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INDONESIA TRIP REPORT

May 11 - 26, 1992

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MotherCare/The Population Council**

**Report Prepared for
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INDONESIA RAPID TRIP REPORT

June 4, 1992

Period Covered:
May 11-26, 1992

Prepared by:
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City and Country Visited:
Jakarta, Indonesia

Submitted to:
Marge Koblinsky
- MotherCare
Mary Ann Anderson
- AID/S&T

SUMMARY

The principal purposes of this trip were to provide the following technical assistance and guidance on:

- (i) review the data entry process with CCS staff,
- (ii) identify the topics with CCS staff which will be produced as articles (the final deliverables for the project), and specify (with CCS) and begin writing analytic programs (David Leon), including statements to exclude implausible data from analysis, for the analyses needed to compose these articles,
- (iii) to work with CCS staff and Gour Dasvarma on the structure and composition of the preliminary project reports, particularly on the methodology sections.
- (iv) review project documentation with Gour Dasvarma and arrange for its transfer to Mary Jo Hansell.

These activities were successfully completed.

I. PURPOSE OF TRIP

The main purposes of the trip was to advance the selection of 3-5 topics to be tested and written up as articles to act as the final project deliverables, to assure data entry is conducted for all Module D respondents regardless of gestation at identification, to determine realistic dates for completion of data entry, to specify the contents of the selected articles and required analyses precisely, to assure project documentation helpful to composition of these articles is available locally, and to review the required analyses (including data review and cleaning where possible) with David Leon.

II. BACKGROUND

This visit was a follow-up of the previous visits made by Nancy Sloan, David Leon and Jim Phillips in the development of the study. The corresponding reports prepared for these trips provides a detailed background for the follow-up visit.

III. MAJOR EVENTS

A. Schedule

1. Monday 11, 1992: Met with Gour and Pandu at hotel regarding the upcoming weeks activities.
2. Tuesday 12, 1992: Went to Puskas with Gour, met with Budi, Endang, Teguh, Pandu, Yusran, Rita, Yusradi regarding the status of data (see section IIIB), and topic selection (see section IIIC), and to schedule group meetings to discuss each topic in detail.
3. Wednesday 13, 1992: at Puskas
am: Topic 7 with Teguh, Carrie, Gour, Budi, Yusran, Pandu
pm: Topic 1 with Pandu, Budi, Mary Jo, Gour
4. Thursday 14, 1992:
am: Topic 4 with Budi, Yusran, Teguh, Henry, Yusradi, Gour at Puskas
pm: Hotel to type up outlines/skeleton tables with variable/model specification discussed to date
5. Friday 15, 1992: at Puskas
am: Topic 3 with Endang, Yusradi, Pandu, Henry, Rita, Budi, Yusran
pm: Topic 9 with Yusradi and Budi
6. Saturday 16, 1992: Type up Friday sessions at hotel, start developing command files for obligatory articles
7. Monday 18, 1992: at Pop Council office
am: Topic 2 with Teguh, Carrie, Gour
pm: Topic 8 with Pandu
night: dinner with Alex and CCS group

8. Tuesday 19, 1992: Type up Monday sessions at hotel, continue developing command files
9. Wednesday 20, 1992: All day at Puskas with Yusran specifying fields for analyses for obligatory and additional articles
10. Thursday 21, 1992: Wrap up at Puskas (Budi, Yusran, Pandu, Teguh, Endang, Gour, Carrie, Henry)
11. Thursday 21, 1992: Meet with Joy, Gour, Mary Jo review trip accomplishments
12. Friday 22, 1992: Fly to Thailand
13. Monday/Tuesday 25-26, 1992: Review topics and analyses with David Leon, set schedule for relating databases, creating systems files, writing command files for analyses (end June for topics 1 & 2 SRS and Module D data only, Yusran will be responsible for SMP data) end June; topic 3 end July (Yusran will be responsible for cross-sectional data); topic 4 end July (except early pregnancy detection hypothesis which will be CCS responsibility). David will relate needed databases to restructure the data to systems files with unique variable names. CCS will need to send complete data files for topic 1 and SRS files to permit David/Nancy to run frequencies and develop categories for socio-demographic variables; categories for reproductive health indices will be created based on literature and biologic knowledge.

B. Status of Data

Data collection for MotherCare will cease in September 1992. The cross-sectional study initiation is being delayed a few weeks because of upcoming elections in the interest of CCS avoiding the possible erroneous image of campaigning; all new activities are halted until after the election (mid June).

Data entry started 15 April (3 weeks ago, so entry occurs at about 110 completed women's forms per week). The SRS identified 211 women in Gabuswetan (intervention) and 302 women in Sliyeg (control), of which 211 and 302 were between 35 and 240 days pregnant at identification; 120 and 171 were >240 days pregnant at identification, 91 and 135, respectively, between 240 and 308 days (see Appendix I: Status Data Entry MotherCare Questionnaires). These data will be entered and included in analyses. Additionally 29 and 36 women had gestations >308 days at identification, with dates of birth after date of initial module D data collection (as per the software); transcription errors (from SRS to Module D) in LMP and/or poor recollection of LMP may account for these pregnancies of over 10 months at

identification; LMP of SRS will be checked against that on Module D for these women to try to clean data when possible. Otherwise, these women will be excluded from analyses as all analyses are gestation related. CCS estimates another 462 are not yet completed (if the mean gestation at identification is about 4 months, per CCS, excluding those with >240 days gestation at identification, and there are 5 months left of data collection, then about 4/5 of the 462 will complete pregnancy before data collection ends). Data entry will continue for all new women to permit their inclusion in cross-sectional or early effects analyses. CCS believes very few women have missing intervals; most have at least 3-4 measurements, and some have 6-7 by end of pregnancy.

The IEC data will be gathered at IEC baseline (April, completed) and post (September) using the attached SMP questionnaire; additionally a monitoring instrument including 20 questions will be used to assess IEC exposure (monthly or every other month, and through focus group discussions (linkage?)), which will supplement ongoing Module D data collection. Yusran will be responsible for developing the data base for these data.

C. Topics chosen for articles

CCS was unclear about Topic 2b (training) on list sent from MotherCare (Appendix 2) April 20, 1992, not knowing what kind of data analysis or article could be written about "the importance" of training as the project did not test and thus cannot evaluate this issue. Similarly, the term "cost-effectiveness" was deleted from topic 4 as there are no data to conduct traditional economic analysis of cost-effectiveness; no criteria or data collection (or reporting/recording) was set up to assess this type of economic analysis.

1. The effectiveness of increased availability of iron-folate tablets on maternal hematologic status, and on birthweight (and gestation, if possible). See Appendix III.
2. The process and effectiveness of IEC on increased compliance in taking iron-folate tablets on maternal hematologic status, and on birthweight (and gestation, if possible). See Appendix IV.

3. The nutritional status of pregnant and non-pregnant women in Indramayu (hematologic status, height and weight). See Appendix V.
4. The utility of longitudinal data collection in the identification of pregnancy, complications of pregnancy and delivery, and neonatal mortality compared to late gestation, intra or postpartum assessment only. See Appendix VI.

Additional CCS topics are:

5. Antenatal care and pregnancy outcomes (student interest); not discussed.
6. Integration of this with other health programs in the field (MOH interest); not discussed.
7. Iron tablet quality: viability of product feasibility study. See Appendix VII.
8. Qualitative issues: comparing the perceptions of respondents (knowledge and attitudes) with practices, similar to the previously contemplated validation analyses. See Appendix VIII.
9. Reliability of non-standard measurement of infant length, compared to standard modes of measurement. Briefly discussed; sending articles on how to analyze reliability of anthropometric measurements to CCS.

D. Scheduling of Article Composition

Gour Dasvarma will be leaving Indonesia mid-June, 1992 and Budi Utomo will depart at the end of July, although Dr. Endang will assume responsibility for the management of this project on July 1, 1992. Budi and Gour will be responsible for assisting all parties to complete the introduction and methodology sections of their articles. Appendices IX and X will be utilized with other prior project documentation to compose the introduction and methodology sections of topics 1-4.

The following scheduling for composition of articles was agreed upon.

- Topic 1: Pandu will have main responsibility.
 End May/mid June: Command files to run analyses (Leon).
 End June: Introduction and methodology sections first draft. Run analyses.

End July: Results section. Send for Sloan/MotherCare comments.

Early August: Sloan/MotherCare comments to CCS.

Late August/Early September: Revised intro, meth and results plus draft of discussion/conclusions. Send for comments.

End September: Receive comments, ready as final article.

Topic 2: Teguh will have main responsibility.

End June: Introduction and methodology sections first draft. Send for comments.

End Sept: Finish data collection, entry will finish about 2 weeks later.

Mid Oct: Run analyses

End Nov: First draft results. Send to Sloan/MotherCare for comments. Comments to be faxed quickly.

Late Dec: Final.

Topic 3: Endang main responsibility.

Early June: Study protocol in English, sent to Sloan/MC.

End July: Introduction and methodology. Send for comments.

August: Data entry/analysis.

Mid Sept: Results and discussion. Send for comments.

End Nov: Final.

Topic 4: Budi main responsibility.

End June: Study protocol in English, sent to Sloan/MC.

End July: Introduction and methodology. Send for comments.

September: Data entry/analysis.

October: Results and discussion. Send for comments.

End Nov: Final.

Topic 7: Teguh main responsibility.

July: Data collection.

Mid-Aug: Data entry.

End Aug: Data analysis.

End July: Intro/meth, first draft.

End Oct: First draft results.

End Nov. Final.

Topic 8: Pandu main responsibility.

End Sept: Data collection ends.

End July: Intro/meth.

End Oct: Data analysis.

End Nov: First draft results.

End Dec: Final.

E. Data Analysis (Bangkok)

Appendix XI provides the specification of variables for topic 1 analyses (except for SES data, as CCS will need to provide David Leon with a copy of the SRS Module A data). On review of the 157 cases (subsample provided by Yusran), David encountered few women with ≥ 2 Hb measurements. Explanation of where the remaining data are has been requested of Budi.

Appendix XII provides the specifications of variable values for exclusion in analyses.

IV. CONCLUSIONS, RECOMMENDATIONS AND NEXT STEPS

It is advisable to review the completeness of the data prior to making a final decision to compose the articles specified in this report. Budi needs to send copies of the SRS Module A data and the most up-to-date PRG_MNTH.DBF and PRG_QRTR.DBF to David and to myself so we can assess the situation regarding missing Hb and woman's weight and weight gain data.

If there are adequate data, the schedule defined in section IIID should be followed as closely as possible. If not, MotherCare and CCS need to determine what final deliverables can and should be produced.

Comm... started...
 STATUS DATA ENTRY MOTHERCARE QUESTIONNAIRES *module D*
 LMP SRS.. module D date LMP; f: & w > 240 & gest at 1st visit
 \if diff < 0 then list id, diff
 Status Date: 16 Mei 1992

	Gabuswetan	Sliyeg
* Number of questionnaire received	374	507
* Edited by dataenrty clerks	331	473
* Not edited yet	43	34
* Number of eligible questionnaire from the edited	211	302
* Number of not eligible from edited (criteria Date of first visit minus LMP more than 240 days or less than 35 days)	120	171
* Number already entered	180	285
* Number of not yet entered	31	17

QUESTIONNAIRES NOT ELIGIBLE

Status Date: 16 Mei 1992

	Gabuswetan	Sliyeg
* LMP less than 35 days before the first antepartum visit date	0	0
* LMP more than 240 days before the first antepartum visit date	120	171
* LMP more than 240 and less than 308 days before the first antepartum visit date	91	135
* LMP more than 308 days before the first antepartum visit date	29	36

*3 infant-
 12 = gest*

*data on
 be
 error d*

Record#	NO	THA	VISIT1	TGLAHIR	KEC	DIF1	USIAHML
1	1	12/07/90	08/23/91	10/27/91	1	259	11
2	3	07/31/90	08/04/91	09/22/91	1	369 ✓	14
3	4	02/03/91	11/05/91	12/19/91	1	275	11
4	5	09/16/90	06/01/91	07/19/91	1	258	10
5	9	03/17/90	06/03/91	05/25/91	1	443 ✓	14
6	11	12/01/90	08/10/91	07/06/91	1	252	7
7	12	09/13/90	08/29/91	07/16/91	1	350	10
8	14	09/26/90	07/31/91	06/01/91	1	308	8
9	17	07/10/90	04/28/91	05/13/91	1	292	10
10	18	09/15/90	05/24/91	06/10/91	1	251	9
11	19	06/10/90	05/07/91	04/09/91	1	331 ✓	10
12	20	07/05/90	05/07/91	04/29/91	1	306	10
13	21	07/04/90	04/25/91	05/30/91	1	295	11
14	22	07/13/90	04/23/91	03/13/91	1	284	8
15	23	06/30/90	05/18/91	04/07/91	1	322	9
16	24	07/07/90	05/02/91	03/20/91	1	299	9
17	25	09/02/90	05/01/91	06/02/91	1	241	9
18	26	09/02/90	05/10/91	05/12/91	1	250	8
19	27	08/18/90	05/02/91	05/21/91	1	257	9
20	28	06/20/90	04/24/91	04/20/91	1	308	10
21	29	06/24/90	05/14/91	08/01/91	1	263	11
22	30	07/13/90	04/21/91	04/27/91	1	282	10
23	31	07/01/90	04/21/91	05/02/91	1	294	10
24	32	06/08/90	04/25/91	05/21/91	1	260	10
25	33	04/21/90	04/18/91	03/09/91	1	362	11
26	34	08/11/90	04/11/91	04/21/91	1	253	8
27	35	08/22/90	04/26/91	04/17/91	1	244	8
28	36	07/21/90	04/27/91	04/26/91	1	280	9
29	37	08/10/90	04/27/91	05/03/91	1	260	9
30	39	08/20/90	04/25/91	05/19/91	1	248	9
31	40	07/13/90	05/01/91	05/13/91	1	292	10
32	41	05/12/90	05/08/91	04/20/91	1	266	8
33	43	05/18/90	04/19/91	04/17/91	1	244	8
34	44	07/03/90	05/03/91	02/30/91	1	304	9
35	45	07/13/90	05/28/91	05/09/91	1	289	10
36	46	08/02/90	04/25/91	05/11/91	1	266	9
37	47	05/19/90	05/05/91	03/29/91	1	351	10
38	48	07/02/90	04/21/91	04/19/91	1	267	9
39	49	07/05/90	05/04/91	04/13/91	1	306	9
40	50	07/01/90	05/03/91	04/01/91	1	306	9
41	51	06/16/90	05/19/91	03/30/91	1	337	10
42	52	06/26/90	05/21/91	05/23/91	1	268	9
43	53	06/18/90	04/18/91	02/09/91	1	304	9
44	54	07/10/90	05/01/91	04/09/91	1	299	9
45	55	07/03/90	04/20/91	04/20/91	1	291	10
46	56	07/03/90	05/10/91	07/28/91	1	311	9
47	58	07/04/90	04/26/91	03/16/91	1	296	9
48	59	06/21/90	04/28/91	05/29/91	1	250	9
49	60	05/05/90	05/05/91	03/29/91	1	273	8
50	61	07/05/90	05/16/91	06/08/91	1	253	9
51	62	06/28/90	05/12/91	04/15/91	1	318	10
52	64	05/20/90	04/19/91	03/10/91	1	334	10
53	65	08/17/90	04/20/91	05/11/91	1	246	9
54	66	08/27/90	05/08/91	05/22/91	1	254	9
55	68	07/10/90	04/20/91	06/14/91	1	284	11
56	70	10/10/90	06/11/91	06/18/91	1	244	8
57	71	08/20/90	04/28/91	05/17/91	1	251	9
58	72	08/25/90	04/24/91	05/19/91	1	242	9
59	73	07/25/90	04/19/91	03/09/91	1	268	8
60	74	04/26/90	04/19/91	04/05/91	1	358	11
61	75	07/20/90	04/28/91	04/27/91	1	282	9
62	76	07/10/90	05/14/91	04/02/91	1	308	9

