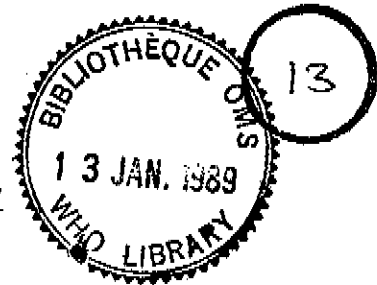


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WORLD HEALTH ORGANISATION  
INSTITUTE OF CHILD HEALTH, ATHENS

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PERINATAL STUDY GROUP

6 - 8 DECEMBER 1979, ATHENS

|                  |      |
|------------------|------|
| DESCRIPTION      | ACEN |
| REF. 13 JAN 1989 |      |
| ANSWERED         | FOUC |

1. INTRODUCTION

1. 1. Opening Session

A planning meeting of the Perinatal Study Group was convened in Athens from 6 to 8 December 1979 by the Regional Office for Europe. The meeting was attended by fourteen temporary advisers from Denmark, Finland, Greece (4), Italy, Netherlands, Norway, Turkey, United Kingdom (3), West Germany, two staff members from WHO Headquarters, Geneva and one staff member from WHO Regional Office Copenhagen.

Professor S. Doxiadis, Minister of Social Services of Greece and President of the Institute of Child Health, Athens, welcomed the participants. Dr. M. Wagner was elected Chairman and Dr. Eleanor Ierodiaconou acted as Rapporteur.

1. 2. WHO 5 Year Plan

Dr. Wagner explained the aims of the WHO 5 year plan approved in September 1979 which consists of the following topics: chronic diseases in the young, nutrition in the industrial society, health promotion for newer problems, the position of women in health, and the perinatal period.

The interest in the prenatal, natal and neonatal period has been aroused by the fact that, in many countries, birth is now hospital based and more technological and this is accepted without question as a good thing. Psychological and social effects of the dehumanisation of human birth processes, problems of delivery of services and widely differing perinatal mortality rates between countries have led to the setting up of a multidisciplinary study group to study the perinatal period. This group will study four main topics:

2. The prenatal period and the risk approach to prenatal care.
3. The incidence and causes of low birth weight
4. The effects of high level neonatal technology
5. The infant-maternal bonding process.

### 1. 3. WHO Global Studies on Risk Approach to Prenatal Care

Dr. Lilsherg reviewed the WHO studies on the risk approach to prenatal care. Cuba, Malaysia, Czechoslovakia, Turkey, Israel and Norway have been conducting prenatal projects. The facts emerging stress the need for every country to apply its own special risk approach and not that of another country. Epidemiological knowledge must be used to relate the problem to risk factors in order to predict the outcome. Operational research will enable services or resources to be allocated or reallocated. A common protocol cannot be applicable to every country because of different situations.

## 2. PRESENTATION OF PERINATAL RISK STRATEGIES IN VARIOUS COUNTRIES

### 2. 1. Turkey

The latest figures from the Perinatal Risk Study being undertaken in Turkey were presented. The Pilot Study was completed in 1977 and the Main Study started in January 1978. The objectives of the Main Study were:

1. To develop a new local strategy for MCH care based on the risk approach by preventing undesirable outcomes.
2. To develop intervention strategies for women and children at risk
3. To establish an improved MCH care system by reallocation of resources.

Briefly, health centres serving populations of 7-10,000 are linked to regional hospitals (25,000 population) and villages are served by subcentres manned by 2-3 midwives serving 2-3,000 inhabitants. The village midwife is the key person in the programme. Trained in risk policies she refers patients at risk to the physician. All pregnant women in 1978 and 1979 and their offspring are being followed up. A comparison between assignment to high and low risk categories by doctors and midwives showed concurrence in 85.5% whilst 9.3% who

In the opinion of the doctor should have been referred, were not referred by the midwife.

The experience of the first year has shown that the use of the risk approach has improved communication between midwives and physicians in general and helped to improve their decision-making abilities. Family planning has received more importance. The difficulties have been increased paper work, problems of travel in winter, high costs of transportation, and missing information. By the end of 1978, 1125 pregnant women and 1400 children had been studied. There had been 3385 follow up visits to pregnant women and 6515 to children.

## 2. 2. Norway (see appendix I)

In Norway the general practitioner is the key person in primary health care. The midwives' role is small. The average number of antenatal visits is 9. 16% of women attend birth preparation classes and 99.5% of deliveries occur in hospital.

## 2. 3. Scotland

The ongoing research into antenatal care was discussed. One of the main problems is the large distances having to be travelled in and around Aberdeen for women to reach the hospital. It is recommended that women at low risk actually receive a reduction in hospital antenatal care with more visits to the local general practitioner or midwife. How women themselves will react to this reduction in care is under study. Another finding of great relevance to the risk policy was that 50% of infant deaths in the neonatal period were to mothers in the nonrisk groups.

## 2. 4. Finland (see appendix II)

The role of the midwife is of prime importance in Finland. All deliveries occur in hospital. Antenatally women are seen 11 times by the midwife and 3 times by the physician. 81% of primigravidas have psychoprophylaxis accompanied by 60% of their husbands. Breast feeding is strongly supported.

### 2. 5. Greece

#### Intervention Study in Florina.

The country of Florina in Northern Greece was divided into two with an equal number of villages forming the study group and the control group. The city was also likewise divided. In the study group, specially trained midwives visited each expectant mother twice a month. Besides routine medical checks she gave dietary and social advice, educating the mother in a sensible and healthy approach to her pregnancy. In the control group the usual system was continued. After delivery, babies were visited monthly in the study group by paediatricians, assessed developmentally and medically (nutritional status etc) and advice given on diet and stimulation of the child. In the controls, the child was seen twice in the first year of life and assessed. The study is still ongoing but preliminary results indicate that socio-economic factors may be more important than medical factors in improving the care and outcome of the pregnant woman and her child.

### 2. 6. Germany

Despite having one of the highest per capita incomes, Germany is around the 12th position in the PNMR league table. There is very great variation between the 11 states - from 17.8 in the best to 18.6 in the worst. The richest state has a rate of 15.6/1000. There is no correlation with the medical care offered. There is insufficient participation in antenatal medical care and lack of surveillance of high risk patients. Primary and preventive health care is exclusively in the hands of the physicians - the midwives' role is small. There are many very small hospitals, some with under 50 deliveries a year and no regionalisation care. Small clinics obviously have little experience and offer poor training to doctors.

In the large cities with good obstetric services the PNMR is less than in rural areas, the opposite situation from Sweden, Finland and Holland. Transport is a big problem for more than half the high risk patients.

Birth weight data are collected in a superficial manner. Immigrant populations (2 million) whose customs and culture differ are particularly at risk as are illegitimate births. There is a high incidence of sudden infant

death in these groups.

There is lack of quality control and audit of deaths throughout W. Germany. E. Germany has since 1963 practised both these with a resultant fall in PNMR.

It is recommended that midwives play a greater role in primary health care and that physicians, obstetricians and paediatricians cooperate between themselves and that only the introduction of some quality control can lower the mortality rate.

