Tackling Unmet Needs for Major Obstetric Interventions

Case studies

Pakistan

CONTENTS

ABBREVIATIONS

AMI: Absolute Maternal Indication

CAM: Co-ordination and management team

DHQ: District headquarters

EB: Expected births

GTZ: Gesellschaft für Technische Zusammenarbeit (German Co-operation)

GTZ/SHAIP: Gesellschaft für Technische Zusammenarbeit/ Strengthening of Health Services Academy, Islamabad Project.

HSA: Health Services Academy

ITM-A: Institute of Tropical Medicine, Antwerp

IUD: Intra-uterine device

LB: Live births

MOI: Major Obstetric Intervention

NGO: Non-governmental organisation

RHSP: Reproductive Health Services Package

STD: Sexually transmitted diseases

TBA: Traditional birth attendant

THQ: Tehsil headquarters

UNDP: United Nations Development Programme

UNFPA: United Nations Population Fund

UNICEF: United Nations Children's Fund

UON: Unmet obstetric needs

WFP: World Food Programme

WHO: World Health Organisation

1. INTRODUCTION

The study of Major Obstetric Interventions in Pakistan is unusual in the approach adopted. It differs from other participating countries, in which the leadership of the study is usually in the hands of the Ministry of Health, in that the whole process of collection and analysis of data was carried out by a research institute which is relatively independent even if it depends on the Ministry of Health. This option had the advantage that it reduced the financial costs and the time required for the collection of information; but it did not permit the active involvement of regional decision-makers and workers in the field. In consequence it did not give rise to so much enthusiasm and participation in consideration of the study as a more systemic approach involving all those concerned at different levels of the health pyramid.

Another important feature in Pakistan is the variety of networks providing care – public, private, military and religious, all actively involved in providing emergency obstetric services. This diversity of care systems might have been an obstacle to carrying out an exhaustive study, but very fortunately all the major structures, to whichever network they belonged, agreed to participate in the collection of data.

In this case study, after a brief survey of the Pakistani context and health policy, we shall describe the process of the study and the methodology used. The analysis of the results of the study itself, however, will be difficult, since it will not be possible to take into account certain variables which are poorly or imperfectly defined. Nor will it be possible to study the impact of the study, even though it was completed many months ago, since there has not yet been any retro-information process, and also because an important phase of the process, the interviewing of those concerned in maternal health, has not been carried out in Pakistan.

2. CONTEXT

General

Pakistan, a large country in South-Central Asia (area 800,000 sq.km), became independent in 1947, following the partition of Britain's former Indian Empire. Under the constitution of 1956 it became an Islamic republic, with Iskander Mirzâ as its first President. For many years it had a troubled history, with a succession of *coups d'état* and a war with India in 1965. In 1975, after a war of liberation supported by India, its eastern province broke away to become the independent state of Bangladesh. During the term of office of President Ali Bhutto, elected in 1971, the region prospered and began to develop industrially and agriculturally. But once again its progress was interrupted by political troubles, and the President was displaced by a military leader, who introduced military law and ruled the country with an iron hand until 1988. After his death an election brought Ali Bhutto's daughter Benazir Bhutto to power as prime minister – the first female head of government in a Muslim country. She was deposed in 1990, accused of corruption, nepotism and incompetence. Since then two parties have shared the political chessboard. Benazir Bhutto became prime minister again in 1993, to be succeeded in 1997 by Nawaz Sharif and in 1999 by General Pervez.

Pakistan is a country with much migration of population. A high proportion of the male population of rural areas migrates to the towns or to foreign countries, particularly the Gulf states, to find work, leaving their families in the care of women. The influx of more than 3.2 million Afghan refugees, mainly into the Punjab, has also had considerable social and environmental impacts (inflation, jobs lost to refugees, proliferation of weapons, etc.) and also demographic effects, since just under half of these refugees did not wish to return to Afghanistan after the conflict with the former Soviet Union.

In 1998 the population of Pakistan was estimated at almost 150 million. The annual rate of increase remains high at around 3%, in spite of a public population planning programme launched in 1960 with the object of reducing the rate.

These attempts to control population growth had begun in 1952 with a family planning programme supported by a non-governmental organisation. From 1960 onwards both private and public sectors followed up this policy with a series of different types of project and political measures:

- promotion of intra-uterine devices;

- improvement of access to modern contraceptive means;

- the transfer of the Population Welfare Division to the Ministry of Planning and Economic Development in 1977, and the introduction of a new strategy based on community participation, in co-operation with family welfare centres and reproductive health centres (which became more involved in sterilisation programmes);

- the reorientation of programmes in 1988 to achieve better care for maternal and infantile health, coupled with educational campaigns designed to encourage couples to limit their families to two children.

The key to controlling growth, in the view of women's movements, lies in improving the socio- economic status of women. So long as their status is determined by their "reproductive capacity", and particularly by the number of boys they can produce, there will still be major obstacles to the success of the various programmes of birth control.

Pakistan's first health policies were developed in 1960. For many years the essential basis of these policies was accessibility to health care for the populations of rural areas. Administrative problems and the difficulty of ensuring adequate medical personnel in rural clinics, however, prevented these projects from being totally effective. In the early seventies a programme of decentralisation was introduced. It is based on units of care responsible for covering populations of between 6000 and 10,000. Rural health centres provide these local units with support and a wider range of services. These two types of structure are expected to refer patients to rural hospitals.

Since the 1980s, however, there has been a steady increase in the numbers of private institutions, leading to the development of an elitist system of medicine. In parallel there has been a distinct deterioration in public health services. In 1992 there was one doctor for more than 2000 people and one hospital for over 130,000 people. To these problems must be added the negative discrimination which frequently prevents women from entering medical or paramedical schools. This has an important consequence on the number of nurses trained in Pakistan, who are fewer in number than doctors (with one nurse for every three doctors)[1].

In the 1990s, with the support of the World Bank, Pakistan launched a major programme, with a budget of US$140 million, for the improvement of maternal health and the control of epidemic diseases. This programme is based on the training of female paramedical personnel and the strengthening of the management and organisation capacity of Provincial Health Departments.

Maternal health policy

The average age of marriage between 1980 and 1990 was 19.8. In 1992 the rate of use of contraceptives was only 12%, and almost half Pakistani women have at least one child before their 20th birthday. In 1990 70% of pregnant women living in towns had antenatal care and 70%

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[1] Ministry of Health, 1996. "Progress toward better health".

of births were attended by qualified medical personnel; in rural areas, however, less than a fifth of pregnant women had such care.

Socio-cultural barriers play an important part in the low rate of attendance at health structures by pregnant women. For example :

- it is unacceptable for women to be examined by a man, and there are only small numbers of female medical staff, particularly in rural areas;

- women must often get their husband's permission to go to a health structure, even in the case of a life-threatening problem ;

- women can frequently not go out alone, and must have an escort to go to a health structure.

To these factors must be added the malfunctioning of the health system, a lack of structures of referral able to deal with obstetric emergencies and the lack of a structured system of referral and evacuation. Other problems are absenteeism among health personnel, who in any event are insufficient in number and poorly trained, as well as inadequate management of health services and a lack of supervision. All these factors make a major contribution to the poor quality of care in general.

Since 1960 maternal and child health has been a priority of the Pakistani government. In that year 400 maternal and child health centres were built. Later, in the seventies and eighties, programmes were directed rather to the training of doctors and more than 40,000 traditional birth attendants (TBAs).

As a result of the relative failure of these strategies, with maternal mortality remaining high (500/100,000 LB in 1980–92[2]), policies were then reoriented towards the training of specialised midwives. More recently the Reproductive Health Services Package (RHSP) has been put in place. It comprises:

- a family planning service for women and men;

- maternal health care, including a programme of safe motherhood and the care of abortions and their complications;

- child health care;

- the care of adolescent's reproductive health problems;

- the care of women's reproductive health problems;

- prevention and care of sexually transmitted diseases and AIDS;

- the care of infertility problems;

- detection of cancers of the breasts and cervix;

- the care of men's reproductive health problems.

All these services are offered at the various levels of the health pyramid – at the community level, at health centres and at the referral structures on the second level.

This ambitious programme, however, has suffered delay because of the country's recent political troubles.

