

**Treatment Histories of Reported Neonatal and Maternal Illness  
A Mixed Methods Approach**

**Documentation and Evaluation of Fieldwork**

**DRAFT**

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A working paper prepared for The Healthy-Mother, Healthy-Child Project of MotherCare

The authors gratefully acknowledge Dr. Reginald Gipson, Dr. Ayman El Mohandes, Dr. Bonnita Stanton, Dr. Ali, and the staffs of MotherCare and the Social Research Center of the American University in Cairo for their comments and support during this project. Funding was provided through the MotherCare Project by the United States Agency for International Development.

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## Executive Summary

In this paper, we describe the Integrated Treatment History Approach for the study of reported neonatal and maternal illness. The approach relies on innovative instruments and a field methodology that permits the simultaneous collection of qualitative and quantitative data about an illness episode in social context. The original method was developed in Minia, Egypt to examine treatments of boys and girls with diarrhea. The basic method is designed with three purposes:

- (1) to improve our understanding of how and when illness is perceived,
- (2) to improve the quality of event-history data by cross-checking responses based on open-ended and closed-ended questions, and
- (3) to supplement quantitative event-history data with detailed, textual information concerning the process of seeking healthcare.

The adapted method described here elicits detailed information for the observation period about perceptions of maternal and neonatal symptoms, perceived severity of illness, care administered, places visited, providers visited, family members involved in actions, costs of obtaining care, reasons for choice of care, and the decision-making process underlying choices of care.

The interview combines techniques from in-depth and survey interviewing approaches. This combined strategy balances four purposes:

- (1) to build rapport and to be responsive to the train of thought of the respondent,
- (2) to aid event recall in a systematic way,
- (3) to expose and to resolve gaps and inconsistencies in responses, and
- (4) to gather supplemental, qualitative information for each respondent.

The interview is divided into an opening, completion of a time-by-event matrix, and a closing. The opening was developed in recognition of the general difficulty of recalling symptoms of illness and the particular tendency for women to view gynecological or maternal symptoms as natural and therefore not worth reporting. The opening is based on a careful sequence of open- and closed-ended questions designed to stimulate recall in a non-leading way and to obtain complete information on perceived illnesses.

A standard pattern of open- and closed-ended questions and a structured method of recall guide completion of the matrix. Open-ended questions help to stimulate recall of events and related information without leading the respondent. Closed-ended questions help to ensure complete information, to sequence events, and to resolve inconsistencies in reporting. Unlike procedures followed in a standard survey, interviewers can record relevant responses "out of sequence." All responses are recorded in a time-by-event matrix using standard codes or text.

The closing of the interview begins with a review and summary of the information collected during the preceding phases. A series of structured and spontaneous open-ended probes focusing on events recorded in the table then completes the interview. Therefore, replication of the data is facilitated by the systematic implementation of a set of procedures, pattern of questions, and standard probes to assist recall.

Textual and quantitative databases of the sequence of events and related information are then developed. The textual data may be coded and included in the quantitative database, used to interpret quantitative results, or analyzed separately. Linkage of the two databases provides a unique opportunity to integrate qualitative and quantitative data at the analytic stage.

Implementation of the method with sub-samples of population-based samples is appropriate when the illness is common and when generalizable results are desired. The instrument is also a useful tool to validate results from sample surveys and provides a cost effective means to collect detailed, complementary information about topics that are difficult to address in a standard questionnaire. Implementation with smaller, purposive samples may be useful when illnesses are rare or when textual histories are desired. The method is adaptable to other populations and to a variety of illnesses of varying duration.

## 1 Introduction

Event histories are longitudinal records of the timing of events, or changes in individual or collective behavior. Description and explanation of chronological changes in behavior are key analytic interests in event history analysis (Petersen, 1991). Migration, home leaving, marriage, reproduction, and participation in the labor force are processes of change commonly examined by demographers.

Quantitative event history data is often collected using standard questionnaires or calendars in sample surveys. Pebley et al (forthcoming), for example, have discussed the use of calendars to study perceptions of child illness. Along with developing approaches for data collection, demographers and other researchers have developed methods for the analysis of event history data (Allison, 1984, Petersen, 1991).

Reasonable analytic models depend on the accurate reporting of events as well as the accurate recording of the timing between changes in state. Researchers have documented ways in which problems of definition, differences between real and perceived morbidity (Stewart et al , 1996, Zurayk et al , 1993, 1994, 1997), choice of recall period, and methods of recall affect the quality of survey data on illnesses and related treatments. Examples from the area of child illness illustrate the challenges. First, omissions of illness and treatment may be greater for reported illnesses that are considered to be normal or mild (Thongkrajai et al , 1990). Second, cross-sectional surveys commonly use a two-week recall period to balance the goals of minimal recall error and sufficient sample size. However, memory lapses still occur during a two-week recall period (Boerma et al , 1991). For example, under-reporting of child diarrhoeal

episodes is common if the illness occurs more than two days before interview, and over-reporting is common of more recent episodes (Boerma et al , 1991) Measurement of the timing of health service utilization is consequently subject to reporting biases Third, survivorship bias can create inaccuracies in the reported prevalence of treatments for particular illnesses because deceased children may have received different treatment compared to surviving children

Studies suggest the difficulty of assessing the validity and completeness of reports of health service utilization from surveys (Boerma et a , 1994) If the substantive interest is in behavioral responses to a reported illness, methods of data collection that improve the quality of data on perceived illness and health seeking behavior are useful

In this paper, we describe the integrated treatment history approach, a method for examining behavioral responses to reported illness The approach incorporates qualitative and quantitative methods in instrument design and data collection, and therefore permits the integration of both types of data at the analytic stage The method is designed with three purposes in mind (1) to improve our understanding of how and when illness is perceived, since the recognition of illness necessarily precedes a behavioral response, (2) to improve the quality of data by cross-checking responses based on open-ended and closed-ended questions, and (3) to supplement quantitative event-history data with detailed, textual information concerning the process of seeking healthcare

In the next section, we describe previous efforts to integrate qualitative and quantitative approaches in demographic research generally and in event history analysis specifically Then, we describe the project for which this integrated treatment

history was developed, the instruments, the structure of the interview, and the nature of the data collected. Finally, we reflect on the advantages and limitations of the integrated treatment history approach and provide recommendations for future adaptations of the method.

## **2 Mixed Methods in Demography, Public Health, and Event History Analysis**

Researchers interested in demographic and broader public health questions have identified a need to borrow the methodological tools and theories of several disciplines. This methodological cross-fertilization reflects a larger debate between positivist/quantitative approaches and interpretive/qualitative approaches to research. The motivation to cross-fertilize originates from the perceived limitations of exclusively quantitative or qualitative techniques and data. For example, some researchers are skeptical of the validity of certain survey data collected in developing countries (Caldwell, 1985, Davis, 1987, Stone and Campbell, 1984). Other researchers who value generalizable results question the benefits of qualitative techniques and data.

Debate over the feasibility and desirability of integration is still widespread (Fricke, 1997, Greenhalgh, 1997, Kertzer and Fricke, 1997, Kertzer, 1997, Knodel, 1997, Obermeyer, 1997, Rao, 1997). In the context of this debate, efforts to integrate qualitative and quantitative methods and data in the research process are increasing in number and spring from a variety of disciplines. See Axinn et al. (1991) for a review. Examples of integrated studies in demography and public health are summarized in Table 1.

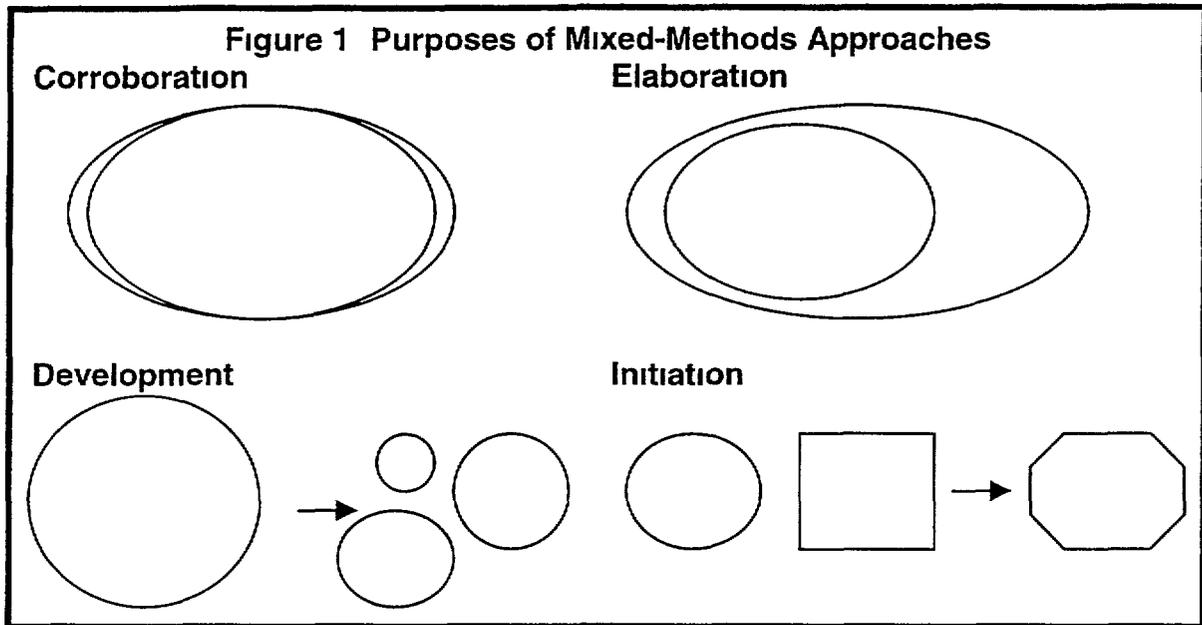
Researchers have used in-depth qualitative studies to inform demographic theory and to aid in the selection of variables for quantitative models. Demographers have collected qualitative data to explain residual variance in quantitative models. Operations researchers have incorporated qualitative techniques into the evaluation of family planning and reproductive health programs. Demographers and epidemiologists have used qualitative techniques in incidence and prevalence studies to develop culturally applicable algorithms for case identification. Finally, anthropologists and demographers have synchronized the qualitative and quantitative components of fieldwork so that findings from each approach inform the whole data collection process.

**Table 1 Integration of Theory and Method in Demographic and Public Health Research**

1	Reliance on anthropological studies to construct or reconstruct demographic theories of fertility	Caldwell et al , 1987, Greenhalgh, 1990
2	Reliance on findings from ethnographic studies to enhance survey results or to improve the specification of quantitative models	Cherlin et al , 1988, Dahal et al , 1993, Dyson and Moore, 1983, Fricke et al , 1986
3	Residual analysis, or the collection of new qualitative data to promote new theory and to explain the residuals in quantitative models	Entwisle et al , 1996, Knodel et al , 1984
4	Incorporation of qualitative techniques in the evaluation of family planning and reproductive health programs	Miller et al , 1991, Webb et al , 1991
5	Use of qualitative techniques to improve the design of surveys	Axinn et al , 1991
6	Incorporation of ethnographic and survey work during the data collection, integration in community studies	Axinn et al , 1991, Massey, 1987, Caldwell et al , 1987, Caldwell et al , 1989

Rossmann and Wilson (1994) and Erzberger and Prein (1997) suggest that mixed-methods approaches serve four purposes: corroboration, elaboration, development, and initiation. Corroboration, also known as methodological triangulation, refers to the use of multiple methods to test the consistency of findings across methods. Elaboration refers to the use of data gathered from one method to aid the interpretation of data gathered

by another method. Development refers to the use of results from one method to design new instruments, sampling frames, or strategies for the analysis of data gathered by another method. Initiation refers to the development of new theory based on divergent results from different methods of data collection.



Within this context, we can examine past uses of mixed-methods approaches to collect and analyze event history data. First, researchers have relied on in-depth qualitative studies to assist in variable construction and in the specification of quantitative models of changes in the life course. Two examples are noteworthy. In a study of changes in union formation among the Shona-speaking peoples of Zimbabwe, Meekers (1994) developed categories of marriage from the ethnographic literature and used data from an event history survey to assess the prevalence of changes in marriage customs. Dahal, Fricke, and Thornton (1993) used findings from the

ethnographic literature to improve model-building in a quantitative analysis of the determinants of marriage timing in a community in Nepal

This use of findings from qualitative studies to improve quantitative model-building was possible in the last two studies because the data necessary to test cultural models of marriage timing were available. Too often, surveys are designed and implemented without formative qualitative research and lack the data necessary to incorporate knowledge from in-depth qualitative studies at the analytic stage.

Awareness of these limitations has motivated researchers to combine methods in studies of the lifecourse. Caldwell, Gajanayake, Caldwell, and Caldwell (1989) collected marriage histories for 10,964 people in seven rural and urban locations in southwest Sri Lanka to understand the causes of rising ages at marriage among women. Qualitative data were collected from three age cohorts to interpret quantitative findings.

A next step in the process of integration might involve the combination of less-structured and more-structured techniques in the same instrument. A few examples illustrate the range of substantive and technical applications. Although not event histories, knowledge, attitudes, and practice (KAP) surveys have included open- and closed-ended questions to assess levels of knowledge about contraception and family planning services. Langsten and Hill (1996) included open- and closed-ended questions to assess levels of knowledge about child illnesses and treatments. Finally, Bledsoe et al (1998) developed an instrument that included open- and closed-ended questions to explore perceptions of reproduction in the Gambia.

Efforts to combine qualitative and quantitative techniques in the same event history interview also exist. Reher and Schofield (1993) describe applications of event

history analysis and narratives in the field of historical demography. Noponen et al (1992) conducted a panel study of 300 poor women to examine the impact of targeted loans on females working in the informal sector. The interview in this latter study involved the completion of a time-by-event “event history matrix” using retrospective, assisted recall and asking focused, open-ended probes after reviewing patterns in the completed table. Caleb (1995) adapted the event history matrix to examine post-partum care practices among women in India. Caleb’s study focused on health-related behaviors taking place during a particular period in the life course of the woman.

Community-based health interventions have exposed the needs to understand local perceptions of illness and the process of seeking health care. The “three delays” model of the Prevention of Maternal Mortality Project (McCarthy and Maine, 1992) is a well-known framework summarizing the process of seeking curative care, barriers to obtaining care, and the preventable consequences of poor access and sub-standard care. Avoidable deaths result from three types of delays: a delay in recognizing symptoms, a delay in reaching the health facility, and a delay in receiving appropriate care at the facility.

The “three delays” model is generalizable to the process of seeking curative care for any perceived illness, including those of the neonate and pregnant woman. Event history methods that focus on the “three delays” provide a useful tool for community-based studies of the motivations and barriers to health service utilization. In response to this need, Yount and Gittelsohn (1998) field tested an instrument and field methodology to study acute episodes of diarrhea among children in Minia, Egypt. This approach is known as the “integrated treatment history”.