#### 2. 7. Netherlands (see appendix 11)

This country has a unique situation with one-third of all deliveries occurring at home. The 1978 PNMR is 12.45<sup>0</sup>/100 (25<sup>0</sup>/100 in hospital and 4<sup>0</sup>/100 at home). The average number of prenatal examination is 12 with the midwife playing a large role. She herself is by law entitled to supervise a normal pregnancy and delivery throughout. The basic principle of obstetric care is the selection of cases at risk and arranging hospital delivery. In 35% of all cases is such a distinction made. Home deliveries are without intervention or anaesthesia. In the lying-in period a specially trained maternity welfare worker stays with the family for 10 days.

Discussion about the papers presented on the Prenatal Risk Policies of various countries included the following topics:

#### 2. 8. Defining the Problem

There is firstly a need for assembling data already existing in each country with regard to prenatal practices. What actually exists, what is done and how care is given must be clearly defined. A rational risk approach is virtually universal. In Third World countries something of a risk approach does exist. This must be examined and defined as there will be an inherent wisdom in that system. The risk system can be compared between countries.

#### 2. 9. The Decision-Making Process

This must be examined with reference to the risk policies. Why are decisions made the way they are, and how do they differ between countries. The

decision-making process must be formulated in an explicit way. The present process may inform us about hidden risk policies. Comparisons may tell us why certain decision making will be the same between certain countries and where not, inconsistencies may be reconciled.

#### 2. 10. Outcomes

The outcomes should have specific weights attached to them ad hoc and these will be different for each country. From the explicit weights put in, comes a measure of the importance of the problem. More weight may for example be given to reducing handicap than to mortality. Not enough is known about morbidity as an outcome. Birth weight and PNMR are hard core facts but are they always enough to measure outcome? Can we come up with anything better? For example should operative intervention be seen as an outcome in itself.

#### 2. 11. Socio-economic Factors

Having identified the risk, can anything now be done about it. If the risk is low income, illegitimacy, increased maternal age or psychological problems, a highly sophisticated risk approach to perinatal care may not make much difference. The causes of these risk factors must be examined and if necessary, pressure put on governments to realise that health service expenditure may not be the ideal way to reduce perinatal mortality. It may be found that a very expensive system of services exists with no real evidence that it is doing any good. Evaluation of the results may enable us to inform governments what can or cannot be expected from such a system. It was emphasised that governments should in fact be part of the whole process and that cooperation throughout will make necessary policy changes self-evident.

#### 2. 12. Allocation of resources

The group considered the problem of birth weight, a relatively simple variable, reflecting perinatal health and morbidity. It is necessary to distribute more resources to areas where there is a greater incidence of low birth weight. However in most countries this is not done. In UK six special care costs per 1000 deliveries are available nationally with no regard to areas with higher LBW problems.

Usually, funds are distributed without identifying health service activities. A budget to distribute nationally is not available. In the WHO region, countries have varying incidences of LBW and the MCH budget should distribute resources according to this, having identified the groups at risk.

#### 2. 13. Evaluation of Effectiveness

The difficulties of evaluation were discussed. Continuity of care throughout pregnancy preferably by the same health worker is difficult to achieve. Is the number of antenatal visits correlated with the outcomes of LBW and PNM? Would for example about 4 visits for normal women and about 10 visits for high risk cases be effective? It must be remembered that worldwide the economic situation must be considered and it is important to be cost-effective.

#### 2. 14. Intervention Programmes

Pilot studies should be started in various areas for intervention programmes. Either a whole new system on risk may be developed based on existing risk in pilot areas or through random controlled trials to test limited hypotheses.

#### 2. 15. Women's Reactions

Women's liberation groups are affecting policies in various countries. The difficulties of doing research in this area were discussed. In Aberdeen this is presently being investigated i.e. the "quality" of antenatal visits and the way each woman evaluates them, and the policies as they affect her individually.

#### 2. 16. The Risk of Being "At Risk"

Following from the above, it has been found that in women who know themselves to be at risk, extra stress is added. In women with an increased value of a-feto-protein, smoking increased until such a time as a definite diagnosis was made by amniocentesis. Maternal stress is in itself a risk factor. By ultrasound it has been found to affect normal fetal movements.

In Turkey this problem is overcome by using the words "risk care" in English and the mother is thus unaware of the implications.

### 3. PROPOSED STUDY ON LOW BIRTH WEIGHT

Low birth weight (<2.5kg) has a positive correlation with perinatal mortality. Birth weight specific perinatal mortality rates show that although more smaller babies die, the largest of the larger babies are also at risk. There is some evidence that the perinatal mortality rate of these big babies is a sensitive index of neonatal technological services in an area. However, in most countries, these BW specific rates do not exist.

Even better are cause specific perinatal mortality rates. Neither are these commonly available. Major congenital anomalies especially of the central nervous system which are, for example, common in England and Wales, are included in the overall PNMR, yet are rarely acknowledged. Birth weight distribution and the incidence of lethal malformation are factors outside the health services.

A plea was made to collect BW data wherever this can be arranged. It is a simple variable and can be used to allocate resources using the risk approach (see 2. 12). BW data is not at present universally available e.g. in Turkey 50% of babies who are born at home are not weighed.

Discussion centred around the following points:

#### 3. 1. Problems of Data Collection

Perhaps in certain countries or areas, BW data could be collected for a certain proscribed length of time if routine collection poses too many organisational problems. Accuracy is obviously required and the problems of portable scales, their bulk and inaccuracy were discussed.

#### 3. 2. Type of Low Birth Weight

The small baby may be either premature and/or small-for-dates. The distinction in itself is a strong predictor of death. The exact gestational age of a baby is a difficult variable. At least 15% of women do not know the date of their last menstrual period and the assessment of gestational age of the baby is rather complicated. It was thus felt by the group that gestational age should not be used as an output indicator in itself but should continue to be studied as a separate variable.

### 3. 3. Reasons for Collecting BW Data

Collecting BW information can be for three reasons. Firstly, as an output indicator of prenatal services, secondly, to find out the correlation between LBW and other causal factors besides the services and lastly as an indicator of how we look after ourselves i.e. purely for the phenomenon itself.

### 3. 4. Conclusion

It was agreed that BW can be simply recorded and is a good predictor of prenatal care. It could be used to allocate scarce resources between different regions. Whilst accepting that knowing the percentage of LBW due to prematurity and/or dysmaturity would be of great advantage for knowing the exact type of neonatal service required, at the present time since internationally BW data is inadequate, we should concentrate on using this simple parameter.

## 4. STUDY ON NEONATAL TECHNOLOGY

Information is needed as to whether this is a high priority area. Neonatal intensive care services are extremely expensive and often something of a status symbol. There are very few studies correlating neonatal mortality with provision of neonatal intensive care. Family planning may be of almost equal importance e.g. the perinatal mortality rate may be decreased by 3<sup>o</sup>/oo by preventing births to women over 40 yr, whose offspring contribute greatly to the figures.