Although progress has been made in maternal and child health, the situation still gives cause for concern. Maternal mortality is high, at 340/100,000 LB in 1990 according to UNICEF[3] [4]

[2] The state of the world's children 1996, http://www.unicef.org.
[3] Jafarey S, Maternal Mortality in Pakistan. In: Maternal and Perinatal Health (Zaisdi Sh, ed.). TWFL Publ, Karachi, 1991: 21-32.
[4] The state of the world's children 1998, http://www.unicef.org

and between 600 and 800/100,000 LB in 1994–45 according to the Directorate of Health of the Punjab. Infantile mortality is equally dramatic (95 per 1000 in 1996 according to UNICEF and 84 per 1000 according to UNDP[5]).

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[5] UNDP Human development report 2001, http://www.undp.org.

3. THE UON EXERCISE

The UON study was carried out in two districts in the Punjab which were relatively undeveloped, in spite of having a fairly good road and rail network. Almost half the population are engaged in agriculture, but production is low because of the poor soil. Although there is some industry the population lives in a state of endemic poverty.

Figure 1. CHRONOGRAM OF THE UON EXERCISE IN PAKISTAN
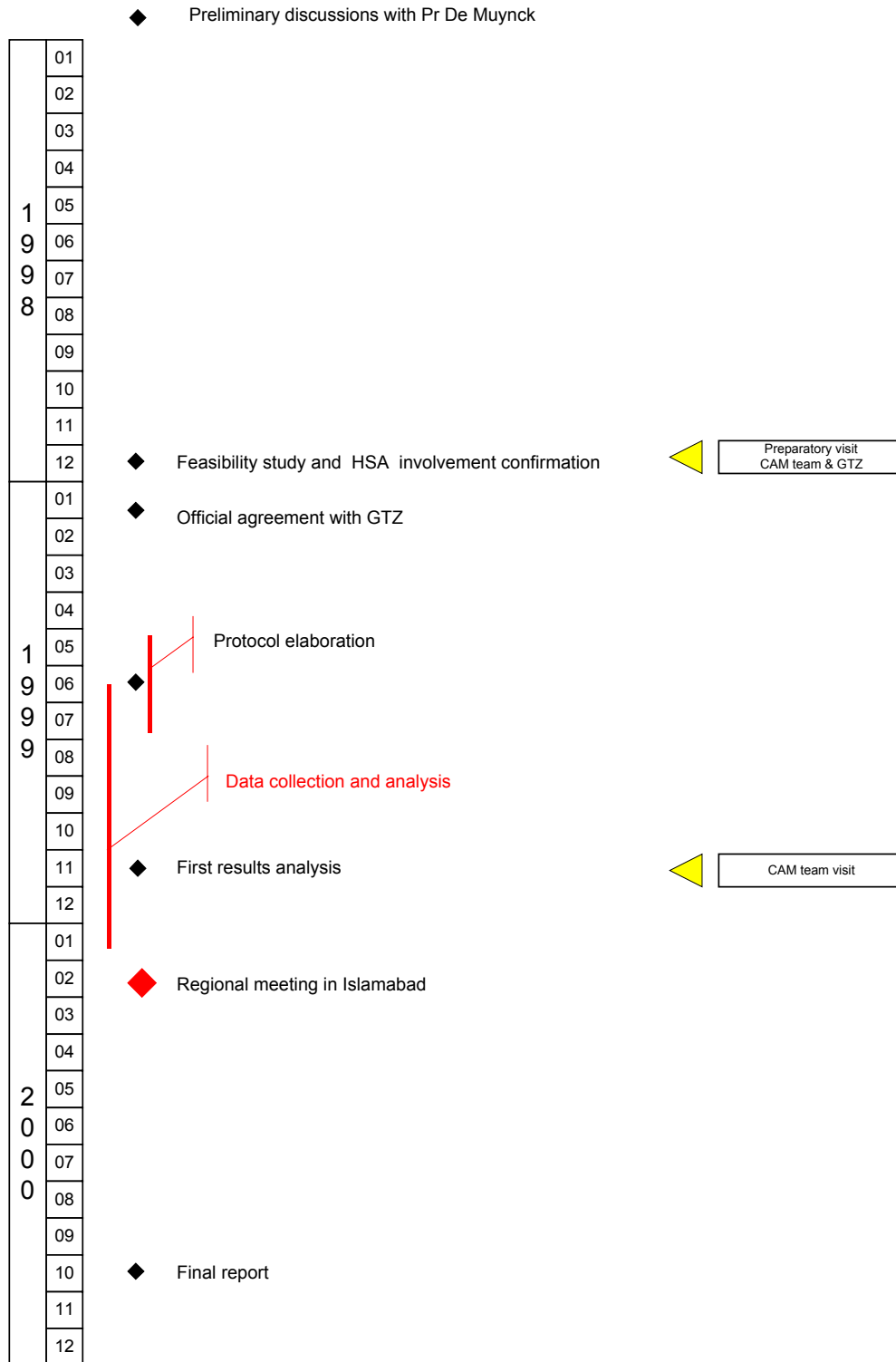
Approach to the collection of data in hospitals

The collection of data was carried out by a team from the HSA and necessitated in Attock, for 23 hospitals, 35 days' work (between 29 June and 11 December 1999) and in Jhelum, for 21 hospitals, 28 days' work (between 29 June 1999 and 31 January 2000). The study team in Pakistan thus chose to entrust this part of the study to "professionals" in surveys of this kind. The arguments on which the team based the non-involvement of local teams and practitioners were essentially the reduction in the time required for the collection of data and the reduction in cost. There would also have been constraints in terms of the availability of local staffs, who, given their daily work load, could have been involved in the study only after elaborate planning of the various stages in the process.

Equipment and Method

Introduction

The UON study consists of two complementary parts. One, based on questionnaires for women, makes it possible to analyse Major Obstetric Interventions and their indications, to analyse the outcome of interventions for mother and child and to calculate deficits in MOIs. The other is based on questionnaires for health formations, which provide an inventory of the human and material resources and the activities of each health structure.

Populations studied

The study was carried out in two districts in the Punjab, Jhelum and Attock. The population figures came from the 1998 census of population and housing. Since the study covers a period of 18 months (from 1 January 1998 to 30 June 1999), the numbers of expected births were calculated for that period on the basis of a crude birth rate of 30 per 1000.

Table 1. REFERENCE POPULATION BY DISTRICT, PAKISTAN, 1998

District	Population (1998)	Expected births (1/1/98 – 30/6/99)
Attock	500.770	22.535
Fateh Jang	214.256	9.642
Hasanabdal	135.856	6.114
Jand	228.349	10.275
Pindi Gheb	195.704	8.806
Total Attock	*1.274.935*	*57.372*
Jehlum	516.942	23.262
P.D.Khan	263.615	7.038
Sohawa	156.400	11.862
Total Jehlum	*936.957*	*42.162*
Total	**2.211.892**	**99.534**

Reference rate

At the beginning of the study, given the difficulty of defining a reference rate adapted to the circumstances of Pakistan, the study team opted for the minimum rate suggested in the UON modules, or 1%. Finally, however, a rate of 1.6% was calculated on the basis of the results of the study for the urban area of Jhelum district, whose health structures are considered to have satisfactory accessibility.

Criteria for inclusion

The study covered all women resident in the districts of Attock and Jhelum who in the period from 1 January 1998 to 30 June 1999 had undergone a Major Obstetric Intervention between the 6th month of their pregnancy and the 42nd day of the post-partum period in a health structure in these districts or one of the neighbouring districts. Also included were women who during the same period had died in one of these structures in childbirth or during the post-partum period. Not included were interventions performed following abortions or ectopic pregnancies, episiotomies or medical treatment by oxytocics, haemostatics and antibiotics instituted during delivery.

The interventions and indications taken into account were as proposed in the UON modules. The Absolute Maternal Indications were discussed at the meetings of obstetricians in the regions concerned.

There are several categories of health formation in Pakistan:

- profit-making hospitals and private clinics;

- military hospitals, with varying scope for access by the ordinary population;

- privately run non-profit hospitals (supported by NGOs);

- public district and tehsil hospitals.

All health structures in the two districts covered by the study in which Major Obstetric Interventions are performed were taken into account. In spite of some reservations by private hospitals in the early stages of the study, the study team had no difficulty in gaining access to all necessary information about the women operated on in this type of structure, and altogether 68 formations were visited for the purposes of the study. Among them were hospitals situated outside the two districts concerned but lying conveniently near which treat some women from Attock and Jhelum.

Of the 68 formations visited only 44 had performed Major Obstetric Interventions during the period covered by the study – 21 for women from Jhelum and 23 for women from Attock.

Variables studied

Questionnaire for women

These questionnaires made it possible to construct a "women" file which provided the basis of an analysis designed to reveal deficits in each tehsil. The questionnaires were completed by the study team from the HSA. Of the variables covered in the questionnaire the most important for the purposes of the analysis are the following:
Name of health formation

Tehsil (sub-district) in which the formation is situated.

