of the main section the physicians mentioned 12 and 14 -, the pharmacist 16- and the school principle 9 examples of different respiratory illnesses. Whereas cough, bronchitis, pneumonia, TB, and common cold were mentioned by all four informants; flu, asthma, tonsillitis and paranasal sinusitis were mentioned by three informants; lung cancer, frontal sinusitis, pleurisy, pseudo-Krupp and hoarseness by

two informants; and sarcoidosis, "Bagatell"-infection, infection of the upper respiratory tract or lung emphysema by one informant.

Whereas three informants claimed that these respiratory illnesses can be acquired in every age, one physician claimed that children do not get bronchial cancer. All informants mentioned sniffles as the most common respiratory illness within their household. In three cases cough- and in one case paranasal sinusitis is the second most common resp. illness and hoarseness, tonsillitis or a flu-like infection (Grippaler Infekt) is the third most common respiratory illness. Sniffles seems to have an annual incidence of 2.38, cough 1.67, hoarseness 2.5, tonsillitis 1.5 before the tonsillectomy and flu-like infection an annual incidence rate of 0.5. Whereas the pharmacist and school principle have identified the winter or autumn/spring as the seasons with the highest prevalence of respiratory illnesses, both physicians claimed that one can get respiratory infections at any time and that there is usually no distinct pattern of transmission among their family members.

With regard to the etiological concepts of respiratory illnesses, one physician claimed that one can only get a common respiratory illness by infection, whereas the other physician and the pharmacist claimed that an infection can only take place at a time when the body resistance is weak due to exhaustion, deficient sleep or getting cold. According to the school principle, a common respiratory illness can be acquired by getting cold (e.g. draught, sweating and getting cold), by infection or by a lack of vitamin C. Who is right? According to the German official

clinical dictionary, a combination of infection and a lower body resistance triggered by getting cold has to come together to get an acute catarrhal disease of the upper respiratory tract (Pschyrembel,1986:474).

Whereas the physicians described the symptoms of sniffles as difficulties to get air through the nose due to the production of secretion and as having a pressure sensation in the head, the other two informants added the symptoms headache, lachrymatory eyes, being oversensitive to noise and having swollen nasal mucous membranes. One physician distinguished between a dry- and a mucus producing cough which has in his/her case a white color and is worst during the morning. In the other two cases, cough is first dry and later productive. The color was described as clear in one case and as yellow-green in the other case. In the former case the cough is worst during the morning and can have additional symptoms of sore throat and being thirsty, whereas in the latter case the cough is worst at night and can cause lactated muscle of the thorax and abdomen due to frequent coughing. The main symptoms of a paranasal sinusitis are according to one physician frontal headache and pressure sensitive sinuses, whereas tonsillitis causes swallowing difficulties, fever (38-38.5 C), painful limbs and feeling groggy. A "flu-like infection" has the same symptoms as a "bad cold" or what lay-people call "influenza": a blocked nose, first a dry and then a yellow mucus producing cough which is worst at night, a high fever between 39 C-40 C , headache, painful lactated respiratory muscles, less appetite and feeling groggy. Whereas one informant described the "flu-

like infection", the remaining informant described the symptoms of "hoarseness" as having a sore throat, being hoarse and thirsty.

All four informants are convinced that one respiratory illness can change into another and have gave between three and five examples which are very similar to the informants from Heitbek. All four informants mentioned the illness change from sniffles to sinusitis. The illness change from cough to bronchitis and from bronchitis to pneumonia were mentioned by two informants, whereas the change from pneumonia to pleurisy, sniffles to otitis media, sniffles to bronchitis, influenza to pneumonia and from "Bagatellinfektion" to bacterial infection were mentioned once.