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64	78	08/24/90	04/24/91	05/08/91	1	243	9
65	79	08/02/90	04/28/91	05/12/91	1	269	9
66	80	08/10/90	05/05/91	04/03/91	1	268	8
67	81	07/06/90	04/24/91	05/13/91	1	292	10
68	82	04/17/90	04/18/91	03/24/91	1	366	11
69	83	07/03/90	05/12/91	04/10/91	1	313	9
70	84	05/16/90	04/27/91	05/26/91	1	254	9
71	85	06/22/90	04/18/91	03/18/91	1	300	9
72	86	06/18/90	05/02/91	03/21/91	1	318	9
73	87	05/28/90	04/20/91	03/10/91	1	327	10
74	88	06/20/90	04/19/91	04/10/91	1	303	10
75	89	07/18/90	04/23/91	04/16/91	1	279	9
76	90	06/25/90	05/11/91	04/11/91	1	320	10
77	91	06/10/90	04/30/91	04/12/91	1	311	10
78	92	07/28/90	05/07/91	05/02/91	1	283	9
79	93	04/04/90	05/01/91	05/06/91	1	332	10
80	94	05/05/90	05/07/91	05/27/91	1	317	9
81	95	07/07/90	05/05/91	06/05/91	1	361	10
82	96	07/07/90	05/05/91	05/29/91	1	312	9
83	97	07/07/90	05/05/91	02/06/91	1	296	9
84	98	07/07/90	05/05/91	05/04/91	1	363	9
85	99	07/07/90	05/05/91	05/24/91	1	356	9
86	100	07/07/90	05/05/91	04/29/91	1	379	9
87	101	07/07/90	05/05/91	04/12/91	1	301	9
88	102	07/07/90	05/05/91	05/19/91	1	374	10
89	103	07/07/90	05/05/91	05/19/91	1	375	8
90	104	07/07/90	05/05/91	07/04/91	1	404	9
91	105	07/07/90	05/05/91	06/29/91	1	411	9
92	106	07/07/90	05/05/91	07/02/91	1	410	10
93	107	07/07/90	05/05/91	04/07/91	1	382	8
94	108	07/07/90	05/05/91	05/19/91	1	397	9
95	109	07/07/90	05/05/91	05/07/91	1	355	10
96	110	07/07/90	05/05/91	05/20/91	1	383	10
97	111	07/07/90	05/05/91	05/21/91	1	380	10
98	112	07/07/90	05/05/91	05/30/91	1	414	10
99	113	07/07/90	05/05/91	05/30/91	1	414	10
100	114	07/07/90	05/05/91	05/30/91	1	420	10
101	115	07/07/90	05/05/91	05/30/91	1	427	7
102	116	07/07/90	05/05/91	05/30/91	1	430	10
103	117	07/07/90	05/05/91	05/30/91	1	433	10
104	118	07/07/90	05/05/91	05/30/91	1	434	10
105	119	07/07/90	05/05/91	05/30/91	1	434	10
106	120	07/07/90	05/05/91	05/30/91	1	434	10
107	121	07/07/90	05/05/91	05/30/91	1	434	10
108	122	07/07/90	05/05/91	05/30/91	1	434	10
109	123	07/07/90	05/05/91	05/30/91	1	434	10
110	124	07/07/90	05/05/91	05/30/91	1	434	10
111	125	07/07/90	05/05/91	05/30/91	1	434	10
112	126	07/07/90	05/05/91	05/30/91	1	434	10
113	127	11/10/04/90	06/08/91	07/03/91	2	247	9

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130	15	08/25/90	04/28/91	06/05/91	2	246	9
131	16	08/23/90	04/30/91	05/29/91	2	250	9
132	17	06/25/90	04/20/91	05/08/91	2	299	11
133	18	07/21/90	04/28/91	05/06/91	2	281	10
134	19	07/10/90	04/24/91	05/10/91	2	288	10
135	20	06/23/90	05/08/91	03/20/91	2	319	9
136	21	08/25/90	05/01/91	05/29/91	2	249	9
137	22	08/01/90	05/07/91	05/02/91	2	279	9
138	23	06/21/90	05/15/91	04/03/91	2	328	10
139	24	07/11/90	04/23/91	06/11/91	2	286	11
140	25	07/27/90	04/27/91	04/12/91	2	274	9
141	26	08/06/90	05/02/91	05/16/91	2	269	9
142	27	08/24/90	04/27/91	06/09/91	2	246	10
143	28	07/08/90	04/25/91	04/24/91	2	291	10
144	29	06/28/90	04/22/91	04/22/91	2	298	10
145	30	10/11/90	06/13/91	07/28/91	2	245	10
146	31	07/18/90	04/26/91	04/12/91	2	282	9
147	32	05/11/90	04/15/91	03/09/91	2	343	10
148	34	08/19/90	04/26/91	05/13/91	2	250	9
149	35	07/26/90	04/24/91	06/12/91	2	272	11
150	36	08/13/90	04/30/91	06/11/91	2	260	10
151	37	08/02/90	04/29/91	04/30/91	2	269	9
152	38	08/02/90	05/02/91	04/23/91	2	273	9
153	39	05/14/90	04/23/91	03/06/91	2	344	10
154	40	09/17/90	04/26/91	05/11/91	2	252	9
155	41	06/30/90	04/23/91	04/16/91	2	297	10
156	42	07/22/90	05/18/91	05/05/91	2	300	10
157	43	08/06/90	04/25/91	04/24/91	2	262	9
158	44	07/17/90	05/14/91	04/05/91	2	301	9
159	45	08/16/90	04/28/91	06/04/91	2	235	10
160	47	05/07/90	05/01/91	05/03/91	2	267	9
161	48	07/09/90	04/22/91	04/11/91	2	287	9
162	49	07/23/90	04/23/91	03/23/91	2	274	8
163	50	07/27/90	04/27/91	05/06/91	2	274	9
164	51	07/24/90	04/25/91	04/18/91	2	275	9
165	52	07/24/90	04/28/91	03/02/91	2	278	7
166	53	08/21/90	06/08/91	04/26/91	2	291	8
167	54	07/05/90	05/08/91	06/11/91	2	245	9
168	55	08/09/90	05/03/91	05/08/91	2	267	9
169	56	07/08/90	04/23/91	04/05/91	2	294	9
170	57	06/13/90	04/21/91	07/18/91	2	312	9
171	58	07/18/90	05/08/91	03/26/91	2	324	9
172	59	07/25/90	04/24/91	04/02/91	2	270	8
173	60	03/28/90	05/05/91	05/21/91	2	250	9
174	61	09/06/90	05/10/91	05/16/91	2	246	8
175	62	08/15/90	05/08/91	04/21/91	2	259	8
176	63	07/30/90	04/28/91	06/28/91	2	272	11
177	64	06/10/90	04/18/91	04/06/91	2	313	10
178	65	06/01/90	04/19/91	02/28/91	2	322	9
179	66	08/25/90	05/19/91	06/17/91	2	267	10
180	68	08/13/90	04/19/91	03/26/91	2	308	9
181	69	08/25/90	05/02/91	06/01/91	2	250	9
182	70	08/01/90	04/20/91	03/20/91	2	323	10
183	71	08/09/90	05/02/91	05/15/91	2	266	9
184	72	08/08/90	05/02/91	05/06/91	2	268	9
185	73	08/06/90	05/01/91	05/15/91	2	268	9
186	74	08/15/90	04/30/91	05/30/91	2	258	10
187	75	08/14/90	05/04/91	05/31/91	2	263	10
188	76	08/05/90	05/02/91	03/31/91	2	270	8
189	77	08/21/90	05/05/91	05/23/91	2	257	9
190	78	07/18/90	05/04/91	03/22/91	2	290	8
191	79	05/21/90	04/18/91	03/13/91	2	332	10
192	80	08/25/90	04/28/91	05/22/91	2	246	9
193	81	07/25/90	04/26/91	04/18/91	2	275	9

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196	84	07/18/90	04/27/91	04/26/91	2	283	9
197	86	08/15/90	05/01/91	05/25/91	2	259	9
198	87	08/20/90	05/01/91	05/22/91	2	254	9
199	88	08/30/90	05/02/91	06/30/91	2	245	10
200	89	09/05/90	05/08/91	06/30/91	2	245	10
201	90	07/18/90	05/08/91	03/28/91	2	294	8
202	91	07/16/90	04/26/91	04/23/91	2	284	9
203	92	09/08/90	05/10/91	05/26/91	2	244	9
204	93	08/24/90	05/03/91	05/20/91	2	252	9
205	94	07/08/90	05/17/91	04/06/91	2	313	9
206	95	09/10/90	05/24/91	06/30/91	2	256	10
207	96	11/20/90	09/11/91	08/18/91	2	295	9
208	97	04/23/90	04/30/91	03/17/91	2	372	11
209	98	08/02/90	04/28/91	04/22/91	2	269	9
210	99	06/25/90	04/20/91	03/08/91	2	299	9
211	100	07/31/90	04/25/91	04/26/91	2	268	9
212	101	08/03/90	04/28/91	05/06/91	2	268	9
213	102	07/23/90	04/24/91	05/06/91	2	275	10
214	104	06/04/90	05/08/91	04/05/91	2	338	10
215	105	06/09/90	04/20/91	04/16/91	2	315	10
216	106	07/17/90	05/07/91	03/30/91	2	294	9
217	107	07/26/90	04/24/91	04/26/91	2	272	9
218	108	08/30/90	04/30/91	05/02/91	2	250	8
219	109	09/02/90	05/02/91	07/16/91	2	242	11
220	110	08/12/90	05/16/91	05/20/91	2	267	9
221	111	08/15/90	04/28/91	06/08/91	2	256	10
222	112	08/05/90	05/02/91	05/13/91	2	270	9
223	113	06/28/90	04/24/91	03/14/91	2	300	9
224	114	09/05/90	05/07/91	06/11/91	2	244	9
225	115	07/05/90	05/10/91	03/28/91	2	309	9
226	116	07/17/90	04/25/91	04/26/91	2	285	9
227	117	06/04/90	04/21/91	04/15/91	2	321	11
228	118	08/03/90	05/07/91	04/27/91	2	277	9
229	119	08/11/90	05/01/91	06/07/91	2	263	10
230	120	07/08/90	04/24/91	04/23/91	2	280	9
231	121	06/28/90	04/22/91	04/15/91	2	298	10
232	122	07/05/90	04/23/91	06/25/91	2	276	11
233	123	06/07/90	04/30/91	05/12/91	2	266	9
234	124	06/07/90	04/21/91	05/17/91	2	304	11
235	125	06/24/90	05/15/91	05/25/91	2	259	7
236	126	07/01/90	05/07/91	05/07/91	2	295	9
237	127	08/02/90	04/21/91	04/06/91	2	321	10
238	128	07/14/90	04/22/91	04/16/91	2	281	9
239	129	07/23/90	05/22/91	05/11/91	2	268	10
240	130	08/15/90	05/01/91	03/21/91	2	351	10
241	131	08/30/90	05/05/91	03/25/91	2	340	10
242	132	08/07/90	04/21/91	03/11/91	2	323	10
243	133	06/21/90	04/22/91	03/07/91	2	305	9
244	134	08/09/90	05/10/91	05/10/91	2	281	7
245	135	08/18/90	04/21/91	04/19/91	2	338	11
246	136	08/05/90	05/04/91	05/08/91	2	270	9
247	137	07/04/90	05/07/91	04/05/91	2	305	10
248	138	07/02/90	04/22/91	04/05/91	2	289	10
249	139	08/18/90	04/30/91	05/01/91	2	255	9
250	140	07/18/90	04/21/91	03/11/91	2	309	10
251	141	06/06/90	05/01/91	05/01/91	2	268	9
252	142	07/15/90	04/30/91	05/20/91	2	273	8
253	143	07/19/90	04/22/91	04/07/91	2	307	10
254	144	07/07/90	04/21/91	04/15/91	2	293	10
255	145	06/03/90	04/21/91	03/06/91	2	322	9
256	146	07/01/90	04/17/91	04/04/91	2	443	14
257	147	07/14/90	04/30/91	03/11/91	2	320	9
258	148	07/01/90	05/01/91	05/01/91	2	263	9
259	149	08/02/90	04/28/91	05/11/91	2	269	10

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14

262	152	06/18/90	04/30/91	03/19/91	2	318	9
263	153	07/05/90	04/24/91	05/06/91	2	293	10
264	154	06/09/90	04/22/91	04/11/91	2	317	10
265	155	07/13/90	05/31/91	04/14/91	2	322	9
266	156	08/30/90	05/05/91	05/21/91	2	348	9
267	157	08/05/90	04/30/91	04/14/91	2	268	8
268	158	07/05/90	04/24/91	04/11/91	2	295	9
269	159	05/24/90	04/27/91	03/16/91	2	338	10
270	160	03/20/90	05/04/91	04/14/91	2	257	8
271	161	05/15/90	04/23/91	04/06/91	2	343	11
272	162	06/05/90	04/22/91	05/11/91	2	321	11
273	163	06/09/90	04/30/91	03/13/91	2	325	9
274	164	08/20/90	05/04/91	05/21/91	2	357	9
275	165	06/25/90	05/17/91	04/06/91	2	326	10
276	166	07/07/90	05/07/91	04/05/91	2	304	9
277	167	07/20/90	04/26/91	04/04/91	2	280	9
278	168	07/13/90	04/28/91	05/12/91	2	289	10
279	169	08/26/90	05/04/91	07/03/91	2	251	10
280	170	07/03/90	05/10/91	03/30/91	2	311	9
281	171	07/29/90	04/28/91	04/10/91	2	273	9
282	172	08/21/90	05/02/91	05/21/91	2	254	9
283	173	07/03/90	04/03/91	03/27/91	2	274	9
284	174	07/03/90	04/25/91	05/02/91	2	296	10
285	175	07/05/90	05/05/91	03/24/91	2	304	9
286	176	07/15/90	04/24/91	04/20/91	2	283	9
287	177	07/20/90	04/28/91	04/22/91	2	282	9
288	178	07/15/90	04/27/91	05/14/91	2	286	10
289	179	07/27/90	04/25/91	05/16/91	2	272	10
290	180	08/17/90	05/29/91	06/04/91	2	285	10

APPENDIX 2

To: Gour Dasvarma
Fax: 011-62-21-520-0232



TO: Budi Utomo
Gour Dasvarma

cc: Joy Riggs Perla
Mike Linnan
Mary Jo Hansell

FROM: Marge Koblinsky
Nancy Sloan
Barbara Kwast
Kim Winnard

DATE: April 20, 1992

During the recent Koblinsky/Kwast trip to Indonesia it was agreed that the project would produce 3-5 publishable articles instead of a project report. Koblinsky/Kwast agreed that they would identify 3-5 topics for these articles of international interest. CCS staff could use these, modify them or develop new topics. We discussed this at our meeting today and identified our 5 priorities (listed in order of importance) as:

1) The effectiveness of increased availability of iron-folate tablets on maternal hematologic status, and on birthweight (and gestation if possible)

not a priority

2a. The process and effectiveness of IEC on increased compliance in taking iron folate tablets and on maternal hematologic status, and on birthweight (and gestation if possible), alone and in conjunction with increased availability of iron-folate tablets

2b. The importance of training and supervision of village level workers (TBAs) on the distribution, availability and acceptability of the iron-folate tablets *unclear (really need a discussion in 2a)*

3) The nutritional status of pregnant and non-pregnant women in Indramayu (hematologic status, height and weight) *imp is easy*

4) The utility ~~(cost/effectiveness)~~ of longitudinal data collection in the identification of pregnancy, complications of pregnancy and delivery and neonatal mortality compared to late gestations, intra or postpartum assessment only. *not so straightforward*

compare w orig hypothesis

Topics 2a and 2b are of equal priority because they are both components of the intervention. Topic 2b may be evaluated qualitatively, or, if relevant monthly monitoring statistics are available, also quantitatively. *of cost-effectiveness*

We await CCs's identifications of priority topics to discuss the final selection of priority topics with them.

We enjoyed our day with you in Jakarta and wish you well.

