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MIS Consultancy Trip Report

**Pakistan Child Survival Project
Islamabad, Pakistan**

**By Randy Wilson/MSH Boston
June 25, 1992**

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Randy Wilson/MSH Boston
June 25, 1992

Trip Report: Pakistan Child Survival Project, Islamabad
Dates: 13-25 June 1992

1. *Purpose of visit:* This trip was scheduled to coincide with the final weeks of field testing of the data collection forms for First Level Care Facilities so that progress could begin on the computerization of indicators from the Monthly and Yearly Reporting forms. The full terms of my scope of work included:
 - a. To review and recommend modification in HMIS/FLCF draft reporting forms as required to ensure that they are compatible for computerized data entry;
 - b. To define data file structure for HMIS/FLCF database so that data forms can be efficiently stored and retrieved;
 - c. To start development of application software for processing of HMIS/FLCF data
 - d. To monitor implementation of Health Institutions Database at provincial and divisional levels.

In addition, I was asked to provide some technical assistance in setting up a more cost effective modem link between the PCSP offices and MSH and HIID in Boston, as well as to review software now set up for GIS/mapping of HMIS data.

2. *General Observations:* We were able to make considerable progress on points a., b. and c., above, thanks in part to having spent some time before my arrival roughing out the database file specifications. This is a crucial undertaking, because even the smallest inefficiency in the design of data file structures of the relatively large Monthly Reports data set would be magnified once all of the estimated 8,000 facilities begin to report monthly, resulting in tens of megabytes of additional file storage requirements.

A full set of data entry screens have now been designed for efficient storage of Monthly Reports at the Province and Division levels, as well as in selected districts. The data flows have been illustrated, thanks to some useful graphics done by Shafat Sharif, Computer Specialist, and a timeline demonstrating the different processing options available.

Although time was limited during this consultancy, I was able to visit one Divisional Health Office to monitor progress on the Health Institutions Database. This was revealing on several counts: staff seem to be gathering and entering the data on health institutions with few problems (and even some enthusiasm). The divisional offices in particular may face some problems sustaining the technology

that they have been equipped with -- particularly the HP DeskJet printers which are costly to run because of the disposable ink-jet cartridges which cost about Rs. 800 for several hundred pages. A standard dot-matrix model would have been more practical -- especially as ribbons can be re-inked very economically. I also noted a couple of problems with the installation of the system (see below).

Generally speaking, Shafat, who has just returned from almost 3 weeks on the road, has done a good job installing the system and training staff in its use. Some Provinces appear to be well on target for completing the initial data entry by August.

3. *Specific Activities:*

- a. **Monthly Reporting Database Design:** I arrived to find the last week of field-testing has resulted in few anticipated changes in the Monthly Report form. (On the one hand, this is a tribute to careful planning, on the other, I secretly harbored hopes that it would be cut down considerably in size, so that the data entry and storage volumes would be less daunting.)

As a result, the homework that I had begun in Boston to design the data file structure required only minor modification.

To store the data most efficiently, I have recommended a file structure which consists of a large master file called MONTHRPT, containing 1 record for each monthly report from each institution, and 3 related files to hold data about repeating data entities:

- i. Stocks (with between 0 and 24 records per report)
- ii. Diseases (with between 0 and 17 records per report)
- iii. Vaccinations (with between 0 and 15 records per report)

This relational file structure gives the system considerable flexibility. For example, new vaccination types could be introduced by just adding another record to the vaccinations file. Similarly, any changes or additions to the disease classifications can be easily accommodated. Conversely, for centres which provide only a short list of the full EPI menu only those records which apply need be stored -- saving considerable disk storage space.

This structure should also provide us with a more practical and efficient approach for doing queries and producing analytical reports.

The trade-off is that this approach has turned out to be a bit more difficult to manage with respect to data entry. Foxpro has excellent tools for working with relational file structures, but Shafat and I have had a difficult time getting the many screens that are required to enter the Monthly

Report Data to flow smoothly together. This is an issue I will be consulting with the Database software vendor's technical support team on my return to Boston.

If we are unable to resolve this issue, we may need to resort back to the inellegant and inefficient flat file structure, which is simpler to program.

Annex I contains details of this file structure in the form of a Data Diagram, Data Dictionary, a sample form with individual field names listed on it, and detailed estimates of file storage requirements.

b. **Monthly Reporting data entry system development:**

- i. Procedures: The multi-level data entry strategy which has been developed for the HMIS/FLCF presents a variety of complex challenges for data processing. Figures 1 and 2 in Annex II, illustrate the different points at which data will be entered throughout the country and the different data flows that are required depending upon which level data entry is done. The remainder of Annex II outlines the specific tasks involved in this process.

Because of the high volume of data to be entered in each record (estimated at 10-15 minutes data entry time per record) and the large number of facilities which will ultimately be reporting – there is considerable pressure to hasten the decentralization of data entry to the districts.

Our estimates of time required for monthly data entry in a typical Division in the Punjab, for example, came to about 25 person/days per month. Without further de-centralization of data entry, this would mean that two people would have to be working in two 5 hour shifts a day to complete the required data entry in the scheduled time of 11 to 12 days.

This assumes, of course, that Divisional offices can come up with the additional staff that are required for this, and that the double-shift system will be acceptable to Government workers for whom I'm not sure there is any similar prescedent yet set.

Further decentralization to the district level may present even more challenges. It will mean purchasing additional computers and further extending an already weak maintenance, training and support infrastructure.

- ii. Software design: Based upon the latest version of the Monthly Reporting Form, I spent most of my visit designing the screen layouts for data entry and developing procedures which will minimize the amount of data entry required. The following design principles guided my work:
 - (1) The screen displays should resemble the data entry form as closely as possible and data entry fields should flow in exactly the same sequence as they appear in the form.
 - (2) Field level validation should check for inconsistencies between related data items and ensure that no duplicate records are entered.
 - (3) Keystrokes should be as limited as possible,
 - (a) any calculated totals or percentages are displayed but need not be typed in
 - (b) sections of the report which are not relevant will be automatically skipped
 - (4) Moving around between the various entry screens should be unrestricted -- this makes checking and editing the data much quicker and gives data entry staff more of a feeling of control over the process.
 - (5) In as much as possible, editing should be done using memory variables and written to the database file automatically once a record is complete.

Annex III includes each of the screens which have been designed.

- c. **Follow-up on Health Institutions Database Implementation:** Shafat and I had a useful visit with Mehrban Khan, the data entry clerk at the Pindi Division Divisional Health Office. We watched him enter a couple of records (average time 1 - 2 minutes per record). This is quite acceptable, especially given that this is data that will be updated at most once a year. The Pindi office had photocopied the data entry forms and sent them to each facility. When we arrived Mehrban had entered 165 records and looked to be about half way through the pile of forms which had been returned.

Several problems were highlighted during the data entry process. The system had 2 duplicate records -- these need to be removed and re-entered. My guess is that they were on the system from before data entry began. The data entry clerk was not checking off forms as complete, nor was he noting the institution ID number on the paper form, so that he could quickly retrieve the original form if data entry errors appeared later.

At my request, we printed out several reports. A couple of problems were

highlighted here -- the HP DeskJet printer produces beautiful copy on plain paper, but for a price. The ink-jet cartridges are expensive to replace and don't produce a large number of copies. Also, one of the report forms had not been correctly configured for the printer and the page number printed on the next page. Shafat needs to make himself a checklist of steps to go through when installing the software -- this should include:

- i. clean up the hard disk/check for viruses
 - ii. create the required directory structure
 - iii. install the executable file, report forms and other required files.
 - iv. initialize the database files (making sure they are empty)
 - v. supply a users manual (this could be adapted from my technical manuals and printed up for distribution to data entry clerks)
 - vi. sit with the data entry clerk to enter several records
 - vii. set up the default printer driver and do a test print of each report (modify report forms for appropriate page size if required)
 - viii. go through the data back-up procedure to prepare a back-up of the initialized data sets
 - ix. prepare a complete backup of software and datafiles in case of a hard disk crash.
- d. **Exploration of Electronic Communications link between Pakistan and US:** There is a considerable need for the PCSP project in particular and the Ministry in general to improve their electronic communications networks. In the short term, this would cut down the cost of international fax transmissions and would enable Shafat and I to exchange updates of software as they are developed. In the long term, electronic links between the Provincial computers would drastically simplify and speed up the process of updating the Federal Level data sets to be stored and analysed in the Biostatistics Cell.

To this end, Shafat and I met on two occasions with an engineer at Pakistan Telephone's international packet switching gateway, Mr. Aslam Baluch, in Pindi. We discussed PCSP's requirements and Mr. Baluch showed us the immaculate, but somewhat sparse computer room. We tested our access to PeaceNet from their facilities. This resulted in a very clean connection at 1200 baud. We found Mr Baluch quite helpful and both Shafat and I were enthusiastic about the potential for this, returning to write a fax requesting permission to use the modem in the PCSP office.

Meanwhile, I did a cost comparison between international fax and e-mail to help justify the move towards a data link (see Annex IV). In theory, a faxed message of 1 page is about 30% more costly than sending the same message by e-mail. In practice it should be substantially cheaper, because the ISDN line for the fax is of such poor quality that most US bound faxes

require 3 to 4 re-tries before going through successfully. If indeed these calls are billed for a minimum of 1 minute -- as has been suggested -- the balance turns even more in favor of e-mail.

Unfortunately, these savings are all dependent upon gaining access to the electronic mail services through a dial-up connection to the T&T packet switching exchange. The volume of data that we are transmitting does not justify the installation of a leased line, which appears at this time to be the only option that they want to offer us.

Undaunted, we made a call just before I left to a Mr. Imran in Lahore, who is offering dial up services to Internet and Compuserve through his own leased line. He is planning to set up a similar service in both Islamabad and Karachi and appears to be very knowledgeable about the technology. Shafat should follow up on this and keep me up to date on any new information that he is able to provide in terms of price quotes.