With regard to the treatment, all four informants continue to work as usual when they have sniffles, cough, sinusitis, tonsillitis and/or hoarseness. Only the informant with a "flu-like infection" said that he/she would stay in bed in case of a high fever (39 C-40 C). None of the informants dresses in a different way. One out of four changes the type of food in case of sniffles, cough and a "flu-like infection". Two out of four eat less than normal in case of sniffles and cough and one out of one eats less in case of sinusitis, tonsillitis and flu, whereas all four informants drink more in case of a common respiratory illness. Three informants change the type of drink by starting to drink hot milk and honey, elderberry-grog, bronchial-tea and/or lime blossom-tea with honey. In case of sniffles all four informants inhale camomile-steam. In addition, physician W uses a nose-spray when the secretion is clear and antibiotics when the secretion is purulent, whereas physician X uses a

nose-spray, sauna bath and JHP-oil against sniffles and rubs/massages the breast with Bronchoforton or a similar balsam in case of sniffles or cough. The pharmacist uses in addition luke-warm breast-wrappe and rubs the breast with a balsam. The remaining informant gargles with salt water and sucks peppermint lozenges in case of cough or hoarseness. Informant X,Y and Z know how to prepare cough-medicine out of onion and sugar or radish and sugar candy (Kandis). Whereas both physicians can use medications from their practice, both the pharmacist and the school principle use first home-remedies, second drugs from the pharmacy before they consult a physician.

The treatment against fever varies. Physician W takes aspirin and antibiotics as soon as he/she "feels like having a fever". Physician X also takes immediately an aspirin when he/she has to work. In addition he/she stays in bed, drinks a lot, uses a light blanket for fever temperatures above 38.5 C and uses luke-warm calf-wrappe in case of a high fever (40 C). The pharmacist uses almost the same therapy, but uses instead of aspirin a fever suppository for two days. If the fever remains above 39.0 C he/she consults a doctor on the third day. Informant Z uses calf-wrappe and aspirin and would consult the doctor on the following day if the fever temperature would still be above 39.0 C in the morning.

With regard to the length of common respiratory illnesses all three health professionals claim that sniffles, cough, influenza and probably also tonsillitis have a natural length which will not be shortened by the consultation of a doctor, whereas the non-health

professional believes that a doctor's treatment can halve the total length of sniffles from 7-10 days to four days and hoarseness from seven to three days. Physician W points out that sinusitis can become chronic without the consultation of a doctor.

When the informants were asked about the necessity of consulting a doctor, all four informants agreed that is usually not necessary to consult a doctor in case of sniffles. However, physician X pointed out that one should consult a doctor if sniffles lasts longer than one week, if a sore throat lasts longer than two to three days or pieces of pus are visible on tonsils. Physician X recommended to consult a doctor after three days of cough or three days of cough and fever or three days of increased temperature/fever. Their patients have different opinions. The pharmacist consults a doctor if a cough persists longer than one week or in case of a high fever plus a weak feeling, whereas the school principle claimed it is necessary to consult a doctor when a cough lasts longer than 14 days or in case of a "bad hoarseness" when talking becomes painful.

Once the informants suffer from severe symptoms like a long lasting cough with fever, informant Y and Z want the doctor to examine them and to prescribe only antibiotics. In case of a cough plus fever, physician Y would give a doctor's excuse, codeine drops against cough and prescribe a fever-reducing drug or prescribe the application of calf-wrappe and remind the patient to drink more than normal, whereas physician W would prescribe a doctor's excuse, antibiotics, codein drops and an inhalation therapy. In case of a sinusitis, he/she would get an

x-ray, prescribe antibiotics, infrared light therapy and give a doctor's excuse. In both cases the physicians seem to prescribe more drugs (and more therapies) than the patients would like to have.

When informants were asked about preventive methods, all four informants said that one could not really prevent getting infected by a sick household member. However, physician W has pointed out that one should avoid getting cold feet because a reflectory connection between the feet and the neck could cause a sore throat and a common cold. In addition one should keep a 1m distance from the facial area of a sick person and avoid shaking hands if possible. Physician X claimed that a regular sauna bath (especially during the winter time) and a healthy diet help to prevent respiratory illnesses. On one side one could also prevent getting infections by not visiting sick people, on the other side one can prevent respiratory illnesses by having steady contact to people with infectious diseases increases one's own immune resistance to those infectious diseases. Informant Y takes vitamin C pills and washes the hands more often during the peak seasons of common respiratory illnesses, whereas informant Z said that one should avoid getting cold and one should not be afraid of diseases because being afraid makes one more susceptible of getting sick. In addition, one should maintain a good diet and increase one's own body resistance by for example taking brief cold showers.