Type of formation: public, private, military, parastatal, NGO.

Area of origin of the mother: urban or rural. No information was provided by the Pakistani study team on the definition of urban and rural area.

Mother's tehsil of origin.

Type of intervention: The list of interventions considered is as suggested in the UON modules, and also includes interventions regarded as non-major (see Annex 1 for an exhaustive list of these).

Indication for intervention: The list of indications considered is as suggested in the UON protocol, and also includes indications regarded as non-absolute (see Annex 1).

<u>State of mother on discharge</u>: nothing to report, died, complication.

<u>State of child on discharge</u>: nothing to report, born living and died within 24 hours, stillborn, stillborn with maceration.

Some variables proposed in the UON protocol – time and cause of mother's death, type of post-operative complication – are not included in the questionnaire.

It will thus not be possible in this paper to analyse in any detail the problem of maternal deaths in hospital.

Questionnaire for health formations

These questionnaires, which were used to construct a "health formation" file, were also completed by the HSA team. This data base makes it possible to analyse the human and material resources of each health formation and to link this information with the "women" file.

Of the variables covered by this questionnaire the most important for the analysis are:

<u>Name of health formation</u>

<u>Tehsil in which the formation is situated</u>.

<u>Category of structure</u>: hospital, maternity unit, health centre, clinic, other.

<u>Type of structure</u>: public, private, military, paramilitary, semi-governmental, other.

<u>Number of gynaecologists and surgeons</u> working in the health formation.

<u>Number of midwives and maternity nurses</u> in the formation.

<u>Total number of births</u>

<u>Number of dystocic births</u>

<u>Number of caesareans</u>

Some information included in the questionnaire for health formations – the number of maternal deaths and the number of stillbirths – does not appear in the file received from Pakistan.

Since data on the health formations in the district of Attock has not been supplied to us, the analysis of work load in that district will be possible only at an aggregated level. It will be based on information available in the Pakistani team's report on the study.

Material used in collection of data

On individual cases the sources of information were:

- the register of births;

- the register of the operating theatre;

- the general register of admissions to the gynaecology and obstetrics department;

- the general register of admissions to the hospital.

Some admissions recorded in the labour ward but not in the register of the operating theatre have been excluded from the analysis. Other cases admitted to the emergency department but not recorded in the register of admissions to the gynaecology and obstetrics department have been taken into account only if they were recorded in the register of births and in the register of the operating theatre or the general register of admissions to the hospital.

Few difficulties due to the maintenance of the various registers were encountered. The register of births was well kept, and the few cases not recorded in the register of the operating theatre were traced in the general register of admissions. In addition the data-collecting team made a special effort to obtain as much information as possible on problem cases, and they also

sometimes found it useful to consult, in addition to the documents mentioned above, patients' individual files, and to cross-check the different sources of information to confirm their accuracy.

The data base

Description of data used

Analysis of the data in Pakistan proved very difficult because of the lack of documentation on the data bases supplied. One of the main problems was the area of origin of the mothers. The criterion suggested in the UON protocol[6] does not seem to have been followed here, and the criterion used by the study team is not explained. It is not possible to correct this variable on the basis of the file, since the addresses given in the file are not codified, and it is not possible without a detailed knowledge of the local geography (there are around 1750 place-names in the file) to determine which villages or districts are within an urban area. It would be possible to include within an urban area certain women whose address explicitly includes the name of a town[7]; but this correction would serve no purpose, since the exact situation of functional hospitals is not known.

Nor do the urban and rural populations given by Pakistan for each tehsil seem to correspond to the criterion for discriminating between urban and rural areas suggested in the UON protocol. It may be supposed that the criterion used here was an administrative one, taking no account of the presence or absence of a functional hospital.

In face of so many uncertainties, it seems preferable not to analyse the results in terms of the mother's area of origin.

The "women" file

The original file contains 2203 records, 1080 for Attock and 1123 for Jhelum. No duplicate was found.

It was necessary to carry out a reconstruction of the file, which was not documented. The obstetric interventions performed were apparently graded under three variables (MAJ1, MAJ2 and MAJ3) according to the seriousness of the intervention. It was therefore necessary to compile lists of these three variables in order to determine the most important Major Obstetric Intervention for each woman. Although this was usually not difficult, when only one of the interventions mentioned was included in the list of MOIs, in some cases the selection was more difficult, either because several of the variables mentioned an MOI, or because the first variable (theoretically the main intervention, MAJ1) mentioned a non-major intervention, while there was an MOI in one of the other two variables (MAJ1 or MAJ2). Certain corrections were therefore made:

- 4 caesareans and hysterectomies became 4 hysterectomies;

- 1 application of vacuum extractor and internal version became a version/extraction;

- 2 internal versions and "other intervention, unspecified" became version/extractions;

- 1 blood transfusion and repair of uterine breach became a laparotomy;

- 1 repair of uterine breach and forceps became a laparotomy;

- 6 repairs of uterine breach became laparotomies.

In addition 6 cases recorded as caesareans performed for uterine ruptures became laparotomies.

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[6] Women living within 5 or 15 km of a functional health structure are regarded as living in an urban area, those beyond that radius as in a rural area.
[7] Such as Pindi Gheb, which has a district hospital.

After these corrections the file still lacks information on certain variables. **Table 2** summarises the missing information.

Table 2. DATA MISSING FROM THE "WOMEN" FILE, PAKISTAN, 1/1/98-30/6/99

Variables	Not noted	
	Number	*%*
Whole file (**2,203** cases)		
Results for mother	41	1.8%
Results for child	188	8.5%
MOI for AMI (**774** cases)		
Results for mother	5	0.6%
Results for child	54	7%

The data on the outcome of the birth for the child is the most poorly documented. Nor, as regards the outcome for the mother, does the file contain any complementary information (type of complication, cause of death, time of death).

TABLE 3 shows the distribution of cases in the final file according to the type of intervention (MOI or non-MOI) and the type of indication (AMI or non-AMI).

Table 3. DISTRIBUTION OF CASES ACCORDING TO CATEGORY OF INTERVENTION AND CATEGORY OF INDICATION, PAKISTAN, 1/1/98-30/6/99

		AMI		
		Yes	*No*	**Total**
	Yes	774	1.348	**2.122**
MOI	*No*	7	74	**81**
	Total	**781**	**1.422**	**2.203**

The "health formations" file

For the construction of this file we have available only the health formation questionnaires completed for the district of Jhelum. These cover 13 of the 18 health structures in the district in which Major Obstetric Interventions can be performed. The heads of three institutions refused to take part in the study, and the Pakistani study report explains the absence of two others by the fact that no obstetric interventions were performed in them during the study period. It would nevertheless have been desirable to visit them to obtain information about births in them in order to have a complete picture of the effective coverage of the district in terms of maternity care.

The analysis for Attock district can be made only on the basis of aggregated data (usually by type of structure) given in the Pakistani study report.

Reconciliation of data from "women" and "health formation" questionnaires

Except for one structure, the data in the two questionnaires on the number of caesareans performed does not match. The "women" questionnaire contains (for the same hospitals) a much larger number of caesareans than the "health formations" questionnaire (321 more in the "women" questionnaire, or 40% more than in the "health formations" questionnaire). The explanation of this difference lies in the period of study, which was a year in the case of the "health formations" questionnaire and 18 months in the case of the "women" questionnaire. This will make the further analysis of hospital activities difficult, since it will be impossible to establish the proportion of MOIs among hospital deliveries except by postulating a uniform distribution of interventions performed over the 18 months covered by the study of individual cases.

Discussion of biases

Demographic biases

The population figures come from the 1998 census of population and housing, and are thus the most reliable possible basis for the calculation of expected births. But since these are calculated on the basis of the crude birth rate it will not be possible to bring out disparities between urban and rural areas. It is very probable, therefore, that expected births are over-estimated in urban areas and under-estimated in rural areas.

Biases due to inexact diagnosis

A major problem was presented by the validity of the indications recorded in the registers. Some indications were given as "delay in progress of labour", "foeto-pelvic disproportion" or "earlier caesarean". Since the decisions on intervention in cases of delay in the progress of labour are not supported by a partogram or other type of justification, it appears that these decisions were taken without any explicit criterion, and some are probably unreliable. In order to minimise this bias meetings of gynaecologists in health structures had been arranged well before the collection of data, with the object of standardising the terms used for Absolute Maternal Indications and defining each of them clearly.