** 9) Yusradi. 7000 given for validation length (formal vs informal) need to articulate by Marforelli*

JSI John Snow, Incorporated, 1100 Wilson Boulevard, 9th Floor, Arlington, Virginia 22209

Tel. (703) 528-7474 • Fax (703) 528-7480 • Telex 272896 JSIWIIR Te

Validation (USA w status Hb) - not adding 2b (see old validation)

5) *Intermittent care & preg outcome* *iron tablet* *eval. ty - feasibility study*

APPENDIX 3

to
restructure

Red = SRS
Black = module D

need SRS data to
run SES & reprod H

TOPIC 1: ARTICLE OUTLINE

all only for f with > 2
antenatal HB

1. Objective, purpose: from original project documentation
Definition of increased availability = community (vs. standard puskesmas/clinic) based iron distribution, so dependent variable is subdistrict (i.e., Gabuswetan = 1 for intervention area, Sliyeg = 0 for control area). Study population for this article includes women in Module D between June 1, 1991 and April 22, 1992 (does not include pre-iron tablet intervention or post IEC intervention (interaction between IEC and community based intervention limited to article 2, IEC article). Originally thought iron tablets only to be given in last trimester, but government changed its policy, so tablet distribution to women in Gabuswetan occurred as soon as study/bidan identified them as pregnant.

to C (st visit)
not D

~~postnatal~~

2. Methodology

- a. Sampling: from proposal
- b. Data Collection: (few sentences each)
 - 1. Training interviewers
 - 2. Supervision
 - 3. Training TBAs, puskesmas staff for fe dist
 - 4. Hb training
- c. Instruments
 - 1. Questionnaire development and pretesting (1 paragraph)
 - 2. Hemocue: 1/site, instant reading, some info regarding reliability from brochure
- d. Data cleaning, entry, checks (1 paragraph)(FOXPRO)
- e. Statistical packages used for analysis (SPSSPC+)
- f. Statistical methods used:
 - 1. For uni, bi, multivariate analyses
 - 2. What did about missing values, intervals
 - 3. List variable names and definitions (units, $x \pm sd$) with special description of Hb, bwt and gest as outcome variables

Table 1
what are vars &
how defined

3. Results

a. Study population (sample, comparability of subdistricts: SES, reproductive health indices via univariate analyses)

recent to
ie D

Table 2

(less otherwise indicator)

SOCIO-DEMOGRAPHIC CHARACTERISTICS (head of HH on)		
Socio-Demographic Characteristics	Sliyeg (Control) Desa ≥ 1, 522	Gabuswetan (intervention) Desa ≥ 1, 510
Women's (respondents) Marital Status Stskawin		

Sepe
Spdmtr
Tpab

Education Pendidikan		
Income NA		
Land ownership (Housing yard)		
Electricity Listrik		
Radio Radio		
Ethnicity Suku		
Religion Agama		

Tanrum

Table 3

separate database
from 1st visit
than any other

MATERNAL CHARACTERISTICS		
Maternal Characteristics	Sliyeg (Control) for v_no = 1	Gabuswetan (intevention)
Age $\bar{x} \pm sd$	V-date - 1912 hr	
Parity $\bar{x} \pm sd$	AP5	
Prepregnant Weight $\bar{x} \pm sd$	for v_no = 1 and AP48A	(AP48B - LMP) \pm if ≤ 91 days
Height $\bar{x} \pm sd$	for v_no = 1 AP45	
Planned pregnancy	if (AP10 = 1 or and (AP10 = T or AP10 = F) AP11 = 1) AP11 = T (AP11 = T)	
Intergestation period $\bar{x} \pm sd$	LMP - AP7	
Gestation at identification as pregnant $\bar{x} \pm sd$	for v_no = 1 v-date - LMP	
Gestation at initial Hb measurement $\bar{x} \pm sd$	AP46B - LMP	
Initial Hb $\bar{x} \pm sd$	for v_no = 1 AP46A	
Last pregnancy ended in livebirth	AP8 = KLI	
Fever/chills	AP25	
Baseline dietary iron	if v_no = 1 AP3-2 + AP3-3 + AP4 + AP-29	
Cigarettes	AP12-1 AP12-1 - IA	
Alcohol	AP17	

Bicara, Bace, Tulis
no ke...
print n
per id...

Jamu for AB 50	if AP23-1A thru AP23-1G codes 2011-203 or 401-420
	if AP11-2-1A thru AP11-2-1G ditto

The descriptive analyses will determine if any of these indices, other than those theoretically important (included in the regression models below) should also be controlled for in analysis.

complex?
possible?

b. Selection of mediating variables and development of composite variables for multivariate analyses by conducting bivariate analyses (correlations). Pearson product moment correlations will be run between 1) covariates, and, separately, 2) mediators. Covariates are identified in SES and maternal characteristics tables above. Mediators include diet (4 measures, inhibitors, promoters, animal based sources of iron, vegetable based sources of iron; will sum up for total days at each interval and average over all intervals). Diarrhea and vomiting will both be coded independently as never (in any interval) = 0, in first trimester only = 1, in first or second trimester only = 2, in first, second or third trimester = 3 (i.e., must have occurred in third trimester). (Univariate frequencies will also be run for vomiting to check the incidence of moderate vs. severe episodes)

code = iron in diet less vegies term (last = AP13-29)

err: AP27
pit: AP34

medium

Diet inhibitors: AP13-1+
AP13-10+
AP13-22+
AP13-30+
: AP14-1-1 + AP15-1

c. Multivariate analyses will include:

1. Total Change:

Separate cozaal drinks

Apply
using
not to be
with

For women with ≥ 2 Hb measurements:

$$\text{Hb final} = \text{intercept} + \text{Hb initial} + \text{gestation at Hb initial} + \text{gestation at Hb final} + \text{subdistrict}$$

This model is equivalent to Hb change

Diet promoters: AP13-7+
AP13-13+
AP13-16+
AP13-17+
AP13-23

Hb < 11 g/dl

$$\text{final} = \text{intercept} + \text{Hb < 11 g/dl initial} + \text{gestation at Hb initial} + \text{gestation at Hb final} + \text{subdistrict}$$

This model is equivalent to change in anemia status

2. Early Δ

For women with 3 Hb measurements: (subset of those with ≥ 2 measurements)

Hb second

$$\text{trimester} = \text{intercept} + \text{Hb initial (first trimester)} + \text{gestation at Hb initial} + \text{gestation at Hb second trimester} + \text{subdistrict}$$

This model is equivalent to early Hb change

Hb < 11 g/dl

second

$$\text{trimester} = \text{intercept} + \text{Hb < 11 g/dl initial (first trimester)} + \text{gestation at Hb initial} +$$

gestation at Hb second trimester +
subdistrict

This model is equivalent to early change in anemia status

The above represent the unadjusted regression models (= model 1)
Total and early Hb and anemia change will also be analyzed by regression
controlling for:

Model 2: socio-demographic and reproductive health covariates (selected variables
from tables 2 and 3);

Model 3: model 2 covariates and physiologic conditions in pregnancy (diet,
vomiting, diarrhea; see discussion of bivariate correlation analyses above),

Model 4: model 3 and intervention related mediators (total tablets received, from
whom received, total tablets taken)

Analyses of birthweight, low birthweight (only those measured within 2-3 days of
birth, otherwise we need to term this early neonatal weight; infant weight
analyses will need to use age in half days since birth and square root of age in
days since birth to correctly adjust for postnatal weight loss), and gestation and
prematurity will be conducted in the same manner described above, with one
additional regression model:

Model 5: Model 4 and Hb initial + gestation at Hb initial + Hb final + gestation
at Hb final

All analyses of birthweight (or infant weight) and gestation will additionally control
for gender of infant, and to singleton livebirths

Logistic regression will be use to analyze dichotomous (categorical) dependent
variables, and linear regression for continuous dependent variables

All analyses of hemoglobin will be tested using untransformed and tranformed Hb
variables (square root or inverse log base 10); transformed variables will be used
in final analyses if they prove to adjust better for natural reduction in Hb over
pregnancy associated with hemodilution.

Need to write command files with David Leon to create files with first, second and
third (initial and final) variable names to permit longitudinal analyses.

22

st IP-31

AP43-2

AP41-4

AP41-1 DU

fr formal (DOK or B1 Do
PAR or KA)

all else
other

IPI-LMF

IP31-1
IP31-2 s = day ht find out
m = w; g ht m-cst

livebirth IP

= LHT

IP12 twins → LHK

LMK
ST

TOPIC 2

Notes:

1. **Duration of IEC Intervention:** Project extended from May 15-November 15. IEC started April 28. Data collection to end at end of September, so 4.5 months of IEC intervention, except 1 month of this time will be "dead" (no real intervention delivery) from mid-May to mid-June due to the elections. This means IEC intervention will effectively be conducted only for about 3.5 months.
2. **Data Collection for IEC:** Includes module D questions (monthly) about receipt (including from whom, how many) and taking iron tablets; monitoring (every 2-3 months) questions about whether heard about Ibus Sahat (healthy mom), where heard messages, tablet conditions; and pre-post data collection on advice received, side effects (to be coded as tablet related or not tablet related) with additional questions in the post instrument regarding IEC media. The baseline data for the pre-post assessment has been collected (April, 1992); the instrument is attached.
3. **Prospective Journal for Publication of Article:** Social Sciences and Medicine preferred, perhaps international journal of health education or journal of tropical pediatrics. Marcia Griffiths may have suggestions.

Article Outline:

1. **Objective:** From original proposal and later project documents, including Mona Moore's trip report.
2. **Methodology:**
 - a. **Development of materials**
 1. Based on qualitative study (describe methodology and results), focus groups, sampling and sample size, elicitation of information
 2. Choice of messages, how developed, hired artists, pretest methodology and results, modification of messages, media selection (some can be taken from Richard Pollard's report, Teguh and Carrie's memories)
 - b. Refer to iron quality product testing and article (topic 7)
 - c. Sampling for assessment of IEC effect on KAP (module D based, can take from article 1)
 - d. **Data Collection:** monitoring, pre-post, module D, midway focus group
 - e. **Statistical packages** (for data entry and analysis)

23

f. Analytic methods: pre-post IEC effect on KAP assessment design, plus interaction with community based distribution; could consider pre-community based iron tablet distribution as additional control, but have temporally more proximate control in clinic based (Sliyeg) pre-IEC intervention area/time. Will include uni, bi and multivariate methods (see below).

3. Results: Main independent variable is pre April 28, 1992 (pre IEC) to on or after April 28, 1992 (post IEC). Results will be presented comparing the last interval prior to IEC intervention (April, 1992) and compare to last interval at end of IEC intervention (September, 1992). Will use models with and without stratification for subdistrict to look at interaction of community vs. clinic based distribution pre and post IEC intervention (terms would be subdistrict, subdistrict*post_IEC).

a. Study population: Pre April 28, 1992 and on or post April 28, 1992, limited to pregnant women (for dependent variables = number of iron tablets taken and separately Hb) and postpartum women (for birthweight and gestation) in last pre IEC interval (April 1992) and post IEC interval (September 1992). Sample, comparability of April vs September intervals: SES, reproductive health indices via univariate analyses)

SOCIO-DEMOGRAPHIC CHARACTERISTICS		
Socio-Demographic Characteristics	April (Control) Pre IEC	September (Intervention) Post IEC
Marital Status		
Education		
Income		
Land ownership		
Electricity		
Radio		
Ethnicity		
Religion		

= Topic

MATERNAL CHARACTERISTICS		
Maternal Characteristics	April (Control)	September (Intervention)

-24'

Age		
Parity		
Prepregnant Weight		
Height		
Planned pregnancy		
Intergestation period		
Gestation at identification as pregnant		
Gestation at initial Hb measurement		
Initial Hb		
Last pregnancy ended in livebirth		
Fever/chills		
Baseline dietary iron		
Cigarettes		
Alcohol		
Jamu for AB		

The descriptive analyses will determine if any of these indices, other than those theoretically important (included in the regression models below) should also be controlled for in analysis.

b. Selection of KAP variables for multivariate analyses will be done by conducting bivariate analyses (correlations). Pearson product moment correlations will be run between Module D Q28, 29, 30, 33, 40, 40.1 (need better list of codes for symptoms) through 44. Correlate with each other and with mean Hb, gestation at Hb. Will need to review % dumped into "other" codes and possibly recode for these two intervals (for example, why iron tablets were not taken). Correlations should also be run on baseline questions from the pre-post IEC /SMP questionnaire for Q 6, 8, 9, 10, 14, 17, 18, 19, 22, 23, 25, 27, 31, 33, and 35.

c. Multivariate analyses dependent variables will be practice oriented: Number of iron folate tablets taken in the last week or month and separately Hb (or Hb change). If the 3.5 months of IEC intervention show no effect on tablets taken

25

or Hb then analyses of birthweight and gestation will not be run comparing postpartum women in April vs. September intervals (although these analytic programs will be written and run as their structure is nearly identical to the tablets and Hb regression models).

Model 1: Unadjusted $Hb = \alpha + postIEC$

Model 2: socio-demographic and reproductive health covariates (selected variables from tables 2 and 3);

Model 3: model 2 covariates and knowledge (and attitudes, though there really aren't any) variables; see discussion of bivariate correlation analyses above),

* 22 \ Model 4: model 3 and intervention related mediators (heard about Ibu Sahat¹ and vitamin C foods; total tablets received, from whom received, total tablets taken for Hb analyses; total tablets taken and Hb for birthweight and gestation analyses)

where,
not on
SMF
so
con:
use

Analyses of birthweight, low birthweight (only those measured within 2-3 days of birth, otherwise we need to term this early neonatal weight; infant weight analyses will need to use age in half days since birth and square root of age in days since birth to correctly adjust for postnatal weight loss), and gestation and prematurity will be conducted in the same manner described above, with one additional regression model:

All analyses of birthweight (or infant weight) and gestation will additionally control for gender of infant, and to singleton livebirths

Logistic regression will be use to analyze dichotomous (categorical) dependent variables, and linear regression for continuous dependent variables

All analyses of hemoglobin will be tested using untransformed and tranformed Hb variables (square root or inverse log base 10); transformed variables will be used in final analyses if they prove to adjust better for natural reduction in Hb over pregnancy associated with hemodilution.

Need to write command files with David Leon to create files with April and September antenatal, and separately intra/postpartum variable names to permit pre-post analyses.

¹ presume = 0% at April, 1992 though this does not permit estimation of false positive "I want to please the interviewer" reporting, but can also use in conjunction with variable which indicates whether respondent can correctly describe Sahat

For future discussion Carrie/Teguh with CCS, Manoff, JSI/MotherCare:
Composition of a qualitative article, campaign, lessons learned (for MOH interest
in national campaign).

Final

done April 1992
Baseline Questionnaire for Social Marketing

Name :
No ID:
No TPA:

LMP : ___ / ___ / ___

Village :

Date of interview : ___ / ___ / ___

Interviewer Code:

Introduce yourself to the respondent and ask her if she would mind answering a few questions about her pregnancy. If she agrees, continue with the interview. If she does not agree, finish the interview and thank her for her time.