Similar to the 81 informants, mothers decide upon the time and/or the type of treatment for the children of three informants from Ahrensberg, whereas each spouse decides for him/herself in case of the

childless informant. In all four households the women is taking care of sick household members.

During the open-ended interviews both pharmacists of the local pharmacy in Ahrensberg were asked additional questions about the health seeking practices of their customers in case of the most common respiratory illnesses. According to their estimations, customers come most frequently because of 1.) sniffles, 2.) cough , 3.) sore throat, 4.) common cold without fever and 5.) because of influenza or flu-like infection with (high) fever. The majority of these customers is more likely to come by foot than by car which indicates that the majority of the customers come from Ahrensberg whereas people from the surrounding villages like Heitbek come less frequently. The proportions of customers who buy medications without prescription or with prescription depends on the type of the illness. Whereas all medications against sniffles are bought without prescription, around 50% of the medications against cough, 70% of the medications against sore throat and common cold and 60% of the medications against flu are bought without prescription over the counter. Most of these people are between 18 and 35 years old or are older women (65-70 years old) who buy medications for the whole family. Usually, the pharmacists are asked for advice when customers want to buy medications without having a prescription. In contrast, customers with prescription are seldom asking for advice. The type of medication a customer is usually asking for does not vary from the type of medication which is most often prescribed by the local physicians. In both cases

the customer gets the smallest and most inexpensive size of the following most frequently sold medications:

Table 34: List of Most Frequently Obtained Drugs from the Pharmacy for MCRI

1.) sniffles	spray against sniffles	7.-	DM
	nose drops	5-6.-	DM
2.) cough	cough juice/syrup	8-10.-	DM
	cough drops	6-8.-	DM
3.) sore throat	lozenges	7.-	DM
	solution to gargle (e.g. Hexoral)	7-10.-	DM
4.) common cold	balsam to massage breast or for inhalation		
	or treatment (steam-bath)	7.-	DM
5.) flu	inhalation apparatus	20.-	DM
	pills against flu (e.g. Doregrippin)	8.-	DM
(non-prescribed)	<u>Erkältungsbad</u> (etherical oil for hot bath)	8.-	DM
(non-prescribed)	herbal-teas	5-7.-	DM

Customers with prescription are usually not aware of the real expenses of these items because for a token payment of 4.-DM they can acquire (except for cough juice for adults, herbal-teas and etherical oils for hot baths) all medications and the inhalation apparatus. Other prescribed therapies like infrared light therapy, etc. are fully paid by their health insurance companies provided they are obtained in a

physicians practice. The following list shows typical examples of fees which physicians are charging the health insurances.

Table 35: Typical Examples of Fees Charged by a Physician (in D Marks)

	(minimum)	(guaranteed)
	<u>single fee</u>	<u>private fee</u>
1. Giving advice, also via phone	7.92	18.21
2. Giving advice at night (8pm-8am)	28.60	65.78
3. Giving advice on weekends and holidays	12.54	28.84
4. Consultation at home/advice	27.50	63.25
5. Emergency consultation at home	36.30	83.49
6. Consultation at night (10pm-6pm)	68.20	156.86
7. Consultation on Saturdays after noon, Sundays and on holidays/advice	40.70	93.61
8. Short written certification (doctor's excuse)	3.41	7.84
9. Extended examination	11.66	26.81
10. Extended examination, patient < 4 years old	15.40	35.42
11. Inhalation therapy	4.18	7.52
12. Infrared light therapy	4.40	7.92
13. Electrotherapy (short wave)	4.07	7.32
14. Operative opening of paranasal sinus	32.56	74.88
15. Operative opening of frontal sinus via nose	162.80	374.44
16. 2 X-rays of skull	48.84	87.91
17. Injection (subcutan or intramuscular)	4.51	10.37

(Source: GOÄ, 1988:65-337)