The integrated treatment history was designed to document perceptions of child diarrhea and access to care in a setting where a female disadvantage in childhood mortality persists. The research was undertaken to explore new ways of collecting event history data, to test a new approach to document the decision-making process surrounding choices of care, and to explore intra-household and community-based barriers to obtaining care. This effort laid the groundwork for the neonatal and maternal treatment histories discussed here.

### **3 A Mixed Methods Approach to Study Familial Responses to Maternal and Neonatal Illnesses**

The Perinatal/Neonatal Morbidity and Mortality Study of the Healthy Mother Healthy Child Project was undertaken to provide program-relevant research concerning perceptions of maternal and neonatal illness, the process of intra-household decision-making about recognized symptoms, barriers to care, and treatment outcomes at service delivery points. An inter-disciplinary team of researchers developed an innovative model for research that includes instruments for the collection of this facility-based and community-based data.

Two goals of the broader initiative of MotherCare are to replicate models for research and intervention. To facilitate the dissemination of information, the authors document an adaptation of the integrated treatment history, a method for the community-based collection of event history data that combines qualitative and quantitative techniques in instrument design, data collection, and analysis.

### 3 1 The Community Based Samples

Four governorates were selected for the community based studies Minia, Qaliubia, Luxor and Aswan The first two of these, Minia and Qaliubia were included because a representative sample of households in which related studies had been conducted already existed Luxor and Aswan were selected as research sites because the main development efforts of the Healthy Mother - Healthy Child project were focused in these governorates For this reason as well, the neonatal units in the main general hospitals of the latter two governorates are the focus of a special, related study

**Table 2 Final Samples in Minia, Qaliubia, Luxor and Aswan**

Governorate	Sample Size of Pregnant Women	Sample Size of Neonates	Sample Size of Clinics
Minia	138	138	TBD
Qaliubia	86	86	TBD
Luxor	TBD	TBD	TBD
Aswan	TBD	TBD	TBD

Note TBD – still to be determined

#### 3 1 1 Minia and Qaliubia

Beginning in late 1995, a total of 6000 households (3000 in each of the two governorates) were followed 5 times at roughly 3 month intervals, for a prospective period of one year At the time, these two governorates were chosen by the Ministry of Health to represent Upper and Lower Egypt respectively The samples in each governorate are self-weighted samples of households derived from a multi-stage sampling procedure

In the first stage, villages and urban areas (shiakhas) were selected by probability proportional to size All selected communities were mapped, and a quick count of households was conducted Within these selected communities, two areas were chosen again by probability proportional to size All households were carefully

listed in these areas. From the complete list of households for each area, a random starting point was selected, and an equal number of households were chosen from each area. Therefore, each community had two clusters, and all clusters were equal in size. In Qaliubia, the principal investigators selected 50 communities with two clusters per community and 30 households per cluster. Due to security problems in Minia, only 38 communities were selected with two clusters per community. The number of households per cluster was increased to 40 to insure a total sample size of approximately 3000 thousand households.

From 1995 through 1997, studies were conducted in these households on childhood illness (diarrhea and acute respiratory infection), on pre-, intra-, and post-natal care, and on prospective birth and death rates. For the current research, the same households were again followed, with the intent of identifying all women currently 6 to 9 months pregnant. From the approximately 3000 households in each governorate, 86 pregnancies were identified and followed in Qaliubia and 138 pregnancies identified and followed in Minia.

### **3 1 2 Luxor and Aswan**

The approach to sample selection was different in Luxor and Aswan because the time available for the work did not permit a careful mapping and listing of all sample communities. In these governorates the principal investigators made a systematic, random selection of a large number of communities without regard to size. From this list, a smaller number of communities will be chosen by probability proportional to size. In these communities, all pregnant women will be listed. From the list of pregnant women, a fixed number of women currently in the 6th through 9th month of pregnancy

will be chosen in each village. We will follow a total of 400 pregnancies in the two governorates using the complete set of instruments described in this manual.

In addition, we will follow all other pregnancies in the sample villages, but only to determine the outcome of the pregnancy--that is, live birth or stillbirth, and if a live birth, whether the child survived to at least 28 days of age. This will provide a substantial number of peri- and neo-natal deaths for which we will conduct verbal autopsies.

### **3.2 Overview of Fieldwork**

Table 3 shows the sequence of interviews conducted in the community-based study of maternal and neonatal illnesses and health-seeking behavior.

In each field site, the community-based study began with a pregnancy identification form. All women identified as being in their sixth to ninth month of pregnancy received a maternal symptoms checklist and a nine-month maternal treatment history<sup>1</sup>. A consolidated symptoms checklist that was developed by physicians identified a sub-sample of pregnant women who reported having symptoms of interest to the project. These women received a detailed one-week maternal treatment history.

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<sup>1</sup> The nine-month pregnancy history covers the period from the beginning of pregnancy to the time of interview only. Therefore, retrospective histories are collected for between six and nine months of the pregnancy depending upon the time that the woman is identified.

<b>Table 3 Overview of Community-based Fieldwork and Instruments</b>			
<b>Objective</b>	<b>Instrument</b>	<b>Period of Observation</b>	<b>Mean # of Minutes per Interview</b>
Identify women in their last trimester of pregnancy	Pregnancy Identification (PI)	Day of interview	
Identify women with reported symptoms of interest	Maternal Symptoms Checklist (MSC)	One week window period prior to interview	25 5
Identify perceived symptoms and preventive and curative behaviors of all pregnant women in the sample	9-month Maternal Treatment History (MTH9)	Onset of pregnancy to the date of interview	41 0
Record detailed sequence of reported symptoms and preventive and curative behaviors of pregnant women identified by MSC	One-Week Maternal Treatment History (MTH1)	One week window period prior to interview	42 1
Identify neonates with reported symptoms of interest	Neonatal Symptoms Checklist (NSC)	Birth to first interview and last interview to end of the neonatal period (two week follow-up periods)	
Record sequence of reported symptoms and preventive and curative behaviors toward neonates identified by NSC	Two-week Neonatal Treatment History (NTH)	Birth to first interview and last interview to end of the neonatal period	

Also included in the sample were newborns of all eligible women, regardless of whether or not the woman reported a maternal illness at the time of first interview. Follow-up of newborns occurred about two weeks after delivery. A symptoms checklist identified those newborns with reported symptoms of interest to the project. For those newborns, a detailed neonatal treatment history was conducted that covered the period from birth to the time of interview. A second follow-up interview took place four weeks post-partum, a symptoms checklist was administered, and a final neonatal treatment history was conducted for those newborns with reported symptoms of interest to the project.

### **3 3 Pre-testing and Development of Instruments**

Semi-structured interviews informed the initial design of the instruments and choices of terminology. Field testing of the instrument began in June, 1997 and continued until December, 1997. Several field tests were essential to develop appropriate local terminology for symptoms of interest to the project and a preliminary set of codes for each part of the matrix. Field testing was also essential to develop procedures for the interview and to select methods for assisting event recall since a written set of questions did not accompany the tables. Both instrument design and choice of procedures for the interview are discussed in the next sections.

### **3 4 The Instruments**

The integrated treatment history instrument permits the recording of qualitative and quantitative data about the nature and progression of recognized symptoms and the sequence of behavioral responses to perceived symptoms. The instrument is a matrix, with time on the vertical axis and categories of events and related topics on the horizontal axis. Time can be divided into years, seasons, months, weeks, days, or the age or life stage of the respondent. The choice of time interval takes into consideration the nature of the illness, the specific research interests, and the respondents' conceptualization of the normal progression and duration of the illness. The behavioral categories on the horizontal axis correspond to the variables that are of analytic and programmatic interest. Columns that allow for account balancing and consistency checking are also included. See Appendix E for copies of the instruments.

Originally, a treatment history matrix with a one-week recall period was developed to collect information on reported maternal morbidities and health-seeking behavior. During pre-testing, however, an insufficient number of events fell into the window period due to a substantial amount of left and right censoring of treatments for reported symptoms. Often, symptoms reported during the window period had begun earlier in the pregnancy, and respondents generally treated these symptoms at the time of onset. Afterward, respondents did nothing for the persistent symptom or sporadically treated the symptom if it recurred during the pregnancy.

The detailed structure of the existing MTH1 precluded expansion of the window period. Instead, the investigators developed a simplified maternal treatment history matrix delineating time by month of pregnancy. This new instrument permitted observation of routine practices and responses to perceived symptoms for the duration of pregnancy. This nine-month history provides an important backdrop of information for the more detailed, one-week history.

The structure of the neonatal treatment history instrument is similar to that of the one-week maternal history. The parallel structure provides an opportunity to compare familial responses to the reported illnesses of newborns and pregnant women. Originally, a neonatal matrix with a one-week window period was developed. However, concerns about censoring of important symptoms and events prompted the decision to document the entire neonatal period. The exact structure of each matrix will be discussed in turn.

### 3 4 1 One-Week Maternal Treatment History and Neonatal Treatment History

Since the structures of the one-week maternal treatment history and the neonatal treatment history are similar, they are described in tandem

Table of Symptoms The first page of the maternal treatment history includes a table of symptoms designed to stimulate recall of problems experienced during pregnancy The neonatal treatment history includes a similar table for perceived neonatal symptoms

The tables are designed to focus the interviewer on symptoms without regard to their timing unless spontaneously mentioned by the respondent Both the neonatal and maternal tables consist of general categories of problems or areas of the body Each general category includes a coded list of more detailed problems or symptoms Assistance from a team of physicians and formative qualitative research facilitated the specification of categories and groups of symptoms

The team of physicians consisted of Egyptian and American consultants This group identified potentially important bio-medical symptoms of neonatal and maternal illness Translation of bio-medical terms into locally relevant words and meanings required extensive qualitative research and assistance from the Egyptian consultants While the focus of this research is reported illness rather than actual presence of bio-medical symptoms, this effort delineated useful guidelines for interpretation of the data collected

The formative qualitative research included semi-structured interviews, freelist, and pile sorting The qualitative techniques of freelist and pile sorting are well suited to the identification and grouping of locally relevant terms for recognized

illnesses. See Appendix A for a more detailed discussion of these techniques and their previous use in constructing local taxonomies of illness.

Section 1, Chronology and Cause of Reported Symptoms The first section of the matrix follows the symptoms table. This set of columns is designed to place in chronological order those symptoms recorded in the symptoms table and any symptoms recalled thereafter. Each general category from the symptoms table corresponds to two columns in the matrix. Reported symptoms are coded in any of four cells in the first column on the days that the symptom occurred. The cause of each reported symptom is coded in the adjacent cells of the second column on the same days.

Additional columns are available for recording “other” reported symptoms that respondents associate with pregnancy or the neonatal period. Finally, a column is reserved to record the respondent’s assessment of the overall severity of reported symptoms for each day of the window period.

Section 2, Routine Preventive Care The second set of columns in the one-week maternal history focuses on the routine behaviors occurring during the window period. A similar section exists in the neonatal treatment history to record routine care of the newborn. Of analytic and programmatic interest are the regular, preventive health practices of the target populations.

The maternal history includes space to record daily consumption of liquids, vitamin intake, hours spent conducting housework, and hours slept. Also recorded are indicators of whether or not the respondent worked outside the house and whether or not the respondent obtained a tetanus toxoid immunization on any day of the window period.

Section 2 in the neonatal treatment history includes space to record daily number of breast feedings, whether or not colostrum was given, other liquids given, daily sleeping position of the child, frequency of observing the child during sleep, whether or not the child was circumcised during the window period, whether or not the child was vaccinated, and any other information deemed relevant by the respondent

Section 3 Actions Inside the Extended Family The third set of columns focuses on the responses of family members that occur within the residences of the extended family. The structure of this section is identical for neonates and pregnant women. For a reported symptom or set of symptoms, interviewers ask about the type of care administered, family members involved in the event, and place where care is administered (specific residence of the extended family) for each day of the window period. Symptoms receiving no care at home on a given day or during the entire window period are so recorded.

Section 4, External Care The fourth set of columns focuses on care sought outside the residences of the extended family. The structure of this section in the neonatal and maternal histories is identical. For a reported symptom or set of symptoms on a given day, data collected include the type of provider visited, action taken by the provider, and place visited. Symptoms receiving no outside care on a given day or during the entire window period are so recorded.

Section 5, Discussion and Decision-making The fifth section of the matrix focuses on discussions and decision-making related to the pregnancy or neonatal period. Interviewers record quantitatively the general nature of discussions as well as the process of decision-making underlying events and non-events. The choice to

record event- and non-event-related discussions was based on experience implementing the integrated treatment history to study episodes of child diarrhea. Previously, questions about decision-making were asked only about events identified during the interview, and non-event related discussions were omitted. For example, a woman might identify a pregnancy-related illness that requires care. Yet, when she discusses it with her husband, she discovers that there is insufficient money to pay for care. This example of a non-event related discussion indicates a potentially important barrier to care.

Table 4 summarizes the questions asked for each day of the window period.

<b>Table 4 Sequence of Questions about the Process of Decision-Making</b>	
1	Did any discussion about symptoms or treatments take place on (day)?
2	(If a discussion took place) Was the discussion symptom- or treatment- related?
3	(If a discussion took place) Who initiated the discussion?
4	(If a discussion took place) Who participated in the discussion? Who else?
5	Who finally decided to (action/non-action taken) (regardless of whether or not a discussion took place)?
6	What alternatives were considered, if any?
7	What was the reason for (action/non-action taken) (rather than alternative mentioned)?

The inclusion of identical questions in the neonatal and maternal treatment histories provides an opportunity to compare decision-making processes about the treatment of newborns and pregnant women.

Section 6, Logistics and Expenditures for Care The final section of the matrix focuses on the logistics and costs of obtaining care. Again, this section is identical in the maternal and neonatal illness histories. This section was included because of substantial evidence that accessibility to care is an important predictor of use. Data collected include choice of transportation, time required to reach location of care, the

costs of transportation, the costs of exam, the costs of medication or remedy, and the financier of each purchase

Section 7 Open-Ended Follow-up Questions A series of open-ended questions accompanied the matrix to explore topics of interest that are not easily quantified. Open-ended questions focused on events recorded in the matrix to facilitate integration of qualitative and quantitative data at the stage of analysis. Topics covered included the nature of discussions among family members, the nature of client-provider discussions, and the reasons for choosing a particular type of care. The same questions were included in the neonatal and one-week maternal histories in the hopes of comparing responses for these two target populations.