### 4. 1. Trieste Study of Neonatal Intensive Care

Trieste, Italy is an area of 112 sq km with 300,000 population. In 1971 the PNMR was 23<sup>o</sup>/oo, and obstetric care was very traditional in the two hospitals. In 1971 a combined obstetric/paediatric department was set up and improved care offered with an increase in monitoring in labour and a paediatrician present at all at risk deliveries. The PNMR fell by 40%. In 1972 an intensive care unit was started and in 1973 early management of respiratory distress syndrome (RDS) was instituted with emphasis of early continuous enteral feeding. The incidence

of RDS fell from 1.02% in 1973 to 0.70% in 1978, a decrease of 43%. The mortality for RDS likewise fell from 3.12% to 1.17%, a fall of 62%. The PNMR 1978 was 7.6<sup>o</sup>/oo (3000 births).

Comparing two groups of preterm babies similar in BW and GA with and without RDS, the only statistically significant variable was the Apgar score at one minute. (<7). Fetal and neonatal acidosis and abnormal cardiotocograph tracings were not significant. It was shown that prompt resuscitation of the infant at birth was the single most important factor in preventing RDS and its subsequent morbidity and mortality.

At present 94% of women of the area are delivered in this centre in Trieste. 85% are monitored and a paediatrician is present at all deliveries. The essential approach to mother and baby is flexible and non-dogmatic.

Discussion centred around the question as to whether neonatal intensive care is beneficial. There are no epidemiological data as yet correlating care given and the overall neonatal mortality rate.

#### 4. 2. The present situation

The present situation in each country must be surveyed with regard to distribution of intensive care units and correlation with neonatal mortality rates i.e. what exists at a peripheral level (Level I care), at referral levels (Levels II and III care), and how is intensive care best delivered. Statistics must be region based and not hospital based.

#### 4. 3. Cost-Effectiveness

This is an area where cost effective studies are invaluable. The output versus the cost is a steep curve which plateaus i.e. simpler things costing less have the greater output. Different countries start at different levels on this curve and thus the output would be difficult to agree on and to compare between countries.

#### 4. 4. Prenatal v. Postnatal Care

Is it so, that the more resources given prenatally, the less needed postnatally? Does an inverse relationship exist between quality of antenatal care

and need for neonatal intensive care. If so, more resources should aim at preventiveness rather than treatment of neonatal problems, especially if invasive neonatal technology is shown to be bad from a biological outcome, bad psychosocially for the family (see 5.1) and very costly.

#### 4. 5. Problem of Definition

We cannot accurately and consistently define intensive care for each country. It means something different according to the existing level of primary care etc. in each place. Babies treated promptly at an early stage of their illness need less intensive care than babies left to reach a moribund stage. Intensive care in one country may consist mainly of ventilating extremely small premature infants whilst in another it may entail treating birth asphyxia and septicaemias in the larger fullterm baby.

#### 4. 6. Need for Perinatal Audits

Perinatal audits should be carried out and will give early feedback information. Not only death audits, but audits on every operative delivery are now performed in some countries. Post mortems should be performed as the ultimate audit.

### 5. STUDY ON MATERNAL-INFANT BONDING

(see appendix IV)

In the last 15 years, data has been piling up to prove that separation of the newborn from its mother at birth affects the development of the infant, from both the cognitive and emotional points of view. On the contrary, extra contact at birth facilitates development.

Intensive Care Units pose a special hazard for the psychological and emotional development of the infant by severely disrupting the bonding process.

Attachment is a process involving two people, baby and mother. Signals from the newborn seem to be very important for interactional processes.

Discussion about bonding included:

./.

### 5. 1. Incidence of Battering

In Finland where only 2 out of 60 hospitals have a heater in the labour ward early contact and rooming in is not established. The incidence of subsequent baby battering is high.

### 5. 2. Conditions in Italy

Rooming-in is available in 12% of cases. Time of the first breast feed is < 12 hr in 25%, > 24 hr in 42%. 85% of babies receive some formula feed. However since around 80% of Italian babies are not "bonded" early with their mothers, does this mean that 80% of the population are disturbed and sub-optimally developed? Bonding may be a biopsychosocial phenomenon, not necessarily the same across the human race. Cultural factors may play a large part. We must not be dogmatic and must ask the mother herself what she wants at this critical time in her life. A recent questionnaire on parental attitudes in 1977 showed that 36% of mothers refused rooming in and breast feeding.

### 5. 3. WHO/UNICEF Infant and Young Child Feeding Recommendations, 1979 Geneva

These recommendations support early contact of mother and baby within the first twenty minutes mainly to encourage successful breast feeding. In Germany recently, by only offering early contact, breast feeding quadrupled in duration.

### 5. 4. Training of Personnel

It is unknown what training medical personnel are receiving in this field. The prevailing attitudes and prejudices towards acceptance of rooming-in are usually traditional and deeply engrained.

## 6. PROTOCOLS OF INTENDED STUDIES IN THE FOUR STUDY SUBJECTS

### 6. 1. Study Plan for the Risk Approach in Prenatal Services

Hypothesis: The system of prenatal care can be utilised more effectively by mobilisation and reallocation of resources.

Overall objective: To develop local strategies for prenatal care based on the

risk approach in an effort to optimise the outcome for mother and baby.

Method: The Research is in three stages:

1. Epidemiological surveys
  - a. a survey to collect existing data from all member states in WHO region. Duration of project 6 months.
  - b. based upon information gathered, detailed surveys from selected countries or districts within countries to probe more deeply into what really goes on in prenatal care i.e. not only quantity but also quality of care. The first survey will probably show that in many places we know very little of what is going on. Duration 18 months.  
Personnel-research group in each of participating countries plus a reference or study group.
2. Apply Risk Strategy to reallocate resources i.e. to try to find better ways to spend resources in prenatal care.  
Smaller specific projects within the regions with the detailed surveys.  
Duration of Study 2 years.
3. Evaluation of Outcome.  
The outcome is not only seen as medical outcome i.e. perinatal mortality and other measurable medical factors but also in costs. Duration of this stage will be one year including writing and publishing of the report.  
Duration of whole project will be 5 years.

#### 6. 2. Birth Weight (BW) Study Protocol

It was proposed that the term Birth Weight rather than Low Birth Weight be used.

Method:

1. Survey the current situation in all 32 member states to assess the existing situation with regard to BW information. A consultant would be used to develop a questionnaire which would include questions as to whether there is any intention to change the system in the future. Existing published information would be supplemented by written contact with governments through use of the questionnaire.
2. Representative sample of member states to assemble more detailed information on what actually exists and takes place in collecting BW data from

newborn infants. These member states would be selected because they represent certain delivery systems, certain geographical regions, more and less highly developed etc. and thus a representative sample chosen. A local consultant who knows the situation in his country very well would work with the supervision of overall consultant from (a) above. This would give more detailed and reliable information.

3. Evaluation of data from 1 and 2 above. Are there categories of member states re collection of BW? What are the advantages and disadvantages of the systems.
4. Pilot Projects for interventions in individual countries.
  - a. This could be through innovative systems to improve collection of BW's as part of other studies being carried out in the different countries.
  - b. Opportunity exists to develop BW specific studies in areas where BW data systems already exist.

These two studies 6.1 and 6.2 must be coordinated together.

### 6. 3. Neonatal Technology Study Protocol

#### Overall objective:

1. To promote the rational use of high level technology in perinatal care. Is it available to infants who require it and/or is it overused on those who do not really require it (research purposes etc.).
2. To assess whether based on present already available knowledge of efficacy, is what is known applied.