- e. **Testing of Geographic Information System:** I arrived to find that Tom Cassidy of HIID had sent Shafat the Atlas GIS produced maps for Pakistan and the software was installed on the PCSP computer. Unfortunately, due to some error in the file that he had sent out, we were unable to load the Pakistan maps.

We faxed Tom to send out another copy, and we spent our time instead on developing a simple provincial map of Pakistan and determining how we could link data from the HID and other computerised modules of the HMIS to this map. Although the jargon of Atlas GIS software's Lotus-like menus is somewhat obtuse, we were able to set up some regions (one for each province) and points (provincial capitals) to which we could attach data attributes (population, area). We were then able to print out the stylized map in Annex V using the HP Color Paintjet printer.

Since Atlas GIS stores its attributes in standard .dbf format files (the same structure that FoxPro uses) we should have little trouble preparing summary data files which aggregate data from the HMIS and link them to the district and province regions in the various layers of the Atlas files.

Now that we have clearly identified the mechanisms which permit us to relate our data to maps, it remains for Tom to send out the Pakistan files and for Theo and people from the HIS teams to come up with suggestions for useful indicators to analyse geographically. Some early suggestions are maps of population per facility (indicating health services coverage), proportion of physicians trained, and eventually disease specific morbidity rates from the monthly reporting data.

- f. **Visit to Biostatistics Cell:** In the course of our discussions about the longer term implementation of the computerised part of the HMIS/FLCF it became clear that the Biostatistics Cell is likely to be the obvious place to establish the Federal level capacity for storage and analysis of HMIS data generated by the provinces.

As a result, Shafat and I arranged to make a brief visit to the Biostatistics Cell, where we were received by Mr. Mohammed Sharif, the statistical officer in charge of the Cell's computer section.

We reviewed the Cell's current computer capacity and discussed the nature of equipment upgrades which would be required for the computer section to take on the management of HMIS/FLCF data at the federal level. They have already approached WHO for some new equipment, but Mr. Sharif did not appear to be confident that their request would be met.

After discussions with the staff, I wrote up a brief draft proposal, with an estimated budget of just over \$10,000, which the PCSP team and members of the Biostatistics Cell can use as a technical rationale for securing funds needed for this upgrade. This is included in Annex VI.

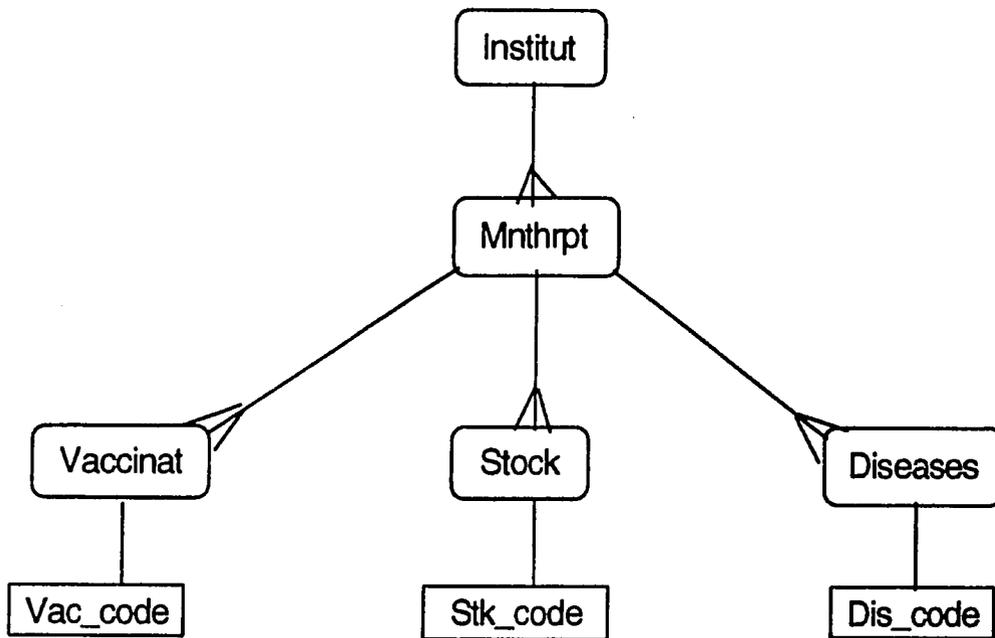
As Theo has noted on several occasions, it is essential to get the Biostatistics Cell staff involved with the HMIS implementation as early as possible and to help ensure that they are adequately equipped to handle the challenge well before the PCSP project winds down.

4. ***Specific Follow-Up Activities:***

- a. **Monthly Reports Software development:** Efforts on this need to continue with some haste if we are to have the software ready for final testing during my next visit in Sept./October. Some of the key tasks include:
- i. I need to get in touch with FoxPro in the US to resolve a couple of technical problems related to coordinating the 10 screens developed for monthly reports data entry.
 - ii. Theo should go through the data dictionary which I have printed out to ensure that adequate space is provided for each of the database fields and to identify additional field level data validation. Shafat should then make the changes both to the file structure and to the data entry screen.
 - iii. Shafat should work on a more efficient routine for finding records to edit to replace the finder. This should probably prompt for a report id number and display the relevant records.
 - iv. Shafat should build up the additional menu options, similar to the structure of the HID module, including:
 - (1) developing an error flagging routine which enables data

- entry clerks to mark records which cannot be completely entered as containing errors. This will facilitate finding them later and correcting them once corrected forms are received.
 - (2) producing a batch control report which lists how many report forms are in a batch, how many are flagged as errors, how many modified institut records have been included in the batch, etc...
 - (3) Pack/Reindex
 - (4) Back-up and Restore procedures
 - (5) Reports menu
- b. **Report form revisions:** Theo and the HIS team need to complete revisions of the Monthly Report form so that data entry is simplified. (I repeat here my plea to minimize the amount of data collected in view of the heavy stress this will put on data entry clerks at the Divisional and Provincial levels until a District level data entry strategy is satisfactorily tested). Key changes include:
 - i. Darkening the lines around the cells from which data is to be entered onto the computer
 - ii. Repositioning some of the elements of the form so that the data entry screens will flow more efficiently. The two main changes here are:
 - (1) raise the placement of the report transmission dates on page 1, so that they can be entered on the first screen.
 - (2) place the vaccination table at the end of page 4 by raising the TT vaccination table just above it.
- c. **Schedule next visit:** I need to plan another trip out to Islamabad late in September or in early October. This should include the following scope of work:
 - i. Finalize software for Monthly Reports data entry
 - ii. Prepare documentation and help screens.
 - iii. Install and test the software with at least one Provincial or Divisional Health Office. It may be most appropriate to arrange this in Karachi either on my way to or on my way back from Islamabad.
 - iv. Begin specifications for the Yearly and Quarterly District reports data entry and processing.
 - v. Produce database procedures required to automate the preparation of data sets for the Geographic Information Systems Module of the HMIS.
- d. **GIS:** PCSP should purchase and register Atlas Graphics software to obtain complete documentation. This will cost in the neighborhood of \$2,000.

HMIS Monthly Reports Data Diagram



FILE SIZE ESTIMATES FOR HMIS/ELCF MONTHLY REPORTS MODULE

No. of Facilities/province 2,000

Typical Monthly record:

File	Bytes/ Record	Max. Records	Total/ Month
Monthrpt	415	1	415
Diseases	25	17	425
Vaccinat	20	14	280
Stock	36	24	864

Complete Record:	1,984	
Complete Province:	3,968,000 bytes	3.968 megabytes
One year:	47,616,000 bytes	47.616 megabytes

Lookup files	Bytes/ Record	Max. Records	Total/ Month
Dis_code	45	17	765
Vac_code	44	14	616
Stk_code	44	24	1,056
Institut	275	2000	550,000
Instype	31	13	403
Instafil	29	6	174
Password	22	5	110
Province	13	7	91
District	55	106	5,830
Tehsil	31	311	9,641

Look-up files: 568,686 bytes

7. CURATIVE CARE Y/N? CURATIVE

3

A. New Cases (all diseases by age group)	< 1	1-4	5-14	15-44	45+	Total
1. MALE	NC_M_LT1	NC_M_LT5	NC_M_LT15	NC_M_LT45	NC_M_LT45	NC_M_TOTAL
2. FEMALE	NC_F_LT1	NC_F_LT5	NC_F_LT15	NC_F_LT45	NC_F_LT45	NC_F_TOTAL
3. Total New Cases						
4. Old Cases						OLD_CASES
5. Total Visits						TOT_VISITS
6. Cases Referred						REFERRED
7. Feedback from Cases Referred						FBACK_REF
8. % Referred of Total New Cases (#6/#3)x100						%
9. % Feedback on Referred Cases (#7/#6)x100						%

4

B. Health Problems (Priority diseases)	< 1	1-4	5+	Total	% of New Cases
101. Diarrhoea					%
102. Dysentery					%
103. Acute Respiratory Infection					%
104. Fever (Clinical Malaria)					%
105. Cough > 2 weeks					%
106. Cholera					%
107. Suspected Meningococcal Meningitis					%
108. Poliomyelitis					%
109. Measles					%
110. Neonatal Tetanus					%
111. Diphtheria					%
112. Whooping Cough					%
113. Goiter					%
114. Suspected Viral Hepatitis					%
115. Suspected AIDS					%
116. Snake bite w/signs of poisoning					%
117. Dog Bite					%

5

C. Diarrhoea (New Cases < 5 years)	Dehydration Status				Total New Cases < 5 Years
	None 101.0	Some 101.1	Severe 101.2	Unknown 101.9	
101. a. No. of New Cases < 5 years	DR_101_0	DR_101_1	DR_101_2	DR_101_9	DR_101_TOT
b. % of total New Cases < 5 years	%	%	%	%	

D. Dysentery (New Cases < 5 years)	Dehydration Status				Total New Cases < 5 Years
	None 102.0	Some 102.1	Severe 102.2	Unknown 102.9	
102. a. No. of New Cases < 5 years	DY_102_0	DY_102_1	DY_102_2	DY_102_9	DY_102_TOT
b. % of total New Cases < 5 years	%	%	%	%	