### **3 4 2 Nine-Month Maternal Treatment History**

The monthly maternal treatment history is a simplified version of the daily maternal treatment history. Interviewers record the chronology of perceived symptoms, basic home remedies, basic information on discussion, providers visited, and delays in care. The monthly maternal treatment history largely overcomes the statistical problems of left censoring of reported symptoms and events by using a longer period of recall. The instrument therefore permits observation of responses to symptoms that start early in pregnancy, patterns of delay in seeking care, and episodic treatment of persistent symptoms.

Table of Symptoms The first page of the instrument is identical to the one-week maternal history and serves the purpose of stimulating recall about symptoms experienced since early pregnancy.

Columns 2-5, Chronology of Reported Symptoms The first set of columns permit the recording of symptoms experienced during each month of pregnancy to the time of interview. Columns 2 and 4 correspond to the broad categories in the symptoms table, and columns 3 and 5 correspond to specific symptoms.

Columns 7- 13, Actions The next set of columns focuses on routine preventive care and actions taken inside and outside the home for each reported symptom. Space is available to record two primary in-home activities and two outside events for the combinations of symptoms coded on the same line. Therefore, the instrument is structured to link actions with precipitating symptoms. Actions not prompted by symptoms can be coded as such. Space is also available to record the order of events taking place during the same month. This ordering is designed primarily to assist recall.

Column 14, Delay in Seeking Care The final column focuses on the delay between perception of illness and seeking care. If the respondent seeks care in the same month that a symptom is observed, the interviewer records the number of days from the time of observation to the time of action as the period of delay. If the respondent seeks care during the month following the month of onset, "not treated" is coded in the month of onset. The symptom is recorded again in the next month, and the period from the beginning of that month to the time of treatment is recorded.

Open-Ended Follow-Up Initially, a structured set of open-ended questions were asked about all identified events. However, pre-testing demonstrated the need to select a sub-sample of events on which to collect detailed information. Interviewers used a simple algorithm to select one outside event, one inside event, and one routine event to

minimize interviewer-bias in the choice of events Appendix B provides the algorithm used in the field

### **3 4 3 Procedures for Coding**

Preliminary codes that were developed during the pre-testing accompany each column of the matrices However, three methods of coding were possible during data collection If a code exactly matched the response, the interviewer could use the code If a code matched the response, but the respondent gave important supplemental information, the interviewer recorded the code and any clarification verbatim If no code matched the response, the interviewer recorded the exact words of the respondent Research assistants in Cairo later developed codes for these textual responses

### **3 5 The Interview Process Neonatal and One-Week Maternal Histories**

The interview combines techniques from in-depth and survey interviewing approaches This combined strategy balances four purposes (1) to build rapport and to follow the respondent's natural train of thought when possible, (2) to aid event recall in a systematic way, (3) to expose and to resolve gaps and inconsistencies in responses, and (4) to gather supplemental, qualitative information for each respondent Interviewers were instructed in procedures for starting the interview, in a pattern of questions to complete the matrix, and in methods for reviewing and summarizing the session Therefore, replication of the data is facilitated by the systematic implementation of a set of procedures, pattern of questions, and standard probes to assist recall

Discerning the most effective pattern of questions is important for several reasons First, the interview must begin smoothly with easily recalled information that

provides the background for the rest of the interview. A good pattern of questions will also ensure a smooth transition between categories of behavior. Different versions of the questions and different patterns were field tested, and a limited set of procedures were selected to facilitate a consistent and systematic implementation across interviewers.

Table 5 summarizes the sequence of questions and instructions for completing each phase of the one-week maternal and neonatal treatment histories.

Table 5 Pattern of Questions and Instructions for the Integrated Neonatal and One-Week Maternal Treatment Histories			
Sequence of topics	Question Type & Purpose	Pattern of questions	Instructions
Opening I	Open Non-threatening introduction, obtain information for probes and consistency checks later in interview	<b>MATERNAL HISTORIES</b> <i>What are all of the problems or symptoms related to your pregnancy that you have experienced in the last week?</i> <b>NEONATAL HISTORIES</b> <i>What are all the problems or symptoms that your newborn has had since (birth/the last interview)?</i> <b>Optional Probes</b> <i>What else?</i>	Circle all symptoms mentioned, or write them in the space marked "other" Repeat responses as appropriate Note all spontaneously mentioned information relevant to the table (timing of symptoms, places visited, remedies used, discussions, etc)
Opening II	Closed Remind respondent of symptoms already mentioned Confirm presence or absence of symptoms not mentioned spontaneously	<b>MATERNAL HISTORIES</b> <b>If detailed symptom in a category mentioned</b> <i>You mentioned that you had X. Did you also have Y at any time (in the last week/during your pregnancy)?</i> <b>If no detailed symptom in a category mentioned</b> <i>Did you have any problem with (category) at any time (in the last week/during your pregnancy)?</i> <b>NEONATAL HISTORIES</b> <b>If detailed symptom in a category mentioned</b> <i>You mentioned that (name) had X. Did (name) also have Y at any time since (birth/the last interview)?</i> <b>If no detailed symptom in a category mentioned</b> <i>Did (name) have any problem with (category) at any time since (birth/the last interview)?</i>	Begin at the top of the table and work down Ask about general categories if no detailed symptoms in the category were mentioned spontaneously Ask about other detailed symptoms in a category if any one in the category was previously mentioned Circle all prompted positive responses and places an "x" in the bottom left corner of the box to distinguish spontaneous and prompted responses
Symptoms	Open 1 <sup>st</sup> Closed 2 <sup>nd</sup> Assisted recall – allow respondent to answer freely, closed probes for complete information	<b>MATERNAL AND NEONATAL</b> <i>You mentioned that (you/name of child) had (symptoms) in the last week</i> <i>When exactly did (you/name of child) have (symptom) in the last (week/time since birth-last interview for newborns)?</i> <i>When symptom mentioned – how long did it last?</i> <b>If respondent cannot recall the timing spontaneously</b> <i>Did (you/name of child) have (symptom) (yesterday/the day before/during the beginning of the week/before- after-during other symptoms already placed in time)?</i>	Ask about the timing of each symptom separately until all symptoms are sequenced Code timing of symptoms in the table and record additional data if respondent mentions information relevant to other parts of the table

Note Interviewers received verbal training in the general pattern of questions and did not receive a list of questions written in Arabic. So, the questions above are representative of discussions that took place during the training sessions

Table 5 Pattern of Questions and Instructions for the Integrated Neonatal and One-Week Maternal Treatment Histories			
Sequence of topics	Question Type & Purpose	Pattern of questions	Instructions
Routine Care	Open and Closed Assess routine behaviors and preventive health practices of the woman and of the woman/family toward the neonate	<p><b>MATERNAL HISTORIES</b>  <i>What vitamins did you take last week? What else?</i> (Interviewer circles codes at the bottom of the page)  <i>When exactly did you take (vitamin) in the last week?</i>  <b>When vitamin mentioned – how long did it last?</b>  <b>If respondent cannot recall the timing spontaneously</b> <i>Did you take (vitamin) (yesterday/the day before/during the beginning of the week/before- after-during other symptoms already placed in time)?</i>  <i>(Yesterday/day) what liquids did you drink? What else?</i>  <i>(Yesterday/day) did you work outside the house?</i>  <i>(Yesterday/day) how many hours did you sleep?</i>  <i>(Yesterday/day) how many hours did you sleep?</i>  <i>(Yesterday/day) how many hours did you do housework?</i>  <i>Did you receive a tetanus vaccination at any time last week? (If yes) When exactly? Yesterday, the day before, at the beginning of the week, before or after you (other action recorded in the table)?</i>  <i>What else did you do for your general health (yesterday/day)?</i></p> <p><b>NEONATAL HISTORIES</b>  <i>(Yesterday/day) how many times did you breastfeed (name)?</i>  <i>About how long was each feed (yesterday/day)?</i>  <i>Did you give colostrum (yesterday/day) to (name)?</i>  <i>What other liquids did you give (name) (yesterday/day)? What else?</i>  <i>(Yesterday/day) what position did you put (name) to sleep?</i>  <i>(Yesterday/day) how many times did you observe (name) while he/she was sleeping?</i>  <i>At any time last week, was (name) circumcised? (If yes) When exactly? If respondent doesn't remember Yesterday? The day before yesterday? At the beginning of the week? Before/during or after (other actions recorded in the table)?</i>  <i>Did (name) receive any vaccinations last week? (If yes) When exactly? If respondent doesn't remember Yesterday? The day before yesterday? At the beginning of the week? Before/during or after (other actions recorded in the table)?</i>  <i>What else have you done for the general health of (name) in the last week? (If action mentioned) When?</i></p>	Proceed sequentially from column to column, asking open questions where possible and probing for complete information

Table 5 Pattern of Questions and Instructions for the Integrated Neonatal and One-Week Maternal Treatment Histories			
Sequence of topics	Question Type & Purpose	Pattern of questions	Instructions
Actions	Open Closed confirmations only for inconsistencies Assisted recall – allow respondent to answer freely, probes obtain complete info without leading	<b>MATERNAL AND NEONATAL</b> <i>What, if anything, did you do about(symptom)? When exactly did you do this last week?</i> <b>If respondent cannot recall the timing spontaneously</b> <i>Did you (action taken) (yesterday/the day before/during the beginning of the week/before- after-during other symptoms/actions already placed in time)?</i> <i>Who (else) (action taken)?</i> <i>Where exactly did (action taken)?</i> <i>What else did you do for (symptoms recorded on that day) on (yesterday/day)?</i>	Stimulate recall by reminding respondent of symptoms, reported severity for that day, and other information recorded in table, if an action is taken for a specific symptom, record the action and ask open questions to get related information Record problems without actions on separate lines
Logistics of care	Open Closed confirmations only for inconsistencies Obtain detailed information on expenditures Assisted recall – ask about each expense separately	How did you get to (place)? How much money was spent on transportation to (place)? How much money was spent on (exam)? How much money was spent on (medication)? Who paid for (exam/medication/transport)? How long did it take to get to (place)?	After all actions recorded for all out of home care, interviewers complete this portion Record data into table and record additional data if respondent mentions information relevant for other columns
Discussion	Open Closed confirmations only for inconsistencies Obtain quantitative data on process of intra-household decision-making	Who did you talk with about (your pregnancy/name's health) take place (yesterday/day)? What exactly did you talk about? Who initiated the discussion? Who (else) participated in the discussion? Who finally decided to (action taken)? What other actions did you consider? Why did (persons) decide to (action taken) (instead of (alternatives mentioned))?	Ask about event- and non-event related actions

As shown in Table 2, the interview takes place in three phases: the opening, completion of the matrix, and the closing. Each phase of the interview relies on a carefully pre-tested pattern of questions designed to achieve some combination of the four objectives mentioned above. Generally, open-ended questions precede closed-ended questions and are used to generate early rapport, to collect substantive information, and to stimulate recall without leading the respondent. Closed-ended questions are used to confirm responses and to resolve inconsistencies in reporting. At any point, the interviewer may record responses "out of sequence" if the respondent provides information that is relevant to other sections of the table. Each phase of the interview is discussed in detail below.

### **3.5.1 Phase 1: The Opening**

Previous researchers (Zurayk et al., 1994a) have shown that women in Egypt do not always recognize gynecological or maternal symptoms. The problem of under-reporting partly results from the asymptomatic nature of certain reproductive morbidities. Asymptomatic illness is a major concern for studies designed to measure incidence and prevalence of gynecological morbidity. The interest in this study, however, is in perceived morbidity. Therefore, a more relevant concern is that women view even recognizable symptoms as normal aspects of womanhood generally or of pregnancy specifically. Such symptoms do not merit reporting, and are often omitted in standard surveys.

Several efforts were made during the course of interviewing to encourage women to talk generally about all experiences during pregnancy, whether or not these experiences represented symptoms of clinical concern. First, the phrasing of questions

in the maternal symptoms checklist focused on “changes” that respondents had experienced since the beginning of pregnancy. Some of these changes, such as swelling and headache, are normal aspects of any pregnancy. Others, however, may initiate a treatment history.

The concerns mentioned above also led to the development of the symptoms table in the maternal and neonatal treatment histories. The opening relies on a careful sequence of open-ended and closed-ended questions that seeks to stimulate recall about perceived symptoms of illness. The information gathered is noted and provides the basis for consistency checks and probes during other phases of the interview.

### **3.5.2 Phase 2 Completion of the Matrix**

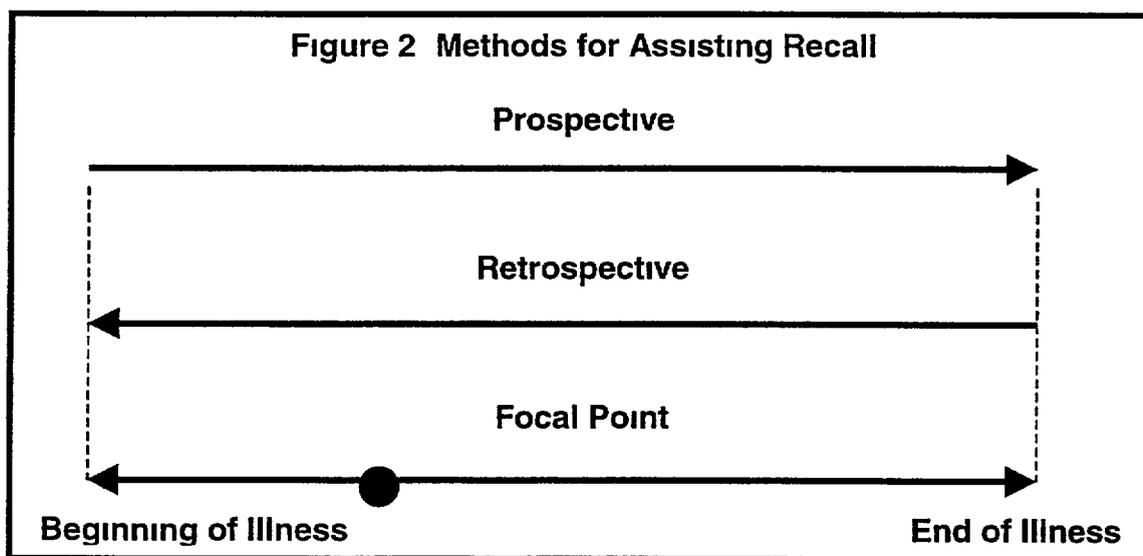
Collecting recalled data about sequences of events is difficult using any interview format. Respondents will often say that they do not remember certain events or conditions that prevailed at a specific time in the past. Generally, a structured interviewing approach using a structured instrument such as the calendar is designed to increase replicability and to reduce the chances of omission by training the interviewer to conduct each interview in an identical manner. Less structured instruments and interviewing approaches provide greater flexibility and allow the respondent to follow her own pattern of recall.