Are you currently pregnant? (Y / N)

If no, have you already given birth? (Y / N)
If yes, when did the birth occur? ___ / ___ / ___

1. During the last 30 days, have you felt weak or easily tired? (Y/N)
If yes, What do you think caused of it?
a. Iron tablets
b. Others, mention it _____

2. During the last 30 days, have you had severe nausea? (Y/N)
If yes, What do you think caused of it?
a. Iron tablets
b. Others, mention it _____

3. During the last 30 days, have you had dark stool? (Y/N)
If Yes, What do you think caused of it?
a. Iron tablets
b. Don't know
b. Others, mention it _____

13

4. During the last 30 days, have you had constipation?
If yes, What do you think caused of it?
a. iron tablets
b. Others, mention it _____
5. Have you ever heard of anaemia?
a. Yes
b. No--- Go to number 7
6. Where did you hear about anaemia? (Circle for each response)
a. Family or friend
b. Doctor, Midwife, or paramedic
c. TBA
d. Radio
e. Others, mention it _____
7. Have you ever heard of iron tablets?
a. Yes
b. No-----Go to Number 28
8. Where did you learn about iron tablets? (circle for each response)
a. Family or friend
b. Doctor, Midwife, or paramedic
c. TBA
d. Radio
e. Others, mention it _____
9. Where do you think you can get iron tablets?
a. Doctor, Midwife, or paramedic
b. TBA
c. Others, mention it _____
10. How did you know you could get iron tablets at this place?
(circle for each response)
a. heard on radio
b. saw sign at place of distribution
c. told by someone, mention who _____
d. others, mention it _____

11. Have you ever taken iron tablets?
 a. No
 b. Yes

If No, What is the reason you have never taken iron tablets?
 M e n t i o n i t :

Go to number 28

12. Have you taken iron tablets in the last 30 days?
 a. Yes ----->go to no. 14
 b. No ----->go to no. 13

13. If No, What is the reason you have not taken iron tablets in the
 l a s t 3 0 d a y s ? M e n t i o n i t :
-
-

Go to no 18

14. If Yes, What is the reason you are taking iron tablets?
 a. Told by health worker
 b. Heard it is good for you
 c. It makes me feel healthier
 d. Others are taking it
 e. It's free
 f. Others, mention it _____

15. Do you take iron tablets every day?
 a. Yes
 b. No

16. If No, What is the reason you are not taking iron tablets
 e v e r y d a y ? M e n t i o n i t :
-
-

17. Where did you learn how to take the iron tablets? (circle for each response)
- a. From Doctors, midwives, or paramedics
 - b. From Posyandu
 - c. From Radio
 - d. From Friend
 - e. From Poster
 - f. Others, mention it _____

18. When you received your iron tablets from the service provider, what did they discuss with you? (circle for each response)
- a. reasons to take tablets;
 - b. how to take tablets;
 - c. side effects of taking tablets;
 - d. What to do about side effects;
 - e. Where to get tablets;
 - f. Others, mention it _____

19. What time of day do you usually take your iron tablets?
- a. right after awakening
 - b. morning
 - c. afternoon
 - d. evening
 - e. right before going to sleep
 - f. others, mention it _____

suggested taking iron tablets in the evening

→

recade to evening

other

20. Why did you choose that time? (circle for each response)
- a. Told to;
 - b. Easier to remember
 - c. Feels better that way
 - d. Others, mention it _____

21. Do you normally take the tablets with food?
- a. Yes
 - b. No --- Go to no. 24

22. With what kind of food do you normally take your iron tablet? (circle for each response)
- a. orange and other citrus fruit;
 - b. Mango
 - c. banana
 - d. Others, mention it: _____
 - e. vit crich foods

23. Why did you take it with this type of food? (circle for each response)

- a. Told to;
- b. Feels better that way
- c. Others, mention it _____

24. Have you ever gotten side effects from taking the iron tablets?

- a. Yes
- b. No ___ Go to no. 28

25. What kind of side effects have you gotten from taking the iron tablets? (circle for each response)

- a. Nausea
- b. Headache
- c. Constipation
- d. Black stools
- e. Others, mention it: _____

26. For each effect you mentioned, what did you do about it?

- a. Nausea: Mention it _____
- b. Headache: Mention it _____
- c. Constipation: Mention it _____
- d. Black stools: Mention it _____
- e. Others: Mention it _____

27. Where did you hear that this is what you are supposed to do when you experience side effects?

- a. Family and friend
- b. Doctors, Midwife, Paramedic
- c. TBA
- d. Radio
- e. Others, mention it _____

28. Have you listened to the radio during the past month?

- a. Yes
- b. No-----> finish interview by thanking the respondent for her time.

29. Whose radio did you listen to?
a. own
b. neighbors's or friend's
c. Others, mention it _____

30. How many days per week did you listen to the radio?
a. Less than one;
b. 1 - 3;
c. 4 - 6;
d. Daily;
e. Others, mention it _____

*ass med. info
exposure*

31. How many hours per day on the average did you listen to the radio?
a. Less than one;
b. 1 - 3;
c. More than four;
d. Others, mention it _____

32. What time of day do you most often listen to the radio? (circle for each response)
a. 05.00 - 07.00
b. 07.00 - 11.00
c. 11.00 - 13.00
d. 13.00 - 15.00
e. 15.00 - 17.00
f. 17.00 - 19.00
g. 19.00 - 21.00
h. 21.00 - 01.00
i. Others, mention it _____

*Miss -
exposure*

33. What is your favorite radio program?
a. Dangdut
b. Village talking
c. Soap opera
d. Others, mention it _____

34. Have you heard about health information on the radio?
a. Yes
b. No-----> finish interview by thanking the respondent for her time.

*Miss -
exposure*

35. Do you believe in the health information you receive from radio?
a. Yes
b. No

Finish the interview by thanking the respondent for her time.

Kuesioner
Survei Dasar Pemasaran Pil Tambah Darah
Kec. Gabus Wetan & Kec Sliyeg

Nama : UAMA

No ID :

--	--	--	--	--	--	--	--	--	--

No TPA:

PRESID

--	--	--	--	--	--	--	--	--	--	--	--

THA / THA : __ / __ / __

Alamat Desa :

URUAN Tanggal Wawancara : __ / __ / __

DEPWR Kode Pewawancara :

--	--	--

LAHIR Apakah ibu sudah melahirkan bayi yang dikandungnya? (Y/T)

TGLHR Bila ya, kapan kelahiran tersebut terjadi : __ / __ / __

BSOL1 1. Apakah dalam 30 hari terakhir ini, ibu berubah menjadi mudah cepat lelah dalam melakukan pekerjaan sehari-hari (Y/T)
Bila Ya, menurut pendapat ibu apa yang menyebabkan kejadian tersebut?

- a. Pil Tambah Darah
- BSOL-2 b. Tidak tahu
- c. Lainnya, sebutkan.....

BSOL-1 2. Apakah dalam 30 hari terakhir ini, ibu mengalami mual terus-menerus? (Y/T)
Bila Ya, menurut pendapat ibu apa yang menyebabkan kejadian tersebut?

- a. Pil Tambah Darah
- BSOL-2 b. Tidak tahu
- c. Lainnya, sebutkan.....

3-1 3. Apakah dalam 30 hari terakhir ini, warna feses ibu menghitam? (Y / T)
Bila Ya, menurut pendapat ibu apa yang menyebabkan kejadian tersebut?

- BS03-2
- a. Pil Tambah Darah
 - b. Tidak tahu
 - c. Lainnya, sebutkan.....

BS04-1 4. Apakah dalam 30 hari terakhir ini, ibu mengalami jarang buang air besar? (Y/T)
Bila Ya, menurut pendapat ibu apa yang menyebabkan kejadian tersebut?

- BS04-2
- a. Pil Tambah Darah
 - b. Tidak tahu
 - c. Lainnya, sebutkan.....

BS05 5. Apakah ibu pernah mendengar istilah 'kurang darah'?

- a. Ya
- b. Tidak-----> ke P.no.7

m.jl = referensi

BS06A 6. Dari mana ibu pernah mendengar istilah 'kurang darah' tersebut? (lingkari setiap jawaban responden)

TO
BS06C

- a. Keluarga atau teman
- b. Dokter, bidan, paramedis
- c. Dukun bayi
- d. Radio
- e. Lainnya, sebutkan.....

BS07 7. Apakah ibu pernah mendengar tentang pil tambah darah?

- a. Ya
- b. Tidak-----> ke P.no. 28

BS08A 8. Dari mana ibu mengetahui tentang pil tambah darah? (lingkari setiap jawaban responden)

TO
BS08E

- a. Keluarga atau teman
- b. Dokter, bidan atau paramedis
- c. Dukun bayi
- d. Radio
- e. Lainnya, sebutkan.....

25

19.
BS09A
To
BS09B

9. Dimana ibu bisa mendapatkan pil tambah darah? (lingkari setiap jawaban responden)

- a. Dokter, bidan, paramedis
- b. Dukun bayi
- c. Lainnya, sebutkan.....

BS10A
To
BS10E

10. Bagaimana ibu mengetahui bahwa ibu bisa memperoleh pil tambah darah seperti jawaban no. 9 di atas? (lingkari setiap jawaban responden)

- a. Mendengar dari radio
- b. Melihat tanda yang terpampang pada tempat distribusi
- c. Diberitahu oleh seseorang
- d. Tahu sendiri
- e. Lainnya, sebutkan.....

BS11-1

11. Apakah ibu pernah minum pil tambah darah?

- a. Ya
- b. Tidak

Bila tidak, apa alasan ibu tidak pernah minum pil tambah darah? sebutkan,.....

BS11-2

.....
-----> ke no 28.

BS12

12. Apakah dalam 30 hari terakhir ini ibu pernah minum pil tambah darah?

- a. Ya -----> ke P. no.14
- b. Tidak -----> ke P. no.13

BS13

13. Bila tidak, apa alasan ibu tidak minum pil tambah darah? sebutkan,.....

.....
-----> ke P. no 18

36

14. Bila Ya, apa alasan ibu meminum pil tambah darah? (lingkari setiap jawaban responden)

BS14A
TO
BS14C

- a. Dianjurkan Petugas Kesehatan
- b. Minum pil tambah darah baik untuk saya
- c. Membuat saya lebih sehat
- d. Ibu hamil lainnya minum pil tambah darah
- e. Pil Tambah darah diberikan secara cuma-cuma
- f. Lainnya, sebutkan.....

BS15 15. Apakah setiap hari meminum pil tambah darah?

- a. Ya -----> ke P. no 17
- b. Tidak

BS16 16. Bila tidak, apa alasan ibu tidak minum pil tambah darah setiap hari? sebutkan,.....

BS17A 17. Dari mana ibu mengetahui/memperoleh penjelasan cara minum pil tambah darah? (lingkari setiap jawaban responden)

TO
BS17C

- a. Dari Puskesmas, Puskesmas Pembantu, Posyandu, Dokter, Bidan, Paramedis
- b. Dari Dukun Bayi
- c. Dari radio
- d. Dari Teman, Tetangga
- e. Dari Lainnya, sebutkan.....

BS18A 18. Ketika ibu memperoleh pil tambah darah, apa saja yang mereka jelaskan pada ibu? (lingkari setiap jawaban responden).

TO
BS18C

- a. Manfaat minum pil tambah darah
- b. Cara minum pil tambah darah
- c. Efek samping pil tambah darah
- d. Cara mengatasi efek samping
- e. Tempat untuk memperoleh pil tambah darah
- f. Tidak memberikan penjelasan apapun
- g. Lainnya, sebutkan.....

- BS19 19. Kapan biasanya ibu meminum pil tambah darah?
- Segera setelah bangun pagi
 - Pagi hari
 - Siang hari
 - Sore hari
 - Sebelum tidur
 - Tidak tentu
- BS20 20. Apa alasan ibu memilih waktu tersebut?
- Seperti yang dianjurkan
 - Mudah diingat
 - Merasa lebih enak untuk minum pada saat tersebut
 - Lainnya, sebutkan.....
- BS21 21. Apakah ibu minum pil tambah darah bersamaan dengan makanan lain?
- Ya
 - Tidak-----ke P. no. 24
- BS22A 22. Apa nama makanan tersebut? (lingkari setiap jawaban responden)
- TO
BS22B
- Jeruk dan buah sejenisnya
 - Mangga
 - Pisang
 - Lainnya, sebutkan.....
- BS23A 23. Mengapa ibu memilih jenis makanan tersebut? (lingkari setiap jawaban responden)
- TO
BS23B
- Sesuai anjuran
 - Merasa lebih enak
 - Lainnya, sebutkan.....
- BS24 24. Apakah ibu merasakan ada gejala lain (efek samping) setelah minum pil tambah darah?
- Ya
 - Tidak-----ke P. no. 28

25. Sebutkan jenis gejala lain yang ibu rasakan (lingkari setiap jawaban responden)

BS25A
To
BS25C

- a. Mual-mual
- b. Sakit kepala
- c. Sembelit
- d. Kotoran berwarna hitam
- e. Tidak ada-----> ke P. no 28
- f. Lainnya, sebutkan.....

26. Apa yang ibu lakukan untuk mengatasi setiap gejala-gejala yang ibu rasakan?

- BS26-1A a. Mual-mual : sebutkan..... BS26-1B
- BS26-2A b. Sakit Kepala : sebutkan..... BS26-2B
- BS26-3A c. Sembelit : sebutkan..... BS26-3B
- BS26-4A d. Kotoran berwarna hitam : sebutkan..... BS26-4B
- BS26-5A d. Lainnya,..... : sebutkan..... BS26-5B

BS27 27. Dari mana ibu mengetahui bahwa cara-cara tersebut merupakan hal yang ibu harus lakukan bila ibu mengalami gejala-gejala lain tersebut?

- a. Keluarga atau teman
- b. Dokter, Bidan, Perawat
- c. Dukun Bayi
- d. Radio
- e. Lainnya, sebutkan.....

BS28 28. Apakah ibu mendengarkan radio dalam satu bulan terakhir ini?

- a. Ya
- b. Tidak-----> wawancara selesai

BS29 29. Radio milik siapa yang ibu sering dengarkan?

- a. Radio milik sendiri
- b. Radio tetangga atau teman
- c. Lainnya, sebutkan.....

BS30

30. Berapa kali dalam seminggu ibu mendengarkan radio?

- a. Kurang dari sehari
- b. 1 - 3 hari
- c. 4 - 6 hari
- d. Setiap hari
- e. Lainnya, sebutkan.....

BS31

31. Berapa jam rata-rata per hari ibu mendengarkan radio?

- a. Kurang dari sejam
- b. 1 - 3 jam
- c. Lebih dari 4 Jam
- d. Lainnya, sebutkan.....

BS32A

TD
BS32D

32. Pada pukul berapa ibu setiap hari selalu mendengarkan radio? (lingkari setiap Jawaban Responden)

- a. 05.00 - 07.00
- b. 07.00 - 11.00
- c. 11.00 - 13.00
- d. 13.00 - 15.00
- e. 15.00 - 17.00
- f. 17.00 - 19.00
- g. 19.00 - 21.00
- h. 21.00 - 01.00
- i. Waktu lainnya, sebutkan.....

BS33A

TD
BS33C

33. Apa nama program atau siaran yang ibu paling sukai? (lingkari setiap Jawaban Responden)

- a. Dang-dut
- b. Siaran pedesaan
- c. Sandiwara radio
- d. Lainnya, sebutkan.....

34. Apakah ibu pernah mendengar tentang pesan-pesan kesehatan di radio?
B534
- a. Ya
 - b. Tidak-----> selesai

- B535 35. Apakah ibu percaya pada pesan-pesan yang ibu dengar dari radio?
- a. Ya
 - b. Tidak

Terima Kasih atas Perhatian Ibu

Baseline.kue
March 13 1992, 14.00

APPENDIX 5

TOPIC 3: NUTRITIONAL STATUS OF PREGNANT AND NON-PREGNANT WOMEN

This article will exclude all multiple gestation (i.e., women must be followed through birth; need to ask Yusran what % of women lost to follow-up or censored). Limit study population to after June 1, 1991 as this is when interviewers started using standard method with digital scale (boards and rubber mat), so method of taking measure was 2 measurements, and took the mean

1. Objective, purpose: From original proposal

2. Methodology
a. Sampling

1. Cross sectional sampling: includes 250 nonpregnant women from Gabuswetan and 250 from Sliyeg. Sampling similar to Module D in that it is not proportionally representative of enumeration areas. Cross sectional sample will systematically choose 10 clusters (artificial enumeration areas) from all clusters in each subdistrict, and then choose (without stratification) 25 nonpregnant women who have not been pregnant in the previous 12 months (not postpartum, post abortion) per cluster, all of whom are in the SRS, invite them to a central location to be measured, those who don't show up will be sought out.