E. Acute Respiratory Infection (New Cases < 5 years)	No Pneumonia 103.0	Pneumonia 103.1	Severe Pneumonia 103.2	V. Severe Disease 103.3	Unknown 103.9	Total New Cases < 5 Years
	103. a. No. of New Cases < 5 years	ARI_103_0	ARI_103_1	ARI_103_2	ARI_103_3	
b. % of total New Cases < 5 years	%	%	%	%	%	

F. Fever (Clinical Malaria) (all ages)	Blood Slides			Total New Cases
	Not Taken	Examined in Facility	Sent Out	
104. a. Total No. of New Cases	FEV-NBS	FEV-BS-INF	FEV-BS-SO	FEV-TOT
b. % of Total New Cases	%	%	%	

5

G. Malaria Slide Results (from Laboratory Register, only Outpatient New Cases)	Internal		External	
	Number	% Positive	Number	% Positive
1. Total No. of Slides Examined (New Cases)	BS-INT-TOT		BS-EXT-TOT	
2. No. of Slides Malaria Parasite Positive	BS-INT-MAL	%	BS-EXT-MAL	%
3. No. of Slides Plasmodium Falciparum Positive	BS-INT-FAL	%	BS-EXT-FAL	%

H. Cough > 2 weeks (all ages)	Sputum Smear Series		Total New Cases
	Examined In Facility	Patient Referred	
105. a. No. of Sputum Smear Series requested	SPUT-INT	SPUT-REF	SPUT-TOT
b. % of Total New Cases of Cough > 2 weeks	%	%	

I. TB Smear Results (from Laboratory Register, only Outpatient New Cases)	Internal		External	
	Number	% Positive	Number	% Positive
1. No. of Sputum Smear Series Done	SPUT-INT-T		SPUT-EXT-T	
2. No. of Smears Series AFB Positive	SPUT-INT-P	%	SPUT-EXT-P	%

6

J. Tuberculosis Treatment (Y/N)? TB-CARE		Number	% of Total
1. Patients under Treatment at end of previous month		TB-RX-LAST	
2. Started Treatment this month	a. No. Started treatment (Incl. new, relapses, transferred and resumed treatment)	TB-STARTED	
	b. No. of New Cases	TB-NEW	%
3. Discharged during this month	a. Total No. Discharged (Incl. died, transferred and lost as defaulters)	TB-DISCHGD	
	b. No. Lost as Defaulters	TB-DEFAULT	%
4. Patients under Treatment at end of this month		TB-RX-THIS	

K. Immunizable Diseases	Not Vaccinated	Partially Vaccinated	Fully Vaccinated	Vaccination Status Unknown	Total Cases	% of cases fully vaccinated
108. Poliomyelitis	POLIO-NV	POLIO-PV	POLIO-FV	POLIO-UN		
109. Measles	MEAS-NV	MEAS-PV	MEAS-FV	MEAS-UN		%
110. Neonatal Tetanus	TETAN-NV	TETAN-PV	TETAN-FV	TETAN-UN		%
111. Diphtheria	DIPHT-NV	DIPHT-PV	DIPHT-FV	DIPHT-UN		%
112. Whooping Cough	WHOP-NV	WHOP-PV	WHOP-FV	WHOP-UN		%

7

L. Distribution of Iodine Caps. (Y/N)	Number
1. Total No. distributed	IOD-TOT
2. Under 20 years	IOD-UT20
3. Pregnant women	IOD-PREGWM
4. Child Bearing Age Women	IOD-CBA-WM

M. Protein-Energy Malnutrition (Children < 3)	Number	% of Total
1. Total No. Weighed	PME-WEIGHD	
2. No. Normal	PME-NORMAL	%
3. Protein-Energy Malnutrition I	PME-I	%
4. Protein-Energy Malnutrition II	PME-II	%
5. Protein-Energy Malnutrition III	PME-III	%

B. MOTHER AND CHILD CARE PREVENTIVE ACTIVITIES

A. Pre-natal Care (Y/N) *PRENATAL*

Expected New Pregnancies (CA Population / 270)

No. Newly Registered (1)	PN-NEW-REG	Newly Registered During 1st Trimester	PN-NEW-1ST	Hemoglobin < 10 gm% at 1st visit	PN-HG-LTLO	Total Visits (2)	PN-TOT-VST
% of Expected New Pregnancies	%	% of Total Newly Registered	%	% of Total Newly Registered	%	No. of Re-visits (2) - (1)	PN-REVST3

B. Deliveries (Y/N) *DELIVERY*

Total Reported	From CA	Delivered by Trained Staff	Delivered in Facility	Referred
DLV-TOT	DLV-FRM-CA	DLV-TRND	DLV-IN-FAC	DLV-REFRD
% of Total Reported >	%	%	%	%

C. Post-natal Care (Y/N) *POSTNATAL*

Total Women with EMD 1 month ago	PSTN-EMD1M
Rec'd at least 1 Postnatal Visit	PSTN-GRVT
% of Women w/EMD 1m. ago	%
Registered ONLY for Postnatal Care	PSTN-REG

D. Maternal Deaths No. *MAT-DEATHS*

E. Family Planning (Y/N) *CONTRACEP*

Total Visits	Male	Female	New Cases	Old Cases	Visits by Contraceptive Method						Referred										
					Condom	Foam	Pills	Injection	IUCD	Surgery											
CT-MAL-TOT	CT-FEM-TOT	CT-NEW-TOT	CT-OLD-TOT	CT-VST-CDM	CT-VST-FM	CT-VST-PIL	CT-VST-INT	CT-VST-IUD	CT-VST-SRG	CT-REFERRAL											
Units Distributed >																					
<table border="0"> <tr> <td>CT-NC-CDM</td> <td>CT-NC-FM</td> <td>CT-NC-PIL</td> <td>CT-NC-INT</td> <td>CT-NC-IUD</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>											CT-NC-CDM	CT-NC-FM	CT-NC-PIL	CT-NC-INT	CT-NC-IUD						
CT-NC-CDM	CT-NC-FM	CT-NC-PIL	CT-NC-INT	CT-NC-IUD																	

F. Growth Monitoring (Y/N) *GROWTH-MON*

Expected Children < 1 year (CA Population / 320)

No. Newly Registered < 1 year	GN-NEW-LTY	Total Visits	GN-TOT-VST
% of Expected < 1 year	%	No. Normal Nutrition Status	GN-NORMAL
		% of Total Visits	%

G. Vaccinations (Y/N) *VACCINIZ*

Catchment Area Population (if different from page 1):

No. Fixed Centres:

No. Outreach Teams:

No. Mobile Units:

Vaccination Type	0-11 months	12-23 months	2+ years	Total Children
1. BCG				
2. DPT - 1				
3. DPT - 2				
4. DPT - 3				
5. DPT - Booster				
6. OPV - Zero				
7. OPV - 1				
8. OPV - 2				
9. OPV - 3				
10. OPV - Booster				
11. DT - 1				
12. DT - 2				
13. DT - Booster				
14. Measles				
15. Fully Immunized Children				

Target Group for TT Vaccines	TT - I	TT - II	TT - III	TT - IV	TT - V
16. Pregnant Women	TT-PRG-I	TT-PRG-II	TT-PRG-III	TT-PRG-IV	TT-PRG-V
17. Child Bearing Age Women	TT-CBA-I	TT-CBA-II	TT-CBA-III	TT-CBA-IV	TT-CBA-V
18. Total					

8

9

11

System: HMIS MONTHLY REPORTS MODULE
 Author: R.WILSON/S.SHARIF
 06/22/92 02:35:37
 Database Structure Summary

14 databases in the system

	Description
MONTHRPT.DBF	Monthly report main file (1 record per inst per month)
INSTITUT.DBF	Institutions data file (HID) used for lookup
STOCK.DBF	Stock data from monthly reports
STK_CODE.DBF	Stock code lookup table
LISEASES.DBF	Disease data from monthly reports
DIS_CODE.DBF	Disease code lookup table
VACCINAT.DBF	Vaccination data from monthly reports
VAC_CODE.DBF	Vaccination code lookup table
BATCH.DBF	Batch control file
POSTS.DBF	Posts data file (HID) used in batch routine

Batch files for data transfer:

B_MONTH.DBF	New records from monthrpt file
B_STOCK.DBF	New records from stock file
B_DISEAS.DBF	New records from diseases file
B_VAC.DBF	New records from vaccinations file

B-INST
B-POST

Structure for database : MONTHRPT.DBF
 Number of data records : 22
 Last updated : 06/22/92 at 1:38

Field	Field name	Type	Width	Dec	Description	Validation
1	INST_ID	Character	6		link to institut	lookup to institut file
2	REC_STATUS	Character	1		processing status	entered by batch.prg
3	BATCH_NO	Character	9		data transfer	entered by batch.prg
4	CA_CODE	Date	8		batch no. last day <i>you</i> report <i>month</i>	entered by month1.prg
5	RPT_MONTH	Character	2		report month	>0 and <13
6	RPT_YEAR	Character	2		report year	inst_id+rpt_year+rpt_month must be unique
7	RPT_ID	Character	10		key field	inst_id+rpt_year+rpt_month entered by computer
8	CA_POP	Numeric	6		Catchment area pop	
9	EXP_BIRTH	Numeric	3		Expected births	calculated by month1.spr
10	BIRTH_REG	Numeric	3		Births registered	
11	WEIGH_NEW	Numeric	2		Newborns weighed	
12	WEIGH_LOW	Numeric	2		Low weight newborns	:=WEIGH_NEW
13	STAFF_MTG	Numeric	1			
14	TBA_MTG	Numeric	1			
15	CHW_MTG	Numeric	1			
16	COMM_MTG	Numeric	1			
17	SCHL_SESS	Numeric	1			
18	COMM_SESS	Numeric	1			
19	DATE_RCD	Date	8		Date received by DHO	
20	RCD_C_CNTR	Date	8		Date rcd at centre	:=DATE_RCD
21	DATE_ENTRD	Date	8		Date entered on computer	system date()
22	CURATIVE	Logical	1		Curative care?	Y or N
23	NC_M_LT1	Numeric	3		New cases M <1	
24	NC_M_LT5	Numeric	3		M 1-4	
25	NC_M_LT15	Numeric	3		M 5-14	
26	NC_M_LT45	Numeric	3		M 15-44	
27	NC_M_GT45	Numeric	3		M >=45	
28	NC_M_TOTAL	Numeric	4			calculated by month1.spr
29	NC_F_LT1	Numeric	3		New cases F <1	
30	NC_F_LT5	Numeric	3		F 1-4	
31	NC_F_LT15	Numeric	3		F 5-14	
32	NC_F_LT45	Numeric	3		F 15-44	