If a patient with a private health insurance membership would visit a general physician during office hours in Ahrensberg because of a common cold, his/her health insurance company would likely have to pay for this illness episode 121.18 DM (\$ 82.44 US) (26.81 DM for an extended examination, 3 x inhalation therapy 3 x 7.52 DM, 3 x infrared light therapy 3 x 7.92 DM, 1 injection 10.37 DM, one certification of a doctor's excuse 7.84 DM, one certification of prescription 7.84 DM, a nasal spray 7.- DM, cough drops 7.- DM plus pills against a common cold 8.- DM). In case of a federal health insurance company the same treatment would cost up to 45% less because every non-private health insurance company discusses and fixes the maximal costs per treatment item (with the representative organization of the physicians) on a regular base. In general, the more members/potential patients a health insurance has, the less it will pay per treatment item. However, all federal health insurance companies are confronted by increasing health care expenditures. Neither the strong lobby of larger health insurances, nor the introduction of a token payment for patient's drugs, -hospital stays and therapies outside a physicians practice, nor the full payment of cough syrup by adult patients, nor the rise of the membership fees for the health insurances have been enough to stop the rise of the health care expenditures.

SUMMARY AND CONCLUSIONS

By way of conclusion, I will summarize the main results of this study, consider the applied significance of these findings, and end this thesis with a list of recommended actions which are designed to reduce the medical costs of common respiratory illnesses in this rural area.

The ten most commonly known respiratory illnesses in Heitbek are 1.) cough, 2.) sniffles, 3.) pneumonia, 4.) common cold, 5.) asthma, 6.) flu, 7.) tuberculosis, 8.) whooping-cough, 9.) bronchitis and 10.) tonsillitis. The most frequently reported respiratory illnesses by household are: 1.) sniffles, 2.) cough, 3.) flu, 4.) common cold, 5.) sore throat/tonsillitis, 6.) bronchitis and 7.) frontal- or paranasal sinusitis. Of these seven illnesses most informants believe sniffles is the least serious, cough is a moderately serious and flu is the most serious illness. The average (non-adjusted) annual incidence is 2.5 episodes per year for informants who suffer most often from bronchitis or sinusitis; 2.1 for sniffles; 2.0 for a sore throat/tonsillitis; 1.6 for a common cold; 1.4 for a cough and 0.7 for a flu.

In terms of popular perceptions of illness causation for MCRI, the etiological concept of the Germ theory has neither replaced nor superseded the traditional concepts of illness causation. Although 64% of the whole sample know that a common respiratory illness "goes around from one household member to the next", 94% claimed that getting cold by standing in a draught/wind is enough to cause a common cold or flu. Only 4% reported that a reduction of body temperature in combination with

deficient body resistance and an infection are necessary and 1% reported that a psychological imbalance must be present as well as an infection for a common cold or flu to occur. None of the informants from Heitbek and only one health professional from Ahrensberg believe that infection is the only cause for a common cold or flu. It would therefore be misleading to attribute much importance to the fact that 84% said that a common respiratory illness can be acquired via infection.

Pluralistic notions of illness causation exist. The etiological concepts can be classed as follows: 1.) causes which reduce the body temperature; 2.) causes which increase (or increase and then reduce) the body temperature; 3.) infection, 4.) deficient body resistance; 5.) poor nutrition; 6.) dust and mold; 7.) inherited disposition or 8.) the wet-cold climate. Whereas the first three causes were mentioned by almost every informant, the remaining five were mentioned less often.

In case of the most frequent cause of a common respiratory illness (the reduction of the body temperature) the feet, neck, lower abdomen/bladder, kidneys, head/ears and (lower) back are body parts thought to be more sensitive to getting cold (heat loss). In general, one can get cold by exposing these body parts (especially the feet) or the whole body to coldness, wetness, wind, sweat followed by draught, and/or by not being properly dressed. All these mechanisms put a person at risk of catching or developing a common cold, sore throat, sniffles, etc.