2. Module D: Universal sample of pregnant women from SRS. SRS listed households, made block census, then created artificial clusters of 10 households within each block census, then took systematic sample of clusters of households to yield 500 households per subdistrict (sampling fraction was almost 0.5, so about every other cluster of households was chosen).

b. Measurements

1. Training

2. Instruments (digital scales, Ross labs AC, Hemocue)

3. Reliability of Measurements (Hb from Hemocue brochure, weight, height arm circumference from Martorell article)

c. Data Collection (midwife and interviewers), entry, checks

- d. Software (Foxpro, SPSSPC +)
- e. Analytic methods and variable definition (+ list)

3 Results: Weight, height, Quetelet's Index, Arm Circumference, (for pregnant women only) Weight Gain

a. Cross-sectional Non Pregnant Women

1. Weight

- a. Continuous: Mean ± sd
- b. Categorical: lowest 10%; > 10th% - < 40 kg; ≥ 40 kg - < 50 kg; ≥ 50 kg

2. Height

- a. Continuous: Mean ± sd
- b. Categorical: < 145 cm; > 145 - < 150 cm; ≥ 150 cm - < 155 cm; ≥ 155 cm

3. Quetelet's Index

- a. Continuous: Mean ± sd
- b. Categorical: < 17.5; > 17.5 - < 19.0; ≥ 19.0 - < 22; ≥ 22

$wt \text{ in kg} \times 100 / (ht \text{ cm}^2)$

4. Arm Circumference

- a. Continuous: Mean ± sd
- b. Categorical: < 20 cm; > 20 - < 24 cm; ≥ 24 - < 28 cm; ≥ 28 (24 cm criteria may need modification, check data)

5. Hb

- a. Continuous: Mean ± sd
- b. Categorical: < 9 g/dl; ≥ 9 - < 11 g/dl ; > 11 - < 12 d/dl; ≥ 12 g/dl

b. ~~Longitudinal~~ Pregnant Women

Present Results (except height and Quetelet's Index) by Month of Gestation (3-9); also graphics for weight, weight gain and arm circumference over gestation

AP48A,

1. Weight

- a. Continuous: Mean ± sd
- b. Categorical: lowest 10%; > 10th% - < 40 kg; ≥ 40 kg - < 50 kg; ≥ 50 kg

2. Height *AP45*
- Continuous: Mean ± sd
 - Categorical: <145 cm; >145 - <150 cm; ≥150 cm - <155 cm; ≥155 cm

3. Quetelet's Index
- Continuous: Mean ± sd
 - Categorical: <17.5; >17.5 - <19.0; ≥19.0 - <22; ≥22

4. Arm Circumference *AP47A, AP47B*
- Continuous: Mean ± sd
 - Categorical: <20 cm; >20 - <24 cm; ≥24 - <28 cm; ≥28 (24 cm criteria may need modification, check data)

5. Hb *AP46A, AP46B*
- Continuous: Mean ± sd
 - Categorical: <9 g/dl; ≥9 - <11 g/dl; ≥11 g/dl

6. Weight Gain
- Continuous: (limit to women with initial measures in first trimester and last measures in ≥8th month gestation antepartum)
 - Weight gain by initial weight categories (see b1)
 - Mean ± sd
 - Using Rosso categories: <7 kg gain, ≥7-10 kg gain, >10 kg gain)

c. Weight gain by height categories

d. "Adequate weight gain" = $10 \text{ kg} + ((50 - (\text{weight final} - \text{initial}) * 0.1))$ (can adjust for edema in regression analysis and see if it makes any difference)

*2 or 3 - initial
8 or 9 or 10 final*

*swell hands face
AP26-1-1
AP26-1-3*

c. Comparability of nonpregnant (n=500) with pregnant (n about 800) if pos or 0 = adequate

- First trimester for weight and arm circumference
- 4-5 month gestation for Hb (adjusted by subtracting x% for hemodilution effects) as first Hb measure was often delayed to second visit by midwife who required notification

*adequate is actual (if neg = not adequate)
Cross-tab & ANOVA (to look for)
see if edema makes any diff*

midwife

→ present & std gest trib for preg
→ do not adjust, just interpret
→ do not (if mult meas then take 1st one)

correct dich var =

$$10 \text{ kg} + ((50 \text{ kg} - \text{initial weight}) * 0.1) - (\text{final} - \text{initial weight})$$

APPENDIX 6

TOPIC 4: UTILITY OF SRS

1. Introduction: Figure 3 from Budi's NCIH article + description of the system

2. Utility in early identification of pregnancy: CCS to conduct assessment (n = 2,000 women, regardless of pregnancy status as this will include enough pregnant women if annual pregnancy rate of women 15-49 is 7%, adequate to detect $90\% \pm 5\%$ precision at 7 months as need less for $75\% \pm 5\%$ at 5 months) to define how many (%) women would be accurately identified as pregnant or not pregnant by eyesight alone. This will allow comparison with how well these two methods compare. If this assessment is conducted by the field supervisors during one sole SRS cycle, this will exclude late pregnancies unless previously undetected by the SRS and will reduce observer bias as those "eyeballing" the women will not be aware of their pregnancy status. Limiting this assessment to women who are basically ≤ 5 months pregnant (i.e., those not yet identified by the SRS) is perhaps the best approach as the important question is "does the SRS identify women as pregnant much or enough earlier than they would be identified (and provided care, etc.) otherwise."

Analyses of sensitivity, specificity and predictive value will be conducted as follows:

Identified by Eyesight	Identified by SRS	
	Pregnant	Not Pregnant
Pregnant	a	b
Not Pregnant	c	d

Additionally, the percent of women identified at each month gestation (absolute and cumulative) and the mean \pm standard deviation of gestation at identification will also be calculated to judge, compared to the above assessment, if the SRS identified women earlier in pregnancy than would be identified by eyesight alone, and how much earlier.

If CCS desires, they may wish to ask key informants (bidans, shopkeepers, selecting a single source, whoever is appropriate, of informant for the entire study), and ask them to identify all pregnant women, write the names on a list, and compare to the SRS lists of women (including only those in the SRS sample frame) to see if this (perhaps least expensive) method of identifying pregnant women identifies women at comparable gestation and completeness as the SRS.

AP26-1-1
1-3

3. Complications of pregnancy: Will be analyzed/as % detected ever and % detected earlier (assuming this would lead to referral and treatment) compared to that detected in the 5th (i.e., early), and separately 8th (i.e., late) pregnancy. These complications will include swollen limbs (Q26), difficult/burning urination (Q32) and bleeding (Q35). Difficult/burning urination unfortunately (as per Budi) may most frequently reflect difficult but not burning urination, and thus may not be a good indicator of infection. (Complications not to be included in this analysis are fever and chills, diarrhea, persistent headache, severe nausea, or severe vomiting). This is essentially a comparison of longitudinal vs. cross-sectional (actually 30 day retrospective) assessments.

AP32
AP35

An example of the analytic comparison using the 8th month gestation would be:

Longitudinal: if Q 26 = yes at the second or third or fourth or fifth or sixth or seventh or eighth month (of gestation) interval

versus

Cross-sectional: if Q 26 = yes at eighth month interval.

The data could be analyzed "as if" longer term retrospective data were collected (i.e., "have you had condition at all in pregnancy/up til now?"), but, in fact, the data were not collected that way, and a woman asked about bleeding in the 7th month who had spotting in the second month might not report experiencing bleeding in pregnancy whereas a women in the third month of pregnancy who spotted last month would be more likely to report experiencing bleeding.

4. Complications of delivery: Are only measured cross sectionally, including eclampsia/convulsions in labor (Q6), bleeding (excessive) (Q9), transferred in labor (Q11), abnormal fetal presentation (Q14), long labor (Q7). These can be compared with detection of comparable problems earlier in pregnancy or, in the case of transfer or long labor with detection of any above-named complication in pregnancy. Qualitative judgements can also be used to suggest that these cases might not have been otherwise identified, comparing puskesmas historical incidence rates with those detected through Module D data collection.

pregs
IP11
G IP14
Head = KEP
TTH = DK
Abn = all else

IP6
IP9
IP16 A (single
IP16 B twin
(exclude tu
< 11 H
> 11 H
Ab

5. Neonatal mortality: Will use longitudinal vs. cross-sectional comparison, contrasting those identified at only day 8 or only day 42 with those identified by day 8 or day 42 assessment. Also, explanation regarding the better identification of causes of death and the % with explained etiology compared to data from Indramayu before the project will be presented.

allowing

PP14
PP14 - to date
day 8 & 42 mutually excl (additive) as per data base specs

43

APPENDIX 7

TALKING POINTS

Operations Research study on Iron Tablet Use and Tablet Quality

I. BACKGROUND

- A. Small operations research study designed after routine monitoring identified problems with iron tablet compliance.
- B. One of the major reasons for non-compliance, as reported by pregnant women in Gabus, was the discoloration and deterioration of iron tablets within a short time after receiving them. Side effects and misperceptions about the tablets were also listed as reasons for discontinuation.
- C. Small preliminary study with 20 SSL showed that by the 12th day, virtually all respondents' tablets had become discolored and approximately 50% had broken. (SHOW TABLETS AT THIS TIME). Tablet storage location did not appear to make a difference in this study. EXPLAIN.
- D. A new study needed to identify whether the rate and extent of deterioration was similar in Gabus and Sliyeg, and whether packaging makes a difference in the rate and extent of deterioration.
- E. Objectives of the study:
 1. To investigate iron tablet compliance in Gabus Welan and Sliyeg.
 2. To identify side effects experienced by iron tab users.
 3. To identify whether the packaging of iron tablets affected the quality of the tablets.

II. METHODOLOGY

- A. Study Design: Small qualitative study with a sample of 20 anemic pregnant women (volunteers) - 10 in Gabus and 10 in Sliyeg. With each group, half (5) were given tablets in plastic zip-lock bags, and half were given tabs in plastic bottles. Study duration: 15 days. Hb levels were taken before and after experiment. Women were asked to take one tab each day.
1st by 4th, 5th, 11th, 12th
verification
packages
outside sampling frame (w/in area)
- B. Interviewers visited the women each day during the 15 day study period. Interviewers observed the women opening and closing the packages, noting the condition of the tablets and the packages, where the tablets were stored, and whether or not the package was properly closed. Interviewers did not help or give comments regarding how the package was closed or where it was stored. Interviewers also interviewed the women regarding iron tablet compliance and side effects experienced. Tablets were counted at the end

of the study; HB levels were taken before and after the study.

- C. **PROBLEM:** The interactive effect of testing, where the experiment may increase (or decrease) the respondent's willingness to take the tablets, thus making the results of this study unrepresentative of the iron tablet compliance in the general population of pregnant women. This is always a problem in studies where there is a great deal of interviewer - respondent interaction.
- D. **Observation Criteria:** Interviewers were told to record the date of the first sign of tablet discoloration or breakage - the appearance of black or brown spots on the tablets; powdery or flaky texture; enlargement of the tablet. Interviewers were trained to identify signs of tablet damage. Likewise, interviewers were trained to observe the first signs of a damaged package - ripping or tearing, broken plastic, lids that don't stay on, etc.

III. RESULTS (REFER TO RESULTS ON OVERHEAD AND GO OVER EACH AS YOU DISCUSS IT)

- A. **Compliance:** Of the 20 participants, only 4 reportedly took all of her tablets. (Not a high percentage, considering the likely effect daily observation had on compliance.)
- B. **HB levels:** HB levels for the women who reportedly took all of their tablets actually decreased over the study period in 3 out of the 4 cases. *Can't control for whether or not the tabs was actually taken.*
In general, HB levels were lower after the study than before. Probably due to measurement error. Uncertain whether the same person took all HB readings, using the same instrument. This will be standardized in the next study. Surprising and disappointing result.
- C. **Packaging of Damaged Tablets:** No significant results, although it appears that bottles may do a slightly better job of protecting tablets. However, in Gabus, most tablets became damaged within 2 weeks anyway.
- D. **Kecamatan:** Sliyeg clearly had fewer problems with tablet damage. Probably due to higher humidity in Gabus (closer to the sea). Both kecamatan used old tablets with an expiration date in the near future. *(Same expiration dates).*
- E. **Side effects:** Most respondents experienced some form of side effect, most commonly nausea or constipation. Many reported not liking the taste of the tablets. Several mentioned preferring the red tablets currently distributed through the puskesmas to the UNICEF tablets. 4 of the respondents mentioned side effects as the primary reason for discontinuing iron tablet use. 1 specifically mentioned

*After
understanding
was a hicc
gestational age
age 7 mos
did not
level. primary*

tablet condition as the reason for discontinuation, although many complained about the tablet throughout the study.

IV. RECOMMENDATIONS (SHOW NEW STUDY DESIGN)

- A. A new study may be necessary in order to systematically investigate tablet quality using alternative forms of packaging as well as alternative types of tablets.

Question related to packaging and replicability - if the project goes national, they won't be able to use plastic bottles. Should we use them in our study, knowing that this can't be replicated? Should we use the blue plastic bags or the clear plastic bags currently used in the puskesmas?

What is the optimal cell size, taking into consideration interviewer workload and the possibility of contaminating our larger study by interviewing too many women.

Variation to consider in next study:

Weight of pregnant ♀

Second Study
Topic 7

Result of Iron Tablet Operations Research Study

HB Levels :

7/20 - Higher after taking Iron tabs Time of day uncertain
 10/20 - Lower after taking Iron tabs x-400 < 10, > 10 x
 3/20 - Weren't able to measure after taking Iron tabs 2) 1000 - 2000

Tabs Taken : (Reported Taking)

3/20 - Took less than 5 tabs
 3/20 - Took between 5 - 9 tabs
 10/20 - Took between 10 -14 tabs
 4/20 - Took all 15 tabs

x-400 < 10, > 10 x
 2) 1000 - 2000
 b) 1000 - 2000
 c) 1000 - 2000
 d) 1000 - 2000

Packaging of damaged pills

Severely damaged (discolored, enlarged, broken & Fungus)

- 3/20 Bottles
 - 2/20 Plastic bags

Slightly damaged (discolored only)

2/20 Bottles
 3/20 Plastic bags

No Reported damaged

6/20 Bottles
 4/20 Plastic bags

Tablet Damage by Kecamatan

SLIYEG	<u>Severe damage</u>	GABUSWETAN	<u>Severe Damage</u>
	0/10 Bottles		2/10 Bottles
	0/10 Plastic		3/10 Plastic
	<u>Slight Damage</u>		<u>Slight Damage</u>
	0/10 Bottles		1/10 Bottles
	2/10 Plastic		2/10 Plastic

Resp No	Comments On the Side Effects	Reason Discontinued Use		
		Other delivery	'Side effect	tab condition
1.	Baby more active Black Stool, increase appetite feel good Black stool, dizzy, nausea, Constipation (dizzy & nausea on the first day only, and constipation on the second day only) Nausea and vomit on the first a second day, continued again at the dated of 9 and 10 but she felt nausea and vomitt again. so she stopped Fishy taster and felt weak Taste fishy, less appetite Nausea, dizzy (on the second day) till the 11 day Nausea, vomit, constipation, black stool, fishy taste, file tired. Dizzy, couldn't sleep, nausea Nausea, taste fishy, constipation. sore throat, black stool, constipation Dizzy, sore throat, vommit Weak, frequent urination, dizzy, aches Nausea, dizzy, taste fishy black stool, diarrhea Stomach trouble, fishy taste diarrhea, black stool Nausea, vomit, black stool stomach trouble.			
2.				
3.				
4.				
5.				
6.				
7.				X
8.				
9.				
10.				
11.			lost the tablet	
12.				X
13.				
14.			lazy	
15.				X
16.				X
17.			bored of taking pills	
18.				X
19.				
20.				

KECAMATAN : SLIYEG

Responden No	Taken of tabs	Tablet Discolored	Beg. Day	Tablet Enlarged	Beg Day	Tablet Broken	Beg. Day	Tablet Fungus	Beg Day	Mastic Ba Bottle	HB	
											Before	After
1	1									PLASTIC BAG	11.5	10.9
2	12									BOTTLE	9.9	9.8
3	12 1/2	X								PLASTIC BAG	10.5	--
4	12									BOTTLE	11.7	10.2
5	14									PLASTIC BAG	12.1	13.4
6	13									BOTTLE	13.9	12.3
7	9									PLASTIC BAG	11.3	9.3
8	11									BOTTLE	11.4	--
9	15									BOTTLE	10.7	7.9
10	13	X								PLASTIC BAG	7.4	8.7

KECAMATAN : GABUS WETAN

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Responden No	Taken of tabs	Tablet Discolored	Beg. Day	Tablet Enlarged	Beg Day	Tablet Broken	Beg. Day	Tablet Fungus	Beg Day	Mastic Ba Bottle	HB	
											Before	After
11	14			X	14	X	14	X	14	PLASTIC BAG	10.1	10.2
12	10	X	9	X	12	X	10	X	12	BOTTLE	8.1	7.7
13	15	X	11							PLASTIC BAG	9.5	9.2
14	10	X	7							BOTTLE	10.6	11.4
15	5	X	9							BOTTLE	10.2	9.0
16	1	X	10	X	15	X	15			PLASTIC BAG	10.2	--
17	4	X	8	X	13	X	13	X	13	PLASTIC BAG	10.4	9.1
18	5	X	7	X	9	X	9	X	7	BOTTLE	9.8	10.2
19	15									BOTTLE	9.9	10.4
20	15									PLASTIC BAG	8.7	6.2

TOPIC 7:
OPERATIONS RESEARCH PROJECT
ON VIABILITY OF UNICEF IRON TABLETS

Objective: To assess the product viability of the UNICEF iron-folate tablets as packaged and stored in the Indramayu project, and the potential effects of tablet damage on compliance.