33	NC_F_G74E	Numeric	3	
34	NC_F_TOTAL	Numeric	4	F = 45
35	OLD_CASES	Numeric	4	calculated by month1.s
36	TOT_VISITS	Numeric	4	Total visits
37	REFERRED	Numeric	3	Referred patients
38	FBACK_FEF	Numeric	3	Feedback on referrals = referred
39	DR_101_	Numeric	2	Diarrhoea
40	DR_101_	Numeric	2	
41	DR_101_	Numeric	2	
42	DR_101_?	Numeric	2	
43	DY_102_	Numeric	2	Dysentery
44	DY_102_	Numeric	2	
45	DY_102_	Numeric	2	
46	DY_102_?	Numeric	2	
47	ARI_103_	Numeric	2	ARI
48	ARI_103_	Numeric	2	
49	ARI_103_	Numeric	2	
50	ARI_103_?	Numeric	2	
51	ARI_103_?	Numeric	2	
52	FEV_NBS	Numeric	2	Fever No blood slide
53	FEV_BS_INF	Numeric	2	Fever b.s. in facility
54	FEV_BS_OUT	Numeric	2	Fever b.s. sent out
55	LABORATORY	Logical	1	Laboratory? Y or N
56	BS_INT_TOT	Numeric	4	Total internal blood slides
57	BS_EXT_TOT	Numeric	4	Total external blood slides
58	BS_INT_MAL	Numeric	2	Internal Malaria positive b.s.
59	BS_EXT_MAL	Numeric	2	External Malaria positive b.s.
60	BS_INT_FAL	Numeric	2	Internal Falcip. positive b.s.
61	BS_EXT_FAL	Numeric	2	External Falcip. positive b.s.
62	TB_CARE	Logical	1	TB care? Y or N
63	SPUT_INT	Numeric	2	Internal sputum series requested
64	SPUT_REF	Numeric	2	Pts. referred for sputum series
65	SPUT_INT_?	Numeric	2	Sputum s. done internally
66	SPUT_EXT_?	Numeric	2	Sputum s. done externally
67	SPUT_INT_?	Numeric	2	Sputum s. positive internal
68	SPUT_EXT_?	Numeric	2	Sputum s. positive external
69	TB_RX_LAST	Numeric	2	
70	TB_STARTED	Numeric	2	
71	TB_NEW	Numeric	2	
72	TB_DISCHGD	Numeric	2	
73	TB_DEFAULT	Numeric	2	
74	TB_RX_THIS	Numeric	2	
75	POLIO_NF	Numeric	2	Polio cases no vac.
76	POLIO_PV	Numeric	2	partial vac.
77	POLIO_FULV	Numeric	2	fully vac.
78	POLIO_UN	Numeric	2	history unknown
79	MEAS_NV	Numeric	2	Measles cases no vac.
80	MEAS_PV	Numeric	2	partial vac.
81	MEAS_FULV	Numeric	2	fully vac.
82	MEAS_UN	Numeric	2	history unknown
83	TETAN_NF	Numeric	2	Tetanus cases no vac.
84	TETAN_PV	Numeric	2	partial vac.
85	TETAN_FULV	Numeric	2	fully vac.
86	TETAN_UN	Numeric	2	history unknown
87	DIPHT_NF	Numeric	2	Diphthyrria cases no vac.
88	DIPHT_PV	Numeric	2	partial vac.
89	DIPHT_FULV	Numeric	2	fully vac.
90	DIPHT_UN	Numeric	2	history unknown
91	WHOO_PV	Numeric	2	Whooping c. cases no vac.
92	WHOO_PV	Numeric	2	partial vac.
93	WHOO_FULV	Numeric	2	fully vac.
94	WHOO_UN	Numeric	2	history unknown
95	IODINE	Logical	1	Iodine dist? Y or N
96	IOD_TOT	Numeric	3	No. tablets distrib
97	IOD_LT20	Numeric	3	no. to women >20 yrs
98	IOD_PREGAM	Numeric	3	no. to pregnane women
99	IOD_CBA_WM	Numeric	3	no. to CBA women
100	PME_WEIGED	Numeric	3	Children weighed
101	PME_NORMAL	Numeric	3	No. normal

102	PME_I	Numeric	2	No. PME I	
103	PME_II	Numeric	2	No. PME II	
104	PME_III	Numeric	2	No. PME III	
105	IMMUNIZ	Logical	1	Immunizations?	Y or N
106	VAC_CA_POP	Numeric	8		
107	FIXED_CNT	Numeric	1		
108	OUTRCH_CNT	Numeric	1		
109	MOBILE_UNT	Numeric	1		
110	TT_PRG_I	Numeric	2	TT Vaccines	
111	TT_PRG_II	Numeric	2		
112	TT_PRG_III	Numeric	2		
113	TT_PRG_IV	Numeric	2		
114	TT_PRG_V	Numeric	2		
115	TT_CBA_I	Numeric	2		
116	TT_CBA_II	Numeric	2		
117	TT_CBA_III	Numeric	2		
118	TT_CBA_IV	Numeric	2		
119	TT_CBA_V	Numeric	2		
120	GROWTH_MON	Logical	1	Growth Monitoring?	Y or N
121	GM_NEW_LT1	Numeric	3		
122	GM_TOT_VST	Numeric	4		
123	GM_NORMAL	Numeric	4		
124	PRENATAL	Logical	1	Prenatal Care?	Y or N
125	PN_NEW_REG	Numeric	3		
126	PN_NEW_1ST	Numeric	3		
127	PN_HG_LT10	Numeric	2		
128	PN_TOT_VST	Numeric	4		
129	PN_REVSTS	Numeric	3		
130	DELIVERY	Logical	1	Deliveries?	Y or N
131	DLV_TOTAL	Numeric	3		
132	DLV_FRM_CA	Numeric	3		
133	DLV_TRND	Numeric	3		
134	DLV_IN_FAC	Numeric	2		
135	DLV_REFRD	Numeric	2		
136	POSTNATAL	Logical	1	Postnatal Care?	Y or N
137	PSTN_EMD1M	Numeric	2		
138	PSTN_GT1VT	Numeric	2		
139	PSTN_REG	Numeric	2		
140	MAT_DEATHS	Numeric	2		
141	CONTRACEP	Logical	1	Contraception?	Y or N
142	CT_MAL_TOT	Numeric	3	No. male visits	
143	CT_FEM_TOT	Numeric	3	No. female visits	
144	CT_NEW_TOT	Numeric	3	No. new acceptors	
145	CT_OLD_TOT	Numeric	3	No. continuing users	CT-MAL + CT-FEM = CT-NEW
146	CT_VST_CDM	Numeric	3	No. visits condom	CT-TOT
147	CT_VST_FM	Numeric	3	foam	
148	CT_VST_PIL	Numeric	3	pill	
149	CT_VST_INJ	Numeric	3	injection	
150	CT_VST_IUD	Numeric	3	iud	
151	CT_VST_SPG	Numeric	2	surgery	
152	CT_REFERAL	Numeric	2	referred	
153	CT_NO_CDM	Numeric	3	No. of units condom	
154	CT_NO_FOAM	Numeric	3	foam	
155	CT_NO_PILL	Numeric	3	pill	
156	CT_NO_INJ	Numeric	3	injection	
157	CT_NO_IUD	Numeric	3	iud	
** Total **			407		

FoxDoc did not find any associated index files

This database appears to be associated with multiple index file(s):
: C:\FOXPRO2\MONTHLY\MONTHRPT.CDX

Used by: MONTH1.SPR
: BATCH.PRG
: BATCHIN.PRG

Structure for database : STOCK.DBF
Number of data records : 9
Last updated : 06/20/92 at 8:54

Field	Field name	Type	Width	Description	Validation
1	RPT_ID	Character	10	link to monhrpt	entered by month1.spr
2	STK_CODE	Character	2	letter from form	A-X
3	STK_RCD	Numeric	6	stock received	
4	ISS_CARE	Numeric	5	stock issued for care	
5	DISCARDED	Numeric	5	stock discarded	
6	BALANCE	Numeric	6	balance remaining	
7	DAYS_OUT	Numeric	2	out of stock	<=31
** Total **			37		

FoxDoc did not find any associated index files

This database appears to be associated with multiple index file(s):
: C:\FOXPRO2\MONTHLY\STOCK.CDX

Used by: MONTH1.SPR
: BATCH.PRG
: BATCHIN.PRG

Structure for database : STK_CODE.DBF
Number of data records : 23
Last updated : 06/21/92 at 2:15

Field	Field name	Type	Width	Dec	Description
1	STK_CODE	Character	2		Stock code (A-X)
2	STK_ITEM	Character	20		Stock item name
3	STK_UNIT	Character	10		Stock item unit
** Total **			33		

FoxDoc did not find any associated index files

FoxDoc did not find any associated multiple indexes

Used by: MONTH1.SPR

Structure for database : DISEASES.DBF
Number of data records : 0
Last updated : 06/20/92 at 8:05

Field	Field name	Type	Width	Dec	Description	Validation
1	RPT_ID	Character	10		link to monhrpt	entered by month1.spr
2	DIS_CODE	Character	5		Disease code	> 100 and < 118
3	UNDER_1	Numeric	3		Cases under 1 yr	
4	ONE_4	Numeric	3		Cases 1-4 yrs	
5	FIVE_PLUS	Numeric	4		Cases over 5 yrs	
** Total **			26			