In terms of signs and symptoms which mark an illness state, a person who has "sniffles" suffers primarily from a runny nose, headache,

(later) blocked nose, less appetite and from feeling a bit groggy. In case of "cough", the most frequent symptoms reported are cough (38% dry, 36% productive, 22% first dry and then productive), less (no) appetite, sore throat, feeling groggy and/or suffering from a painful thorax. A "common cold" is associated with sniffles, cough and the symptoms of no appetite, being tired (groggy), increased temperature and a sore throat. Household members with a "flu" have on average a fever temperature of 39.2 C, no appetite, painful limbs, fatigue and have sniffles, cough and/or a headache. "Bronchitis" is marked by painful coughing attacks, increased-to high temperature, breathing difficulties, being tired and from less or no appetite. Informants with "tonsillitis" or "sore throat" suffer primarily from a sore throat, no appetite, swallowing difficulties, an average fever of 38.7 C, being tired (groggy), from swollen tonsils, and/or hoarseness/painful talking. "Sinusitis" is associated with (frontal) headache, blocked nose, breathing difficulties, less or no appetite and/or a pressure pain on the forehead.

In all of these common respiratory illnesses the degree of appetite, -tiredness, -body temperature and degree of pain seem to function as key symptoms for lay people to determine the severity of an illness. However, the severity of an originally harmless illness can increase by the persistence of certain symptoms, an increasing number of symptoms as well as an illness-location-change from the upper respiratory- to the medium- or lower respiratory tract and/or from the spread of symptoms from the respiratory tract to the whole body. In

general one can say: the more severe an illness is perceived, the more intense the treatment responses will be.

Although women decide about the type of treatment in the majority of cases of illnesses, this role and responsibility increases with the number of children a couple has. In Heitbek women are the health care providers in 89% of the households. Whereas middle aged mothers are the primary health care providers for sick household members, grandmothers or adult daughters (or daughters in law) are usually the "emergency" health care providers when the primary health care provider is absent or sick. Despite the general shift from three-generation households to nuclear families, mutual help is still provided when needed.

Treatment concepts and actions are closely related to the etiological concepts. Whereas the reduction of the body temperature (getting cold) is seen as the prime risk of getting a common respiratory illness, the opposite: the provision of warmth or heat is seen as the key to cure the annually occurring respiratory illnesses. Knowledge or recognition of the Germ theory has little or no effect on the quality of home treatments. This study shows that lay people have extensive medical knowledge and use a huge variety of effective treatments to cure the symptoms of the most common respiratory illnesses.

Depending on the severity, lay people react to a developing respiratory illness by 1.) increasing the amount of- and changing the type of liquid intake from cold to hot drinks and from juices or coffee to pharmaceutically effective drinks like elderberry-grog, hot lemon drink, hot milk and honey and a huge variety of herbal teas; 2.)

protecting affected body parts with warmer (woolen) clothes; 3.) decreasing the amount of food intake; and 4.) decreasing the physical activity. Parallel to the gradual decrease of physical activity, massages and a huge variety of effective hydro-, balneo- and/or infrared light treatments are applied. The majority of informants uses thorax-massages in case of bronchitis, cough, and common colds; camomile inhalation-steam baths against common colds, sinusitis, sniffles and bronchitis.

Warming baths, -poultices, and warming infrared light therapies are used by 28% of the sample in case of illness episodes not involving fevers. Of 25 different fever reducing methods, most informants use a sweat-therapy to reduce a slight fever, but cold or luke-warm calf-wrappes to reduce a high fever (> 39.0/39.5 C). In the few cases where sweat therapies are used to reduce a very high fever, this effective but riskier therapy is applied by informants who have the best education and highest amount of medical care taking experience.- Gargling and sucking eucalyptus lozenges is primarily used against a sore throat; a home made cough medicine from onions (or radish or "Runkelrübe" with sugar, honey or sugar candy is used against cough.

Most common respiratory illnesses are expected to last one week whether a physician is consulted or not. In case they last longer than one week (in case of sniffles two weeks), most informants believe that the additional treatment of a physician will shorten the length of their respiratory illness. Health professionals on the other hand maintain

that the duration of the most common respiratory illnesses cannot be shortened.

Informants' beliefs about the necessity to consult a doctor in case of a common respiratory illness and/or severe symptom like a high fever are influenced by several factors:

- 1.) doctor's ability to shorten an illness;
- 2.) doctor's ability to lengthen, but milden the illness;
- 3.) informant's/lay-people's overestimation about the natural illness length;
- 4.) the individual's perception about the severity of a symptom or illness measured in length, degree, suddenness of onset or deterioration;
- 5.) employee's requirement of a doctor's excuse in case of a sick-leave;
- 6.) informant's age;
- 7.) informant's number of children;
- 8.) informant's amount of care taking experience;
- 9.) informant's level of general education;
- 10.) informant's degree of employment (time);
- 11.) informant's availability of driver's licence plus car;
- 12.) informant's place of origin;
- 13.) informant's degree of commitment to take up the full responsibility during emergencies and/or times with an extreme shortage of- and need for professional health care.