Months of field experience using variations of the treatment history matrix demonstrated that different methods of asking questions elicited different qualities and quantities of information. Also, different methods of assisting recall showed different capacities to reduce omissions and to ensure a correct sequence of events. Observation of interviews clearly demonstrated that a highly structured format can

obstruct recall if questions are repetitive or if the sequence of questions is inconsistent with woman's pattern of recall. Observation of less structured approaches demonstrated the risks of omissions and reduced replicability. Therefore, inaccuracies in recorded events, missing events, or improper sequencing of events are potential measurement errors of in-depth and survey techniques.

Completion of these matrices relies on a unique combination of methods for assisting recall that critically differentiate the integrated treatment history from the more structured calendar method and the less structured illness narrative. An interview format was designed that relies on a structured method for assisting recall but permits the interviewer to follow the respondent's natural train of thought and to record relevant information if mentioned "out of sequence".

Interviewers pre-tested three structured techniques for assisting recall: the prospective approach, the retrospective approach, and the "focal point" approach. See Figure 2 for an illustration of each method.



The prospective approach required interviewers to ask first about the symptoms or familial responses that took place on the first day of the window period. Then, interviewers proceeded forward in time and recorded symptoms or events by day for the duration of the illness. The retrospective approach required interviewers to ask first about the last day of the window period and to proceed backward in time until the events and symptoms of the first day of the window period were recorded.

Strict adherence to prospective or retrospective approaches required less training of the interviewers than more flexible approaches and minimized the burden to respond to leads provided by the respondent. However, field experience demonstrated notable limitations of these methods. First, respondents often mention relevant information out of sequence. In standard survey interviews, this information is lost because interviewers record only those responses that follow the relevant question in the order that the question appears in the instrument. Second, the repetitive nature of strict prospective or retrospective approaches requires respondents to repeat information about actions or symptoms that occur over long periods. A highly structured format can therefore obstruct recall when questions are repetitive and when the woman's pattern of recall is inconsistent with the standard pattern of questions.

"Focal points" refer to periods of time during the illness episode that are meaningful to the respondent. The "worst day" and "biggest event" approaches were tested in the original child diarrhea histories. The "worst day" and "biggest event" approaches required interviewers to begin by asking the respondent about the day with the worst symptoms or most notable events related to the condition, regardless of the day on which they occurred. Then, interviewers proceeded to complete the table from

the focal point prospectively and retrospectively until the entire period of illness was covered

Pre-tests for this study showed that women were better able to recall symptoms and events if they were permitted to tell the story retrospectively or to start with the day/time that they remembered best (focal points) In either case, some iteration was necessary to resolve inconsistencies in the sequencing of events

To complement these techniques, the following non-illness related time markers were used to improve recall community or historical time markers, personal time markers, and calendar days of the week Whenever a respondent mentioned the timing of non-illness related events, the interviewers noted the event and used it to elicit and to order illness-related actions For example, the interviewer often recorded the day of baking bread since this is a routine part of the housework of many women Within this broad structure, interviewers were permitted to record information “out of sequence” if something relevant was mentioned spontaneously by the respondent

### **3 5 3 Phase 3 The Closing**

After completing the matrix, interviewers reviewed the information in the table with the respondent to confirm the sequence of events If any patterns of behavior emerged, interviewers asked open-ended probes about those patterns A field guide of open-ended probes provided sufficient structure for this portion of the interview For example, if an interviewer observed that a certain type of family member most often administered care or was the decision-maker in certain situations, the interviewer asked about the circumstances surrounding these patterns of behavior

### **3 6 The Interview Process The Nine-Month Maternal History**

The opening of the nine-month matrix is identical to that of the one-week maternal history. Also, the basic techniques for completing the matrix and the practice of closing the interview with open-ended probes were the same in the one-week and nine-month maternal histories. However, the pattern of questions used to complete the table and the types of open-ended questions asked differ between the two instruments. Table 6 provides a summary of the questions and procedures used to complete the nine-month maternal treatment interview. As the general set of procedures is the same as that in the one-week maternal history, the contents of the table are not discussed in detail.

Table 6 Pattern of questions and instructions used in the nine-month maternal treatment histories			
Sequence of topics	Question Type & Purpose	Pattern of questions <sup>2</sup>	Instructions
Opening I	Open Non-threatening introduction, obtain information for probes and consistency checks later in interview	<i>What are all of the problems or symptoms related to your pregnancy that you have experienced since you first became pregnant? What else?</i>	Circle all symptoms mentioned, or write them in the space marked "other" Repeat responses as appropriate Note all spontaneously mentioned information relevant to the table (timing of symptoms, places visited, remedies used, discussions, etc)
Opening II	Closed Remind respondent of symptoms already mentioned Confirm presence or absence of symptoms not mentioned spontaneously	<b>If detailed symptom in a category mentioned</b> <i>You mentioned that you had X. Did you also have Y at any time (in the last week/during your pregnancy)?</i> <b>If no detailed symptom in a category mentioned</b> <i>Did you have any problem with (category) at any time (in the last week/during your pregnancy)?</i>	Begin at the top of the table and work down Ask about general categories if no detailed symptoms in the category were mentioned spontaneously Ask about other detailed symptoms in a category if any one in the category was previously mentioned Circle all prompted positive responses and places an "x" in the bottom left corner of the box to distinguish spontaneous and prompted responses
Chronology of Symptoms and Treatment	Open 1 <sup>st</sup> Closed 2 <sup>nd</sup> Assisted recall – allow respondent to answer freely, closed probes for complete information	<i>You mentioned that you had (symptoms) during your pregnancy</i> <i>Which symptoms exactly did you have during (last full month of pregnancy/next to last, etc)?</i> For each symptom mentioned, starting with the first <i>What did you do for (symptom) in (last full month of pregnancy/next to last, etc)? What else? What did you do inside the home? What did you do outside the home? Who did you speak to about (symptom)? How long did you wait before (treatment)?</i> After all symptoms and symptom-related actions are recorded for the current month <i>What did you do for your general health during (last month of pregnancy/next to last, etc)? What else?</i>	Ask about responses to each symptom separately, starting with symptoms occurring during the last full month of pregnancy and the first symptom mentioned. Proceed backward in time until the respondent has difficult remember. Then, proceed to a focal point and proceed forward and backward in time from that focal point until all months are completed

2 Interviewers received verbal training in the general pattern of questions and did not receive a list of questions written in Arabic. So the questions above represent those developed during the training sessions

### **3 7 Training**

Training for the treatment histories began in Minia and Qaliubia because a group of interviewers already had experience with event histories in those locations. A set of trainees underwent one week of instruction in the method. Training was both didactic and experiential. The didactic component focused on the objectives of the instrument relative to standard survey or in-depth approaches, the phases of the interview, and the prescribed pattern of questions for each phase. Interviewers also learned techniques for developing and asking open- and closed-ended questions, methods to assist recall of events, rules for recording responses as text or as codes, and methods of probing to resolve inconsistencies in reported information. The experiential component involved exercises to identify and to construct open- and closed-ended questions, lists of responses from which interviewers developed probes, case scenarios for which interviewers completed portions of a matrix, and role plays. See Appendix C for examples of exercises used in the training sessions.

### **3 8 Supervision**

Supervision of the fieldwork was essential to secure the collection of data of the highest quality. Two aspects of the supervision were particularly important: infrastructure, particularly the relay of information between the field sites and the central office in Cairo, and observations of interviewers in the field.

#### **3 8 1 Infrastructure**

The fieldwork in Minia and Qaliubia was supervised and reviewed locally and by project staff in Cairo. Upon completing a week's worth of questionnaires, the interviewers and local supervisors met with the principal investigator and a research

assistant from Cairo. During the weekly meeting, the team from Cairo conducted a general review of questionnaires with each interviewer to correct obvious errors in data recording and to clarify inconsistencies. The local supervisors then conducted a thorough review of questionnaires. Local supervisors were trained to recognize potential effects of interviewers, missing data (initiating a return visit to respondents to complete the questionnaire), and inconsistencies in data collected across instruments (particularly between the open questions and the treatment matrix). Supervisors conducted individual and group retraining as necessary based on their review of questionnaires.

### **3.8.2 Field Observations**

Because the treatment history method relies on the interviewer's ability simultaneously to establish rapport with the respondent and to follow a structured pattern of questions, supervisors found it useful to observe interviews in the field. These observations provided an important opportunity to assess the quality of work, to identify weaknesses among interviewers, and to design retraining sessions to improve interviewing skills. These observations also informed the design of alternative approaches to the interview for special groups of respondents.

For example, observations of interviewers during field training indicated that the pattern of questions for in- and out-of-home treatment was too structured for some respondents. Interviewers are trained to ask the woman retrospectively "*What did you do for the symptom?*" for each day that she reported having the symptom. Interviewers are also trained to probe with questions such as "*What did you do inside the home?*" and "*What did you do outside the home?*" Women who did nothing for a symptom

found the structured pattern of questions repetitive and the daily, retrospective approach to assisting recall foreign. Excessive structure hindered rapport with these respondents, and interviewers encountered the same problems with respondents that treated a particular symptom the same way every day.

For these two groups, interviewers modified the interviewing approach. The approach required interviewers to ask about behaviors using the standard pattern of questions. If the respondent stated that she did nothing at all or the same thing during the period of observation, interviewers summarized routine behaviors already reported. Then, interviewers asked generally about deviations from routine behaviors for the remaining days. *“You mentioned that you did nothing for this symptom yesterday and the day before. What about the rest of the week? How did your behavior change during the rest of the week?”*

### **3.9 Data Entry and Management**

#### **3.9.1 Quantitative Data**

After the field supervisors reviewed the work of each interviewer and resolved inconsistencies, the completed questionnaires were brought to Cairo for data entry, management, and analysis. FoxPro was used for both data entry and data management of all quantitative data of all questionnaires.

Data entry followed standard procedures. Computer screens that resembled the structure of the questionnaire were designed for the data entry personnel. Though the data are stored in multiple files, these files are not evident to the data entry person. The data entry program includes range checks and some simple consistency checks. All checks are “soft”, meaning that the data entry person can override an exception that is

noted by the computer. The use of “soft” checks permits the data entry staff to enter exactly what they observe on the questionnaire, even if the responses in the questionnaire are erroneous or theoretically implausible. During the data management phase, staff members who are specially trained to make judgements about inconsistencies in the questionnaire and the work of interviewers determine whether or not an apparent out-of-range code or inconsistency is really an error.

Data management begins with checking of the identification numbers. Work begins with the Maternal Symptoms Checklist, since there should be one such questionnaire for every woman pregnant in the 6th through the 9th month. Once the identification numbers of this form have been thoroughly checked, we can use them to check the identification numbers of the 9-month and 1-week treatment histories, and, in turn, the identification numbers of the neonatal symptoms checklist and treatment histories. After the identification numbers have been checked, programs exist to check variable ranges and the consistency of the data. This procedure is straightforward for the symptoms checklists, but less so for the treatment histories. While some aspects of the treatment history data are difficult to check at all, other parts can be checked for consistency by comparing data from various parts of the questionnaire. These checks require substantial thought and careful programming to be certain they are correctly done.

### **3 9 2 Qualitative Data**

Entry and management of the qualitative data required careful translation of the Egyptian colloquial texts as well as the development of maternal and neonatal codebooks for text retrieval using dtSearch.

Translation and Correction of Fieldnotes Open-ended responses were separated from the quantitative data and logged under the woman's identification number. Interviews were typed in Arabic and translated. Each translation was edited for readability in English as well as consistency with the original Arabic to insure that the meaning of responses was preserved in translation. The second draft was checked against the original, and additional corrections were made. Words and phrases for which there was no English equivalent were transliterated, and an approximate description was provided in English.

Coding of Fieldnotes When a sufficient amount of translated text for pregnant women was available, a codebook for qualitative data analysis was drafted. Careful review of the texts provided a set of conceptual domains that summarized common perceptions and behaviors as well as variables of programmatic interest. The conceptual domains include the following: Sources of Information, Reasons for Symptom-Related Inactivity, and Quality of Care.

Sources of Information codes indicate responses concerning knowledge gained from particular people or sources. These codes permit comparison of the types of information that a woman receives from different individual sources. The "No Action" codes indicate all of the reasons mentioned for not doing anything outside the home for a particular symptom. These codes help to identify all of the perceived barriers to care that respondents mention. The Quality of Care codes indicate important aspects of the provision of services, such as provider-client communication and interaction and the degree to which physicians follow exam protocols.

The maternal codebook underwent pre-testing and revision to insure that codes were suitable to responses and sufficient to capture information of interest to the project. The neonatal codebook was an adaptation of the final draft of the maternal codebook. Many of the codes are similar to allow comparison of responses about pregnant women and neonates. New codes were also developed to reflect new information provided about neonates and to improve upon the maternal codebook. Pre-testing was conducted for the neonatal codebook as well. Pre-testing of both codebooks involved first a thorough review of coded material by the main supervisor. Then, twenty texts were selected (10 maternal and 10 neonatal) for dual coding. This second effort was important to insure the consistency of coding across coders. Differences could greatly effect searches and interpretation of summaries of the qualitative data. [See Appendix E for the maternal and neonatal codebooks]

Data Retrieval The final, computerized translations were hand-coded using abbreviated string codes. After review, the abbreviated codes were inserted into the text files. A macros program for the codes was created. This program was written within the word-processing program to replace all abbreviated codes with their extended versions. This procedure insured that the spelling of the extended codes was identical in all of the text files.

Research assistants used dtSearch to locate codes for analysis. dtSearch is a software package designed to identify codes or words that appear in multiple files and to retrieve blocks of text for analysis. The program has the capacity to search hundreds of files simultaneously for words, phrases, or codes of interest. The analyst can then review focused portions of text. dtSearch also produces indexes or subsets of text files,

which can be searched during the analysis. Retrieving blocks of text about the same topic permits easy identification of themes, relationships, and potential conceptual frameworks.

The area of intra-household discussion and decision-making provides a case in point. A search for codes about sources of information permitted comparison of messages about symptoms and care provided by husband versus those provided by female family members. Husbands are more likely to discuss outside care with the respondent than are female family members, primarily due to their direct involvement in the financing of such care.

#### **4 Evaluation of the Method**

As shown above, the integrated treatment history method has unique strengths and limitations. One of its strengths is the combination of structured techniques that guide the interviewer through the instrument and less structured techniques that build rapport and elicit substantive information without leading the respondent. A danger of instruments that rely only on closed-ended questions is that respondents give answers that they think interviewers want. For example, in settings like Egypt where it is desirable to see a private doctor, respondents may tend to say that they visited a private doctor when asked in a closed-ended way. This possibility can be checked by comparing responses to similar questions in the symptoms checklists and the treatment histories.