FoxDoc did not find any associated index files

This database appears to be associated with multiple index file(s):
: C:\FOXPRO2\MONTHLY\DISEASES.CDX

Used by: MONTH1.SPR
: BATCH.PRG
: BATCHIN.PRG

Structure for database : DIS_CODE.DBF

Number of data records : 16
Last updated : 06/16/92 at 4:30

Field	Field name	Type	Width	Dec	Description
1	DIS_CODE	Character	5		Disease code
2	DIS_NAME	Character	30		Disease name
3	DIS_ABBREV	Character	10		Disease abbreviation for reports
** Total **			45		

FoxDoc did not find any associated index files

FoxDoc did not find any associated multiple indexes

Used by: MONTH1.SPR

Structure for database : VACCINAT.DBF

Number of data records : 0
Last updated : 06/21/92 at 0:45

Field	Field name	Type	Width	Dec	Description	Validation
1	RPT_ID	Character	10		link to monthrpt	entered by month1.spr
2	VAC_CODE	Character	2		Vaccination code	>0 and <16
3	UNDER_1	Numeric	3		No. children <1 yr	
4	OVER_1	Numeric	3		No. children 1-2 yrs	
5	OVER_2	Numeric	3		No. children > 2 yrs	
** Total **			22			

FoxDoc did not find any associated index files

This database appears to be associated with multiple index file(s):
: C:\FOXPRO2\MONTHLY\VACCINAT.CDX

Used by: MONTH1.SPR
: BATCH.PRG
: BATCHIN.PRG

Structure for database : VAC_CODE.DBF

Number of data records : 15
Last updated : 06/16/92 at 7:27

Field	Field name	Type	Width	Dec	Description
1	VAC_CODE	Character	2		Vaccination code
2	VAC_NAME	Character	24		Vaccination name
** Total **			27		

FoxDoc did not find any associated index files

FoxDoc did not find any associated multiple indexes

Used by: MONTH1.SPR

Structure for database : BATCH.DBF

Number of data records : 9
Last updated : 06/22/92 at 1:37

Field	Field name	Type	Width	Dec	Description
1	BATCH_NO	Character	9		Batch no (inst_id+3 digit serial no.)
2	BATCH_DATE	Date	8		Batch date (system date when batch was created)
** Total **			18		

FoxDoc did not find any associated index files

This database appears to be associated with multiple index file(s):
: C:\FOXPRO2\MONTHLY\BATCH.CDX

Used by: BATCH.PRG

ANNEX II

Monthly Reporting data processing steps HMIS/FLCF

- I. **Form Completion:** Monthly Report forms are filled out in Health Facility
 - A. Reports are checked and signed by the Medical Officer In Charge (MOIC)
 - B. Reports are forwarded to the DHO according to schedule (see attached time line)

- II. **DHO Office Processing:** DHO receives forms:
 - A. Checks to see if any immediate action is required
 - B. Verifies that form is complete and correctly filled out. (A checklist of what to look for should be prepared to guide the DHO in this process.)
 - C. Forms which are unsuitable for data entry in the DHO's judgement are sent back to the MOIC of the facility concerned with a standard note pointing out deficiencies.
 - D. Forms are collected in a batch until the cutoff date in the schedule (about 10 days into the month). At that point, all forms which have been received and verified are sent to the appropriate level for data entry (See diagram attached). Generally this will be either:
 1. District computer centre: If the District has a computer for data entry, the batch of forms is passed to statistical officer/computer operator
 2. Divisional computer centre: If the Division has a computer for data entry.
 3. Provincial computer centre: In this event, the batch of forms is first forwarded to the Divisional Health Office where it immediately forwarded to the Provincial computer centre. The Divisional office need to take no action on the forms themselves.
 - E. Any forms which arrive late (after the cutoff date) should be kept by the DHO and sent with the next month's Monthly Reports.

- III. **Computer Centre Processing:** As soon as batches of forms arrive at the Computer Centre -- at whatever level -- the following data processing should begin:
 - A. **Manual Verification:** Each form is checked manually for completeness and accuracy (key points should be spelled out in a checklist for use by the Statistical Officer/Data Entry Clerk.)
 1. If forms are judged unsatisfactory for data entry they are sent back to the facility through the DHO for completion.
 - a. Inaccurate or incomplete data should be clearly marked on the form and noted in a standard transmission note.
 - b. A register should be kept of all forms sent back with transmission dates and notes about errors found. (When corrected forms come in, they should be checked off against this register).

- c. Once corrected, the forms are returned directly to the computer centre.
 2. Some forms may be incomplete or be inaccurate in some sections but should still be entered so as not to delay the forwarding of certain crucial information. In this case, they should be identified as being incomplete, but sent on to the the Data Entry Clerk anyway. Once dat entry is complete on these forms, they must be sent back to the MOIC of the facility concerned in the same manner as the unsatisfactory forms, above.
 3. All other forms are sent to the Data Entry Clerk.
- B. **Data entry:** Data is entered into the computer from each form in turn, using the Data entry module of the Monthly Report System Menu. They can be entered in any order. The operator should mark forms as entered when data entry is complete and store completed forms for verification. Efforts should be made to enter forms as the batches come in from DHOs to avoid processing backlogs.
- C. **Data Batch Preparation:** At the cut-off date (see attached schedule), a batch of new computerised records is prepared to be sent on to the next level. The batches are created as follows:
 1. Delete any remaining files from the directory ..\batches
 2. Start the Monthly Reports Module and select the Batch processing option from the File menu.
 3. Select the option to prepare a new batch. This procedure:
 - a. creates a new batch number in the batch log file
 - b. copies all new or modified records to the following files:
 - (1) b_inst.dbf Institutions File
 - (2) b_post.dbf Sanctioned/Filled Posts file
 - (3) b_month.dbf Monthly reports master file
 - (4) b_stock.dbf Stock records from monthly reports
 - (5) b_vac.dbf Vaccination records from monthly reports
 - (6) b_diseas.dbf Disease records from monthly reports
 - c. A unique batch number is maintained in the monthly reports file and in a batch control file (batch.dbf) to enable records to be traced back to their data entry points.
 4. When the batch has been created, copy all of the files in the ..\batches sub-directory to an appropriate transfer medium. This will be done one of the following ways:
 - a. If the total size of the files is under 1.44 megabytes, the files can be copied to a blank diskette using the DOS copy command (copy c:\batches*. * a:)
 - b. If the total size of the files in the batches sub-directory is under 4 megabytes, use a file compression program like PKZip to create a ZIP file and copy it to a blank formatted

diskette. (PKZIP A:\batch c:\batches*.*)

- c. If the total size of the files is greater than 4 megabytes, data will have to be transferred on floppy disks using the DOS back-up command (BACKUP C:\batches*. * a:\) or on QIC format tapes, using the software provided with them.
 5. The data is then sent to the next level up for input into their system. An entry should be made in a register, noting which batch number was sent, on what date, by what means and to whom. This will help identify missing data sets.
 6. Once all facilities have been trained and the new system is introduced through a division, a report is then printed out of facilities which have not completed their monthly reports on time or have sent them in with errors. This is forwarded to the DHO for action.
- D. **Updating a higher level system using batch files:** When disks or tapes with new data arrive at the next level up, they need to be used to update the database in the following way:
1. Delete all files from the ..\batches sub-directory on the computer where the batches are to be entered.
 2. Copy or restore the batch data files from the transfer media to the ..\batches sub-directory as appropriate.
 3. If data is being sent by disk, be sure to check for viruses before copying it onto your hard disk. If data is restored from tape, check the files into the ..\batches sub-directory before continuing with the batch update process.
 4. Run the Monthly Reporting module.
 5. From the Menu select the option Add data from new batch from the Batch Processing option of the File menu.
 6. This option automatically performs the following:
 - a. Checks to see if there are any new batches to add
 - b. Deletes all records in the receiving files which match those in the new batch (new or updated records)
 - c. Appends all records from the new batch, packs the databases
 7. Enter the batch number and date on a Batch log sheet and mark it as complete. This manual record will help to identify batches which are missing.
 8. Once the batch has been successfully updated, the data transfer tape should be returned to the office which sent it in the first place.