According to the Pakistani study team the validity of the information on the indications for Major Obstetric Interventions presents a problem which seems more acute in private than in public health structures. Unfortunately it was not possible for the study team to rectify these errors of diagnosis *a posteriori*.

Biases in collection of data

One problem which may lead to biases is that a mother may have two types of residence, her normal home and a temporary address while she is in hospital. Most of these addresses are notified by the police office for the area where the patient is registered for the period of treatment (a temporary address). Particular attention has been given to this problem, and the study team estimates that errors concerning the patient's real address should not exceed 5%.

It appears that in private structures, for financial reasons, some interventions are not recorded in the hospital's registers. However since women are required by law to sign a form of consent, before each intervention and hospitals are required to preserve these documents, it has been possible to minimise the scale of such under-notifications.

Since some variables in the questionnaire for women are sometimes wrongly recorded or omitted, the study team carried out cross-checks between the different sources of information available.

Another factor leading to under-recording may result from the fact that some mothers go for their confinement to a hospital near their father's home, which may be outside the districts covered by the study. This practice seems to be rare in the Punjab, and the study team estimates that biases so created ought not to exceed 2–3%.

A final source of bias results from the refusal by three hospitals in the district of Jhelum to take part in the collection of data. These hospitals, however, are small, and treat few maternity patients. Another important hospital in a neighbouring district also refused to take part in the study; but since few women living in Jhelum and Attock are confined in health structures outside their district the study team regard this bias as negligible.

Results

We shall begin by describing the global results on the distribution of interventions, indications and deficits by tehsil. We shall then try to assess maternal and infantile mortality in hospital. Since the file supplied by Pakistan does not include two variables, the cause and time of a maternal death, it has not been possible to carry out any further analysis in this direction. The data in the "women" file will then be linked with the data in the "health formations" file concerning the human and material resources and the activities of the various health structures.

The tables and figures presented are constructed in accordance with the categories of indications and interventions shown in **Table 3**. Particular attention will be paid to Major Obstetric Interventions, whether for AMI or non-AMI.

Major Obstetric Interventions

The file contains 2122 Major Obstetric Interventions recorded in the various hospitals covered by the study. The average rate of MOI/100 EB is 2.13. The rate in Jhelum is 2.6 per 100 per 100 EB, or 1.4 times higher than in Attock (1.8 per 100 EB).

Table 4. MAJOR OBSTETRIC INTERVENTIONS ACCORDING TO TYPE OF INTERVENTION AND DISTRICT, PAKISTAN, 1/1/98-30/6/99

	Attock		Jehlum		Total	
	Number	*%*	*Number*	*%*	*Number*	*%*
Caesarean	977	97.1%	1,105	99%	2,082	98.1%
Hysterectomy	9	0.9%	3	0.3%	12	0.6%
Laparotomy	5	0.5%	5	0.4%	10	0.5%
Version-extraction	13	1.3%			13	0.6%
Craniotomy	2	0.2%	3	0.3%	5	0.2%
Total	**1,006**	**100%**	**1,116**	**100%**	**2,122**	**100%**

Almost all the interventions performed were caesareans. As will be seen below, the very small number of uterine ruptures explains the small numbers of laparotomies and hysterectomies, which are usually performed for this indication. The small number of version/extractions (in spite of the fact that there are altogether 75 transverse presentations) is more difficult to understand. This is true, to a lesser extent, of craniotomies, only one having been performed for a problem of presentation, though abnormal presentations led to 17 cases of stillbirth.

It is very probable that the medical "level" of Pakistani hospitals is high, and that accordingly, as in western countries, a caesarean is the preferred intervention in the event of a problem in childbirth, in situations (abnormal presentations, foetal death, etc.) in which a less invasive operation (internal version, craniotomy) could be performed. It appears that caesareans are most frequently decided on by practitioners in Pakistani hospitals; and in addition almost 40% of caesareans are performed for non-Absolute Maternal Indications (30% for antecedents of caesareans and 20% for breech presentations: see **Table 6**).

Women who had not had a Major Obstetric Intervention

The 7 cases of Absolute Maternal Indications are post-partum haemorrhages which were treated medically or for which the type of intervention is not specified.

Among the 74 cases of non-Absolute Maternal Indications there are 35 toxaemias or eclampsias, 5 puerperal infections and 30 placental retentions. The interventions performed were mainly the use of forceps or vacuum extractors (39 cases) and blood transfusions (32 cases).

Absolute Maternal Indications

Table 5. Aʙsᴏʟᴜᴛᴇ Mᴀᴛᴇʀɴᴀʟ Iɴᴅɪᴄᴀᴛɪᴏɴs ʙʏ ᴅɪsᴛʀɪᴄᴛ, Pᴀᴋɪsᴛᴀɴ, 1/1/98-30/6/99

	Attock		Jehlum		Total	
	Number	*%*	*Number*	*%*	*Number*	*%*
Uterine rupture	4	1%	4	1%	8	1%
Transverse, facial and front presentation	44	11.4%	37	9.4%	81	10.4%
Foeto-pelvic disproportion	231	59.7%	296	75.1%	527	67.5%
Ante-partum haemorrhages	92	23.8%	52	13.2%	144	18.4%
Post-partum haemorrhages	16	4.1%	5	1.3%	21	2.7%
Total	**387**	**100%**	**394**	**100%**	**781**	**100%**

Foeto-pelvic disproportions are very much in the majority, accounting for 68% of indications, with a marked disparity between districts (Jhelum 75%, Attock 60%); ante-partum haemorrhages, on the other hand, are almost twice as frequent and post-partum haemorrhages three times as frequent in Attock.

One possible explanation of this difference in the frequency of foeto-pelvic disproportions is, as noted above, a problem of diagnosis. It would appear that a disproportion is often diagnosed too hastily (without a properly conducted directed dynamic trial of labour), particularly in private structures, which are twice as numerous in Jhelum.

Non-Absolute Maternal Indications

Table 6 below shows the frequency of non-Absolute Maternal Indications in the two districts. The great majority of these women have had a caesarean (88% in Attock and 98% in Jhelum). The main reasons for these interventions are antecedents of caesareans, breech presentations, toxaemias in Attock and eclampsias in Jhelum.

Table 6. Nᴏɴ-Aʙsᴏʟᴜᴛᴇ Mᴀᴛᴇʀɴᴀʟ Iɴᴅɪᴄᴀᴛɪᴏɴs ʙʏ ᴅɪsᴛʀɪᴄᴛ, Pᴀᴋɪsᴛᴀɴ, 1/1/98-30/6/99

	Attock		Jehlum		Total	
	Number	*%*	*Number*	*%*	*Number*	*%*
Antecedent of C-section	107	28.5	152	33.5	259	31.2
Toxaemia, pre-eclampsia	89	23.7	1	0.2	90	10.8
Breach presentation	70	18.6	106	23.3	176	21.2
Obstructed labour for other cause	31	8.2	38	8.4	69	8.3
Other obstetric antecedent	15	4.0	14	3.1	29	3.5
Dynamic dystocia	15	4.0	25	5.5	40	4.8
Obstructed labor for other presentation	14	3.7	17	3.7	31	3.7
Mother's medical problem	13	3.5	6	1.3	19	2.3
Premature rupture of the membranes	8	2.1	18	4.0	26	3.1
Puerperal infection	6	1.6		0.0	6	0.7
Genital malformation	4	1.1	2	0.4	6	0.7
Vaginal haemorrhage	3	0.8	1	0.2	4	0.5
Stationary labor	1	0.3	6	1.3	7	0.8
Complications connected with cord		0.0	9	2.0	9	1.1
Éclampsia*		0.0	59	13.0	59	7.1
Sub total	**376**	**100%**	**454**	**100%**	**830**	**100%**
Other cause	309	44.6	263	36.1	572	40.2
Non specified	8	1.2	12	1.6	20	1.4
Total	**693**	**100%**	**729**	**100%**	**1,422**	**100%**

*There seems to be a problem of naming (or coding) for cases presenting a hypertensive pathology, noted as toxaemia in Attock and eclampsia in Jhelum. In **Table 7** below these two designations will be reclassified to permit comparison between the two districts.

Once again there is a marked disparity between the two districts, brought out more clearly in **Table 7**, which shows the ratios between rates per 100 EB in the two districts.