Once lay-people consult a doctor for flu or high fever, 84% of them expect the doctor to prescribe one or two drugs (mean=1.35) to

reduce the fever and cure the illness; 43% expect to get a doctor's excuse to be able to rest at home without losing their income or job. Interestingly, 24% still expect to get a prescription for the better tasting cough syrup although doctors are no longer allowed to prescribe it to adults in case of a cough. Further drug inventory check-ups are necessary to verify whether patients really want to take so many medications or whether their compliance to the doctor's prescription of drugs ends at the pharmacy where they get the medication before they store it in their medicine cabinets at home. However, a significant number of informants (14%) would like the doctor to be very reserved/cautious with the prescription of strong drugs and would be (completely) satisfied when the doctor prescribes a bed-rest or calf-wrappes and reassures them that their illness will go away.

The most popular preventive method of common respiratory illnesses is the immediate provision of warmth (43%) via a hot bath, hot shower or hot drink after getting cold. These are followed by the regular application of different, mostly hydrotherapeutic methods to increase the body resistance. Maintaining a healthy diet, dressing adequately warm for every weather condition and keeping distance to sick people are the third-, fourth- and fifth most commonly mentioned preventive method.

This study shows that lay people have an extensive medical knowledge and use a variety of effective treatments to cure the symptoms or to prevent the occurrence of common respiratory illnesses. The effectiveness of these treatments probably reflects an age-old empirical knowledge which has grown out of a constant challenge to survive in and

adapt to a cold, humid and windy climate; the type of treatment (application of heat or alteration between heat and coldness) as well as the etiological concepts might have grown out of the observation that common respiratory illnesses have their highest prevalence during the cold season or the change from or to the cold season. Detailed historical research would be necessary to understand the evolution of an effective folk healing system as well as its partial incorporation into the modern health system. However, due to the compatibility of the systems, the relatively high effectiveness of contemporary folk healing practices and the self-containment of many common respiratory illnesses, the rising health care expenditures of the modern health system can successfully be reduced by the introduction or enforcement of the following practices:

- 1.) Health insurance companies should immediately restrict or stop paying for prescribed inhalation apparatus for a steam bath in order to prevent the artificial creation of a new medical need in informants/lay-people for a very expensive (20.-DM per item) and questionable technological invention which is less effective than the home remedy of a camomile steam bath and which is likely to promote the spread of a common respiratory infection among household members who might use the inhalation apparatus one after another without having the facilities nor the understanding of disinfecting or sterilizing the plastic equipment prior to its usage. The stop of the payment for inhalation apparatus would likely be accepted by patients as well as by physicians and reduce

the health care expenditures for a common respiratory illness episode from 121.18 DM to 101.18 DM (= minus 17% of the total cost 121.18 DM).

2.) Physicians should limit the prescription of an inhalation therapy within their practice to patients who are not able to prepare a steam bath at home and who have no one who assist them at home. This practice would reduce the costs between 4.18 DM and 7.52 DM per treatment. In case of a prescription of three inhalation therapies, the costs would be reduced from 101.18 DM to 78.62 DM (-19%).

3.) Physicians should also restrict the prescription of infrared light therapy because a) a significant number of patients is using infrared light therapy at home and b) because the original positive effect of an infrared light therapy might be neutralized by the increased physical effort of patients having to drive (bicycle? car?) to the physician's practice especially during the cold and wet season of the year instead of resting in bed at home. In case of a treatment cost of 7.95 DM, the non-prescription of three infrared light therapies would reduce the health care expenditures from 78.62 DM to 54.77 DM (-20%).