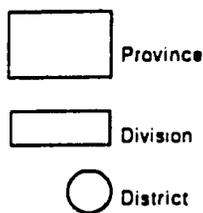
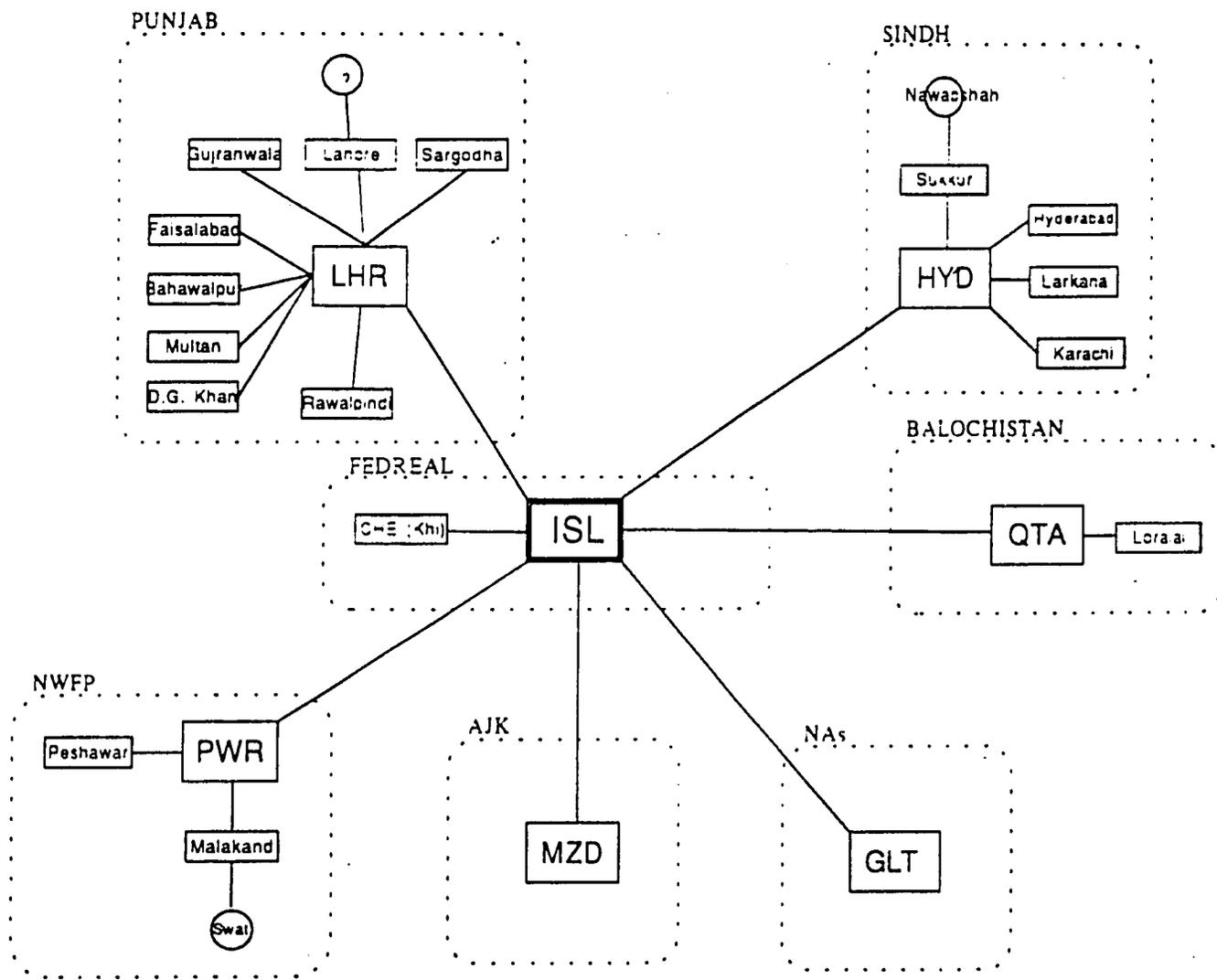
IV. **Report preparation:** The following are examples of basic reports that should be generated at the appropriate levels:

- A. Monthly:
 1. Computer Data Entry point:

- a. Proportion of facilities reporting
 - b. Stock out list by facility for DHO
 - 2. Division:
 - a. District wise aggregations of key indicators.
 - 3. Province:
 - a. EPI report by facility/by district
 - b. Malaria report
 - c. TB control report
 - d. Family planning report
 - e. MCH activity report
 - f. Curative activity/key indicators report by district
 - 4. Federal:
 - a. Key indicators by Province
 - b. Maps of selected indicators using Atlas Graphics
 - B. Annually:
 - 1. Province:
 - a. Listing of facilities by type
 - b. District wise trends for the year of key indicators
 - c. Yearly summary to each facility
 - 2. Federal:
 - a. Counts of facilities by province by type.
 - b. GIS maps of coverage rates for various services by province.
- V. **Data sharing:** At the federal level, monthly updates of selected data sets will be prepared for national programs for their own analysis. Key programs which have their own computing resources and might require this are:
- A. EPI
 - B. Family Planning
 - C. Malaria Control
 - D. ARI
 - E. Nutrition
 - F. MSD - Drug consumption patterns, stock outs

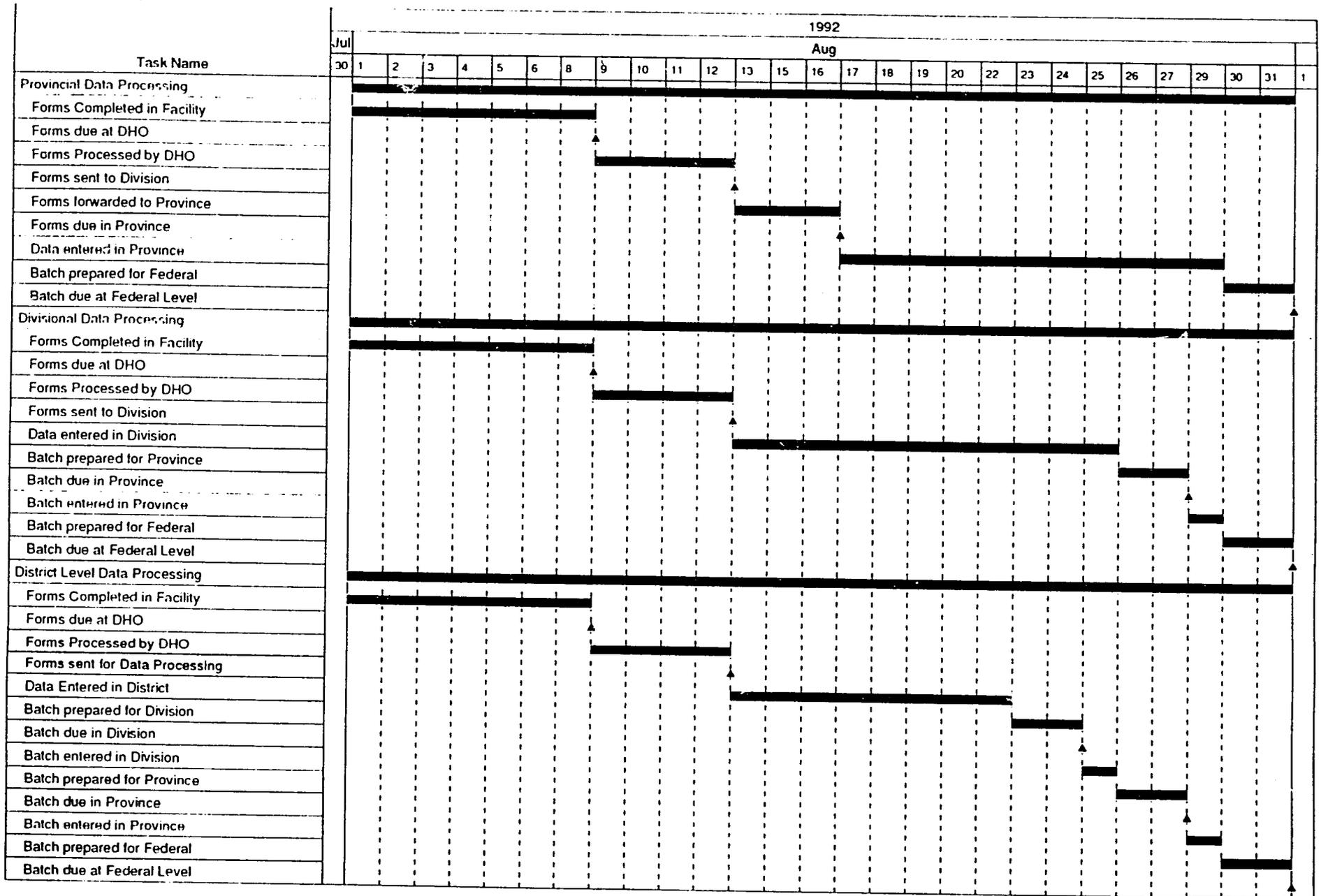
ANNEX II, FIGURE 1

COMPUTERIZATION OF HEALTH DEPARTMENTS IN PAKISTAN



ANNEX II, FIGURE 2

TIMELINE FOR HMIS/FLCF MONTHLY REPORTS PROCESSING



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ANNEX III

Monthly Reporting Module Screen Layouts

Main Menu

System File Edit Record Window						
<table border="1"> <tr> <td>Data Entry Help... F1</td> </tr> <tr> <td>Calculator</td> </tr> </table>	Data Entry Help... F1	Calculator	<table border="1"> <tr> <td>Command</td> </tr> <tr> <td>clear</td> </tr> <tr> <td>do monthly</td> </tr> </table>	Command	clear	do monthly
Data Entry Help... F1						
Calculator						
Command						
clear						
do monthly						
<small>THIRD FOR T&H</small> GRABBER™ 800 242-4PSL						

Screen 1

System File Edit Record Window	
Monthly Report 1	
Inst. Id: 10001	Month: 06 Year: 92 Report Id: 100019206
1. INSTITUTION IDENTIFICATION Institution Name/Location: CIVIL HOSPITAL MANKERA Incharge Name: DR. ASLAM KHAN	2. POPULATION DATA Catchment area Pop. 23000 Expected births: 22 No. Births registered: 12 54 % No. Newborns weighed: 10 83 % No. with low birth wt.: 1 10 %
3. MEETINGS/HEALTH EDUCATION SESSIONS Staff meetings 1 TBA meetings 2 CHW meetings 0 Community meetings 0 School Health Ed. sessions 1 Community Health Ed. sessions 0	4. TRANSMISSION Rcd. at DH Office: / / Rcd. at Computer Cntr: / / Entered on Computer: / /
Screen 1	
F2=JScrnn < Find > < Next > < Prev > < Add > < Quit >	
<small>THIRD FOR T&H</small> GRABBER™ 800 242-4PSL	

Screen 2

System File Edit Record Window

Monthly Report - 2

Report Id: 1700019202

5. ESSENTIAL DRUGS/VACCINES/SUPPLIES

Stock List

Code	Item	Unit	Recd	For Care	Discarded	Balance	Days out
A	BCG Vaccine	dose	120	20	0	290	0
G	Syringes	piece	1000	200	200	2000	0
H	Needles	piece	1000	200	200	1500	0
Q	Primaquine	tablet	0				5

Screen 2

F2=↓Scrn < Find > < Next > < Prev > < Add > < Quit >

THINK FOR THE FUTURE
GRABBER™
800 242-4PSL

Screen 3

System File Edit Record Window

Monthly Report - 3

Report Id: 100019206

7. CURATIVE CARE (Y/N)? Y

A. New Cases (all diseases by Age Group)

	<1	1-4	5-14	15-45	45+	Total
1. Male	1	3	4	5	4	17
2. Female	33	22	33	33	33	154
3. Total New Cases	34	25	37	38	37	171
4. Old Cases						2
5. Total Visits						173
6. Cases Referred						3
7. Feedback from Cases Referred						1 %
8. % Referred of Total New Cases						1.7 %
9. % Feedback on Referred Cases						33.3