A second strength of the method is the ability to compare textual and coded data from the same interview. The availability of responses elicited using open-ended and closed-ended questions permits interviewers to cross-check responses in the field.

These checks can help to reduce errors due to omissions or incorrect sequencing of events

Third, the integrated treatment history approach uses an innovative procedure for gathering quantitative information about intra-household discussions and the process of decision-making. Two methods have been tested to date. The first method, developed for the child diarrhoeal histories (Yount and Gittelsohn, 1998) permits collection of qualitative and quantitative data on event-related discussions. Questions about discussion are asked only about events that are recorded in the table. The second method, used in this study, attempts to gather information on all types of discussions (event- and symptom-related) by asking about discussions generally for each day in the window period.

Both methods were tested in Minia. The target group of pregnant women proved to be a challenging group to collect quantitative information about discussions for two reasons. First, relatively few events took place within the window period, and respondents tend to view symptoms as normal. Therefore, discrete discussions are difficult to identify and to quantify. The target group of young children, however, is likely to be different because more events take place within the window period, and more family members tend to be involved with the care of the neonate.

Experience has shown that focusing on concrete actions or specific symptoms that did not induce an action on a particular day enhances the respondent's ability to recall information about discussions. While the value of recording non-event related discussions is clear, improving the procedures for distinguishing between event- and

non-event related discussions will be a useful next step in refinement of the instrument  
Appendix D provides recommendations for improving the methodology

Another strength of the method is its ability to demonstrate quantitative differences in care-seeking for different population groups and to explore them in social and cultural context. Identifying and probing on individual-level behavioral patterns as observed in each matrix guarantees the availability of textual explanations for typical and atypical behaviors in the population. Previously, the technique was used to study differences in treatment of boys and girls. Here, the technique can be used to explore differential use of preventive or curative care and differential access to care among groups of women with different socio-economic, ethnic, migratory, and religious backgrounds

Fifth, results of the case study of reported morbidity among pregnant women in Minia and Qaliubia show the range of ways in which perceptions of illness influence health-seeking behavior (see the Report for the Perinatal Morbidity and Mortality Study). Data on home treatments, delay in seeking care, treatment by non-traditional providers, first treatments, multiple treatments, and reliable data on expenditures are not often available from surveys of morbidity and treatment practices. This approach allows one to document quantitatively the typical process of seeking care and to explore qualitatively some of the reasons for choices made

A few final comments are noteworthy. First, the original matrix was designed to study behavioral responses to episodes of child diarrhea. The instrument was adapted for the current study to accommodate multiple symptoms affecting pregnant women and their neonates. While the same basic techniques can be used, the instrument was

modified to accommodate the natural course of different illnesses affecting different target populations

Implementation of the instrument does require highly trained interviewers and rigorous field supervision. Data processing is also more intensive than that of standard surveys. These logistical demands preclude implementation of the instrument on a large sample without modification. Appendix D contains suggestions for modification of the instruments for implementation on a larger scale.

The treatment history is best suited for the collection of community-based data from a limited sample of respondents. Maintaining a limited sample will insure the collection of high quality quantitative data that complements the types of data collected from larger, population-based surveys. A limited sample will also ensure the collection of a rich set of textual data about topics that are difficult to quantify. The richness of the data collected make it a great tool for community-based studies, small-sample studies within larger surveys, and validation of results from a representative sample survey.

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## **Appendix A Qualitative Techniques used to Design Instruments**

Briefs descriptions of the semi-structured interview, freelisting, and pile sorting are provided here

The semi-structured interview is one that is based on an ethnographic field guide (EFG) An EFG is a written list of open-ended questions and topics that are covered in a particular order (Bernard, 1994) The interviewer maintains the discretion to follow leads of the informant, however, the guide contains a clear set of instructions about topics to cover and substantive areas on which to probe

Freelisting is a more structured qualitative interviewing technique that is used to identify the elements (items or words) that constitute a cultural domain (topic of analytic interest) Respondents from a homogeneous cultural group are asked a basic question, such as "What are all of the different types of illnesses that you can think of that newborns in [name of village] can get?" Questions are open-ended and are formulated from information collected in the semi-structured interviews Interviewers probe to elicit a complete list of responses from each participant and record responses in the order mentioned on a standard form All responses (symptoms or illnesses) are potential elements of the cultural domain (illnesses of newborns)

Two measures of the salience of items are useful the frequency with which an item appears on lists of responses and the relative ranking of items across lists of responses While some degree of intra-cultural variation in responses is expected, these measures provide an indication of the importance of these terms for a culturally homogeneous group Standard supplemental questions may be asked for clarification of responses Based on the quantitative frequency of the items mentioned, as well as

advice from key informants, the analyst makes a decision about the terms that exhaustively describe the substantive area of interest

Therefore, freelistings is a technique designed to identify all potential terms that describe a broader concept, such as “women’s illnesses” The terms, however, may also describe sub-concepts within the broader concept “Illnesses of pregnancy” may describe a special subset of women’s illnesses that is culturally meaningful “Illnesses of older women” may describe another subset Pile sorting is an appropriate qualitative technique to organize the items identified in a freelisting into sub-groups of related terms

In brief, words or pictures of the salient items identified in a freelisting are placed on cards Following a specific interviewing technique (Bernard, 1994), the interviewer asks a respondent to organize the cards into groups The interviewer then asks the respondent to name each group and to explain the reasons for organizing the terms as he or she did The responses are coded on a grid, and this procedure is repeated with enough respondents until a stable set of groupings is achieved

The techniques of freelistings and pile sorting have been used in places like India (reference) to construct local taxonomies of women’s illnesses Given the newness of the topic of neonatal illness, these techniques were used to organize local terms for illnesses of newborns

## Appendix B Selection of Events in Nine-Month Maternal Treatment History

Woman s Number	Woman s Name	The Number of actions taken at home	The event number that you asked about	The number of events for which nothing was done	The symptom number that you asked about	The number of actions taken outside the home	The event number you asked about
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2							
3							
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46							
47							

Algorithm	Actions at home	Symptoms without actions	Actions outside the home
1	Start from the first action at home. Count in order the actions of the woman at home until you reach the woman's number and ask the woman about that event.	Start from the first symptom that she did nothing for and count in order those symptoms until you reach the woman's number. Ask the woman about that symptom.	If the woman had taken only one action outside the home ask her about that action. If the woman had taken two actions outside the home ask her about the first action she took outside the home. If there are three or more actions taken outside the home then number these actions. Then ask the first woman about the second action and then ask the second woman about the fourth action, then the third woman about the sixth action taken outside the home and so on. choose the even actions in order.
2	Start from the first action at home. Count in order the actions of the woman at home until you reach the woman's number and ask the woman about that event.	Start from the first symptom that she did nothing for and count in order those symptoms until you reach the woman's number. Ask the woman about that symptom.	If the woman had taken only one action outside the home ask her about that action. If the woman had taken two actions outside the home ask her about the first action she took outside the home. If there are three or more actions taken outside the home then number these actions. Then ask the first woman about the second action and then ask the second woman about the fourth action, then the third woman about the sixth action taken outside the home and so on. choose the even actions in order.
3	Start from the first action at home. Count in order the actions of the woman at home until you reach the woman's number and ask the woman about that event.	Start from the first symptom that she did nothing for and count in order those symptoms until you reach the woman's number. Ask the woman about that symptom.	If the woman had taken only one action outside the home ask her about that action. If the woman had taken two actions outside the home ask her about the first action she took outside the home. If there are three or more actions taken outside the home then number these actions starting from the last action taken (from the bottom up). Then ask the first woman about the first action and then ask the second woman about the third action, then the third woman about the fifth action taken outside the home and so on. choose the odd actions in order.
4	Start from the first action at home. Count in order the actions of the woman at home until you reach the woman's number and ask the woman about that event.	Start from the first symptom that she did nothing for and count in order those symptoms until you reach the woman's number. Ask the woman about that symptom.	If the woman had taken only one action outside the home ask her about that action. If the woman had taken two actions outside the home ask her about the first action she took outside the home. If there are three or more actions taken outside the home then number these actions starting from the last action taken (from the bottom up). Then ask the first woman about the first action and then ask the second woman about the third action, then the third woman about the fifth action taken outside the home and so on. choose the odd actions in order.
5	Start from the last action at home. Count the in-home actions (from the bottom up), in order, until you reach the woman's number and ask the woman about that event.	Start from the last symptom she did nothing for and count (from the bottom up), in order, those symptoms until you reach the woman's number. Ask the woman about that symptom.	If the woman had taken only one action outside the home ask her about that action. If the woman had taken two actions outside the home ask her about the second action she took outside the home. If there are three or more actions taken outside the home then number these actions starting from the last action taken (from the bottom up). Then ask the first woman about the second action and then ask the second woman about the fourth action, then the third woman about the sixth action taken outside the home and so on. choose the even actions in order.

Algorithm	Actions at home	Symptoms without actions	Actions outside the home
6	Start from the last action at home Count the in-home actions (from the bottom up), in order, until you reach the woman's number and ask the woman about that event	Start from the last symptom she did nothing for and count (from the bottom up), in order, those symptoms until you reach the woman's number Ask the woman about that symptom	If the woman had taken only one action outside the home ask her about that action If the woman had taken two actions outside the home ask her about the second action she took outside the home If there are three or more actions taken outside the home then number these actions starting from the last action taken (from the bottom up) Then ask the first woman about the second action and then ask the second woman about the fourth action, then the third woman about the sixth action taken outside the home and so on choose the even actions in order
7	Start from the last action at home Count the in-home actions (from the bottom up), in order, until you reach the woman's number and ask the woman about that event	Start from the last symptom she did nothing for and count (from the bottom up), in order, these symptoms until you reach the woman's number Ask the woman about that symptom	If the woman had taken only one action outside the home ask her about that action If the woman had taken two actions outside the home ask her about the second action she took outside the home If there are three or more actions taken outside the home then number these actions starting from the first action taken Count the actions taken until you reach the woman's number
8	Start from the last action at home Count the in-home actions (from the bottom up), in order, until you reach the woman's number and ask the woman about that event	Start from the last symptom she did nothing for and count (from the bottom up), in order, those symptoms until you reach the woman's number Ask the woman about that symptom	If the woman had taken only one action outside the home ask her about that action If the woman had taken two actions outside the home ask her about the second action she took outside the home If there are three or more actions taken outside the home then number these actions starting from the first action taken Count the actions taken until you reach the woman's number
9	Start from the last action at home Count the in-home actions (from the bottom up), in order, until you reach the woman's number and ask the woman about that event	Start from the last symptom she did nothing for and count (from the bottom up), in order, those symptoms until you reach the woman's number Ask the woman about that symptom	If the woman had taken only one action outside the home ask her about that action If the woman had taken two actions outside the home ask her about the second action she took outside the home If there are three or more actions taken outside the home then number these actions starting from the last action taken (from the bottom up) until you reach the woman's number

## Appendix C Selected Materials for Training

### Treatment History Matrix Training Schedule of Events

#### Day 1

Introduction to qualitative interviewing  
Explanation of open-ended questions

Exercise 1a - identifying open and closed questions

Explanation of topical questions and probing

Exercise 1b - developing probes

Homework - variation of exercise two for practice with probing Give them a sentence from an interview referring to a symptom, a provider, a place, and/or a family member and ask them to complete the interview with the woman, developing open and closed probes to find out as much about the words as possible They should indicate whether each probe is open or closed Number and quality of probes will be considered in grading

#### Day 2 Introduction to field instruments MTH and NTH

Purpose of the MTH and NTH

Description of the instrument

Rows days - last day always day before the interview

months - fill in information for all months of pregnancy

Columns information of interest

Codes bottom of page

Brief Column-by-column overview of the table

Detailed overview of symptoms portion of MTH and NTH

Procedure to complete the symptoms portion of the neonatal and MTH

Summary of procedure

Summary of when to use open questions in this section

Summary of when to use closed questions in this section

Exercise 2 - Fill in the symptoms portion of an EHM with information provided

Homework – Complete the symptoms portion of a MTH with a volunteer

#### Day 3 Field instruments continued routine, in-home, and outside care

Procedure for completing the routine, inside, and outside actions

Procedure for asking open questions at the end

Exercise 3 – Start completing an treatment history with a scenario provided Check it with someone Then, complete the story yourself Practice in-class - one trainee interviews and one trainee answers using the treatment history matrix they developed Everyone else in the group writes down the information they hear as well as potential probes Comments on number and formulation of probes

Homework (1) Develop own treatment history using the household types on cards (2) Look again at the treatment histories they made up in class Write in a different color of pen new probes that they would add to the table now Again, quantity and quality will be taken into consideration

#### Day 4 Field practice

Find a volunteer in the late stages of pregnancy Complete the interview Report to the class about the experience Ask group members to provide probes, based in the information that they hear Personal evaluation of THM

Homework Review the treatment history completed during the day Write down additional probes that could have been asked, improvements in the interview, corrections

#### Day 5 In-class exam and selection of interviewers

One trainee with 1 of 2 standard tables Each trainee interviews another trainee, who uses 1 of two tables as a guide to answer questions Everyone else records the information in her own treatment history table

## Exercise 1a - Identifying Open- and Closed-Questions

---

Identify which questions are “open” and which questions are “closed” Place a “1” next to the “open” questions and a “2” next to the closed questions If the question is closed, write all possible responses underneath the question If the question is closed, re-write the question so that it is open

1=Open 2=Closed

- 1 \_\_\_ How severe was the diarrhea today, not at all severe, somewhat severe, or very severe?
- 2 \_\_\_ How severe was the diarrhea today?
- 3 \_\_\_ How many stools did [name] have today?
- 4 \_\_\_ Did [name] have more or less than 5 stools today?
- 5 \_\_\_ Did [name] continue to have watery stools after you took her to the doctor?
- 6 \_\_\_ Who did you see at the hospital?
- 7 \_\_\_ Did you see the doctor at the hospital?
- 8 \_\_\_ What did the doctor recommend that you do for the diarrhea?
- 9 \_\_\_ Did the pharmacist give you an injection or pills, or something else?
- 10 \_\_\_ Did you or your husband make the final decision about how to treat [name]?
- 11 \_\_\_ Who went to get the medicine that the doctor prescribed?
- 12 \_\_\_ Who else went to get the medicine that the doctor prescribed?

13 \_\_\_ You mentioned you and your husband went to get the medicine that the doctor prescribed. Who else went?

14 \_\_\_ How much did you pay for the medicine?

15 \_\_\_ Did your husband pay for the medicine?

16 \_\_\_ What kind of transportation did you use to go to the pharmacist?



## Exercise 2 Completing the Symptoms Portion of the Table

---

Use the information provided to complete pages two and three of the symptoms portion of the maternal table, except for column 2. Complete column two with another interviewer.