Table 7. NON-ABSOLUTE MATERNAL INDICATIONS: RATIOS OF RATES BY DISTRICT, PAKISTAN, 1/1/98-30/6/99

.	Attock rate	Jehlum rate	Ratio A/J
	(‰EB)	*(‰EB)*	
Antecedent of C-section	1.87	3.61	0.5
Toxaemia, eclampsia	1.55	1.4	1.1
Breach presentation	1.22	2.51	0.5
Obstructed labor for other cause	0.54	0.90	0.6
Other obstetric antecedent	0.26	0.33	0.8
Dynamic dystocia	0.26	0.59	0.4
Obstructed labor for other presentation	0.24	0.40	0.6
Mother's medical problem	0.23	0.14	1.6
Premature rupture of the membranes	0.14	0.43	0.3
Puerperal infection	0.10	0.00	
Genital malformation	0.07	0.05	1.5
Vaginal haemorrhage	0.05	0.02	2.2
Stationary labor	0.02	0.14	0.1
Complications connected with cord	0.00	0.21	0.0

In this table toxaemias and eclampsias have been reclassified in order to permit comparison between the two districts of problems connected with hypertension during pregnancy.

The differences between Attock and Jhelum in the rates of incidence of non-absolute indications are not very great, except for the antecedents of caesareans, which are twice as frequent in Jhelum (where, as noted above, caesareans are more frequently performed in the case of problems in childbirth).

Major Obstetric Interventions for Absolute Maternal Indications

The MOI/AMI rate per 100 EB is 0.7% in Attock and 0.9% in Jhelum.

Table 8. MAJOR OBSTETRIC INTERVENTIONS FOR ABSOLUTE MATERNAL INDICATIONS BY DISTRICT, PAKISTAN, 1/1/98-30/6/99

District of Attock

	C-Section	Hysterectomy	Laparotomy	Version Extraction	Craniotomy	Total
Uterine rupture		2	2			4
Transverse, facial and front presentation	44					44
Foeto-pelvic disproportion and pre-rupture	228		1		2	231
Ante-partum haemorrhages	89	1		2*		92
Post-partum haemorrhages	2**	3		4**		9
Total	**363**	**6**	**3**	**6**	**2**	**380**

*For these two version/extractions in cases of ante-partum haemorrhage no justification is given in the file (marginal placenta,…)

**For these six cases of post-partum haemorrhage the intervention recorded in the file seems wrong, but no correction is possible, since we have no information about the intervention actually performed.

District of Jhelum

	C-Section	Hysterec tomy	Laparo tomy	Version Extraction	Cranio tomy	Total
Uterine rupture			4			4
Transverse, facial and front presentation	37					37
Foeto-pelvic disproportion and pre-rupture	295				1	296
Ante-partum haemorrhages	51	1				52
Post-partum haemorrhages	5					5
Total	**388**	**1**	**4**		**1**	**394**

Deficits in Major Obstetric Interventions for Absolute Maternal Indications

It is not possible to analyse deficits by type of area, since we have no population figures for the towns in which there are health structures. Moreover, the definition of an urban area used in the collection of data in the questionnaires for health formations has not been specified, and it appears that the criterion suggested in the UON protocol was not used, since in the district of Attock the only women mentioned as belonging to an urban area live in the tehsil of Attock, although there are also hospitals in other tehsils.

Except in the two largest tehsils in each district (Attock and Jhelum), in which most of the hospitals are concentrated and much of the population seems to live in urban areas, there are very large deficits everywhere, ranging from 64% in Fateh Jang to 92% in Pindi Gheb. Altogether around 800 women out of the 1600 expected with a serious complication in childbirth did not have a Major Obstetric Intervention, *a priori* the only means of saving their life.

Deficits in Attock

The tehsil of Attock has 8 functional health structures capable of dealing with obstetric emergencies. 37.5% of women in Attock go to the Al Janat private hospital and 20% to the DHQ hospital, which is the public hospital for the district, while 16% prefer to go to the hospital run by a religious organisation in the neighbouring district of Rawalpindi. The remainder go to the military hospital (5%) and other private hospitals in the district.

Women from Pindi Gheb, where there is a public (THQ) hospital which was not fully functional during the period of the study for lack of an anaesthetist, went to private structures in Attock in the event of a problem. Only 8 women who had a caesarean (though for non-Absolute Maternal Indications) went to the Pindi Gheb hospital.

Table 9. DEFICITS IN MAJOR OBSTETRIC INTERVENTIONS FOR ABSOLUTE MATERNAL INDICATIONS BY TEHSIL, DISTRICT OF ATTOCK, PAKISTAN, 1/1/98-30/6/99

N°	District	Expected births (1/1/98-30/6/99)	MOI for AMI		Deficits	
			Expected	*Performed*	*Number*	*%*
1	Attock	22.535	361	272	89	24,6%
2	Hasan Abdal	6.114	98	42	56	57,1%
3	Pindi Gheb	8.806	141	11	130	92,2%
4	Fateh Jang	9.642	154	35	119	77,3%
5	Jand	10.275	164	20	144	87,8%
	Total	**57.372**	**918**	**380**	**538**	**58,6%**

Almost 90% of women from the small tehsil of Hasan Abdal go, in the event of problems, to the neighbouring district of Rawalpindi, almost all of them to the hospital run by a religious organisation in Taxila, which is quite close and easily accessible by road.

Similarly, 76% of the women of Fateh Jang go to the Taxila hospital, which is also conveniently close. The others prefer to go to the Attock military hospital or the Al Janat private hospital.

Figure 2. Deficits, in absolute numbers, in Major Obstetric Interventions for Absolute Maternal Indications, District of Attock, Pakistan, 1/1/98-30/6/99

The numbering of tehsil refer to **Table 9**
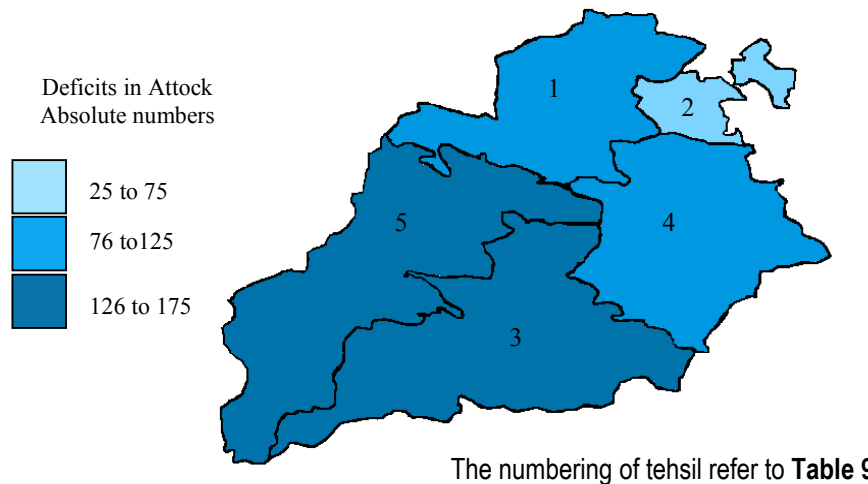
Women living in the district of Jand, which is farther from Rawalpindi, go to the Attock military hospital or the Al Janat private hospital, and only 30% of them prefer to go to the DHQ hospital in the neighbouring district of Kohat. Although there is a good road network linking this district with Attock and Kohat, the large deficit observed here may be partly due to the limited availability of means of transport and to the refusal of the private hospitals in Kohat to admit women with serious obstetric problems (who are immediately referred to the DHQ hospital in Kohat).

The deficits observed may be partly due to problems of geographical accessibility of the health structures; but in the case of Hassan Abdal (73% deficits) and Fateh Jang (64% deficits) this explanation is certainly insufficient, since these two districts are small in area[8] and quite close to the Rawalpindi hospitals, including the religious hospital in Taxila. This is a Christian hospital, and its attractiveness is surprising in a country which is 97% Muslim. The private hospitals, which are frequently more difficult of access financially, seem – apart from the one in Al Janat to a small extent – to be little used by women living outside the tehsil of Attock, who if, as noted above, they do not go to Taxila, prefer to go to the military hospital.

Deficits in Jhelum

In Jhelum there are 10 hospitals capable of dealing with obstetric emergencies. More than half of the women (54%) prefer to go to one of the two military hospitals if they have a problem; 28% go to the public district hospital, and rather more than 10% to the Tajpuri private hospital. The rest go to other private structures in Jhelum.

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[8] Hassan Abdal 350 sq.km, Fateh Jang 1249 sq.km; district of Attock 6867 sq.km.