Screen 3

F2=↓Scrn < Find > < Next > < Prev > < Add > < Quit >

THINK FOR THE FUTURE
GRABBER™
800 242-4PSL

Screen 4

System File Edit Record Window Browse

Monthly Report - 4

Report Id: 100019206

B. HEALTH PROBLEMS

Code	Disease	Priority Diseases			Total	Percent	▲
		<1 year	1 to 4	5+ years			
101.	Diarrhoea	5	2	4	11	6.43	
111.	Diphtheria	2	2	2	6	3.51	

Screen 4

F2=↓Scrn < Find > < Next > < Prev > < Add > < Quit >

THIRD - FOR TRAINING
GRABBER™
800 242-4PSL

Screen 5

System File Edit Record Window

Monthly Report 5

Report Id: 100019206

C. DIARRHOEA (<5 yrs)		Dehydration Status					Total
		None	Some	Severe	Unknown		
		1 14%	3 42%	3 42%	0 0%	0 0%	7
D. DYSENTERY		1 25%	3 75%	0 0%	0 0%	0 0%	4
E. ARI		No Pneum.	Pneum.	Sev.Pneum.	U.S.Disease	Unknown	Total
		3 33%	4 44%	1 11%	1 11%	0 0%	9
F. FEVER		B.S.Taken		Ex.in Fac.	Sent Out	Total	
		11 68%		3 18%	2 12%	16	
G. MALARIA SLIDE RESULTS (Lab Available? N)							
		Internal			External		
Slides Examined		0			12		
Malaria Positive		0 0%			2 16%		
P. Falciparum Positive		0 0%			1 8%		

Screen 5

F2=↓Scrn < Find > < Next > < Prev > < Add > < Quit >

THIRD - FOR TRAINING
GRABBER™
800 242-4PSL

Screen 6

System File Edit Record Window			
Monthly Report 6		Report Id: 100019206	
H. COUGH > 2 WEEKS			
		Sputum Exam.in.Fac.	Patient Ref.
1. Sputum Smear Series Requested	1	33%	2 33%
		Total	
		3	
I. TB SMEAR RESULTS			
		Internal	External
1. Sputum Smear Series Done	2		2
2. Smear Series ABF Positive	2	100% Pos.	1 50% Pos.
J. TB TREATMENT (Y/N)? Y			
1. Patient Under Rx. at end of previous month			12
2. Started Rx:	a. No. started treatment		3
	b. No. of New Cases		2 66%
3. Stopped Rx:	c. No. discharged		4
	d. No. Lost as defaulter		2 50%
4. Patient under Rx. at end of this month			18
Screen 6			
F2=↓Scrn < Find > < Next > < Prev > < Add > < Quit >			<small>THINK FOR THE FUTURE</small> GRABBER™ 800 242-4PSL

Screen 7

System File Edit Record Window			
Monthly Report 7		Report Id: 100019206	
K. IMMUNIZABLE DISEASES			
		Vaccination Status	
	Not Uac.	Partial	Fully Unknown
			Total
			% Fully Vaccinated
108. Poliomyelitis	1	2	2 7 28%
109. Measles	2	0	2 4 50%
110. Neonatal Tetanus	2	0	2 4 50%
111. Diphtheria	2	2	0 6 0%
112. Whooping Cough	2	2	0 6 0%
L. DISTRIBUTION OF IODINE (Y/N)? Y		M. PROTEIN-ENERGY MALNUTRITION	
		Number	% of Total
1. Total no. distributed	20	1. Total no. weighed	12
2. Under 20 years	45	2. No. normal	8 66%
3. Pregnant women	3	3. PEM-I	3 25%
4. CBA women	3	4. PEM-II	1 8%
		5. PEM-III	0 0%
Screen 7			
F2=↓Scrn < Find > < Next > < Prev > < Add > < Quit >			<small>THINK FOR THE FUTURE</small> GRABBER™ 800 242-4PSL

Screen 8

System File Edit Record Window

Monthly Report 8

Report Id: 100019206

A. PRENATAL CARE (Y/N)? Y Expected pregnancies: 85

New Regist.(NR)	12	NR 1st trimest.	8	Hgbl.< 10	3	Total visits	18
% of Expect.	14	% of NR	66	% of NR	25	Revisits	6

<p>B. DELIVERIES (Y/N)? Y</p> <table border="0" style="width: 100%;"> <tr> <td></td> <td colspan="4" style="text-align: center;">by Trnd In</td> </tr> <tr> <td>Total</td> <td>From CA</td> <td>Staff</td> <td>Facility</td> <td>Refer.</td> </tr> <tr> <td>12</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> </tr> <tr> <td>% of Total</td> <td>25%</td> <td>25%</td> <td>25%</td> <td>50%</td> </tr> </table>		by Trnd In				Total	From CA	Staff	Facility	Refer.	12	3	3	3	6	% of Total	25%	25%	25%	50%	<p>C. POST-NATAL CARE (Y/N)? Y</p> <table border="0" style="width: 100%;"> <tr> <td>Total EMD 1 month ago</td> <td>14</td> </tr> <tr> <td>Rcd. 1+ PN visit</td> <td>12</td> </tr> <tr> <td>% of EMD 1 month ago</td> <td>85%</td> </tr> <tr> <td>Regist. only for PN Care</td> <td>2</td> </tr> </table>	Total EMD 1 month ago	14	Rcd. 1+ PN visit	12	% of EMD 1 month ago	85%	Regist. only for PN Care	2
	by Trnd In																												
Total	From CA	Staff	Facility	Refer.																									
12	3	3	3	6																									
% of Total	25%	25%	25%	50%																									
Total EMD 1 month ago	14																												
Rcd. 1+ PN visit	12																												
% of EMD 1 month ago	85%																												
Regist. only for PN Care	2																												

D. MATERNAL DEATHS 6

E. FAMILY PLANNING (Y/N)? Y

Total	New					Old					Visits by Contraceptive Method					Refer-
Visits	Male	Fem.	Cases	Cases	Cases	Condom	Foam	Pill	Inj.	IUCD	Surg.	red				
34	12	22	20	14	12	21	21	2	3	3	1	1				
	Units Distributed				1	12	2	2	2	2						

Screen 8

F2=↓Scrn < Find > < Next > < Prev > < Add > < Quit >

THANKS FOR TRYING
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Screen 9

System File Edit Record Window

Monthly Report - 9

Report Id: 2100019206

F. GROWTH MONITORING (Y/N)? N Expected Children < 1 year: 108

Newly Registered < 1 yr.	12	Total Visits	Number Total	
% of expected < 1 yr.	11%	Normal Nutrition Status	0	0%

G. VACCINATIONS (Y/N)? Y Vaccination CA Population: 0

No. Fixed Centres: 0 No. Outreach Centres: 0 No. Mobile Units: 0

TT VACCINES:

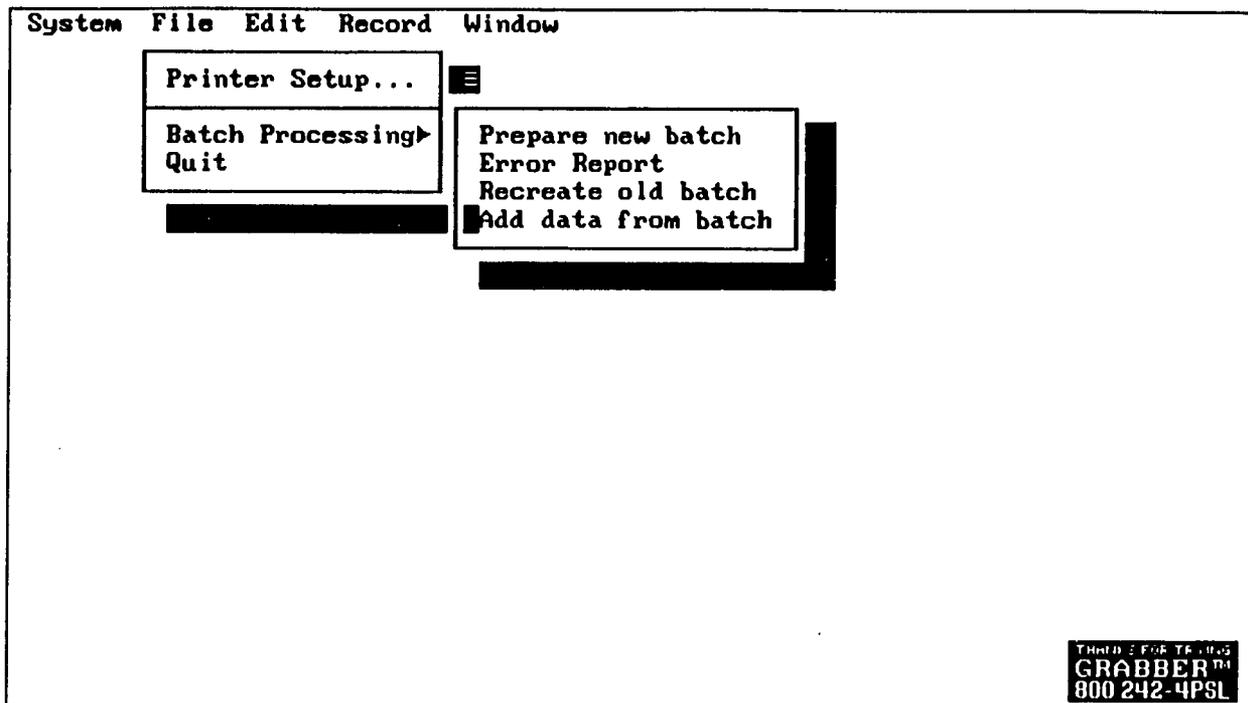
	TT-I	TT-II	TT-III	TT-IV	TT-V
16. Pregnant Women	0	0	0	0	0
17. Child Bearing Age Women	0	0	0	0	0
18. Total	0	0	0	0	0

Screen 9

F2=↓Scrn < Next > < Previous > < Add > < Save > < Quit >

THANKS FOR TRYING
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Batch Processing Sub-Menu



ANNEX IV

PAKISTAN CHILD SURVIVAL PROJECT

National Basic Health Services Cell
Feroz Center, 14-D West, Blue Area, P.O. Box: 2439, Islamabad, Pakistan.
Tel. 815818, 811325, 811067 Fax: 92-51-820487

R. Wilson

Director
Public Data Network
PTC Complex
7th Road, Satellite Town
Rawalpindi

June 15, 1992

ATT: Aslam Baluch

Dear Sir,

As per discussion this morning with our Computer Specialists, Shafat Sharif and Randy Wilson, this is to request authorization to use the following modems to access your dial up Public Data Network in order to communicate with agencies collaborating with our project in the United States.