Q *What were all the problems or symptoms you had in the last two weeks as a result of the pregnancy?*

A *I had pain in my stomach and head. I also had burning in my urine, and it was very, very yellow.*

Q *What else?*

A *I had swollen hands yesterday.*

Q *You've mentioned stomach and head pain, burning and yellow urine, and swollen hands. What else?*

A *That's all.*

Q *Are you sure? Was there anything else?*

A *Well, I had a discharge, but this is normal for the pregnancy.*

Q *What kind of discharge? What exactly was it like?*

A *It was like cheese.*

Q *What else did you have in the last two weeks?*

A *That is all.*

Q *Stomach and head pain, burning and yellow urine, and swollen hands, and discharge like cheese. Anything else?*

A *No, that's it.*

Q *OK – exactly when in the last two weeks did you have stomach pain?*

A *Every day, the whole time up to now.*

Q *And exactly when did you have the headache?*

A *Yesterday, but it comes and goes.*

Q *Did you have headache the day before yesterday?*

A *No, but I had it before that for about three days. That's it.*

Q *You had headache yesterday, not the day before yesterday, and then for three days before that, right?*

A *Yes.*

Q *OK - What about the burning urine. Exactly when did you have that?*

A *I don't really remember.*

Q *Do you have it now?*

A *Yes, but not so much.*

Q *For how many days have you been having the burning urine?*

A *I think for about a week.*

Q *Did you have the burning urine before the headache that lasted for three days?*

A *Yes, but only for one day.*

## Exercise 2 Completing the Symptoms Portion of the Table (continued)

Q *OK – what about the swollen hands When exactly have you had swollen hands in the last two weeks?*

A *Only yesterday when I woke up*

Q *OK – and exactly when in the last two weeks did you have discharge like cheese*

A *Oh – the whole time It doesn't go away*

Q *OK – now I would like to know the reasons that you had each symptoms Why did you have the stomach pain?*

A *Because the child is moving a lot*

Q *And the headache?*

A *It comes and goes – because of the pregnancy*

Q *And the burning in the urine?*

A *Also because of the pregnancy It is normal*

Q *And what was the reason for the discharge?*

A *It is the same as the urine Because I am pregnant*

Q *What is the reason for the swollen hands?*

A *This is because I will soon deliver*

### Exercise 3 - Completing a Treatment History and Developing Probes

Fill in the blank tables according to the information provided in the following paragraphs. Then, develop probes based on the information provided and write them in the part of the table for which they are intended. NOTE: The interviewer may have overlooked some possible probes herself! Write down these probes as well.

Mme. Fatma's 15-day-old daughter has been sick with fever for five days and is still sick. The following paragraph is a portion of her interview.

*Respondent: "The worst day of the diarrhea was yesterday. Rania had a very high fever, and her stools were like water."*

*Interviewer: "How many times did Rania have a bowel movement yesterday?"*

*Respondent: "At least six or seven times."*

*Interviewer: "Any what, if anything, did you do to help the diarrhea?"*

*Respondent: "I kept trying to give her the breast, but she refused every time. She did take water in the morning, though, and a cup of tea in the afternoon. But, still, her skin was very dry. By this morning, she wasn't any better. I was so worried, that I asked my husband if we could take her to the doctor for some medication. We went to a private clinic nearby, and the doctor prescribed some antibiotics. We went and got them today and, God willing, she'll be better soon."*

## Homework Develop a Neonatal Treatment History

---

You will be assigned one of the following family types and you will make up your own treatment history. The treatment history must be at least 4 days long. Write down at least 10 questions that could have been used as probes to complete the table.

- card1 Household with mother (Aisha), father, and two children - 1 boy 17 days old and one sister 8 years old. 17-day-old boy is very, very yellow and cries a lot. The father is often away for work. Aisha's mother lives close by with the Aisha's sister, and Aisha visits them daily.
- card2 Household with mother, father, grandmother on father's side/respondent's mother-in-law, father's brother, and four children of the mother - three boys aged 14 years, 11 years, and 23 days and 1 girl aged 5. 23-day old boy is sick with diarrhea.
- card3 Household with a mother and three children - two girls aged 8 years and 7 years and one girl aged 19 days. The husband works in Saudi Arabia. 19-day old girl is sick with diarrhea. The mother is very close to her neighbors next door and talks to them often about the children's health.

## **Appendix D Recommendations for Modification to Instruments**

### **Symptom checklists**

The following recommendations are made for administration of the symptoms checklists on a larger scale

- 1 Administer the maternal and neonatal symptoms checklists on a population-based sample to get estimates of reported symptoms, preventive care, and healthcare utilization during the pregnancy and neonatal periods
- 2 Expand the window period of observation of reported symptoms from one week to two weeks to be standard with other population based questionnaires
- 3 Identify women in the 8<sup>th</sup> to 9<sup>th</sup> month of pregnancy to speed up the data collection process

### **Treatment histories**

The following recommendations are made for administration of the treatment histories on a larger scale

- 1 Administer the nine-month treatment history with respondents in a sub-sample of target communities Conduct the treatment history with all pregnant women in those villages or shiakhias
- 2 Eliminate the one-week maternal treatment history and use of a modified nine-month maternal treatment history only See below for specific modifications to the forms
- 3 Follow-up women for the entire pregnancy period to the time of delivery to avoid right censoring of symptoms and events
- 4 Use the neonatal treatment history with minor modifications to the form as suggested below

### **Other recommendations**

- 1 Observe a sample of the deliveries of women in the treatment history sample Construct a checklist of actions of providers and participants in the delivery

Symptoms table on page two of all treatment histories reorganize the symptoms table into a list with headings (categories) and specific symptoms Give each symptom a unique code Write the existing pattern of questions above the list for interviewers to follow An sketch of the recommended format follows

<p>(1) What were all of the problems/symptoms that you have experienced during your pregnancy? What else? What else?</p> <p>Interviewer Circle the codes for all problems/symptoms mentioned spontaneously by the respondent in this column When respondent mentions no other symptoms spontaneously, proceed to column 2</p> <p>Spontaneous</p>	<p>Category/symptom</p>	<p>(2) Did you ever have (_____) during your pregnancy?</p> <p>Interviewer Start at the top of the list of problems/symptoms Ask about each symptom not already mentioned spontaneously</p> <p>Prompted</p>
<p>(11)</p> <p>(12)</p> <p>(13)</p> <p>(14)</p> <p>(15)</p> <p>(21)</p> <p>(22)</p> <p>(23)</p> <p>(24)</p>	<p><u>Discharges (10)</u></p> <p>Severe bleeding</p> <p>Mild bleeding</p> <p>Spotting</p> <p>Watery</p> <p>Cheesy</p> <p><u>Swelling (20)</u></p> <p>Hands</p> <p>Face</p> <p>Legs</p> <p>Arms</p>	<p>(11)</p> <p>(12)</p> <p>(13)</p> <p>(14)</p> <p>(15)</p> <p>(21)</p> <p>(22)</p> <p>(23)</p> <p>(24)</p>

Simplify the columns designated for symptoms wherever they appear inside each treatment history Instead of having two columns for general categories and four columns each for specific symptoms within category, allow eight columns total for symptom-specific codes as recommended in the above example

Discussion and decision-making, expenditures, delay in treatment, stopping treatment

Concerning the one-week maternal treatment history, few outside events fall into the period of observation. Also, symptoms observed during the window period may have started in the distant past. Concerning the open-ended questions, valuable information gathered from the open-ended questions can now be succinctly summarized into structured, open-ended questions that follow completion of the nine-month treatment history. Response codes to many of the questions are developed from preliminary results of the qualitative data collected in Minia and Qalubia.

In lieu of the one-week treatment history and some of the open-ended questions, modify the nine-month history to collect most of the same basic information in a simplified format. Include a different version of discussion and decision-making in the nine-month maternal treatment history. Ask about discussions related to events or symptoms not followed by an event in the last month of pregnancy prior to interview. Include a set of questions similar to those drafted below after completion of the table.

Questions on expenditures, discussion and decision-making regarding the most memorable event in the nine-month maternal treatment history			
Ques #	Question	Responses	Filters
10	<b>Interviewer Check the treatment history matrix Did the respondent visit a provider outside the house during the last month either for her general health or for a problem related to the pregnancy?</b>	Yes 1 No 2→	Q58
20	Now I am interested in learning more about the outside visit that you made last month  <b>Interviewer Complete the information in the column of responses</b>	Month __ Line # __  Provider visited Private Doctor 1 Health Center 2 Govt hospital 3 ETC 4	
25	For this visit, how much did you spend on the following things Exam Medication Transportation Other expenses (_____)	Exam LE____ Medication LE____ Transport LE____ Other LE____	
30	With whom, if anyone, did you discuss (event)? Who else? Who else?  <b>Interviewer Repeat probe until the respondent cannot mention any other participants. Do not read responses. Circle all mentioned.</b>	1 No one 1 2 Husband 1 3 Mother-in-law 1 4 Father-in-law 1 5 ETC 1 (Include all codes in the treatment history)	

Questions on expenditures, discussion and decision-making regarding the most memorable event in the nine-month maternal treatment history

Ques #	Question	Responses	Filters
31	<p>What were all the reasons for talking with (_____) 30_[ ] specifically? What else? What else?</p> <p><b>Interviewer. place in the box the number beside the person mentioned in question 30 Do not read the response categories Circle all mentioned</b></p>	<p>He/she lives with me 1</p> <p>I trust him/her, am close to him/her 1</p> <p>She has Experience in child-bearing 1</p> <p>He/she is older 1</p> <p>He/she is Responsible for paying 1</p>	
32	<p><b>Interviewer Check question 30 Did the respondent discuss the event with another person besides the person included in q31?</b></p>	<p>Yes 1</p> <p>No 2→</p>	Q40
33	<p>What were all the reasons for talking with (_____) 30_[ ] specifically? What else? What else?</p> <p><b>Interviewer place in the box the number beside the person mentioned in question 30 Do not read the response categories Circle all mentioned</b></p>	<p>He/she lives with me 1</p> <p>I trust him/her, am close to him/her 1</p> <p>She has experience in child-bearing 1</p> <p>He/she is older 1</p> <p>He/she is Responsible for paying 1</p>	
34	<p><b>Interviewer Check question 30 again Did the respondent discuss the event with another person besides the person included in q31 and q33?</b></p>	<p>Yes 1</p> <p>No 2→</p>	Q40
35	<p>What were all the reasons for talking with (_____) 30_[ ] specifically? What else? What else?</p> <p><b>Interviewer. place in the box the number beside the person mentioned in question 30 Do not read the response categories Circle all mentioned</b></p>	<p>He/she lives with me 1</p> <p>I trust him/her, am close to him/her 1</p> <p>She has experience in child-bearing 1</p> <p>He/she is older 1</p> <p>He/she is Responsible for paying 1</p>	
40	<p><b>Interviewer Check question 30 again Did the respondent discuss the action with anyone?</b></p>	<p>Yes 1→</p> <p>No 2→</p>	Q52

**Questions on expenditures, discussion and decision-making regarding the most memorable event in the nine-month maternal treatment history**

Ques #	Question	Responses	Filters
50	Of the people with whom you talked about (event) who was the <u>most</u> influential in the decision to (event)?  <b>Interviewer</b> If the respondent states that the decision was made jointly, circle all of the people who made the decision jointly. Otherwise, circle only the first response given	Respondent 1 Husband 1 Mother-in-law 1 Father-in-law 1  (Include all codes in the treatment history)	
51	In your conversation with ( ) 30_[ ], what were all of the things that ( ) said to you or recommended?  <b>Interviewer</b> place in the box the number beside the person mentioned in question 30. Do not read response categories. Circle all responses mentioned	Action taken 1 Home treatment 1 A different outside treatment 1 General healthcare 1 Symptom is normal 1 Not to do anything 1 Other ( ) 1	
52	<b>Interviewer</b> Check question 30 again. Did the respondent discuss the event with another person besides the person included in q51?	Yes 1 No 2→	Q54
53	In your conversation with ( ) 30_[ ], what were all of the things that ( ) told you or recommended?  <b>Interviewer</b> place in the box the number beside the person mentioned in question 30. Do not read response categories. Circle all responses mentioned	Action taken 1 Home treatment 1 A different outside treatment 1 General healthcare 1 Symptom is normal 1 Not to do anything 1 Other ( ) 1	
54	<b>Interviewer</b> Check question 30 again. Did the respondent discuss the event with another person besides the people included in q51 and q53?	Yes 1 No 2→	Q56
55	In your conversation with ( ) 30_[ ], what were all of the things that ( ) told you or recommended?  <b>Interviewer.</b> place in the box the number beside the person mentioned in question 30. Do not read response categories. Circle all responses mentioned	Action taken 1 Home treatment 1 A different outside treatment 1 General healthcare 1 Symptom is normal 1 Not to do anything 1 Other ( ) 1	
56	<b>Interviewer.</b> Check the treatment table. Did the respondent delay and then eventually seek treatment outside for any symptoms experienced during pregnancy?	Yes 1 No 2→	Q58

**Questions on expenditures, discussion and decision-making regarding the most memorable event in the nine-month maternal treatment history**

Ques #	Question	Responses	Filters
57	<p>You mentioned that you delayed (event) for (period of time) What were all the reasons for delaying treatment? What else? What else?</p> <p style="text-align: center;">Treatment</p> <p>Private doctor            1</p> <p>Health center            2</p> <p>Government hospital    3</p> <p>Pharmacy                4</p> <p>Other (            )        5</p> <p><b>Interviewer</b> Circle the type of provider visited above Do not read the response categories in the column of responses Circle all responses mentioned Probe until the respondent gives no more answers</p>	<p>Symptoms came and went            1</p> <p>Symptoms were mild                    1</p> <p>Enduring                    1</p> <p>Lack of money            1</p> <p>Refusal of husband    1</p> <p>Husband away            1</p> <p>Refusal of husband's family    1</p> <p>Other (            )        1</p>	
58	<p><b>Interviewer</b> Check the treatment table At any time during the pregnancy, did the respondent stop taking medication for symptoms even though the symptoms continued?</p>	<p>Yes                            1</p> <p>No                             2→</p>	Q60
59	<p>You mentioned that you stopped taking a remedy for symptoms even though they continued What were all the reasons for stopping the remedy? What else? What else?</p> <p><b>Interviewer</b> Do not read the response categories Circle all responses mentioned Probe until the respondent gives no more answers</p>	<p>Symptoms came and went            1</p> <p>Symptoms were mild                    1</p> <p>Enduring                    1</p> <p>Lack of money            1</p> <p>Refusal of husband    1</p> <p>Husband away            1</p> <p>Refusal of husband's family    1</p> <p>Other (            )        1</p>	
60	<p><b>Interviewer</b> Check the treatment table Did the respondent have any symptoms during the pregnancy for which nothing was done?</p>	<p>Yes                            1</p> <p>No                             2→</p>	Q64
61	<p>What were all the reasons that you did not get any treatment during your pregnancy for?</p> <p>Symptom [    ]</p> <p><b>Interviewer</b> Insert the code for the first symptom for which nothing was done Do not read the response categories Circle all of the responses mentioned</p>	<p>Symptoms are normal during pregnancy            1</p> <p>Symptoms will go away after delivery    1</p> <p>Symptoms came and went            1</p> <p>Symptoms were Mild                    1</p> <p>Enduring                    1</p> <p>Lack of money            1</p> <p>Refusal of husband    1</p> <p>Husband away            1</p> <p>Refusal of husband's family    1</p> <p>Other                         1</p>	