Table 10. DEFICITS IN MAJOR OBSTETRIC INTERVENTIONS FOR ABSOLUTE MATERNAL INDICATIONS, DISTRICT OF JEHLUM, PAKISTAN, 1/1/98-30/6/99
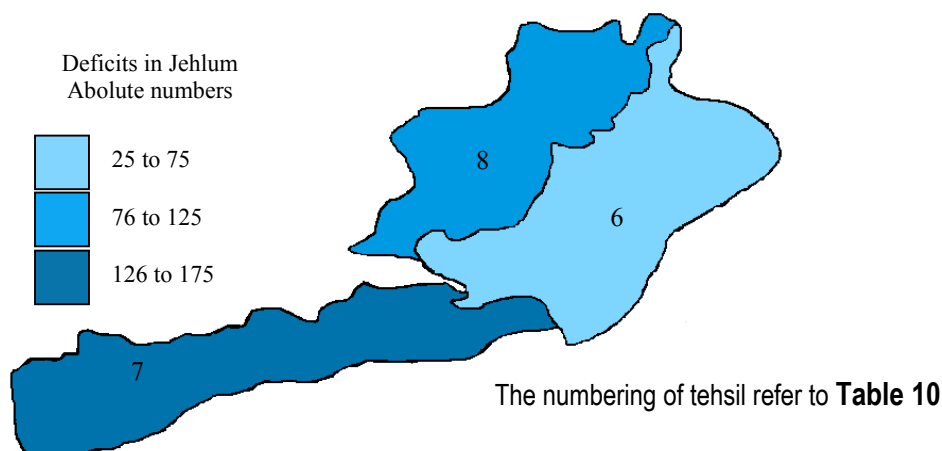
N°	District	Expected births (1/1/98-30/6/99)	MOI for AMI		Deficits	
			Expected	*Performed*	*Number*	*%*
6	Jehlum	23.262	372	345	27	7,3%
7	Sohawa	7.038	113	23	90	79,6
8	PD Khan	11.682	190	26	164	86,3
	Total	**41.982**	**675**	**394**	**281**	**41,6%**

The women of PD Khan also go to one of the military hospitals or, less frequently, to the Jhelum DHQ hospital. Only 2 women had a MOI for AMI in the tehsil hospital of PD Khan, which was non-functional for much of the year because of shortages of medical staff (gynaecologists and anaesthetists).

The same distribution in the choice of hospitals is found among the women of Sohawa, almost 60% of whom prefer one of the military hospitals.

Very few women in these three tehsils go to the neighbouring districts of Rawalpindi or Gujar Khan, preferring the military hospitals or the public district hospital. The private structures in Jhelum attract few or no women from PD Khan and Sohawa, and less than 20% of the women of Jhelum. It may be supposed that the financial barrier plays a part here and that the military and public structures are more affordable, particularly for women living in tehsils distant from the district's main centre.

The large deficit in Sohawa can scarcely be due to problems of geographical accessibility, since the road system makes it possible to get quickly to Rawalpindi or Islamabad. PD Khan is fairly distant from Jhelum and still farther from the neighbouring districts mentioned above. The nearest district hospital is at Mandi Bahauddin, but only 2 women seem to have gone to that hospital for an obstetric problem during the study period.

Figure 3. DEFICITS, IN ABSOLUTE NUMBERS, IN MAJOR OBSTETRIC INTERVENTIONS FOR ABSOLUTE MATERNAL INDICATIONS, DISTRICT OF JEHLUM, PAKISTAN, 1/1/98-30/6/99

Deficits in Jehlum
Abolute numbers

25 to 75
76 to 125
126 to 175

The numbering of tehsil refer to **Table 10**

Uterine ruptures

There were only 8 uterine ruptures (4 in each district, almost all from the tehsils of Attock or Jhelum). There were no maternal deaths in any of the cases. In view of the large deficits observed everywhere except in the chief tehsil in each district it is reasonable to suppose that a number of women were unable for various reasons (geographical or financial accessibility, socio-cultural barriers, etc.) to reach a hospital in time and died without receiving emergency care.

Maternal deaths in hospital

Maternal mortality in hospital is astonishingly low in both districts. It appears, therefore, that the quality of care in the various hospitals is good, and that the women who go to health structures in the event of obstetric problems do so in time to avoid grave complications such as uterine ruptures.

Table 11. INTRA-HOSPITAL MATERNAL DEATHS BY DISTRICT, PAKISTAN, 1/1/98-30/6/99

Attock

Tehsil	Number of cases	Maternal deaths		Results for the mother unknown
		Number	*%*	*Number*
Attock	764	1	0.1%	25
Hasan Abdal	107	4	3.7%	1
Pindi Gheb	51			9
Fateh Jang	104	2	1.9%	5
Jand	53	1	1.9%	
Total	**1,079***	**8**	**0.74%**	**40**

*Not including one case in which the mother's tehsil of origin is not known

Jehlum

Tehsil	Number of cases	Maternal deaths		Results for the mother unknown
		Number	*%*	*Number*
Jehlum	993	3	0,3%	1
PD Khan	66			
Sohawa	64			
Total	**1.123**	**3**	**0,27%**	**1**

Of the 8 deaths in Attock 2 originated from an AMI (foeto-pelvic disproportion). All of the 3 deaths in Jhelum were non-AMI. Eight of these 11 deaths took place in hospitals in neighbouring districts, and it may be supposed that in these cases the time which elapsed between the detection of the problem and the woman's admission to care was a major factor in reducing her chances of survival.

Child deaths

Stillbirths were responsible for the majority of early perinatal deaths. Once again this points to a good quality of care for obstetric emergencies, since this almost always makes it possible to avoid infant deaths during the post-partum period. While for deaths within 24 hours the pattern in both districts is similar, they differ markedly in numbers of stillbirths, which are 3.6 times as high in Attock as in Jhelum tehsil. One possible explanation of this is a delay in the decision to seek hospital care: in Attock deaths *in utero* result most frequently from a problem of obstructed labour (41% of stillbirths), while in Jhelum this type of indication accounts for only 25% of stillbirths.

Table 12. Number of children stillborn and dying within 24 hours by district, Pakistan, 1/1/98-30/6/99

Attock

Tehsil	Number of cases	Stillborn		Deaths < 24 h		Total of deaths	
		Number	*%*	*Number*	*%*	*Number*	*%*
Attock	764	33	4,3%	3	0,4%	36	4,7%
Hasan Abdal	107	6	5,6%			6	5,6%
Pindi Gheb	51	2	3,9%			2	3,9%
Fateh Jang	104	6	5,8%			6	5,8%
Jand	53	2	3,8%	1	1,9%	3	5,7%
Total	**1079***	**49**	**4,5%**	**4**	**0,4%**	**53**	**4,9%**

Jehlum

Tehsil	Number of cases	Stillborn		Deaths < 24 h		Total of deaths	
		Number	*%*	*Number*	*%*	*Number*	*%*
Jehlum	993	12	1,2%	2	0,2%	14	1,4%
PD Khan	66	4	6,1%			4	6,1%
Sohawa	64	4	6,3%			4	6,3%
Total	**1123**	**20**	**1,8%**	**2**	**0,2%**	**22**	**2%**

In Attock half the stillbirths and deaths within 24 hours result from an AMI. In the tehsil of Jhelum there are only 2 stillbirths after an AMI, while in the other tehsils half the stillbirths follow an AMI.

Interpretation of **Figure 4** below is difficult because of the small number of tehsils included in the analysis. There is, however, a clear disparity in caesarean rates between the chief tehsils in the districts (caesarean rate > 3/100 EB) and peripheral tehsils (caesarean rate < 1.5/100 EB). Nevertheless, since most infant deaths are stillbirths, it is not certain that an increase in the caesarean rate would have a favourable influence on the survival of infants. The difference observed here is likely to be attributable rather to rapidity of access to health structures than to quality of care, since the women, whatever their place of residence, go to the same health structures.