4.) Instead of prescribing fever reducing drugs, physicians should recommend the usage of effective fever-reducing methods like luke-warm or cold calf-wrappes against mild or medium high fevers (<39.5 C), because these home remedies are highly effective and generally accepted by their patients. For health insurance companies, the non-prescription of fever-reducing drugs would immediately reduce the costs

from 54.77 DM to 38.93 DM (-13%). On a long term base this practice would reduce the number of lay people who consult a doctor with a "fever" by 50%, because 50% of the lay people would be encouraged to change their beliefs about the necessity to consult a doctor in case of a Bagatell-fever and treat fevers < 39.5 C by themselves.

5.) In order to avoid additional health care expenditures, physicians should be very cautious with the prescription of antibiotics in case of common colds, flus and bronchitis, because antibiotics cannot cure viral infections and male patients are relatively often drinking alcoholic home remedies which might interfere with the pharmaceutical effect of antibiotics.

6.) Health care expenditures could also effectively be reduced if physicians would a) write down the date and type of prescribed drugs against an acute respiratory infection in their patient's charts and b) ask their patients how much of the previously prescribed drug is left in order to increase the patient's awareness of the type and age of the drugs in his/her medicine cabinet and in order to reduce the health care expenditures for prescribed and unused drugs. In case of an expiration date of two years, the medication expenditures for for example three common colds (3 x cough drops = 3 x 7.-DM; 3 x nasal spray = 3 x 7.- DM; 3 x prescription = 3 x 5.-DM) could be reduced from 54.-DM to 19.- DM for a two year period, so that the drugs for one common cold would drop from 19.- DM 6.33 DM. If I continue the calculation from point # 4, the

health care expenditures would be reduced from 38.93 DM to 26.27 DM (-10%) for one respiratory illness episode. In case of a three year expiration time of drugs and an incidence rate of 1.5 for common colds, the proportion of saved drug expenditures would be much higher (-19%). Although health care expenditures vary from one health insurance company to the next, the percentages of each suggested cut will be the same for every health insurance company.

7.) Pharmacists should write down the date of the purchase and the expiration date of a drug in an obvious easily readable manner on the bottle or package or alternatively, underline or highlight the expiration date in order to secure the patient's/customer's safe and repeated usage of a medication.

8.) Federal health insurances should use their monthly magazines, which are sent to every health insurance member/household, in order to describe the safe preparation and application of effective home remedies and warn their members about ineffective or even harmful home remedies. In addition, these magazines should a) promote the regular preventive application of effective hydro- and balneotherapeutic methods like regular sauna baths, cold showers or Wechseldusche, etc and b) describe methods which prevent the transmission of respiratory infections by using the traditional infection-promoting whooping cough health care practice as an example to catch the interest and put the Germ theory in a for lay-people familiar frame work in order to foster lay-people's

medical knowledge about the prevention of the transmission of common infectious diseases within their households.

9.) Basic plant knowledge (identification, collection, storage and usage) of common local medicinal plants should be reintroduced to the curriculum of primary schools in order to familiarize and teach children about valuable plants of their environment.

10.) Other organizations like the organization or rural women (Landfrauenverein) or the evening college (Volkshochschule) could offer courses or lectures about the safe usage of effective, basic therapeutic-and preventive health care practices to satisfy the current popular interest of lay-people/informants in getting information about medicinal plants and effective home remedies.

All these practices have a high potential of significantly reducing the health care expenditures of the most common respiratory infections and are likely to be accepted by the majority of the lay people, by local pharmacists and the school principle and at least be partially accepted by one local physician. The extent of their effectiveness is based on a) the reduction of the incidence rate of common respiratory illnesses, b) the encouragement of informants to treat sniffles, cough, common cold, sore throat, flu and bronchitis completely or at least for a longer period by themselves with effective home-remedies (which would make many consultations of doctors

unnecessary), c) the provision of objective information about the safe usage, effectiveness and limitations of home-remedies, d) the education of especially younger inexperienced lay-people, e) the voluntary cooperation and interaction of local physicians, pharmacists and the school principle as well as f) the power of the local health insurance companies to change their policies and extent of reimbursement for physicians costs.

Further investigations and specific action research are necessary in order to find out whether these results apply only for this rural setting of northern (West) Germany or whether the same results can be found in other rural and urban areas of former West and East Germany.