#### Subjectives:

1. To promote the rational distribution, use and type of neonatal intensive care in the European region.
2. To promote appropriate training of all medical and paramedicals and
3. Thus to provide information to governments and to suggest rational programmes for each country in turn.

Method. Survey the existing situation in each country with regard to present use of their facilities.

1. Official data collection from governments (by questionnaire)
  - a. Obstetric: - Natality and perinatal statistics including low birth weight rate.
    - Number of obstetric beds and distribution including how many units have less than 500 and how many more than 3000 deliveries a year and number combined with paediatric services.
  - b. Neonatal: - Number and distribution of neonatal intensive care units
    - The criteria existing for designation of neonatal intensive care.
  - c. Transport: What system exists and whose responsibility it is.
2. Pilot Areas: Detailed surveys to be carried out in selected areas to assess the actual situation pertaining in each country. The following quantitative information would be collected. An overall consultant would work with local consultant co-operation.
  - a. Obstetrics: - Natality
    - No of births per year per hospital
    - Number admitted for antenatal care
    - Frequency of biophysical monitoring during labour, cardiotocography, PH, etc.
    - Number and type of operative deliveries
    - Number of low birth weight babies
    - Specific diagnoses rate i.e. congenital malformations
    - Hyaline membrane disease
    - Neonatal surgical problems
  - b. Paediatrics: How many intensive care costs per 1000 infants born
    - Where situated i.e. in obstetric units, paediatric hospitals, regional maternal centres
    - Staffing of the ITU i.e. number of doctors and nurses per bed per shift
    - Equipment. Number and use of ventilators, incubators, monitors etc. Facilities for blood gas measurements
    - Yearly number of babies intubated and receiving artificial ventilation of all kinds short term and long term i.e. for less than 24 hrs, from 24 hrs to 7 days, and for more than 7 days.

- Number of autopsies and audits
  - Perinatal statistics re early and late neonatal mortality rates and cause specific mortality rates
  - Mothers' reactions to neonatal technology
  - An assessment of the medical and nursing documentation
  - Cost data to be collected
- c. Transportation of Sick Infants: Whether a transportation system for neonates exists
- If so, mean travel time and distance of referring hospital to ITU.
  - The different forms of transport used eg. helicopter, ordinary ambulance, mobile ITU etc
  - How ambulance is staffed and equipped
  - What procedures may be performed during the journey
  - Under whose auspices and whose responsibility is the transport scheme
3. Qualitative Evaluation through single case analyses. Certain cases i.e. respiratory distress syndrome, neonatal surgery and congenital malformations would be selected for detailed case analysis and comparison between countries, to assess whether what is already known about neonatal care is actually applied rather than an assessment of what should be done in each case eg. a good pointer to the intensiveness of care would be the value of the arterial oxygen ( $PO_2$ ) at which artificial ventilation is instituted. Similarly for transport, the temperature of the baby on admission to the referral hospital. The same consultant having collected the quantitative data could return one year later to the same areas for the quantitative study.

Duration of Study:

Official data collection 6/12

Pilot studies 2 years

Case studies 2 year

Presentation of results 6/12

NB Problem of Follow-Up:

In this study the outcome of perinatal morbidity was considered too complicated and lengthy and only short term outcomes should be considered.

#### 6. 4. MOTHER-INFANT BONDING PROJECT

Assumption : Bonding is important for the emotional development of the child.

Objective: Promote mother-infant bonding at birth.

Hypotheses: (1) Professional and para-professional staff involved in pre-peri- and post-natal care may not be aware of the importance of bonding at birth.

(2) Hospital practices may make it difficult for the bonding process to begin at birth.

(3) Technology, as applied to the neonatal care units may interfere with the process of bonding.

#### Proposed project

3 -steps

(1) Pilot study exploring the possibilities to study existing practices at Maternity Hospitals in one selected country of the region. (Greece has been suggested as the country).

During the same time visits should be made also to three places:

- (a) Trieste (high technology-aware of the problem)
- (b) Düsseldorf (high technology-aware of the problem)
- (c) Tampere-Finland (change in hospital practices has occurred, taking into account the bonding questions).

Evaluation of the results of the pilot study and planning of the main study.

(2) Main study. Survey of existing practices in some countries, or areas of the European region. Areas should be selected using a variety of criteria: e.g. home vs. hospital delivery practices, different religions, level of technology, level of industrial development etc.

The survey, because of its nature, should be done by a consultant who would visit the areas and not through questionnaires.

Evaluation of the results and planning of the next step:-

(3) Intervention: Some areas could be chosen, following the results of the main survey where a massive intervention program could be tried and changes evaluated with a view.

to recommending some key-general changes in policies in order to promote bonding.

Generalities

The Bonding group expressed the desire to include in all the proposed steps of this project, but also in the specific projects of the other groups (pre-natal, neonatal technology) some relevant approach to study the reaction of the pregnant women or mothers to experiences relating to bonding.

General subjects that should be included in the bonding projects are the following (discussed by all members of the perinatal study-group).

- Psychological preparation of the mother-to-be
- Immediate contact after birth
- Breast feeding
- Father's involvement
- Rooming-in
- In case the newborn should be placed in the intensive care unit, contact of the mother with her high-risk baby.

7. ROUND UP DISCUSSION ON THE FUTURE WORK  
OF THE PERINATAL STUDY GROUP

Discussion continued on the subsequent steps in the overall study.

7.1. A consultant would be hired as soon as possible to collect the official governmental data for the three studies: prenatal, birth weight and neonatal technology. This information should be from all 32 member states and include:

Prenatal - survey existing information of routine prenatal services and discover any special projects or innovations being undertaken in the member states.

Birth weight - what exists on information on BW information and assess what more is needed through contact with the local people.