**Questions on expenditures, discussion and decision-making regarding the most memorable event in the nine-month maternal treatment history**

Ques #	Question	Responses	Filters
62	<p>What were all the reasons that you did not get any treatment during your pregnancy for?</p> <p>Symptom [ ]</p> <p><b>Interviewer. Insert the code for the first symptom for which nothing was done Do not read the response categories Circle all of the responses mentioned</b></p>	<p>Symptoms are normal during pregnancy 1</p> <p>Symptoms will go away after delivery 1</p> <p>Symptoms came and went 1</p> <p>Symptoms were Mild 1</p> <p>Enduring 1</p> <p>Lack of money 1</p> <p>Refusal of husband 1</p> <p>Husband away 1</p> <p>Refusal of husband's family 1</p> <p>Other 1</p>	
63	<p>What were all the reasons that you did not get any treatment during your pregnancy for?</p> <p>Symptom [ ]</p> <p><b>Interviewer Insert the code for the first symptom for which nothing was done Do not read the response categories Circle all of the responses mentioned</b></p>	<p>Symptoms are normal during pregnancy 1</p> <p>Symptoms will go away after delivery 1</p> <p>Symptoms came and went 1</p> <p>Symptoms were Mild 1</p> <p>Enduring 1</p> <p>Lack of money 1</p> <p>Refusal of husband 1</p> <p>Husband away 1</p> <p>Refusal of husband's family 1</p> <p>Other 1</p>	
64	<p><b>That ends this portion of the interview. Thank the respondent for her time</b></p>		

## Appendix E Instruments and Codebooks

MATERNAL CODEBOOK			
CODES	EXTENDED VERSION	USES	EXAMPLES
TT_EX	Tetanus Toxoid with an exam	When the respondent mentions receiving TT immunization and having two of the following things done weighed, blood pressure, urine analysis or gynecological exam	<i>We went there [health center] and took the shot They weighed us, made urine analysis</i>  <i>He examined my abdomen and the heart He measured my blood pressure and my weight He took a blood sample from me to analyze</i>
TT_ON	Tetanus Toxoid with Injection Only	When the respondent mentions that nothing happened at the health center besides the injection	<i>he gave me this injection and that's all</i>
TT_RE	Reasons for getting Tetanus Immunization	When the respondent mentions a cause for getting the immunization	<i>In my previous pregnancy I didn't took the shot so I had labored, the girls had pimples on her body and people said that was because I haven't had the Tetanus immunization, so this time I decided to take it because I was afraid, and in that case the child will be born healthy</i>
TT_NO	Tetanus Toxoid Not Received	When the respondent mentions going to a health facility to get the immunization, but not receiving the injection	
TT_OT	Tetanus Toxoid Other	When the respondent mentions something related to getting the tetanus immunization for which there is no code	<i>I took the injection then they gave me a card to follow the pregnancy</i>
SI_PR_BM	Source of Information Practitioner Biomedical	When the respondent mentions knowing something or doing something based on what was said by a biomedical practitioner, such as a physician, a nurse, a pharmacist	<i>[I drank milk for the pain in my bones] because the doctor prescribed it, and said that I should take it because I was sick</i>
SI_PR_TR	Source of Information Practitioner Traditional	When the respondent mentions knowing something or doing something based on what was said by a traditional practitioner, such as a daya, a tamargi, an antar (herbalist)	<i>I thought I was going in labor so the midwife (daya) came, but she told me to go to the doctor</i>
SI_ME	Source of Information Media	When the respondent mentions knowing something or doing something based on information from an external source That includes media, loud speakers, the mosque, church	<i>They called out with a mike that each pregnant woman should come for vaccination</i>

MATERNAL CODEBOOK			
CODES	EXTENDED VERSION	USES	EXAMPLES
SI_FA_MO	Source of Information Family Mother	When the woman mentions knowing or doing something because her mother told her something	<i>She (mother) told me that this is the load of the baby</i>
SI_FA_SL	Source of Information Family Sister-in – Law	When the woman mentions knowing or doing something because her sister-in-law told her something	<i>When my sister-in-law noticed that I am very tired and I have fever, she said to me you have to go to Dr Fat'hi's clinic because he is good</i>
SI_FA_ML	Source of Information Family Mother-in-Law	When the woman mentions knowing or doing something because her mother-in-law told her something	<i>My mother-in-law told me to go to the unit, cut a paper (ticket), maybe they can give you something to make you feel better</i>
SI_FA_HS	Source of Information Family Husband	When the woman mentions knowing or doing something because her husband told her something	<i>When I told my husband about the headache he always encourage me to take novaljeen</i>
SI_FA_OT	Source of Information Family Other	When the woman mentions knowing or doing something because a family member for whom there is no code told her something	<i>Who told you? My aunt and my uncle</i>
SI_NE	Source of Information Neighbor	When the woman mentions knowing or doing something because her neighbor told her something	<i>[about discharges] I thought to tell my neighbor She told me that this is the child's {kolfa} environment so do not be afraid</i>
SI_WO	Source of Information Woman	When the woman mentions knowing or doing something because she knows something from before	<i>I know this by myself</i>
SI_OT	Source of Information Other	When the woman mentions knowing or doing something because someone for whom there is no code established told her	
CH_PR	Characteristics Proximity	When the woman mentions talking with someone because that is who is around to talk with	<i>Because they are living with me in the house</i>
CH_MO	Characteristics Money	When the woman mentions talking with someone in particular because she needs money to seek the type of care she wants	<i>because they can to buy the medicine</i>
CH_EX	Characteristics Experience	When the respondent mentions talking with someone because they are experienced in childbearing	<i>She has delivered and so has experience</i>
CH_AG	Characteristics Age	When the respondent mentions talking with someone because they are older than she is	<i>My mother-in-law is an old lady, everything she says to me to do, I listen to her</i>

MATERNAL CODEBOOK			
CODES	EXTENDED VERSION	USES	EXAMPLES
CH_CL	Characteristics Close	When the respondent mentions talking with someone because she is close to that person	<i>Because they are very close to me She keeps all of my secrets and never tells them</i>
CH_OT	Characteristics Other	When the respondent mentions talking with someone for a reason for which there is no code	<i>They are closer to me than my husband</i>
DT_GA	Delay in Out of Home Treatment Go Away	When the respondent mentions that she waited to treat because she thought that what she had would go away or was normal	<i>I didn't expect that it would endure with me Because I expected it would stop so that's why I have waited</i>
DT_MO	Delay in Out of Home Treatment Money	When the respondent mentions lack of money as a reason for waiting to seek care outside the home	<i>The poor conditions of the family, the lack of money</i>
DT_OT	Delay in Out of Home Treatment Other	When the respondent mentions something for which there is no code as a reason for waiting to seek care outside the home	<i>Because I wanted to make sure if I was pregnant or not first, and I was waiting for my period to come</i>
NA_UP	No Action Outside the Home Unwanted Pregnancy	When the respondent mentions not doing something outside the home because she did not want the pregnancy	<i>I wanted the pregnancy to fail</i>
NA_FA	No Action outside the home Family	When the respondent mentions that she was forbidden from going or feared to bring up the issue of going to the doctor or any place outside the home with any member of the family	<i>When I say that I will go to the doctor my husband refuse and my mother-in-law tells me that all of the pregnant women are like that  I don't want to make him worry</i>
NA_RF_WO	No Action outside the home Refusal of woman to seek care or follow biomedical treatment for any reason other than fear of medication	When the respondent mentions refusing to do something outside the home or prescribed by someone outside the home for any reason other than fear of medication	<i>I am shy</i>
NA_FM	No Action outside the home Fear of Medicine	When the woman mentions not doing something outside the home because she is afraid of medication	<i>I am afraid to take medication</i>
NA_GA	No Action Outside the home Go Away	When the respondent mentions that she did not do anything for a symptom because she thought it would go away	<i>It means that the dizziness will go when I will be in the 4<sup>th</sup> and 5<sup>th</sup> month of pregnancy, and I will be all right</i>

<b>MATERNAL CODEBOOK</b>			
<b>CODES</b>	<b>EXTENDED VERSION</b>	<b>USES</b>	<b>EXAMPLES</b>
NA_NO	No Action Outside the Home Normal	When the respondent mentions not doing something outside the home for a symptom because it normal	<i>It is a normal phenomenon for a pregnant woman</i>
NA_EX	No Action Outside the Home Experience	When the respondent mentions not doing something outside the home for a symptom because she has experienced it before	<i>I used to feel pain in my side in all my previous pregnancies I am used to having</i>
NA_EN	No Action Outside the Home Enduring	When the respondent mentions not doing something outside the home because she is enduring	<i>She (pregnant woman) can endure them I am bearing the pain</i>
NA_ML	No Action Outside the Home Mild	When the respondent mentions not doing anything outside the home because the symptom is mild	<i>They are mild It was light</i>
NA_NT	No Action Outside the Home No Treatment	When the respondent mentions that she did not do anything outside the home because there is nothing which can be done for the symptom	<i>What can I do?</i>
NA_DK	No Action Outside the Home Don't Know	When the respondent mentions that she did nothing outside the home for a symptom because she did not know what to do for the symptom	<i>I don't know what to do</i>
NA_TI	No Action Outside the Home Time	When the respondent mentions not doing something outside the home for a Symptom because she had no time or was busy	<i>I have a lot of work</i>
NA_RE	No Action Outside the home Religion	When the respondent mentions not doing anything outside the home for a symptom because she is leaving it to God or for other reasons having to do with religious beliefs	<i>I leave it to God We are fasting Ramadan</i>
NA_MO	No Action Outside the Home Lack of Money	When the respondent mentions money as a reason for not doing something	<i>Because there is no money for the investigation and the treatment because we are building now</i>
NA_OT	No Action Outside the Home Other	When the respondent mentions not doing anything for a reason for which no code exists	<i>My daughter was sick by her heart in the hospital I wasn't free to do anything</i>

MATERNAL CODEBOOK			
CODES	EXTENDED VERSION	USES	EXAMPLES
HT_ST	Home Treatment Stomach Problems	When the respondent describes a home remedy for a stomach problem	<i>when the pain increased[in my stomach] I boiled some menthe (mint) and drank it</i>  <i>Coca-Cola is good for the burning and it relaxes the stomach</i>
HT_HA	Home Treatment Headache	When the respondent describes a home remedy for a severe headache	<i>I thought immediately that I have to take anything because the headache was severe I drank heavy tea for the headache but till now it comes and goes</i>  <i>I took Revo for the headache</i>
HT_OT	Home Treatment Other Symptoms	When the respondent describes a home remedy for symptoms for which there is no code established	<i>I thought to make lemon juice to lessen the dizziness</i>
HT_MO	Home Treatment lack of Money	When the respondent mentions money as a reason for doing a Home Treatment	<i>The circumstances that may make me search a treatment inside home are to have no money to go and be examined in the health center or at the physician's clinic because all of these things need money</i>
OT_EX	Out of Home Treatment Experience	When the respondent mentions going to a certain place for treatment outside the home because she has gone there before-or has had experience with the provider in the past	<i>because I am used to him Every time I feel sick I go to him</i>
OT_PT	Out of home Treatment Personality Traits	When the respondent mentions going to a particular provider because of his/her personality traits	<i>He is clever</i>
OT_RC	Out of home Treatment Recommendation	When the respondent mentions going to a place because someone recommended that she go there	<i>My neighbor went to him to be examined They said that he is a good doctor and his treatment is good</i>
OT_OT	Out of home Treatment Other	When the respondent mentions going to a place for a reason for which there is no code	<i>Because he can examine and give treatment</i>
ST_MO	Stopped Treatment Lack of Money	When the respondent mentions stopping treatment because she does not have money to continue	<i>My daughter is more important because she is sick by her heart and needs this money</i>
ST_WA	Stopped Treatment Went Away	When the respondent mentions stopping treatment because the symptom went away	<i>Because the pain in my side went</i>

MATERNAL CODEBOOK			
CODES	EXTENDED VERSION	USES	EXAMPLES
ST_OT	Stopped Treatment Other	When the respondent mentions stopping treatment for some reason not having to do with money	
NC_RE	Normative Care Rest	When the respondent mentions rest as something which should be done in order for a pregnant woman to remain healthy	<i>To get some rest</i>
NC_RW	Normative Care Reduce Workload	When the respondent mentions reducing her workload as something that should be done for a pregnant woman to be healthy	<i>She shouldn't work too much in the housework</i>
NC_NL	Normative Care No Lifting	When the respondent mentions not lifting heavy things as something which should be done in order for a pregnant woman to remain healthy	<i>never carry heavy things</i>
NC_FO	Normative Care Food/Nutrition	When the respondent mentions eating certain foods as something which should be done in order for a pregnant woman to remain healthy	<i>and finally eat well</i>
NC_TT	Normative Care Tetanus Toxoid	When the respondent mentions getting the tetanus immunization as something which should be done in order for a pregnant woman to remain healthy or to protect her child	<i>My opinion is she goes for vaccination</i>
NC__ST	Normative Care Seek Treatment	When the respondent mentions seeking treatment outside the home as what a pregnant woman should do to remain healthy	<i>If she feels any pain she should go to the doctor</i>
NC_DO	Normative Care Follow Doctor's Orders	When the respondent mentions following the doctor's advise as what a pregnant woman should do to maintain health	
NC_NO	Normative Care Nothing	When the respondent mentions nothing as what a pregnant woman should do to remain healthy	