APPENDIX A: THE MAIN INTERVIEW-QUESTIONS

1.) Ich möchte Ihnen ein paar Fragen stellen zum Thema: Erkrankungen der Atemwege. Was für Erkrankungen kennen Sie? (Beispiele)

I would like to interview you about illnesses of the respiratory tract. What kind of illnesses do you know? (examples)

2.) Kann man diese Krankheiten in jedem Alter bekommen? Ja/Nein falls nein, erklären Sie bitte.

Can one get these illnesses in every age? Yes/No if no, please describe.

3.) Welche Atemwegserkrankungen kommen in Ihrer Familie/Haushalt am häufigsten vor?

What are the most common respiratory illnesses within your family/household? a) () b) () c) ()

Sind diese Erkrankungen gleichartig schlimm? Ja/Nein falls nein, welche Erkrankung ist die harmloseste? (1), weniger harmlos ? (2), nicht harmlos/ernst? (3).

Are these illnesses equally severe? Yes/No if no, what is the least serious (1), moderately serious (2), and most serious (3) one?

4.) Wie oft haben Sie a), b), c) pro Jahr?

How often do you have a), b), c) per year?

5.) Waren Sie die einzige Person in Ihrer Familie/Haushalt, die zu dem Zeitpunkt krank war? Ja/Nein falls nein, wer wurde zuerst krank?

1. 2. 3. 4.

Were you the only person in your family/household who got sick at that time? Yes/No if no, who got sick first? 1. 2. 3. 4.

6.) Wodurch bekommt man a), b), c)?

How does one get a), b), c) ?

7.) Was für Symptome hat man, wenn man an a), b), c) erkrankt ist?

What kind of symptoms does one have if one is sick due to a), b), c)?

8.) Ist es möglich, daß sich eine Erkrankung in eine andere Erkrankung verwandeln kann? Ja/Nein falls ja, geben Sie Beispiele:

Is it possible that one illness can turn/change into another one? Yes/No if yes, give examples:

9.) Wer entscheidet in Ihrer Familie/Haushalt über die Art der Krankenbehandlung?

Who decides in your family/household about the type of treatment a sick person gets?

10.) Wer pflegt kranke Familien-/Haushaltsangehörige? Und wenn diese Person krank wäre, wer würde dann die Pflege übernehmen?

Who is taking care of sick family-/household members? And if this person would be sick, who would take over the care?

11.) Was machen Sie, wenn Sie a), b), c) haben? (Arbeit, Bekleidung, Ess- und Trinkgewohnheiten sowie spezielle Behandlungen)

What do you do when you have a), b), c)? (working-, dressing-, eating- and drinking patterns as well as particular treatments)

12.) Kann man etwas besonderes gegen den Husten tun? Ja/Nein falls ja, was?

Can one do anything in particular against cough? Yes/No if yes, what? sequence of action: home-remedies (), physician (), pharmacy ()

13.) Was machen Sie, wenn Sie Fieber haben?

What do you do if you have a fever?

14.) Wie lange dauert es normalerweise bis Sie wieder gesund sind von a), b), c) 1.) wenn Sie sich zu Hause auskurieren?, 2.) wenn Sie einen Arzt aufsuchen?

How long does it usually take until you are healthy again from a), b), c) 1.) if you cure yourself at home?, 2.) if you contact/visit a doctor?

15.) Ist es notwendig einen Arzt aufzusuchen, wenn man a), b), c) hat? Ja/Nein falls ja, wann und warum?

Is it necessary to consult a doctor in case of a), b), c)? Yes/No if yes, when and why?

16.) Würden Sie sofort zum Arzt gehen, wenn Sie (Symptom von # 15) haben?

Ja/Nein falls ja, wie? Führerschein? Ja/Nein Auto vorhanden?
Ja/Nein

falls nein, was würden Sie tun?

Would you go immediately to the doctor if you have (symptom mentioned in #15) ? Yes/No if yes, how? driver's licence Yes/No car available
Yes/No

if no, what would you do?

17.) Was könnte der Arzt gegen ernstere Symptome wie (Symptom von # 15) tun? What could the doctor do against severe symptoms like (symptom mentioned under #15) ?

18.) Wie kann man verhindern, a), b), c) zu bekommen?

How can one prevent getting a), b), c) ?

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