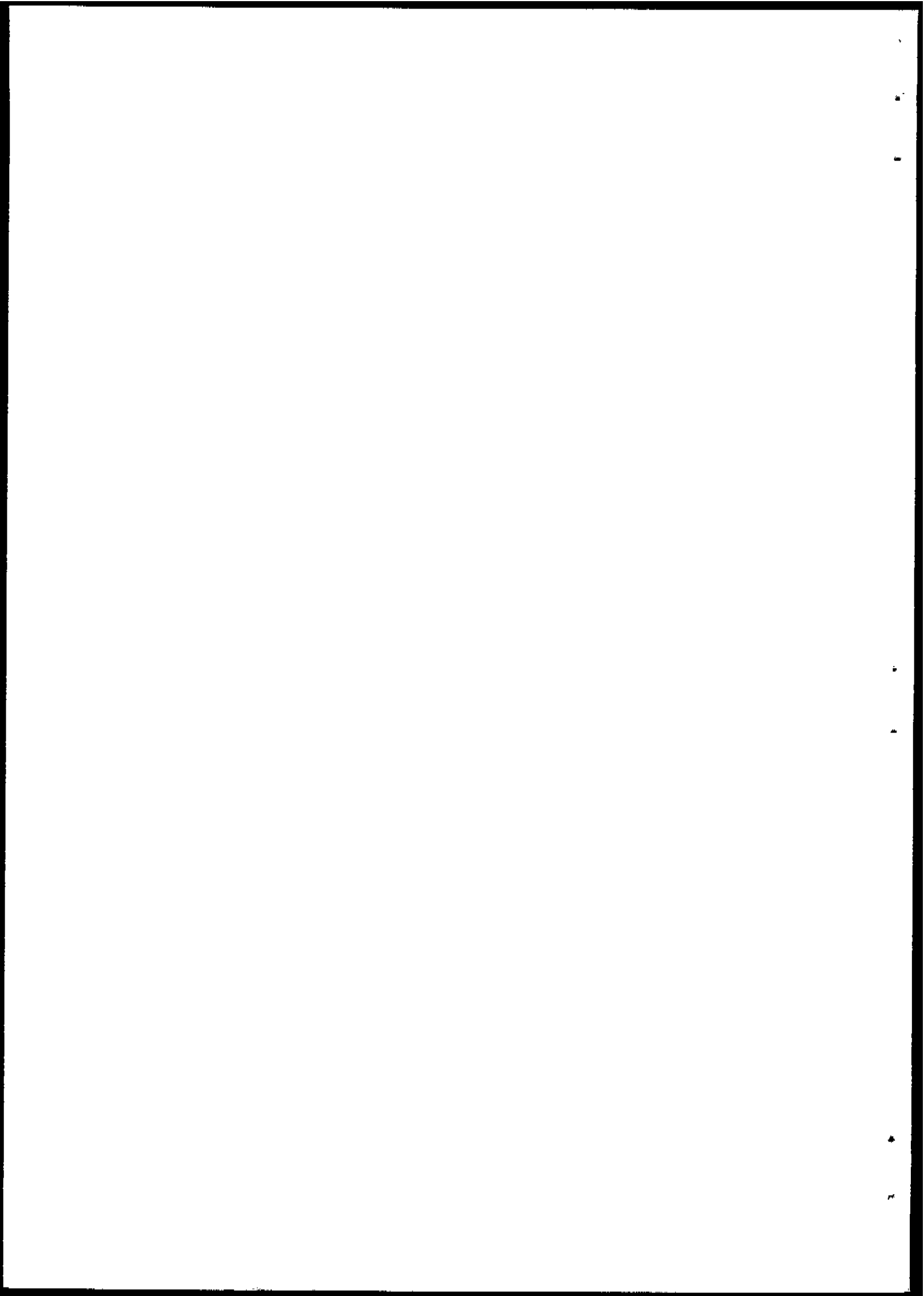
Neonatal technology - since there is probably a paucity of data in this field, data collection from official sources may be rather more difficult but negative data is just as significant overall as positive data.

Bonding - it could be asked at national level whether bonding had been taken into consideration in their policies. However this is a difficult question as to many bonding is something unheard of. Perhaps asking about rooming-in and breast feeding would be indirect ways round this eg. Has the government reacted to the WHO/UNICEF recommendations about infant feeding?

7.2. The overall impression was that the same person could collect all this data at the national level. A small meeting between this consultant and representative members of the group should be arranged, to inform and advise him as to key questions etc. before his embarking on this preliminary work.

7.3. At the next meeting of this group i.e. the Perinatal Study Group these official data could be evaluated and detailed plans formulated for the next step in the study, that of choosing pilot study areas etc. A systematic representation of action research proposals must include:

- the problem
- the premises (foregone conclusions or accepted facts)
- objectives
- hypothesis
- research design (type of study)
- activities to undertake (research, supportive/managerial).



APPENDIX I

Perinatal study group, Athens, 6 - 8 December 1979

The system for prenatal services in Norway

Per Bergsjø

Nearly all pregnant women in Norway receive medical prenatal care. This is paid in full by the Social Insurance Scheme, in contrast to ordinary medical consultations, where the patient is charged for part of the consultation fee.

Women are encouraged to consult a doctor as soon as pregnancy is suspected. This is followed by a series of consultations at varying intervals, with increasing frequency as term approaches.

In Norway, the general practitioner is the cornerstone of the primary health care system. In accordance with official health policy, prenatal medical care is, as a rule, provided by physicians doing general practice, which in this connection include the following categories (numbers as of 20. January 1978):

|                              |      |
|------------------------------|------|
| District physicians          | 492  |
| Interns in health districts  | 208  |
| City or community physicians | 39   |
| General practitioners        | 1154 |
| Health center physician      | 37   |
| <hr/>                        |      |
| Total                        | 1930 |

Specialists and hospital out-patient clinics are supposed to take only patients referred from general practitioners, but in practice this is sometimes overlooked. However, with 50 000 births per year and only 56 practicing gynecologists (20. Jan. 1978) plus limited resources in the out-patient clinics, general practitioners obviously carry the brunt of the burden. There is no statistical information on the distribution of prenatal care on the categories listed above.

Complicated pregnancies, for instance preeclampsia, maternal diabetes, Rhesus iso-immunization, are referred to specialists or hospital care, according to type and severity. As more and more obstetrical departments are equipped with ultrasound apparatuses, the demand for this type of investigation rises sharply.

Concerning the actual number of prenatal consultations per pregnancy, the University clinics set certain guidelines in their teaching, but there is no official policy. The final decision is left to the doctor's own judgement. In a study from 1975, conducted for another purpose, we have some pertinent data on a control group, which indicate the number of prenatal consultations in women who delivered in hospitals:

| Time of first consultation<br>(N = 537) |     | Number of prenatal consultations<br>(N = 537) |     |
|---|-----|---|-----|
| < 12 weeks                              | 53% | < 4   | 2%  |
| 12 - 15                                 | 21% | 4 - 6   | 10% |
| 16 - 19                                 | 7%  | 7 - 9   | 31% |
| 20 + weeks                              | 6%  | 10 +  | 40% |
| Not stated                              | 14% | Not stated                                    | 18% |

Apart from some geographical bias, these figures should be fairly representative.

Assuming an average of 9 consultations per pregnancy, we get 450 000 consultations yearly at an estimated cost in the order of 20 million N.Cr. in medical fees alone.

Midwives also take a part in prenatal care, but to a lesser degree. In some health centers and some hospital out-patients clinics, midwives assist at, and in some instances replace, the doctors in some of the consultations. Further, preparatory courses are held, generally arranged by midwives, with the help of physiotherapists, in some

instances also with doctors and psychologists taking part. To use the only statistical source available, 16% of pregnant women in Norway participated in such courses in 1973.

In the Norwegian health system, hospitals have a permanent staff. The practicing physician's responsibility ends as soon as the patient is inside the hospital walls. As 99.5% of all births in Norway take place in institutions, mainly hospitals, this means a change of medical environment to most pregnant women. To prepare for the hospital delivery, midwives in some hospitals arrange a prenatal consultation, but to what extent this is practiced, I do not know.