MATERNAL CODEBOOK			
CODES	EXTENDED VERSION	USES	EXAMPLES
NC_OT	Normative Care Other	When the respondent mentions something for which there is no code which should be done in order for a pregnant woman to remain healthy	<i>She shouldn't ride the cars a lot</i>
AC_RE	Actual Care Rest	When the respondent mentions rest as something which she does in order to remain healthy	<i>I relax if I am tired</i>
AC_RW	Actual Care Reduce Workload	When the respondent mentions reducing her workload as something which she does in order to remain healthy during pregnancy	<i>Reduce doing housework</i>
AC_NL	Actual Care No Lifting	When the respondent mentions not lifting heavy things as something which she does in order to remain healthy during pregnancy	<i>I don't carry heavy things like before</i>
AC_FO	Actual Care Food/Nutrition	When the respondent mentions eating certain foods as something which she does in order to remain healthy during pregnancy	<i>I follow what the doctor tells me about what to eat and not to eat</i>
AC_TT	Actual Care Tetanus Toxoid	When the respondent mentions getting the tetanus immunization as something which she does in order to remain healthy during pregnancy or to protect her child	<i>I went and took the Tetanus vaccination at the unit</i>
AC_ST	Actual Care Seek Treatment	When the respondent mentions seeking treatment outside the home as what she does to remain healthy during pregnancy	<i>When I have pain I go to the doctor</i>
AC_DO	Actual Care Follow Doctor's Orders	When the respondent mentions following the doctor's treatment as something that she does to remain healthy during pregnancy	<i>I used to take the medications do everything that the doctor told me to do He used to prescribe the medications and I would take them</i>
AC_NO	Actual Care Nothing	When the respondent mentions doing nothing to remain healthy during her pregnancy for any reason other than an unwanted pregnancy	<i>Nothing, I am what I am before and during the pregnancy I eat the same The work at the house is the same</i>

MATERNAL CODEBOOK			
CODES	EXTENDED VERSION	USES	EXAMPLES
AC_NO_UP	Actual Care Nothing Unwanted Pregnancy	When the respondent mentions doing nothing to remain healthy during her pregnancy because it is an unwanted pregnancy	<i>I did nothing!! I did all my efforts to have an abortion so I carried heavy loads, I went up the stairs many times and jumped over it, and my husband was hitting my back but God wanted it so I didn't do anything after that</i>
AC_OT	Actual Care Other	When the respondent mentions something for which there is no code as something which she does in order to remain healthy during pregnancy	<i>walk as much as I can in order to facilitate the delivery</i>
RC_PP	Routine Care outside home due to problems in Previous Pregnancies	When the respondent mentions doing certain things for her health during pregnancy because she has had problems in previous pregnancies	
QC_DP	Quality of Care Discussions with Patient	When the respondent mentions the details of a conversation with a health care provider or advice given to her by the physician	<i>I told him about the discharges that I have He told me that this is normal and I should not worry about it</i>
QC_EX	Quality of Care Full Examination	When the respondent mentions having three of the following things done weighed, blood pressure, urine analysis, blood analysis, sonar or gynecological exam at the health care provider if she saw a physician (whether public or private)	<i>He measured my blood pressure He examined me with the sonar He measured my weight and temperature</i>
QC_PE	Quality of Care Partial Examination	When the respondent mentions having none, one or two of the following things done weighed, blood pressure, urine analysis, blood analysis, sonar or gynecological exam at the health care provider if she saw a physician (whether public or private)	
QC_PM	Quality of Care Prescribes Medication	When the respondent mentions that the health care provider prescribed medication	<i>He prescribed medication for me</i>
QC_WT_LO	Quality of Care Waiting Time Long	When the respondent mentions waiting for an hour or more to receive health services	<i>[How long did you wait?] Around one hour</i>

<b>MATERNAL CODEBOOK</b>			
<b>CODES</b>	<b>EXTENDED VERSION</b>	<b>USES</b>	<b>EXAMPLES</b>
QC_WT_SH	Quality of Care Waiting Time Short	When the respondent mentions waiting for any period of time under one hour	<i>I stayed from 8 30 until 9 15 [waiting for the doctor]</i>
QC_OT	Quality of Care Other	When the respondent mentions something for which there is no code but is related to the care she receives at a health service provider	<i>They refused to give me anything (in terms of medication) They said that I am pregnant, and that it (the pain) will go because you are pregnant</i>
GF_PO	Government Health Facility Positive	When the respondent speaks of the health clinic or government hospital as a place that she would go to willingly	<i>(What are the places that you would go to?) The health center</i>
GF_NE	Government Health Facility Negative	When the respondent complains or expresses dissatisfaction with the health clinic or government hospital	
GF_OT	Government Health Facility Other	When the respondent mentions something about the health center for which there is no code	
PD_PO	Private Doctor Positive	When the woman mentions that she would rather go to a private doctor for treatment	<i>I would go to a private doctor</i>
SP_ST	Severe Pain Seek Treatment	When the respondent mentions severe or any type of pain as a reason to seek treatment	<i>Only if the illness is severe and I am suffering a lot</i>
UP	Unwanted Pregnancy	When the respondent spontaneously mentions not wanting her pregnancy in a context other than as a reason for inaction or doing nothing to care for herself during pregnancy	<i>I did not want this pregnancy</i>
OT_IN	Other Interesting Information	When the respondent mentions anything which may be of interest to the project for which there is no code	

NEONATAL CODEBOOK			
CODE	EXTENDED VERSION	USES	EXAMPLES
SI_PR_BM	Source of Information Practitioner Biomedical	When the respondent mentions knowing something or doing something based on what was said by a biomedical practitioner, such as a physician, a nurse, a pharmacist	<i>Also the doctor encouraged me to give her milk all the time and it will cure any illness</i>
SI_PR_TR	Source of Information Practitioner Traditional	When the respondent mentions knowing something or doing something based on what was said by a traditional practitioner, such as a daya, a tamargi, an antar (herbalist)	<i>She advised me to put powder on his umbilicus and she gave it to me</i>
SI_ME	Source of Information Media	When the respondent mentions knowing something or doing something based on information from an external source That includes media, loud speakers, the mosque, church	
SI_FA_MO	Source of Information Family Mother	When the woman mentions knowing or doing something because her mother told her something	<i>(Who told you about the herbs?) My mother and sisters told me</i>
SI_FA_SL	Source of Information Family Sister-in-Law	When the woman mentions knowing or doing something because her sister-in-law told her something	<i>told me that she (the neonate) was breast-fed more than what she needed, so she vomited that excess milk</i>
SI_FA_ML	Source of Information Family Mother-in-Law	When the woman mentions knowing or doing something because her mother-in-law told her something	<i>She told me that it was a normal symptom and that it should happen, so I did not do anything</i>
SI_FA_HS	Source of Information Family Husband	When the woman mentions knowing or doing something because her husband told her something	
SI_FA_OT	Source of Information Family Other	When the woman mentions knowing or doing something because a family member for whom there is no code told her something	<i>[My aunt] told me to squeeze milk out of my breast in the child's eye, but if it did not recover then I should buy ointment for her</i>
SI_NE	Source of Information Neighbor	When the woman mentions knowing or doing something because her neighbor told her something	<i>She encouraged me to boil Shih (wormwood) or mint for him to help him recover</i>
SI_WO	Source of Information Woman	When the woman mentions knowing or doing something because she knows something from before	<i>I know this by myself</i>

NEONATAL CODEBOOK			
CODE	EXTENDED VERSION	USES	EXAMPLES
SI_OT	Source of Information Other	When the woman mentions knowing or doing something because someone for whom there is no code established told her	
DS_MF	Content of Mother/Father Discussions	When there is a description of a conversation between the child's mother and father	<i>When his father came home I told him that the child had a stomachache and asked him to buy medication for him from the pharmacy</i>
DS_OT	Content of Discussions between People other than the Child's Parents	When there is a description of a conversation between people other than the child's parents	
CH_PR	Characteristics Proximity	When the woman mentions talking with someone because that is who is around to talk with	<i>Because we stay together at home, so I tell her everything</i>
CH_MO	Characteristics Money	When the woman mentions talking with someone in particular because she needs money to seek the type of care she wants	
CH_EX	Characteristics Experience	When the respondent mentions talking with someone because they are experienced in childbearing	<i>Because she breast-feeds more than me and she has experiences in these things</i>
CH_AG	Characteristics Age	When the respondent mentions talking with someone because they are older than she is	<i>Because she is older than me</i>
CH_CL	Characteristics Close	When the respondent mentions talking with someone because she is close to that person or trusts that person	<i>Because they are family</i>
CH_OT	Characteristics Other	When the respondent mentions talking with someone for a reason for which there is no code	
NA_FA	No Action taken outside the Home Refusal of Husband or His Family	When the respondent mentions that she was forbidden from going or feared to bring up the issue of going to the doctor or any place outside the home by or with any member of the family	

NEONATAL CODEBOOK			
CODE	EXTENDED VERSION	USES	EXAMPLES
NA_RF_WO	No Action Outside the Home Refusal of woman to seek outside care for her neonate or follow biomedical treatment	When the respondent mentions refusing to do something outside the home or prescribed by someone outside the home for her neonate	<i>Because she is young and I do not want to take her to any doctor who will prescribe tablets for her that can hurt her</i>
NA_FT	No Action Outside the Home Fears Treatment	When the woman mentions not doing something outside the home for her child because she is afraid for her child (she might say that the child is too weak to go outside, etc )	
NA_GA	No Action Outside the Home Go Away	When the respondent mentions that she did not do anything to treat her child outside the home for a symptom because she thought it would go away	
NA_NO	No Action Outside the Home Normal	When the respondent mentions that she did not do anything to treat her child outside the home for a symptom because she considers it to be normal	<i>I thought that is was a normal thing and it does not deserve attention</i>
NA_ML	No Action Outside the Home Mild	When the respondent mentions that she did not do anything to treat her child outside the home for a symptom because she considers it to be a mild symptom	
NA_NT	No Action Outside the Home No Treatment	When the respondent mentions that she did not do anything to treat her child outside the home for a symptom because there is nothing that can be done for the symptom	
NA_DK	No Action Outside the Home Don't Know	When the respondent mentions that she did not do anything to treat her child outside the home for a symptom because she did not know what to do for the symptom	

NEONATAL CODEBOOK			
CODE	EXTENDED VERSION	USES	EXAMPLES
NA_TI	No Action Outside the Home Time	When the respondent mentions that she did not do anything to treat her child outside the home for a symptom because she was too busy or had no time	
NA_RE	No Action Outside the Home Religion	When the respondent mentions that she did not do anything to treat her child outside the home for a symptom because she is leaving it to God or for other reasons having to do with religious beliefs	
NA_MO	No Action Outside the Home Lack of Money	When the respondent mentions money as a reason for not doing something	<i>But I do not have money to take her to the doctor What can I do?</i>
NA_OT	No Action Outside the Home Other	When the respondent mentions not doing anything for a reason for which no code exists	<i>Nothing, because it happens once per day It wasn't on a continuous basis</i>
HT_KT	Home Treatment Known Treatment	When the respondent mentions using a home treatment because she knows this treatment works from previous experience	<i>When I know the treatment I treat at home</i>
HT_MS	Home Treatment Mild Symptom	When the respondent mentions using a home treatment because the symptom is mild	<i>When it is a mild symptom, like a mild fever that does not require that I take him to the doctor, I can treat him at home</i>
HT_IN	Home Treatment Infusions	When the respondent describes treating her child using warm infusions such as mint, shih (wormwood), caraway seeds, etc	<i>I can boil Shih (wormwood) for him if he has a mild stomachache</i>
HT_BM	Home Treatment Biomedical	When the respondent describes giving her child a biomedical treatment inside the home (this includes cough medicine, aspirin, and other medications purchased at the pharmacy)	<i>I gave him Revo  I bought ORS packets from the pharmacy I was giving her half a packet every day</i>
HT_OT	Home Treatment Other	When the respondent describes a home remedy for which there is no code established (a home remedy that is neither an infusion or biomedical)	<i>My aunt inserted the small soap in her After that immediately, she urinated, made a stool, and slept until the morning</i>
HT_MO	Home Treatment lack of Money	When the respondent mentions money as a reason for doing a Home Treatment	<i>When there is no money I will try to do anything at home to help her recover</i>

NEONATAL CODEBOOK			
CODE	EXTENDED VERSION	USES	EXAMPLES
SY_EN	Symptoms that the Child can Endure	When the respondent mentions symptoms that her child can endure without outside treatment	<i>The stomachache is mild It will go away</i>
SY_UN	Symptoms that the Child Cannot Endure	When the respondent mentions symptoms for which she would seek treatment outside the home	<i>The fever is dangerous so we should take him to the doctor to examine him</i>
BM_ST	Borrow Money Seek Outside Treatment	When the respondent mentions borrowing money in order to take her child to the doctor or to get treatment outside the home	<i>If the child is very sick we can borrow from someone we know</i>
QC_DP	Quality of Care Discussions with Patient	When the respondent mentions the details of a conversation with a health care provider or advice given to her by the physician	<i>He asked me about my complaint and I told him the child was feverish and had diarrhea since the morning</i>
QC_EX	Quality of Care Examination	When the respondent mentions having any of the following things done for her child weighed, stethoscope used, temperature measured, bilirubin, or any other type of exam at the health care provider if she took her child to a physician (whether public or private)	<i>He measured his temperature, and examined his chest and abdomen with the stethoscope</i>
QC_PM	Quality of Care Prescribes Medication	When the respondent mentions that the health care provider prescribed medication for her child	<i>He prescribed for the child two kinds of tablets, one for diarrhea and the other for fever</i>
QC_WT_LO	Quality of Care Waiting Time Long	When the respondent mentions waiting for an hour or more to receive health services	
QC_WT_SH	Quality of Care Waiting Time Short	When the respondent mentions waiting for any period of time under one hour	<i>About half an hour</i>
QC_OT	Quality of Care Other	When the respondent mentions something for which there is no code but is related to the care she receives at a health service provider	<i>I took her to the health center and I did not find the doctor</i>
GF_PO	Government Health Facility Positive	When the respondent speaks of the health clinic or government hospital as a place that she would go to willingly	

NEONATAL CODEBOOK			
CODE	EXTENDED VERSION	USES	EXAMPLES
GF_NE	Government Health Facility Negative	When the respondent complains or expresses dissatisfaction with the health clinic or government hospital	<i>(At the Health Center) The doctors are for free so they do not help They give two tablets and that's all They are useless</i>
GF_OT	Government Health Facility Other	When the respondent mentions something about the health center for which there is no code	
PD_GF	Private Exam at Government Health Facility	When the respondent mentions receiving a private exam at the health center or paying extra money for health center services	<i>Yes We paid for a private exam and the doctor is in the health center</i>
PD_PO	Private Doctor Positive	When the woman mentions that she would rather go to a private doctor for treatment	<i>When we go to a doctor and pay money for the examination, he prescribes medication and we can buy it on our own</i>
OT_IN	Other Interesting Information	When the respondent mentions anything which may be of interest to the project for which there is no code	<i>I took her to the health center but when I went the doctor was not there He was doing a house visit So I didn't care anymore about her illness and whether she recovered or not because I had done my best</i>