1. HAYES Smartmodem 2400 baud
Manufactured by Hayes Corporation, USA
2. INTEL SatisFAXtion board, a combined 2400 baud data/9600 baud fax modem. Manufactured by Intel Corporation, Hillsboro, Oregon, USA.

Both are CCITT approved for use in the US and the United Kingdom using the following standards (V.22bis, V22, V.21) and support MNP error correction protocols.

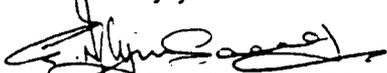
The Pakistan Child Survival Project is part of the Basic Health Services Cell, Ministry of Health Pakistan. It is managed by a variety of contractors headquartered in the USA: primarily Management Sciences for Health and Harvard Institute for International Development. Currently we rely heavily on Fax and DHL Courier service for routine communications with these agencies. This has proved extremely expensive because of the poor quality of international direct dial lines and the need to send faxes repeatedly because of errors in transmission.

With your permission, it is hoped that we can bring down communications cost by using electronic mail services available through the Public Data Network -- specifically, AT&T Easylink and Peacenet. These will be used for E-mail messages and ASCII and binary file transfers.

In addition, we would eventually like to explore the possibility of enhancing some of the Ministry of Health's research activities by accessing Harvard University's academic information resources using Internet.

Local set-up and usage costs for PTC's Public Data Gateway are to be billed to our project office in Islamabad. PCSP will be billed for the use of AT&T and Peacenet E-mail hosts directly in the USA.

Sincerely yours,


Najam Saeed, Project Manager

Analysis of Cost for using Fax vs E-Mail services

Cost of setting up service:

Installation	300 Rs
NUI Charge	125 Rs
Facilities	300 Rs
PeaceNet Registration (\$1	375 Rs
<hr/>	
Set-up costs	1100 Rs

Recurrent costs:

Monthly facility charge	100 Rs
Monthly NUI charge	125 Rs
Monthly PeaceNet charge	250 Rs
<hr/>	
Monthly fees	475 Rs

Cost of typical E-mail message: 2000 bytes

Time on line	0.83 min
Duration charge	8.83 Rs
Volume charge	3.13 Rs
<hr/>	
PTN Total:	12.79 Rs
PeaceNet charge @\$3/h	1.04 Rs.
Islamabad/Pindi local cal	2.00 Rs
<hr/>	
	15.83 Rs.

Fax charge:

Time of transmission	0.50 min **
USA ISD Cost @43 Rs/	21.50 Rs

**Note: This assumes that transmission is successful

TARIFF FOR PUBLIC DATA NETWORK

TYPE OF ACCESS

RACM →

Dedicated

Dial in

Permanent
(PVC)

Switched
(SVC)

Connection Charge

Installation Charge = 300
N U I Charge = 125
Facilities = 300

Connection Charge

1200 BPS =Rs. 2000
2400 BPS =Rs. 3000
4800 BPS =Rs. 3000
9600 BPS =Rs. 5000
19200 BPS =Rs. 5000

Facilities Charge

Rs. 100/- Per Month each

Monthly NUI Charge

Rs. 125/- Per Month each

Monthly Line Rent

300 BPS =Rs. 1000
1200 BPS =Rs. 1450
2400 BPS =Rs. 1510
4800 BPS =Rs. 2470
9600 BPS =Rs. 3550

Modem Rentals/pair/month

Below 1200 BPS = Rs. 500
1200 BPS = Rs. 1000
2400 BPS = Rs. 1500
4800 BPS = Rs. 2000
9600 BPS = Rs. 2500

Special Facilities

Rs. 100/- Per Month each

Duration Charge

For PVC
Rs.1000/-
Per Month

0.15/- Per Minute
(Rs. 0.5 Per+set up)

Volume Charge

Rs. 0.02 / Segment

INTERNATIONAL TARIFF

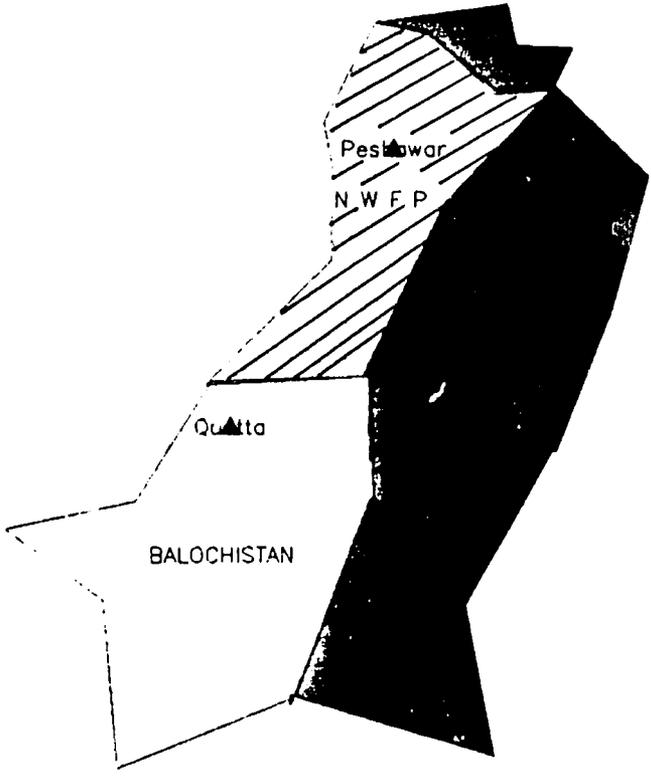
Duration \approx 10.0 / minute

Volume = Rs 0.10 / segment
(Subject to change)

Note : 1 Segment = 64 bytes * 20% Volume and 25% Night Discount 35

ANNEX V

Sample Map of Pakistan



TEMP1

- Districts
- ▲ Cities

Population Density

- 132 6997275 to 132 6997275
- ▨ 132 6997275 to 132 6997275
- 931 605046 to 966 555228
- 966 555228 to 1047 117 725
- Missing

Miles



**Computer Systems Upgrade
for Biostatistics Cell
Ministry of Health**

Draft June 24, 1992

Background:

The Biostatistics Cell has established a rudimentary capacity for providing computerized data entry and statistical analysis services to the various departments of the Federal Ministry of Health. The office currently has 5 IBM PS/2 computers and several dot matrix printers which were provided by WHO. At this time these are being used primarily for entry of data on inpatient care provided through the teaching hospitals.

With the recent progress being made on the restructuring of the Health Management Information System for First Level Care Facilities (HMIS/FLCF), considerable volumes of new data will be generated in the Provinces which would be quite useful if analyzed nationally. This could provide information on the distribution of health institutions, health manpower and the services they provide throughout the country for planning purposes.

The data entry for the HMIS is decentralized to the Divisional level -- and in some cases to Districts themselves. This data is then transferred to the Provincial capitals where complete data sets will be maintained and used to manage health services in each Province.

In the short term, PCSP project staff -- who have provided technical assistance for the development and computerization of certain modules of the HMIS -- have the equipment required to aggregate, store and analyze the data from all of the Provinces. In the longer term, it is both appropriate and advisable for this capacity to be developed within the Biostatistics Cell.

As the PCSP winds down, key hardware and software will be turned over to the Biostatistics cell. This should include several of the existing '386 PCs and the Color Paintjet printer. At this point the exact timing for this handover and specifics of which equipment and software will be turned over are unknown.

Hardware/Software Requirements:

In order to pave the way for the integration of HMIS/FLCF system functions, the following equipment is being recommended to upgrade the Biostatistics Cell's data processing capacity:

1. Improved means of data transfer: Once the HMIS/FLCF is fully functional, data sets in the range of 4-5 megabytes will be generated by each province each

month. This is too much to be effectively transferred by diskette. All provincial computers now installed contain a 120 megabyte tape drive unit. It would be advisable to obtain the same type of unit for use on one of the Biostatistics Cell computers.

2. **Greater storage capacity:** To store and process all of this data, the Biostatistics Cell should obtain a large capacity hard drive system, so that at least 2 years of data can be processed on-line. Based on estimates of storage capacities required by all of the software and data needed by the Biostatistics Cell, a hard drive of about 600 megabytes will be required. In addition to disk space required for the applications and data, this should allow sufficient hard disk swap space for analysis of large data sets (at least 1/3 of the disk space should be left open for this).
3. **Networking of existing PCs to file server:** Because access to different data sets stored on the large capacity hard drive may be required concurrently by several users, it would be advisable to purchase network cards and a network operating system to enable users to share files and resources. This would also simplify printer sharing. Novell's Netware level 3 is recommended for this purpose.

Illustrative Budget for Biostatistics Cell Upgrade

Item	No of Units	Unit Cost	Total Cost
1. 120 Megabyte QIC format internal tape drive unit	1	350	350
2. 120 meg QIC 1/4 inch tapes	12	10	120
3. IBM-compatible file server with: - '486 processor - minimum 600 megabyte SCSI disk drive - 16 megabytes RAM	1	6,000	6,000
4. Coaxial Thin Ethernet Network cards: - MCA bus for existing PS/2s	5	300	1,500
- Standard bus for '386 clones	2	280	560
5. 10 user Novell Netware level 3	1	1,600	1,600
6. Cabling and Installation	1	500	500
Total:			10,630