In counties and areas with more than one maternity institution, the choice of place of delivery should be made well in advance of term, according to risk. Some counties practice advance booking, particularly where there is shortage of maternity beds. There is a trend towards more deliveries in well-equipped central institutions. In 1974 the distribution of various types of maternity institutions and their respective share of the births were as follows:

| Type of institution                        | Number of institutions per July 1974 | Per cent of births 1973/74 |
|--|--------------------------------------|----------------------------|
| Maternity hospitals                        | 2                                    | 4.0                        |
| Department of gyn./obst.                   | 31                                   | 67.4                       |
| Obstetric ward in department of surgery    | 29                                   | 17.7                       |
| Obstetric ward in local hospitals          | 10                                   | 5.1                        |
| Maternity homes                            | 14                                   | 1.3                        |
| Combined maternity homes/cottage hospitals | 45                                   | 3.9                        |
| Total                                      | 131                                  | 99.4 <sup>x</sup>          |

<sup>x</sup> 0.6% of births took place outside of institutions

In conclusion, the general practitioner provides most of the prenatal care, regardless of whether the consultations are in his/her private office or in a local health center, where midwives may also assist. The frequency of consultations is left to the doctor's judgement. The average appears to be 9 per pregnancy. About 15% of pregnant women also attend preparatory classes, and some go to a pre-labour consultation at the chosen obstetrical department. Almost all births take place in institutions, mainly hospital departments.

With regard to the risk approach in prenatal care in Norway, the aim must be a stronger emphasis on more intensive control of high-risk cases at the expense of the larger group of low-risk cases. As background data on the present practice are largely lacking, a study of prenatal services must have a double aim. Firstly, a survey of existing practice, and secondly, an effort to remodel the system in accordance with the risk approach philosophy.

## APPENDIX II

MATERNITY HEALTH SERVICES IN BURLINAA PROVINCE IN 1978  
SELECTED STATISTICS

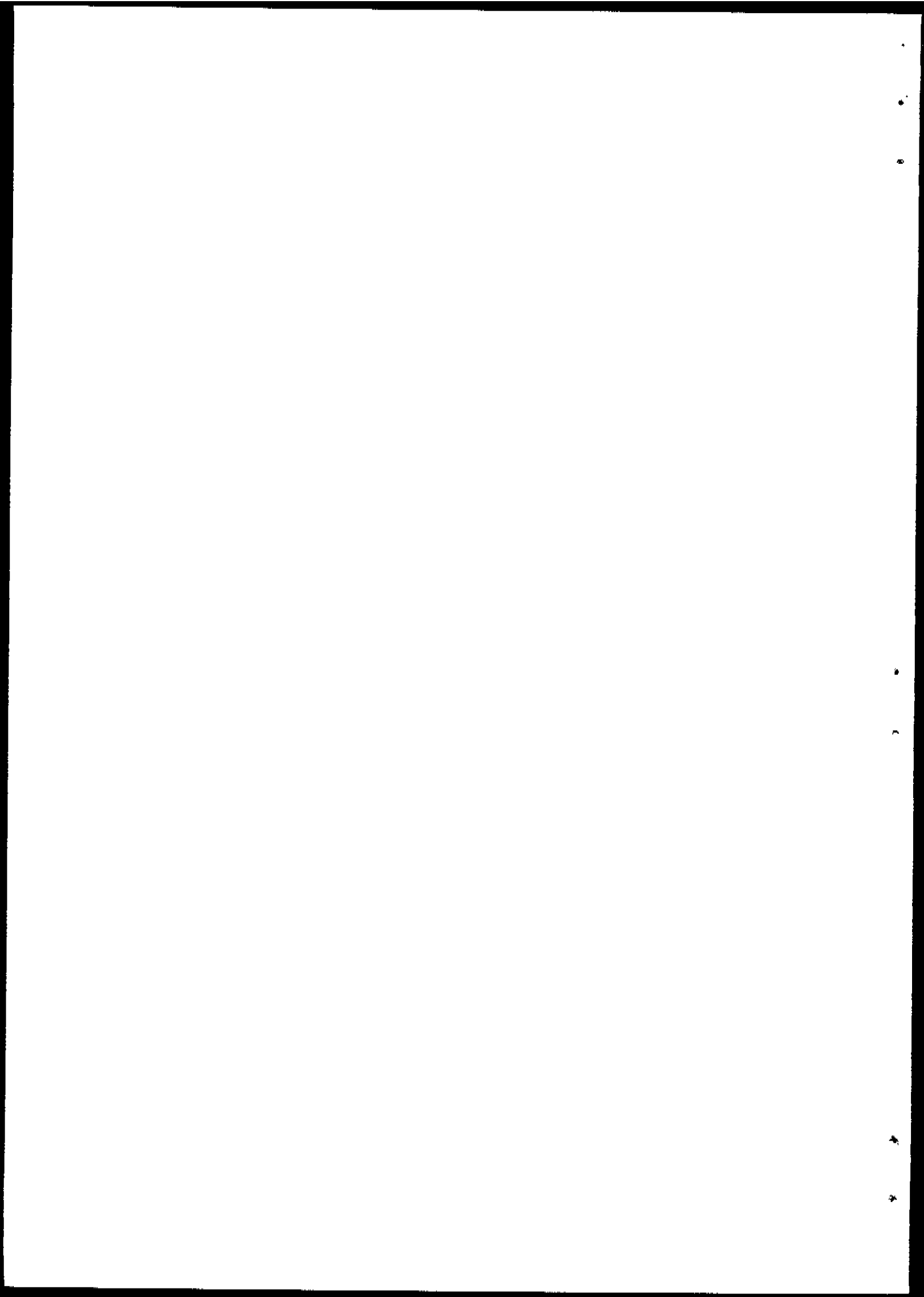
|   | HELSINKI CITY |         | OUTSIDE |        |
|---|---------------|---------|---------|--------|
|   | N             | %       | N       | %      |
| POPULATION  | 483 926       | .       | 626 724 |        |
| Mothers registered at the Maternity Health Clinic                                     | 5 775         | ± 100   | 9 332   | ± 100  |
| Mothers delivered   |               |         |         |        |
| -in hospitals   | 5 774         |         | 9 324   |        |
| -in mother's home, midwife present  |               |         | 2       |        |
| midwife not present   | 1             |         | 6       |        |
| The first examination before the end of the 4th month of pregnancy, number of mothers | 5577          | 96.6    | 9014    | 96.6   |
| Examined by physician or midwife  |               |         |         |        |
| - 0 time  | -             |         | 8       | 0.09   |
| - 1-5 times   | 70            | 1.2     | 75      | 0.8    |
| - 6-10 times  | 523           | 9.1     | 800     | 8.6    |
| - 11 or more examinations   | 5182          | 89.7    | 8449    | 90.5   |
| The average number of examinations made   |               |         |         |        |
| - by physician  | 3.6           |         | 3.3     |        |
| -by midwife   | 11.9          |         | 11.1    |        |
| The average number of homevisits made by midwife                                      | 1.1           |         | 1.7     |        |
| Mothers examined by specialist at out-patient department of central Hospital          | 2818          | 48.8    | 4705    | 50.4   |
| The total number of mothers trained for childbirth ( psychoprophylaxis )              | 3433          | 59.5    | 4905    | 52.6   |
| - of them primigravidae   | 2793          | 81.4    | 3628    | 74     |
| Trained fathers   | 2012          |         | 2500    |        |
| % of trained mothers  |               | 58.6    |         | 51     |
| Father present at the delivery  | 1945          |         | 2027    |        |
| - % of trained mother   |               | 56.7    |         | 41.7   |
| LIVE BIRTHS   | 5814          | 12°/oo  | 9400    | 15°/oo |
| PREMATURES (birth weight 600-2500 g)  | 272           | 4.7     | 410     | 4.4    |
| PERINATAL MORTALITY (Still births and deaths between 0-7 days)                        | 51            | 8.8°/oo | 95      | 10.1   |