Figure 4. Stillbirths and neonatal mortality within 24 hours (per 100 MOIs) among women who have had an MOI, according to caesarean rate, Pakistan, 1/1/98-30/6/99
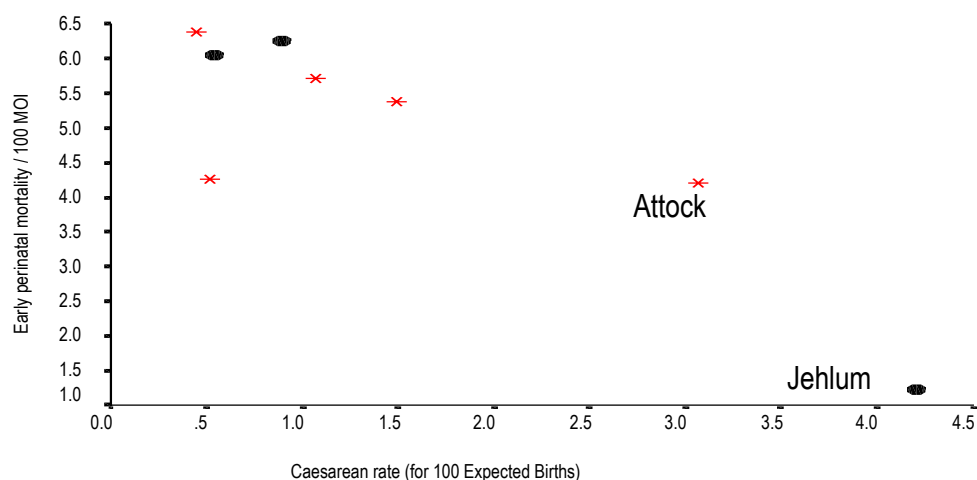
Work load and resources

The collection of individual data (for the "women" file) took place over a period of 18 months, from January 1998 to June 1999, while the collection of data on health formations covered only the year 1999. In order to be able to link the two types of information it is necessary to equate the periods to which they relate, and assumptions must therefore be made in order to assess the number of hospital deliveries for a period of 18 months corresponding to the period during which the individual data was collected. It will be assumed here, therefore, on the one hand that fertility remained stable between 1998 and 1999 and on the other that the distribution of births was linear throughout the year. This makes it possible to calculate the number of hospital deliveries between 1 January 1998 and 30 June 1999 by multiplying the number of births in the year 1999 by a factor of 1.5.

Table 13 below presents, for hospitals in the districts of Attock and Jhelum, hospital activities reported during the study period (18 months).

Table 13. Hospital activities by tehsil, Pakistan, 1/1/98-30/6/99

| Tehsil	Hospital status	Number of hospital	Expected births(a)	Intra-hospital deliveries (b)		MOI (c)		MOI/AMI	
				Number	*% of (a)*	*Number*	*% of (b)*	*Number*	*% of (c)*
Jehlum	Public	3		3.884	9%	383	10%	142	37%
	Private	13**	42.162	2.037	5%	238	12%	64	27%
	Military	2		2.123	5%	467	22%	179	38%
Sub total				*8.044*	*19%*	*1088*	*14%*	*385*	*35%*
Attock	Public	2*		896	2%	135	15%	40	30%
	Private	6	57.372	3.521	6%	208	6%	147	71%
	Military	2		2.009	4%	369	18%	83	22%
Sub total				*6.426*	*11%*	*712*	*11%*	*270*	*38%*
Total		28	99.534	14.470	15%	1800	12%	655***	36%

*Not including the THQ hospital in Fateh Jang, reported to be practically non-functional during the study period, in which only 2 caesareans were performed, both for non-AMI.
**Of these 13 structures only 8 performed Major Obstetric Interventions.
***Not including MOI/AMI performed in hospitals in neighbouring districts.

In Jhelum most births are in public hospitals. Over all, only 19% of the women go for their confinement to a structure capable of dealing with obstetric emergencies. This may seem a rather inadequate level of coverage, but the table does not include deliveries which took place in primary-level structures or in second-level structures without surgical facilities, nor those, probably few in number, which took place outside the district. As an example, cases which required a Major Obstetric Intervention and were cared for in hospitals outside the district of Jhelum account for less than 3% of cases recorded in the "women" file, taking all indications and interventions together. The proportions of hospital deliveries requiring a Major Obstetric Intervention are highest in military structures (22%). These military structures, however, perform Major Obstetric Interventions for Absolute Maternal Indications in only 38% of cases – a similar situation to what occurs in public hospitals, in which, on the other hand, the proportion of MOIs in hospital deliveries is much lower (10% of hospital deliveries).

In Attock the situation is rather different, with private hospitals performing proportionately the highest number of deliveries (6%). Over all, only 11% of expected births take place in hospitals with facilities for surgical treatment of problem obstetric cases – the explanation for which, as in Jhelum, may be the existence of other structures in which deliveries are performed. Moreover, analysing the "women" file, we observe that many patients (28%) go to neighbouring districts in the event of problems. It may legitimately be thought, therefore, that a not insignificant number of women go to these hospitals even for a perfectly normal delivery.

Figure 5. Monthly workload of medical and paramedical personnel, Pakistan, 1/1/98-30/6/99
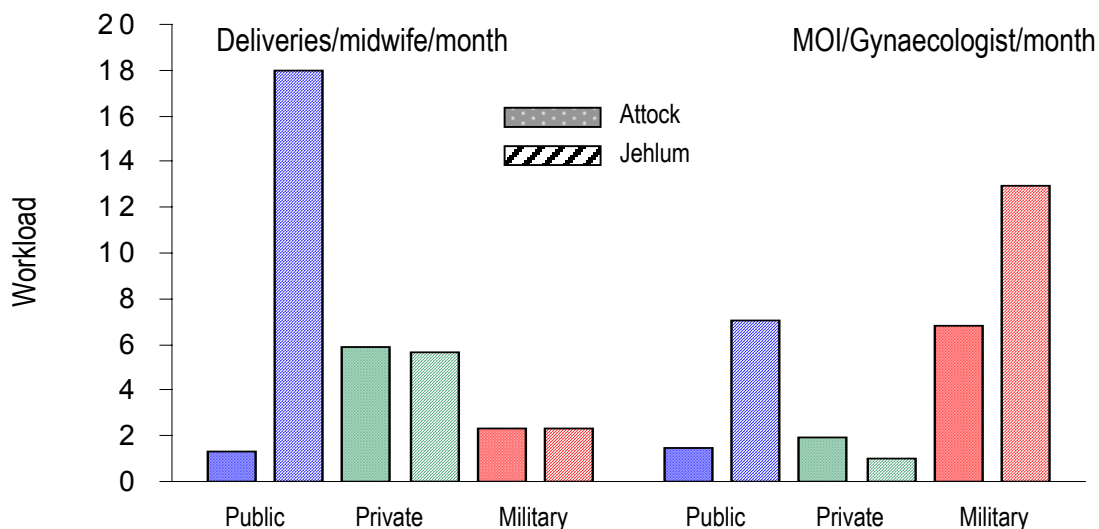
The proportion of births involving an MOI is less high, over all, than in Jhelum, particularly in private structures (6%). In these private hospitals, however, AMIs represent 71% of MOIs, i.e. a much higher proportion than in public or military structures.

In terms of human resources, except for one small private hospital, all functional structures have at least one gynaecologist qualified to deal with obstetric emergencies effectively present at the hospital throughout the year. In addition there are one or more doctors with obstetric skills in the majority of hospitals. There are also midwives in all hospitals except in private structures in Attock, in which deliveries are performed by unqualified birth attendants.

Over all, work loads are nowhere excessive (**Figure 5**), and teams of gynaecologists and surgeons, and, for deliveries, qualified and unqualified midwives are permanently on duty.

4. Utilisation of results

Retro-information

Another key phase of the UON study is the process of retro-information, the communication of the results of the study not only to national and regional decision-makers and international partner organisations but also to workers in the field, the practitioners and paramedicals in the structures involved in the study. In Pakistan, since these field workers were involved to only a small extent or not at all at the stage of collecting data, this retro-information could be seen as being all the more important because one of the original objectives of the study was to provide technical support for district teams – one of the aims being to supply them with a methodology for their work and a data base enabling them to plan strategies for action at the local level and to follow up their effects.

So far the only documented product of the study is the final report analysing the data, published in October 2000. This very descriptive document effectively meets one of the original objectives, a description of the situation in terms of deficits and an inventory of resources. The main conclusions of this report are that the type of study carried out, by its modest cost, particularly by its inclusion in the national system of health information, makes it possible for decision-makers to gain a better understanding of the causes of maternal mortality and morbidity and to find, at the local level, solutions appropriate to each situation.

A regional meeting of anglophone countries in the UON network was held in Islamabad in February 2000, and the results were presented to numerous important persons – representatives of the Pakistani Ministry of Health at national, departmental and district level, members of the Institute of Public Health, representatives of leading international bodies (WHO, World Bank, UNICEF, UNFPA, PAM, Asian Development Bank, Coopération Suisse, British High Commission, etc.), the editor of the journal of the Pakistani Medical Association and the directors of public and military hospitals in the areas covered by the study. The meeting could thus serve as a process of national retro-information. A meeting of this kind, however, at which other countries in the network were also present, does not make it possible to discuss in a structured way the concrete problems revealed in each district studied, and certainly not to consider an approach to planning adapted to each context. The value of local meetings at departmental and/or local level lies in sharing not only the results but also the analyses, the thoughts and the experiences of all involved. It is by this type of concertation that planners and field workers can develop in common strategies which, because they have been thought through in common, will have a chance to lead to real and effective action.