Suggested analyses for extant data from this (second) study.

I. Hb levels:

Cross-tabulate positive/negative Hb change with:

- a. Gestation < 35 weeks, ≥ 35 weeks
- b. Took/did not take iron tablets previously.

Regression: controlled for gest, i/gest * tablet problem
where 0 = no problem, 1 = slight, 2 = severe

II. Tablets taken:

Cross-tabulate < 10 taken, ≥ 10 *

- a. No damage, slight, severe
- b. bottles vs. bags
- c. Iron taken previously or not
- d. No problem, discolored, broken, discolored and broken (criteria of fungus not reliable, all enlarged were broken)

Correlation: (excludes non-problems, includes only slight and severe damaged)

- a) total # tablets taken and day observed first sign of tablet damage

Regression:

- a) Change in Hb by total # tablets taken controlled for gestation (linear and square root)

III. Largest diff observed between Sliyeg (control area) where only 20% of tablets damaged; 80% damaged in Gabuswetan (intervention area, claimed to be more humid). The 2 undamaged of 10 packets of tablets in Gabuswetan were stored in plastic bottles; all tablets stored in plastic bags in Gabuswetan experienced damage.

IV. Recommendation: Conduct additional study to better (more directly) assist in interpretation of the effects of clinic based iron-folate tablet distribution, and, separately, IEC, on maternal hematologic status by providing more information on the effect the physical condition of tablets has on the number of tablets actually taken (i.e., compliance). The rationale for needing a study additional to that

conducted (i.e., the second study, described by Teguh and Carrie in attached documentation) is that the second study:

a) visited women everyday, thereby introducing potential bias in the way the iron tablets were stored and consumed,

b) had only a 15 day follow-up period, whereas a 30 period would provide more information relevant to the entire period for which iron tablets are distributed,

c) included only anemic women, and

d) did not test the conditions of iron tablets kept in small paper (as they are distributed from the puskesmas in Sliyeg).

Therefore, it is recommended to conduct another study of the viability of the iron folate tablets with two follow-up visits, at 15 and 30 days post iron distribution, in pregnant (but not limited to anemic) women who do not fall within the Module D sampling frame. A sample size of 22 women per study group will be sufficient to detect a prevalence of tablet deterioration of $50\% \pm 15\%$ (based on estimates from the second study). The study will look at three study groups, women receiving iron tablets in small paper bags in Sliyeg (as they have received in the pre IEC intervention period from the puskesmas), women receiving iron tablets in blue plastic bags in Sliyeg (as they will receive during the IEC intervention phase of the MotherCare project), and women receiving iron tablets in blue plastic bags in Gabuswetan (as they have and will continue to receive during the MotherCare project). 20 interviewers will be assigned 44 women (about 2 each) to interview in Sliyeg, and 20 interviewers will be assigned 22 women (about 1 each) to interview in Gabuswetan. The women will be chosen by random selection (using chits) or as those living geographically closest (closest neighbor) to the SSL (interviewer). If randomly selected, women listed with odd numbers will be assigned to the paper bag group and those with even numbers to the plastic bag group. If assigned by geographic proximity to the SSL, then every other woman selected will be assigned the paper or the plastic bags. Standardization of hemoglobin sampling (possibly by using few people to conduct the blood samples) and identification of discoloration (giving each interviewer a sample piece of cardboard with the grey/brown color at which point discoloration can be said to occur, even if it only occurs in speckles) will be conducted. This study will gather information on the same variables as the previous study, with the potential exception of hemoglobin (depends on money, time, logistics and desire as the main purpose is not to look at effect of tablet condition on hematologic status, which has many other things affecting it, but on tablet consumption).

APPENDIX 8

TOPIC 8

	PERCEPTION SELF-REPORT	COMPARISON
<u>Antenatal</u>		
1. Weight Gain (at ≥ 8 months gestation) (Q3 antenatal interview, attached vs. Module D actual)	High Medium Low	> 10 kg $7 - < 10$ kg < 7 kg
Items 3-4 referent to second trimester when Hb lowest		
2. Weakness (Q7 antenatal vs Module D actual Hb)	Yes No	$Hb \geq 11$ $Hb < 11, < 9$ g/dl
3. Pallor (Q8 antenatal vs Module D actual Hb)	Yes No	$Hb \geq 11$ $Hb < 11, < 9$ g/dl
4. Dizziness (Q9 antenatal vs Module D actual Hb)	Yes No	$Hb \geq 11$ $Hb < 11, < 9$ g/dl
5. Sees spots (Q10 antenatal vs Module D actual Hb)	Yes No	$Hb \geq 11$ $Hb < 11, < 9$ g/dl
<u>Postpartum</u>		
1. Gestation (Q2 postnatal interview, attached vs. Module D actual)	Late Normal Early	> 42 weeks $37-40$ weeks < 37 weeks
2. Duration of labor (Q4 vs Q 5 postnatal)	Long Short	≥ 24 hours < 24 hours
3. Bleeding(Q8 vs. 7 postnatal)	Too much Not too much	≥ 3 Sarongs < 3 Sarongs

(don't know length/size of sarongs, could compare to Hb change but this would be too confounded by gestation and nonlinearity of Hb change so too difficult to establish threshold criterion)

4. Symptoms related to hemorrhage faint, dizzy from bleeding (Q11 vs q7 postnatal)

Yes ≥ 3 Sarongs
 No < 3 Sarongs

5. Size of baby (Q12 postnatal vs Module D actual Birthweight, must be within 2 days of birth using transformed measure of birthweight to adjust for postnatal weight loss)

Big ≥ 3500 g
 Normal 2500 - < 3500
 Small 1500 - < 2500
 Too small < 1500 g

Analyses will be dichotomized for analyses of sensitivity, specificity, predictive value, and efficiency of self-reported to (more) objective measure of event.

SELF-REPORT	(MORE) OBJECTIVE		TOTAL
	Yes (Positive)	No (Negative)	
Yes (Positive)	a	b	a + b
No (Negative)	c	d	c + d
TOTAL	a + c	b + d	n

Sensitivity = $a/a + c$

Specificity = $d/b + d$

PV+ = $a/a + b$

PV- = $d/c + d$

Efficiency = $a + d/n$

Cohen's Kappa statistics of agreement will also be calculated.

Article:

1. Purpose: correct id of problems by self-reporting, how correct are womens perceptions. If someone like PKK were to find (and treat/help) and women's perceptions are correct then what is need of expensive equipment, measurements?

2. Method of data collection

3. Results: Sensitivity, specificity, positive predictive value, negative predictive value, efficiency of test; Cohen's kappa.

KUESIONER PERTANYAAN TAMBAHAN ANTENATAL

Nama Ibu hamil: _____ No. ID : _____
Umur : _____ tahun Usia kehamilan : _____ th ^{bln}.
Alamat desa : _____

Tanggal wawancara : / / No. kode pewawancara :

1. Menurut pendapat ibu, apakah seorang ibu hamil yang sehat bertambah berat badannya setiap bulan?
A. Ya B. Tidak C. Tidak tahu *Should healthy go up wt every mo*

2. Apakah selama sebulan ini, ibu merasa mengalami penambahan berat badan?
A. Ya B. Tidak, ke --> 4 C. Tidak tahu, ke --> 4 *Did gain wt this last mo*

3. Apabila ibu merasa bertambah berat badannya, apakah penambahan berat badan tersebut berlebihan, wajar, atau terlalu sedikit?
A. Berlebihan B. Wajar C. Terlalu sedikit *High Normal Too little*

4. Apabila tidak mengalami penambahan berat badan atau tidak tahu, apakah selama sebulan ini ibu merasa mengalami penurunan berat badan?
A. Ya B. Tidak, ke --> 6 C. Tidak tahu, ke --> 6 *if felt didn't gain wt, did you lose wt*

5. Apabila ibu mengalami penurunan berat badan, apakah penurunan tersebut berlebihan atau wajar?
A. Berlebihan B. Wajar *if felt lost wt, too much or not*

6. Apakah pada saat ini ibu merasa lemah, atau kurang segar?
A. Ya *Yes* B. Tidak *No* *Fresh & healthy business*

7. Apakah ibu selama bulan ini merasa lekas capek?
A. Ya B. Tidak *Easily fatigued in last mo*

8. Apakah selama bulan ini ibu merasa pucat?
A. Ya B. Tidak *Pale*

9. Apakah ibu selama sebulan ini sering mengalami sesak napas bila bekerja?
A. Ya B. Tidak *During past mo dyspnea while working*

10. Apakah ibu selama sebulan ini sering mengalami kunang-kunang?
A. Ya B. Tidak *Seeing spots*

Terima kasih atas perhatian ibu

KUESIONER PERTANYAAN TAMBAHAN POSTPARTUM

Nama Ibu : _____
No. ID : _____
Umur : _____ tahun
Usia Postpartum : _____ hari
Alamat desa : _____

Tanggal wawancara : / /
No. kode pewawancara :

1. Berapa lama dalam bulan ibu mengandung bayi yang baru lahir tersebut? bulan months

2. Apakah bayi tersebut sudah waktu lahir, belum waktu lahir, atau melebihi waktu lahir? (waktu lahir/ belum waktu lahir/ melebihi waktu lahir) Right, early, late

3. Apakah bayi tersebut lahir mudah? (ya/ tidak) easy or not

4. Menurut ibu, apakah waktu melahirkan bayi tersebut lama atau sebentar? (lama/sebentar) duration of labor long short

5. Apakah waktu melahirkan bayi tersebut lebih dari sehari semalam? (ya/ tidak) > 24 hrs, < 24 hrs

6. Berapa jam waktu melahirkan bayi tersebut? jam 24 hours duration

7. Apakah darah yang keluar sewaktu melahirkan membasahi seluruh kain alas yang digunakan? (ya/ tidak) fill 3 sarongs don't know size of cloth

8. Apakah sewaktu melahirkan ibu merasa banyak sekali mengeluarkan darah? (ya/ tidak) - feel too much bld loss

9. Sewaktu melahirkan, berapa kali ibu mengganti kain alas karena perdarahan?kain bedsheet 2-3 due to bleeding

10. Sewaktu melahirkan, berapa kali ibu mengganti kain yang dipakai karena perdarahan?kain 3-4 sarongs 2-3 due to bleeding

11. Apakah sewaktu melahirkan terjadi perdarahan yang menyebabkan ibu terasa ingin pingsan dan hilang kesadaran? (ya/ tidak) faint from bleed

12. Apakah bayi sewaktu lahir berukuran besar, sedang, kecil atau kecil sekali? (besar/ sedang/ kecil/ kecil sekali) big, normal, small, too small size of baby

Terima Kasih Atas Perhatian Ibu

APPENDIX 9

**THE USE OF THE INDRAMAYU SAMPLE
REGISTRATION SYSTEM FOR THE
DETECTION OF EARLY PREGNANCY AND
STUDYING MATERNAL MORBIDITY**

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DRAFT-NOT FOR QUOTATION

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THE USE OF THE INDRAMAYU SAMPLE REGISTRATION SYSTEM FOR THE DETECTION OF EARLY PREGNANCY AND STUDYING MATERNAL MORBIDITY

By Budi Utomo¹ and Pandu Riono²

Abstract:

The objective of this paper is to demonstrate the use of the Indramayu Sample Registration System for the detection of early pregnancy and for studying maternal morbidity. The Indramayu SRS covered at the baseline 10,000 sample households which are then updated regularly for demographic changes through cycle of visits every 3 months. The study shows that given specified procedure based on the date of LMP in combination with other related information, the Indramayu SRS is able to confirm 70-90% of those suspected pregnant women, and among those confirmed pregnant, the mean gestation age of pregnancies when they were detected was 4 months. The accuracy of obtaining accurate information on the date of LMP is promising given the fact of a longitudinal nature of the SRS. Women are kept reminded in every cycle visit to record or to mark their date of menstruation. The study also shows that several questions are sensitive to be asked particularly questions in regard of food consumed, sexual activities, and smoking and drinking. The prospective nature of data collection, however, is not able to be assessed because of the maternal data collection activity has just started a month ago.

1. INTRODUCTION

Studies of maternal morbidity and mortality are hampered by various methodological problems. As the implied maternal definition, the studies should ideally cover a maternal period, beginning from the pregnancy onset and ending in 42nd day after delivery. Methodologically, therefore, the study should be able to define a maternal population in a specified place and time in longitudinal nature from pregnancy onset to postpartum. Because of its characteristics, i.e. highly accurate, longitudinal systems which permit more detailed understanding of the determinants of, and interrelationships between, morbidity and mortality-- areas of investigation into which the analysis of data from cross-sectional surveys have provided only limited insight, the Sample Registration System (SRS) is providing a promise in approaching maternal morbidity and mortality research issues (Koenig, et. al, nd).

In trying to address the SRS capability, the objective of this paper is to demonstrate the use of the Indramayu SRS for the early detection of pregnancies and for studying prospectively maternal morbidity. The demonstration of prospective maternal data collection, however, is not covered in this paper due to the fact that the maternal data collection activity have just started a month ago.

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2. OVERVIEW OF THE INDRAMAYU SRS

The Center for Child Survival University of Indonesia in collaboration with the National Family Planning Coordinating Board (BKKBN) and the USAID/ Jakarta has initiated in 1989 the development of Sample Registration System (SRS) in the Indramayu Regency, West Java, a site of approximately 175 kilometers from Jakarta. The SRS, which was initially developed at the International Diarrhoeal Disease Research, Bangladesh to assess the demographic impact of the Maternal and Child Health - Family Planning Extension Project, is a longitudinal systems of demographic surveillance (Mozumder, et. al. 1991). The Indramayu SRS is piloted in two rural subdistrict areas, Sliyeg and Gabus Wetan. The original objective of the project is to study health and family planning related programmatic issues. The two study areas are about 40 kilometers apart, separated by five other sub-districts not included in the study, and comparable to each other in terms of socio-economic and geographic characteristics, population size, and population density. Under the study design Gabus Wetan has been selected as the experimental area for interventions and Sliyeg, the comparison area.

The Indramayu SRS began with defining of the study area through household mapping and listing. The study area has been divided into several enumeration areas, or geographic divisions, each having approximately 150 to 300 households. Each enumeration area is further divided into segments, or geographic divisions of approximately 20 to 70 households each. Both enumeration area and the segment use observed natural or physical boundaries such as hillside, river, road or railways. In September 1989 the study area consisted of 274 segments or 12,476 households in Gabus Wetan sub-district and 201 segments or 12,963 households in Sliyeg sub-district.

Geographic clusters of 10 households were artificially formed resulted in 1,189 clusters in Gabus Wetan and 1,233 clusters in Sliyeg. A systematic selection with random start was performed to sample 500 clusters or 5,000 households for each sub-district. In total 10,000 households had been selected for the study. Given this sample size, and the estimated pregnancy prevalence rate of 8 per cent, there would be approximately 800 pregnancies to occur in the two study areas in one year.

A baseline survey to collect basic socio-economic and demographic information of the above sample households was conducted in October-December 1989. The baseline information, after careful field data editing, was immediately entered in a table format into the computer at Jakarta using a comprehensive logical consistency data check software. The basic household information was then printed and bound in the form of Household Record Books (HRB). Using that HRB, the same households are visited at regular 90-day intervals to inquire about vital events and demographic status changes which have occurred since the most recent visit to the household by the interviewer. The events mentioned above include onset of pregnancy, pregnancy terminations, deaths, in- or out-migration, or marital status changes. The changes occurring since the most recent visit are recorded in the field in the household record books. The updated books are brought to Jakarta within a week and the changes are entered immediately into the computer using data updating software. Data errors are printed and sent back to the field for correction. Continuously, the HRB are sent back to the field for the next round of data collection.

The Indramayu SRS data collection activity involves 30 interviewers of whom each is assigned to interview about 8 households per day, 3 supervisors of whom each is assigned to supervised 3 interviewers. Each study area is divided into 5 enumeration areas of which each is covered by a team consisting of one supervisor and 3 interviewers. These four persons as a team stay together in a rented house which also functions as a sub-field office. With the introduction of the MotherCare Initiative, each of the SRS interviewer team is joined by one MotherCare interviewer. The interviewers are female senior high school graduates, locally recruited from the study areas and intensively trained by project staff prior to the start of data collection. They are also provided with refresher training at regular intervals. Computer operations for data entry, printing and binding the books involve 6 data entry clerks.