FINLAND

| Year | Live births<br>o/oo | First week<br>mortality<br>x) | Perinatal<br>mortality<br>x) | Infant<br>mortality<br>x) | Maternal<br>mortality<br>x) |
|------|---------------------|-------------------------------|------------------------------|---------------------------|-----------------------------|
| 1751 |                     |                               |                              | 204.8                     |                             |
| 1944 | 28.                 |                               | 35.6                         | 68.6                      | 2.2                         |
| 1972 | 12.7<br>(58 864)    | 8.3                           | 16.0                         | 12.0                      | 0.11                        |
| 1973 | 12.2<br>(56 787)    | 7.4                           | 13.7                         | 10.6                      | 0.10                        |
| 1974 | 13.3<br>(62 472)    | 7.3                           | 14.0                         | 11.0                      | 0.05                        |
| 1975 | 13.9<br>(65 719)    | 6.8                           | 12.1                         | 10.0                      | 0.09                        |
| 1976 | 14.0<br>(66 678)    | 6.2                           | 11.4                         | 9.1                       | 0.07                        |
| 1977 | 13.9<br>(65 700)    |                               |                              |                           |                             |
| 1978 | 13.5<br>(63 993)    |                               |                              |                           |                             |

x) per 1 000 live births

|  | HELSINKI CITY |      | OUTSIDE |      |
|--|---------------|------|---------|------|
|  | N             | %    | N       | %    |
| <b>MOTHERS WITH COMPLICATIONS</b>                | 3088          | 53.5 | 4961    | 53.2 |
| Toxaemia   | 162           | 2.8  | 393     | 4.2  |
| High blood pressure                              | 373           | 6.5  | 669     | 7.2  |
| Urethral infection                               | 309           | 5.4  | 469     | 5.0  |
| Anaemia  | 225           | 3.9  | 292     | 3.1  |
| Diabetes   | 71            | 1.2  | 77      | 0.8  |
| Rhesus or other immunity                         | 49            | 0.8  | 121     | 1.3  |
| Abortus imminens                                 | 235           | 4.1  | 385     | 4.1  |
| Imminent premature birth                         | 533           | 9.2  | 735     | 7.9  |
| <b><u>COMPLICATIONS DURING DELIVERY</u></b>      |               |      |         |      |
| Caesarean section                                | 1020          | 17.7 | 1241    | 13.3 |
| Forceps  | 31            | 0.5  | 23      | 0.2  |
| Vacuum extraction                                | 270           | 4.7  | 383     | 4.1  |
| Haemorrhage more than 500 g                      | 353           | 6.1  | 512     | 5.5  |
| <b><u>POSTNATAL EXAMINATIONS</u></b>             |               |      |         |      |
| Examined by physician at Maternity Health Centre | 4650          | 80.5 | 7566    | 81.1 |
| - proved complications                           | 717           | 15.4 | 2048    | 27.1 |
| <b><u>LOST MOTHERS</u></b>                       |               |      |         |      |
| <b><u>FAMILY PLANNING SERVICES</u></b>           |               |      |         |      |
| Visitors   | 9904          | -    | 20436   | 90   |
| Consultations                                    |               |      |         |      |
| - with physician                                 | 5867          | -    | 20977   | 18   |
| - with midwife                                   | 12268         | -    | 30500   | 43   |
| IUD inserted                                     | 3450          |      | 7648    |      |
| PILLS given for one month period                 | 4333          |      | 5141    |      |
| <b><u>GYNAECOLOGICAL HEALTH CONTROL</u></b>      |               |      |         |      |
| Women examined at MHC                            | 13243         |      | 14810   |      |



## APPENDIX III

WHO perinatal study group, 1979

### The organisation of obstetrics in the Netherlands

J.M.L. Phaff. M.D. Ph.D.

1. Introduction
2. Prenatal care and selection of risks
3. Place and supervision of delivery
4. Maternity welfare
5. Conclusion

#### 1. Introduction

You all know that in the Netherlands many women still have their babies at home. Along with Turkey my country forms an exception in Europe. Experts outside the Netherlands, and occasionally also inside it, regard this situation as a piece of folklore, like wooden shoes and windmills. Others again are proud of these attainment's as they are of our dykes and Delta-works.

However, the choice of home delivery is a deliberate one. We regard childbirth as a natural event which should, if possible, preferably take place at home within the family, without anaesthesia and without intervention. Our health insurance system does not allow for a hospital delivery unless there is a medical indication.

It is a fact that over one third of all mothers still have their babies actually at home. It is widely known that the results are excellent. Perinatal mortality stands at 12.45<sup>0</sup>/oo, which puts the Netherlands in fourth place after Sweden, Denmark and Switzerland. It is incidentally questionable whether this international comparison can be made without using the same definition and without standardization on age and number of children. Furthermore it is wise to allow geographical and socio-economic differences to play a part too.

This country is a small one with excellent roads and a very large number of hospitals, so that everyone's home is less than half an hour away from a hospital.

The Dutch receive at least 10 years' education. poverty is a matter of the past, housing is generally good. The special group of immigrant workers, a special risk group in Western Europe, accounts for 6 % of all deliveries. The birth rate in this group is more than 30<sup>0</sup>/oo.

The birth rate in Holland is 12.6 ‰, the average number of children two per family, the average age of the mother 26 years, giving birth to her first child.

## 2. Prenatal care

Since around 1900 professors at Universities and teachers at the midwifery-schools have stressed to the importance of extensive prenatal examination. The average number of prenatal examinations is now 12: all gravidae see their family-doctor or their midwife in the third month. The share of the family-doctor in obstetric care is now 20 %, this share is falling rather quickly. The midwife's share is nearly 40 % and that of the specialist is also 40 %. The share of the specialist is, however, increasing. The midwife is entitled by law to supervise a normal pregnancy and a spontaneous delivery on her own responsibility, which means without any assistance of a doctor. The midwife is not a nurse-midwife: she has completed a three years course which fully entitles her to independent practice.

The basic principle of our obstetric care is the selection of cases at risk during pregnancy. There is a generally recognized list of some hundred risk indications for a hospital delivery under the supervision of a specialist. In 35 % of all deliveries such an indication is made; all these women are admitted into hospital. Of the remaining women, 38 % have their babies at home and 27 % are admitted into hospital either for social reasons or for personal preference.

The established view is that the family surroundings at home are preferable, that the risk of infection is less at home and that the risks of needless intervention (such as daylight obstetrics) are smaller at home.

Research has shown that the first stage<sup>\*</sup> is shorter at home, while the second stage is the same at home and in hospital. But what about the risks that cannot be predicted in accordance with the saying: "delivery is only normal in retrospect?".

A recent research project in the Netherlands comprising 3000 women who were followed up by midwives and general practitioners gave the following results. In the first 28 weeks of pregnancy about 10 % of the primiparae and 10 % of the multiparae were booked for a hospital delivery for medical reasons.

\* of delivery

From 28 weeks till the onset of delivery another 18 % of the primiparae and another 11 % of the multiparae were booked for the hospital for medical reasons. During delivery another 12 % of the primiparae and another 4 % of multiparae were admitted into hospital, because there was an unpredicted complication.