Perception

For the "research" part of the UON study it is planned to carry out interviews with key workers in the field of maternal and infantile health. Unfortunately the methodology adopted by Pakistan did not take this important phase into account, and it is thus impossible to ascertain how far the study has had or will have an impact on their perception of the problem of dealing with obstetric emergencies or possible solutions.

5. CONCLUSION

The approach adopted by Pakistan has, in the view of those involved, proved effective in limiting the financial costs and the time required for carrying out the study. However one of the strong points of the process, the direct involvement of field workers in each phase of the study, is lacking here. It may be feared, therefore, that the assimilation of the results, and even of the technique, by field workers will not be effective in future, and that the financial gain will be "lost" if the positive results hoped for are not taken into consideration by those who every day must confront the problems of providing emergency obstetric care.

The fact that the collection and analysis of data was carried out by an organisation of research professionals without direct involvement of the Ministry of Health either at the national or even departmental level poses a problem for the future continuation of the study, for once the study has been completed the data base created is in danger of being lost. The file of data is so complex and so poorly documented that it is difficult to believe that it can be used again in future. Since the principal researcher, the only person who can fully comprehend the various codifications used, is no longer working at the HSA, it has been very difficult for us to analyse the data collected, and it will be still more difficult if in future, for example if the study is extended to other districts, the file has to be used again.

The existence in Pakistan of a complex health system, including public, private, military and religious structures, needs to be given particular attention by health planners, for, as we have seen, each sector is actively involved in dealing with obstetric problems, and it is not possible in these circumstances to put forward programmes intended only for the public sector. The cohabitation of public hospitals with private structures, whether profit-making or not, is difficult to manage, but ought to be able to become a strong point of the health system.

ANNEX 1 WOMEN QUESTIONNAIRE

UNMET OBSTETRIC NEEDS STUDY 1998-2000
HEALTH SERVICES ACADEMY, ISLAMABAD
RETROSPECTIVE DATA COLLECTION INSTRUMENT

QUESTIONNAIRE NO: ☐☐☐   DATE: ☐☐☐
DAY   MONTH   YEAR

1. IDENTIFICATION OF HEALTH FACILITY

PROVINCE: PUNJAB   ICT   NWFP

TEHSILS

DISTRICT					
ATTOCK	ATTOCK	H. ABDAL	PINDIGHEB	FATEHJANG	JAND
JHELUM	JHELUM	SOHAWA	P. D. KHAN		

FACILITY NAME: ☐

FACILITY TYPE: PUBLIC   PRIVATE   MILITARY   PARASTATAL   NGO

2. IDENTIFICATION OF WOMAN

HOSPITAL ID NO: ☐   DATE OF ADMISSION ☐☐☐
DAY   MONTH   YEAR

NAME: ☐

AGE ☐ YEARS   GRAVIDA ☐   PARA ☐   SETTING URBAN   RURAL

ADDRESS: TEMPORARY ☐

PERMANENT ☐

3. DELIVERED AT

HOME   THIS FACILITY   ANOTHER FACILITY   ELSEWHERE ☐
SPECIFY

4. TYPE OF PREGNANCY

SINGLETON   MULTIPLE

5. PAST OBSTETRICAL HISTORY

SVD   TWINS   C-SECTION   PROLONGED LABOUR   CPD

PRE-ECLAMPSIA   ECLAMPSIA   STILL BORN   RUPTURED UTERUS   OTHERS   UNKNOWN

6. MAJOR OBSTETRICAL INTERVENTION (CURRENT PREGNANCY)

C-SECTION	HYSTERECTOMY	LAPAROTOMY*	CRANIOTOMY	SYMPHYSIOTOMY
VACUUM	FORCEPS	MANUAL PLACENTAL REMOVAL	INTERNAL VERSION	BLOOD TRANSFUSION
UTERINE REPAIR**	CERVICAL TEAR REPAIR	PERINEAL TEAR REPAIR	ANTIBIOTIC THERAPY	
OTHERS				

SPECIFY

* = ONLY FOR UTERINE BREECH,   ** = ONLY FOR RUPTURED UTERUS

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7. INDICATIONS

- [ ] MATERNAL EXHAUSTION
- [ ] RUPTURED UTERUS
- [ ] H/O PREVIOUS C-SECTION
- [ ] OTHER BAD OBSTETRICAL HISTORY
- [ ] BREECH PRESENTATION
- [ ] OBSTRUCTED LABOR BY TRANSVERSE LIE
- [ ] OBSTRUCTED LABOR BY BROW PRESENTATION
- [ ] OBSTRUCTED LABOR BY OTHER PRESENTATION
- [ ] PROLONGED LABOR BY POOR UTERINE CONTRACTIONS
- [ ] OBSTRUCTED LABOR BY CPD
- [ ] OBSTRUCTED LABOR BY OTHER CAUSES
- [ ] APH DUE TO PLACENTA PRAEVIA
- [ ] PIH / PRE-ECLAMPSIA / ECLAMPSIA
- [ ] PPH
- [ ] RETAINED PLACENTA
- [ ] PRE-RUPTURED UTERUS
- [ ] TEAR OF THE CERVIX
- [ ] LACERATION (VAGINAL, VULVAL, PERINEAL TEAR)
- [ ] PUERPERAL INFECTION
- [ ] DIC
- [ ] PRECIOUS PREGNANCY
- [ ] OTHERS

8. MATERNAL OUTCOME OF PREGNANCY

OK	DIED	COMPLICATIONS

9. NEWBORN STATUS

OK	BORN ALIVE BUT DIED <24 HRS	FRESH STILL BORN	MACERATED STILL BORN

10. DATA COMPILED FROM

	LABOR ROOM REGISTER		OT RECORDS
	BIRTH REGISTER		GENERAL ADMISSIONS REGISTER
	CASE FILE		BLOOD BANK RECORDS

11. COMMENTS

COMPILED BY

NAME   SIGNATURES

ANNEX 2 HEALTH FORMATION QUESTIONNAIRE

Findings of Facility's EOC Status
• Comprehensive EOC
• Basic EOC
• Not EOC

I. Description of health facility

1. Name of facility: _____

2. Location/Address of facility: _____

3. Catchment area: _____

4.Type of facility:	a) Hospital_____ b) Maternity_____ c) Health center d) Clinic_____ e) Others (specify)_____
5.Type of operating agency:	a) Government_____ b) Private _____ c) Military d) Para-military e) Semi-govt. f) Others_____
6. Is the facility open 24 hrs a day	a) Yes b) No

II. Staffing profile

7. Check-list on staffing	No. of Posts sanctioned	No. Posted	No. Present	Present during the last 30 days	Available (day, night & weekends)
a. Gynecologist					
b. Anesthetist					
c. General Surgeons					
d. Woman medical officer					
e. Nurse / Mid-wife					
f. Mid wife					
g. Lab technician					
h. LHV					
i. Dai					

III. Service profile during the last 12 month period (From………..To……….)

8.	Total deliveries	
9.	Normal deliveries	
10.	Caesarean section	
11.	No. of obstetric referrals (referred in)	a) Community(Dai) b) LHW c) Private maternity d) FLCF

- If ALL of 16 a-h = Yes, check: _____COMPREHENSIVE EOC
- If   ALL   of   16   a-f   =   Yes   AND 16 g or 16 h = NO, check: _____ BASIC EOC
- If ANY of 16 a-f = No check: _____ NOT EOC

ANNEX 3 LIST OF MAIN DOCUMENTS PUBLISHED BY THE UON IN PAKISTAN

October 2000, Saleha Abdur Rehman & al. Unmet Obstetrical Needs in the Districts of Attock & Jehlum, Punjab Province, Pakistan, 79 p.

November 1999, Jahn A., Report on the UON mission to Islamabad, Pakistan, 15-20.11.99, 5 p.

July 1999, Tassadaq Farook, Report of Data Collection at District Jehlum, 2 p.

May 1999, Tassadaq F., Zaidi, Sahela A.R., Estimating the Unmet Obstetric Need at districts Attock & Jehlum in the Punjab province of Pakistan, 31 p.

December 1998, Jahn A., Litt V., De Brouwere V., Report of a preparatory visit to Pakistan, 17 p.