3. THE USE OF INDRAMAYU SRS FOR SUPPORTING THE MOTHERCARE INITIATIVE

A key aim of the Indramayu SRS in support of the MotherCare Initiative is to identify women who become pregnant, monitor events during pregnancy, delivery, and postpartum, and permit the reporting of this information together with other SRS information about households. The MotherCare Initiative mentioned here is a name of the project for prospectively studying maternal morbidity and mortality related issues. The data collection of the MotherCare Initiative just began in the mid of the 6th visitation cycle of the Indramayu SRS, April-June 1991 involving in collaboration 10 SRS supervisors, 30 SRS interviewers, 10 MotherCare interviewers, 2 MotherCare supervisors and 6 data entry clerks.

3.1. The SRS procedure for the detection of early pregnancy

The procedure for the detection of early pregnancy is pictured in Figure 3. The procedure begins with the identification of women aged 12-49 years by the SRS interviewer in her cycle visits to the household. The date of last menstruation period (LMP) of that woman is asked and recorded in the HRB. If the date of LMP is not more than 5 weeks, it means that the woman is not pregnant.

If the date of LMP is more than 5 weeks, then the SRS interviewer should check whether the delay of LMP is conditioned with postpartum amenorrhea, post abortum amenorrhea, lactational amenorrhea, menopausal state, the use of injectable or norplant, or the use of permanent contraception. If yes on either condition, then the interviewer should ask the woman whether she felt that she is pregnant. If the woman is sure that she is not pregnant, then she is not pregnant. But if the woman is sure that she is pregnant, then the SRS interviewer will record that woman into a special MotherCare Control Form.

If the delay in the date of LMP is not related with any of the above mentioned condition, the woman is suspected to be pregnant and then record directly that woman into a special MotherCare Control Form. Copies of the Form containing information on the names, address,

date of birth, date of LMP, and identification number of those suspected pregnant women within a week are sent to data entry clerk and MotherCare Interviewer. Data entry clerk in Jakarta will enter the names and the date of birth of those women, print and send "MotherCare" stickers to the MotherCare interviewers.

One month after last visit by the SRS interviewer, the MotherCare interviewer should visit the women whose names are listed in the Special MotherCare Control Form, observe and ask a set of pregnancy probing questions to ascertain the occurrence of pregnancy. If the woman is not pregnant, then the previous recorded pregnancy was considered a mistaken pregnancy. If she is certainly pregnant, the MotherCare interviewer will stick the sticker into the pregnancy questionnaire, conduct an interview to collect information about the pregnancy, and will regularly visit the pregnant women every month to prospectively collect morbidity and other related information during pregnancy, delivery, and postpartum.

3.2. Data being collected in the MotherCare Initiative

As previously mentioned, the SRS interviewer, the data entry clerk, and the MotherCare interviewer work in collaboration to detect new pregnancies in every visitation cycle. After a new pregnancy is detected, the MotherCare interviewer will regularly visit that pregnant woman to collect maternal health related data, every month during antepartum, at time of delivery, and at day 7 and day 42 post partum. Some data are collected once, and some others are collected either monthly or quarterly. For collecting data on hemoglobin level and some anthropometric measures, i.e. the height of the pregnant women, and the weight, the length, and the head circumference of the newborn, the MotherCare interviewers work in collaboration with the midwives.

The data collected during intrapartum include previous number of pregnancies and births, type of last pregnancy outcomes, whether the current pregnancy is wanted, last contraceptive method used, her husband and her smoking history, history of drinking coffee, tea, and alcoholic drinks, history of taking medicine and herbs, eating special foods during pregnancy, avoiding special foods during pregnancy, type of foods consumed in the last one week, type of pregnancy morbidity, seeking treatment behaviors during pregnancy, use of ante natal services, iron folate tablet consumption, and anthropometric measures (height, monthly weight, monthly arm circumference), quarterly hemoglobin level. The data collected during intrapartum include type of pregnancy outcomes, type of pregnancy termination, place of pregnancy termination, attendant of pregnancy termination, intrapartum morbidity, history of treatment during intrapartum, sex of the newborn, birth presentation, congenital anomalies, duration of labor, color of liquor amnii, a tool used for cutting the umbilical cord, newborn morbidity, breastfeeding initiation, and anthropometric measures for the newborn (birth weight, length, head circumference). The data collected during postpartum include postpartum morbidity, postpartum health seeking behaviors, breastfeeding status, family planning status, postpartum anthropometric measures, hemoglobin level, and infant survival status at day 7 and day 42 after delivery. Information given by the pregnant women or respective respondent are recorded in the field in the pregnancy questionnaire and entered into the computer in a batch mode. The format of the questionnaire is like a note

book consisting three sections, namely, ante partum, intra partum, and post partum. Because of the prospective nature of the data being collected, the information obtained are recorded in the provided column space indicated by the date of visit.

It is important to be mentioned that all data collected in the MotherCare Initiative can be linked easily into the data already routinely collected in the SRS. Hence, data needed for studying both determinants and consequences of health practices can possibly be studied.

4. RESULTS

Although the visitation cycle of The Indramayu SRS is every three months or 12 weeks, the field operation in each cycle takes about 9 weeks. As previously mentioned, the data collection activity of the MotherCare Initiative is just started in the mid of the 6th Indramayu SRS, April-June 1991, so that by early June 1991 we are not able to show the data obtained in a longitudinal fashion. What we can do is just to present a preliminary result showing the ability of the Indramayu SRS in detecting early pregnancy and in descriptively picturing morbidity patterns, and to some extent discussing the validity, the reliability, and the practicability of the questions for obtaining maternal health related data.

In about 4 to 5 weeks of the SRS field operation, there have been 91 new suspected pregnancies identified in Gabus Wetan and 126 new suspected pregnancies identified in Sliyeg. Percent of those suspected pregnancies that have been checked one month later by the MotherCare interviewer for pregnancy confirmation is 59.3% in Gabus Wetan and 67.5% in Sliyeg. Among those already checked, 90.7% in Gabus Wetan and 71.8% in Sliyeg are confirmed pregnant. In spite of the figures speak for themselves, the different results between the two study areas could be interpreted differently. One may interpret that the SRS in Gabus Wetan is more accurate in detecting pregnancy than Sliyeg. On the other hand, the SRS Gabus Wetan may miss more number of pregnancies than Sliyeg under the view that it is better to have more number of suspected pregnancies with a final result to have more absolute number of confirmed pregnant even though less in percentage of confirmed pregnant. The verification of which interpretation is more valid could only be assessed in the long run after the SRS for detecting new pregnancies running for at least two cycles. For example, for the later interpretation, the mean age of gestation when the new pregnancy is detected should be younger for Sliyeg than Gabus Wetan.

The preliminary result shows that the Indramayu SRS is able or only able to detect on the average new pregnancies with 4.4 months of gestation age. Both Gabus Wetan and Sliyeg have the same ability in detecting new early pregnancies. The results preliminary also show that age, parity, and education of mother do not affect the SRS ability in detecting early pregnancy. In a more detail, only 5.7% of pregnancies are detected in gestation age of 2 months, 25.0% in gestation age of 3 months. About 15.0% of the pregnancy were detected in gestation age of already 7 months. Part of the reasons is because the pregnant women in the previous cycle were not able to be interviewed directly. Those pregnant women generally were not at home and could not be met after several tries.

It has also been shown that information on the date of LMP that were used as the basis for calculating the pregnancy gestation age is relatively accurate. The preliminary results indicate the mean gestation age of pregnancies terminated in births were 8.8 months.

For picturing the morbidity patterns, as a data test we were only entering the cross-sectional data into a computer referring to 474 women either in ante partum or post partum period. From those number of women entered, 219 were from Gabus Wetan of which 182 were old and 37 are new pregnancies, and 255 were from Sliyeg of which 204 were old and 51 were new pregnancies. Old pregnancies mean that they were already detected in the previous cycles. Among those old pregnancies, 44.5% and 55.5% in Gabus Wetan and 41.2% and 58.8% in Sliyeg were in the stage of ante partum and post partum respectively. While number of new pregnancies entered were 37 in Gabus Wetan and 51 in Sliyeg.

The preliminary results show that morbidity pattern during ante partum, intra partum, and post partum are in general consistent between the two study areas. This is to some extent indirectly showing that the morbidity questions are reliable enough. As expected, the morbidity pattern is different between ante partum in one hand and intra and post partum on the other hand.

Within a recall of one month period, the most prevalence symptoms reported during antepartum were continuous headache (23.0%), fever or chill (16.3%), difficulty or pain in urinating (10.7%), and edema in the leg, hand, or face (4.0%). Among those four major symptoms, only edema could be visually observed at time of interview, and the other symptoms were subjectively measured on the basis of what were reported or perceived by the respondents. Logically, a question on edema is more valid than the other three questions. This thinking should be theoretically important in providing interpretation on morbidity pattern.

Bleeding (18.1%) and edema or convulsion (10.9%) were reported to be the most prevalence symptoms during intrapartum. While prevalence of edema is consistent, the prevalence of bleeding is significantly different between the two study areas. Two different interpretations could be made. In one hand, one might say that the prevalence of bleeding is indeed higher in Gabus Wetan than in Sliyeg. On the other hand, one might say that the big significant difference is a function of low reliability of the bleeding question. The later seems to be more appropriate considering the facts that bleeding will always happen in every delivery and it is a matter on how much is the bleeding rather than yes or no bleeding. In the field both interviewers and respondents or even among themselves generally have different idea of the concept of the frequency and the quantity of the bleeding.

Bleeding (46.7%), swelling breast (43.4%), fever or chill (20.8%), and difficulty or pain when urinating (15.6%) were reported as the most prevalence morbidity symptoms during postpartum. It is interesting to see again the difference in the prevalence of postpartum bleeding between the two study areas but in different direction.

The results show that more postpartum women in Gabus Wetan reported breast engorgement than in Sliyeg. The interpretation on this differential is just like the prevalence of bleeding. Breast

engorgement will always occur on every postpartum woman, so that the breast engorgement is not a matter of yes or no swelling but rather how big is the swelling. Again, people may perceive differently regarding the concept of "big".

5. DISCUSSIONS

In line with the paper objectives, the discussions will center on problems in the detection of early pregnancies and in the collection of maternal morbidity related information.

5.1. Problems in the detection of early pregnancies

As previously mentioned, the detection of early pregnancies through the Indramayu SRS involves the collaboration work between the SRS interviewer, the data entry clerks, and the MotherCare interviewer. The flow of the detection activities is pictured in Figure 3. We have documented, however, several problems that we have encountered in the field.

In general, women in the study area are pleased to respond on a question relating to the date of LMP. The following conditions, however, show that using the date of LMP for detecting early pregnancy is not always easy.

if the woman do not remember when was the date of LMP. In this case, the woman usually provide the date of LMP on the basis of her estimation and the interviewer will try to confirm the estimation by asking a set of probing questions. For these women they often provide different dates of LMP to the SRS and the MotherCare interviewer who check one month later. Some women uses Javanese Calendar when reporting the date of LMP and the interviewer should convert into Western Calendar. In the Indramayu SRS, however, the number of women who do not remember the date of LMP is not so many and the number tends to reduce overtime because on every cycle of visit, the SRS interviewer reminds the woman to always record every month the date of when the menstruation begins in the yellow card provided by the interviewer and left with the household or just put the mark on the hanging calendar. This is an added value from the SRS in detecting early pregnancies

A problem will also arise when the woman in the previous months had irregular menstruation. In such a case, both the woman and interviewer are confused in determining the woman pregnancy status. Hence, the interviewer should look for other pregnancy signs and symptoms both by asking the woman other related questions and by observing physical pregnancy characteristics.

If the woman suffers from chronic vaginal bleeding, both interviewer and respondent do not know whether the bleeding is because of menstruation or because of a particular disease symptom. This condition makes the ascertainment of the date of LMP difficult because we do not know whether the woman is menstruating or not.

In any case, there is a pregnant woman who has not yet menstruated since her last delivery. In this case, we have a difficulty in determining the onset of the current pregnancy. In dealing with such problem, the interviewer will record the date of LMP on the basis of gestation age estimation provided by traditional birth attendant or midwife.

The date of LMP in a cycle visit may not be recorded in the HRB because after several tries the interviewer was not able to directly interview the woman. If the woman is pregnant, then it will be lately detected.

Several respondents are ashamed to provide responses to the date of LMP. The followings are some reasons identified.

- o The young respondents aged 12-14 years feels that they are kids and those who are in unmarried status.**
- o The respondents with unclear marriage status are worry to be detected pregnant.**
- o The old respondents are reluctant to provide responses because they feels old and already have many children.**

For obtaining information on the date of LMP, the interviewer was approaching other persons who know the targeted respondent closely.

In addition to the date of LMP, the presence of the physical pregnancy signs, symptoms and characteristics is used in ascertaining the pregnancy status. For some respondents with particular physical postures, however, it is sometimes difficult to ascertain their pregnancy status. On the other hand, the respondents may be pregnant without showing any clear pregnancy characteristics.

In our documentation at least 3 respondents reported using injectable contraception but they are in fact pregnant. Interviewer thought that those using contraception will be less likely to be pregnant. After field investigation, we found that those women are already pregnant before receiving injectable contraception.

We also found an almost similar case like above. In a previous cycle visit, a woman reported using pill as contraception and the interviewer, according to the procedure, did not think that the woman is pregnant. In the next cycle visit, however, the interviewer found that the woman is clearly pregnant with 6 months age of gestation. After probing, we found that the woman was wrongly taking the pill.

Realizing the above problems, we have suggested the SRS interviewers to list as many women who are suspected pregnant to be checked one month later for pregnancy confirmation.

5.2. Problems in data collection

There have been so far no significant problems on field management activities. Because of the unequal distribution of pregnancies among enumeration areas, we have organized the interviewing mechanism so that the MotherCare interviewer with less number of pregnancies in her area is able to help the area with more number of pregnancies.

The length of the interview using the pregnancy questionnaire on the average was one hour for antepartum respondent, 30 minutes for intrapartum respondent, and 30 minutes for postpartum respondent. Some of the respondents were complaining about too many questions being asked particularly on food questions. The food questions are considered sensitive. Some of the respondents felt that the interviewer tried to assess her economic ability to eat various kind of food given on the fact they are poor and eat whatever they found.

Other sensitive questions are smoking and alcoholic drinking, when in the postpartum start to be sexually active. Smoking and drinking for some women have negative connotations because women who are smoking and drinking are usually prostitutes. Women will usually feel to be bothered receiving a question on sexual activities.

A question on whether any abnormality on her newborn baby is not openly to be answered by mother who has abnormal newborn. For this, the interviewer should see directly the newborn.

6. CONCLUSION

The study shows that given specified procedure based on the date of LMP in combination with other related information, the Indramayu SRS is able to confirm 70-90% of those suspected pregnant women, and among those confirmed pregnant, the mean gestation age of pregnancies when they were detected was 4 months. The accuracy of obtaining accurate information on the date of LMP is promising given the fact of a longitudinal nature of the SRS. Women are kept reminded in every cycle visit to record or to mark their date of menstruation. The study also shows that several questions are sensitive to be asked particularly questions in regard of food consumed, sexual activities, and smoking and drinking. The prospective nature of data collection, however, is not able to be assessed because of the maternal data collection activity has just started a month ago.