The overall perinatal mortality in the project-group was 3.9 ‰. It can be stated that for the primiparae 28 % could be selected for hospital delivery and for the multiparae 21 %. On the other hand in 12 % of the primiparae and in 4 % of the multiparae the complications were unpredictable.

In most of these cases there was no need to rush these women to hospital. From the original group after all 60 % of the primiparae and 75 % of the multiparae had a spontaneous birth at home.

During the postnatal period 3 % of the babies with their mothers had to be referred to hospital on medical reasons.

Table 1 Risk selection, per 100 women (N = 3000)

|                             | <u>Primiparae</u> | <u>Multiparae</u> |
|-----------------------------|-------------------|-------------------|
| Before 28 weeks             | 10                | 10                |
| From 28 weeks till 40 weeks | 18                | 11                |
| During delivery             | 12                | 4                 |
| Total                       | 40                | 25                |

Overall perinatal mortality after 28 weeks: 3.9 ‰.

The outcome of this project as to perinatal mortality (= 3.9 ‰) was much better than the statistical data for the whole country, due to a very strict leadership by a obstetrician of an university clinic and excellent teamwork, including a monthly medical audit.

For the country as a whole the perinatal mortality was 12.4 ‰, hospital deliveries emerging with 25 ‰ and home deliveries with 4 ‰.

Table 2 Perinatal mortality (the Netherlands 1978)

|                           |         |
|---------------------------|---------|
| Fetal death               | 7.18 ‰  |
| First week neonatal death | 5.27 ‰  |
| Perinatal mortality       | 12.45 ‰ |

National figures, that is to say outside the research project, show that for the well-selected group of spontaneous deliveries in hospital perinatal mortality was 3 ‰, in primary booked indications and indications during pregnancy 20 ‰ and in the admissions during delivery 36 ‰. It should be borne in mind that these groups cannot be strictly compared.

Table 3            Perinatal mortality in hospital (the Netherlands 1976)

|   |      |
|---|------|
| Spontaneous deliveries                  | 3 ‰  |
| Risk deliveries, primary booked         | 20 ‰ |
| Risk deliveries, booked during delivery | 36 ‰ |

Maternal mortality is so extremely low that no subdivision has been made for it.

The list of indications for an at-risk delivery has been drawn up by the professors of obstetrics, and is accepted by everyone. A subjective interpretation of this list, however, is possible; the percentages obtained in at-risk cases therefore vary per region and per specialist.

For those of you who are interested, the list is available.

### 3. Place and supervision of delivery

Of all deliveries 38 % take place at home. Ten years ago this percentage was 63%. As a rule the women concerned have a normal medical history and a normal pregnancy. These home deliveries are supervised by midwives and to a small extent by family doctors.

Anaesthesia is not used, and active intervention is rare.

Of all deliveries 62 % take place in hospital, of which 35 % are on medical grounds and 27 % for social reasons.

Table 4            Place of birth (the Netherlands 1977)

|                             |      |
|-----------------------------|------|
| At home                     | 38 % |
| Hospital medical reasons    | 35 % |
| Hospital no medical reasons | 27 % |

All at-risk deliveries are supervised by an obstetrician.

The average annual number of deliveries for each specialist is 200, for each midwife 80 and for each family doctor 15.

Very large obstetrical wards do not exist in the Netherlands: the average number of deliveries per hospital is 500.

In the hospitals too n anaesthesia (general, epidural or local) is given

for normal deliveries. The incidence of induction of labour (daylight obstetrics) is estimated to be much less than 10 %. The relative number of artificial deliveries is extremely small. For every 100 births there are 3.3 vacuum extractions, fewer than 3 Caesarean sections and fewer than 1.4 forceps deliveries.

Table 5      Artificial deliveries (the Netherlands 1971-1975)

|                    | <u>Primiparae</u> | <u>Multiparae</u> |
|--------------------|-------------------|-------------------|
| Vacuum extraction  | 4.8               | 1.0               |
| Caesarean sections | 2.7               | 2.3               |
| Forceps deliveries | 2.2               | 0.4               |

#### 4. Maternity welfare

The lying-in period has also a number of special features in the Netherlands. These relate especially to its duration and to the presence of a specially trained maternity welfare worker.

The duration of the lying-in period is still 10 days, either at home or in the hospital. The mother is mobilised allready on the first day. The 10-day period is considered necessary to prepare the mother (and the father) to look after their baby.

In hospital maternity care is given by registered nurses and at home by the maternity welfare worker. To an increasing extent the mothers go into hospital for a short-stay delivery, which means that they return home within 24 hours after parturition. This short-stay delivery relates to 15 % of all deliveries and 30 % of the hospital ones. Of course it requires good co-operation between the organizations inside and outside hospital. The reason for choosing a hospital birth with short-stay may be that young people do not want to take risks, that conditions at home (flat buildings) are not optimal and that some doctors influence them.

The maternity welfare worker has received 16 months training which includes 4 months' theory and 12 months' practice.\*

She stays with the family throughout the day with a threefold task:

- nursing care for mother and child,
- domestic duties,
- health education.

\* The curriculum of this training course is available on request.

At home the father is usually present at birth. During the lying-in period the baby shares the room with his mother. The father helps to look after mother and child, certainly during the evening and night. The father is likewise present during the delivery in hospital; during the post partum period the children are also allowed to visit their mother. The rooming-in system is of fairly general application (at least during the day). Over 40 % of the mothers give full breast feeding on the 10th day and more than 10 % are still doing so at 3 months. Breast feeding is increasing, as it is in other countries.

Research has shown that personal care of the mother and the child is considerably better at home than in hospital. This is reflected in the time devoted to mother and child, in the percentage of breast-fed babies and in the training of the mother for looking after her child.

#### 5. Conclusion

The good results of Dutch obstetrical care are partly due to the younger age of the mother and to the reduced number of children per family. In addition the improvements with respect to hygiene, nutrition, condition of housing, education and welfare in general doubtless had also their effect. The important role of the independent midwife and the availability of the maternity welfare worker should also be mentioned. Furthermore, the more expectant attitude of doctors with respect to anaesthesia, Caesarean section and daylight obstetrics are an important factor. Last but not least, there generally exists good co-operation between family doctor, midwife, obstetrician and paediatrician which can still be improved further through team discussion ("medical audit"). The result is continuing education, consultation, and excellent prenatal selection.

It is not possible to prove a direct causal relationship between all these factors and perinatal mortality or morbidity. Neither can a causal relationship be demonstrated with any degree of certainty between hospitalization and perinatal mortality.

On the one hand in the Netherlands too the use of echoscopy, cardiotocography and pH determination is progressively increasing, on the other hand the possibility of an intensive personal involvement with the pregnant patient is decreasing as a result of the (unavoidable) delegation of responsibilities and the change of personnel.

The concepts of hospitalization, daylight obstetrics and Caesarean section are also gaining ground in the Netherlands.

The Government still considers home delivery to be acceptable on certain conditions and backs up this view by legal, economic and financial regulations i.e. with respect to training courses and health insurance.

J.M.L. Phaff, M.D. Ph.D.