Acknowledgement

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Table 1. Number of New Pregnancies Detected in 4 weeks of the 6th SRS Cycle in Gabuswetan and Sliyeg *

	Gabus Wetan	Sliyeg
- Number of suspected pregnancies identified by the SRS interviewer	91	126
- Number of suspected pregnancies checked one month later in the field by the MotherCare interviewer	54 (59.3)	85 (67.5)
- Number of pregnancies confirmed	49 (90.7)	61 (71.8)

*) *The period of field operation in each cycle is 9 weeks*

Table 2. Age of Gestation when Pregnancies were Confirmed by the MotherCare Interviewer

Age Of Gestation (Months)	Number Of Pregnancies	Cumulative Percentage
2	5	5.7
3	17	25.0
4	37	67.0
5	12	80.7
6	4	85.2
7	13	100.0

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Table 3. Status of Data Entry Test of the MotherCare Initiative, June 1991

	Gabus Wetan	Sliyeg	Total
Number of pregnant women entered	219	255	474
Number of old pregnancies (detected before the 6 th cycle)	182	203	386
* in intra or postpartum	101	120	221
* in antepartum	81	84	165
Number of new pregnancies (detected in the 6th cycle)	37	51	88

Table 4. Mean Age of Gestation When New Pregnancies were Detected

Study Areas	Mean	SD	Number Of Pregnancies
Gabuswetan	4.4	1.46	37
Sliyeg	4.3	1.37	51

Table 5. Mean gestation Age of Pregnancies When First Detected and Mean Gestation Age of Pregnancies When Terminated in Still and Live Births by Age, Parity, and Education, Gabuswetan and Sliyeg

Variable	New Pregnancies		Completed Pregnancies (Still and Live Births)	
	N	Mean	N	Mean
- Age				
<20	20	3.70	35	8.71
20-29	44	4.61	98	8.86
30+	24	4.46	88	8.90
- Education				
Never School	35	4.37	95	8.80
Not Finish Element.	27	4.52	66	8.95
Finish Elementary	26	4.19	60	8.82
- Parity				
<1	50	4.14	104	8.78
2 +	38	4.66	117	8.91

Table 6: Maternal Morbidity during Pregnancy (Percent Having the Symptom Last Month)

Symptoms	Gabus Wetan	Sliyeg	Total
	N = 118	N = 134	N = 252
Fever or chill	16.9	15.7	16.3
Edema in leg, hand, face	3.4	4.5	4.0
Continue Headache	22.0	23.9	23.0
Urinating pain or difficulty	11.9	9.7	10.7
Bleeding	0.8	0.7	0.8

Table 7. Maternal Morbidity during Intra and Postpartum

Symptoms	Gabus Wetan N=102	Sliyeg N=119	Total N=221
Intrapartum			
Convulsion/Leg Edema	11.8	10.1	10.9
Hemorrhage	26.5	10.9	18.1
Postpartum			
Fever or Chill	20.6	20.9	20.8
Hemorrhage	35.1	56.5	46.7
Urinating Difficulty	16.5	14.8	15.6
Breast engorgement	50.5	37.4	43.4

APPENDIX: THE FOLLOWING DATA HAVE BEEN OR ROUTINELY COLLECTED IN THE INDRAMAYU SRS.

Household socioeconomic data: These data have been collected once at the baseline survey to include the following related variables: religion, ethnic, ability to speak Indonesian, exposure to mass media, and contact to health services for the household head, household economic assets, housing conditions and household sanitation facilities. The data are stored and maintained in the baseline household file.

Household member demographic data: These data have been collected at the baseline survey and longitudinal data are regularly updated through the SRS cycles of work. These member data include name, sex, date of birth, marital status, relation to household head, spouse line number, education, and occupation, and for mother: number of children ever born and number of children still alive at the baseline. The data are stored and maintained in the member file.

Demographic health related events among household members: These data have been prospectively collected through the SRS cycle of work. Type and date of events being recorded include onset of pregnancy, type of pregnancy termination, type of marital status changes, death, and in- and out-migration. For particular events, more information are also recorded, i.e. for birth and death: type of place and attendant, and for migration: place of origin and reason for in-migration and reason and place of destination of out-migration. For the onset of pregnancy, the date of that event is the date of LMP. These data are stored and maintained in the event file.

Woman and child health data: These data on women aged 12-49 years and children aged 0-2 years are prospectively collected since the second SRS cycle. The women data collected include menstruation status, type of contraception used and reasons for not using contraception, status of taking iron tablet and of getting TT vaccination. The children data collected include type of immunization received, frequency of breastfeeding per day, average length of breastfeed per contact, type of liquid given to the child, type of milk formula given to the child, and type of non-milk food given to the child. Although the data are collected every three months, they are recorded and stored the monthly format in the woman and the child file.

Data on Breastfeeding Knowledge and Practices: These data have been cross-sectionally collected among women who delivered births in the last three years and among men with his wife delivered births in the last three years. The data collected include information on ever breastfeeding, duration of breastfeeding, frequency of breastfeeding, length of breastfeeding contact, initiation of breastfeeding, practice and belief of discarding colostrum, practice and belief of giving prelacteal food, practice and belief of early supplementary feedings, exposure to breastfeeding IEC activities, use of contraceptives during lactation, length of amenorrhea, and other related information.

Household member morbidity data: Morbidity data with two-week recall period among members of all sample households have been cross-sectionally collected in the 6th SRS cycle, April-June

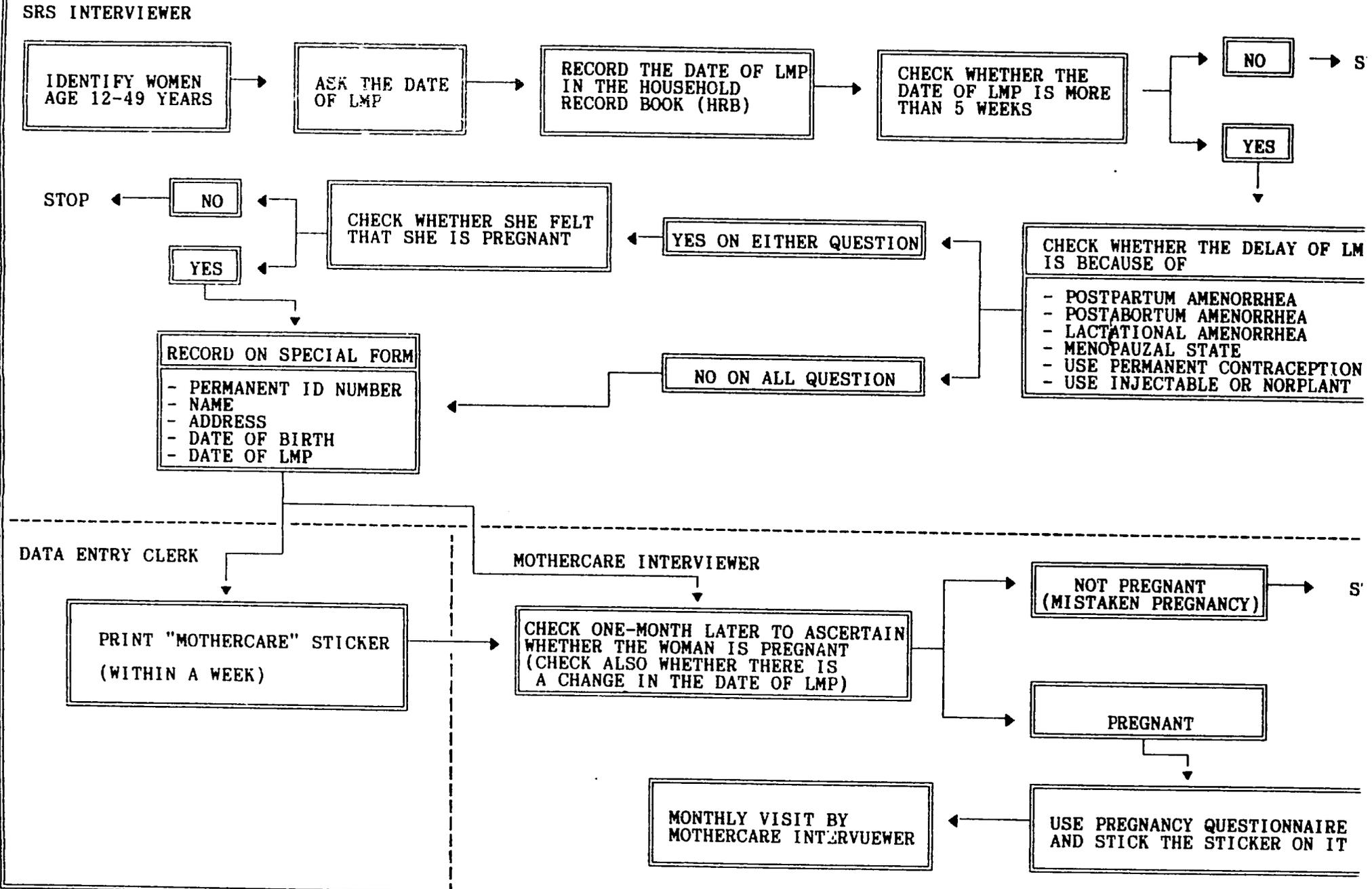
1991. A morbid condition has been defined as an illness condition reported or perceived by the morbid person or by other household members, as a bad physical or mental condition that significantly affects the person daily activities, or as a physical or mental abnormality that can be visually observed by the interviewer. The data collected include information on the present of specified symptoms, morbidity diagnosis summary, and health care utilization.

Data on Causes of death: These data have just been prospectively collected since the 6th SRS cycle. The data collected include information on the date and the cause of death, health care utilization immediately before death, type of health services used before death, present of specified symptoms before death, and morbidity causes of death summary.

Other Data: Qualitative data on knowledge, beliefs, and practices on morbidity and health seeking behavior during pregnancy, intra partum, and post partum have also been collected through focus groups dicussion and indepth interviews.

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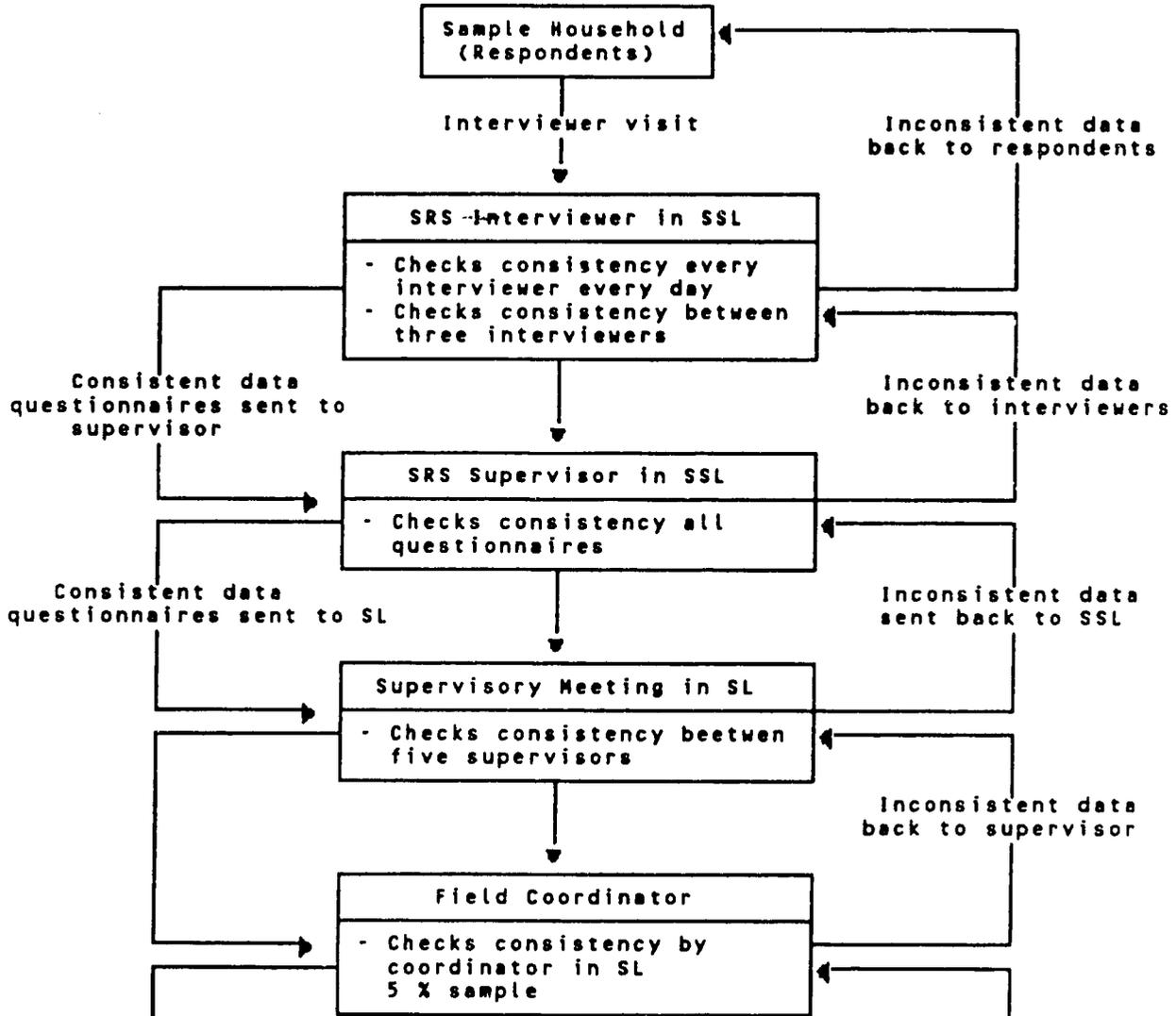
FIGURE 3. THE SRS PROCEDURE FOR THE DETECTION OF PREGNANCY



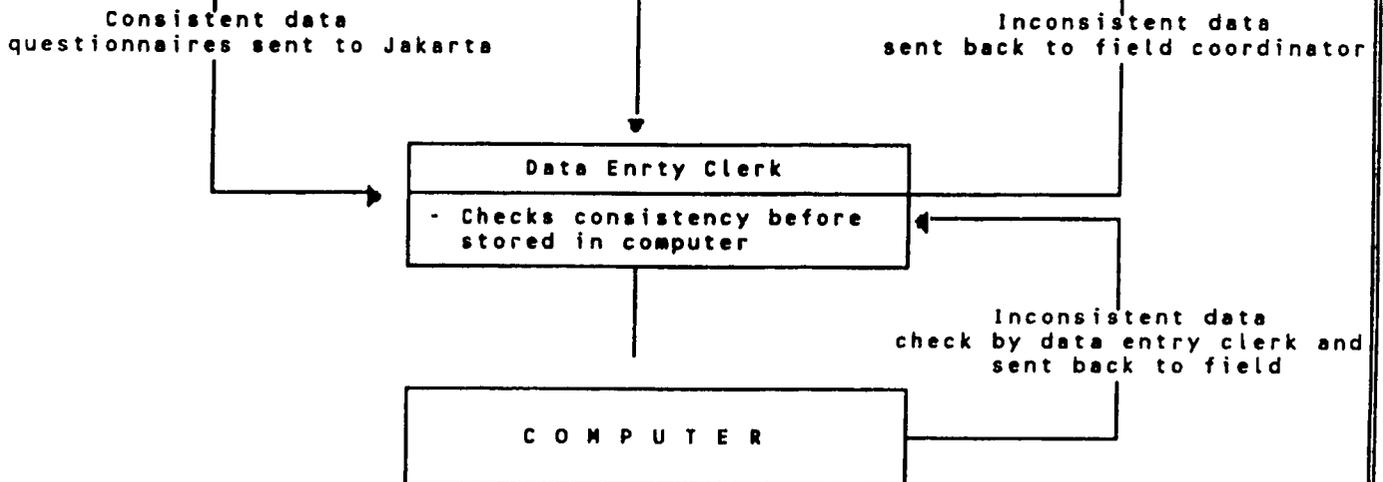
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FIGURE 2. THE INDRAMAYU SRS FIELD AND COMPUTER OPERATION

FIELD COMPONENT



COMPUTER COMPONENT



SSL = Sub Field Office (five SSL in each study areas)
 SL = Field Office (one SL in each study areas)

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Figure 1. Time Frame of the Indramayu SRS Project Development Activities

Time	Activities
January - June 1989	Project Preparation Include Field Set-up
July - September 1989	Listing and Mapping
October - December 1989	Sampling and Baseline Survey
January - March 1990	The 1st SRS Cycle - Household Record Book (HRB)
April - June 1990	The 2nd SRS Cycle - Household Record Book (HRB) - Mother and Child Book
July - September 1990	The 3rd SRS Cycle - Household Record Book (HRB) - Mother and Child Book - Breastfeeding Intervention
October - December 1990	The 4th SRS Cycle - Household Record Book (HRB) - Mother and Child Book - Breastfeeding Intervention
January - March 1991	The 5th SRS Cycle - Household Record Book (HRB) - Mother and Child Book
April - June 1991	The 6th SRS Cycle - Household Record Book (HRB) - Mother and Child Book - Mothercare Questionnaire - Morbidity Questionnaire - Causes of Death

APPENDIX 10

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D R A F T

IMPROVED IRON-FOLATE DISTRIBUTION TO ALLEVIATE MATERNAL ANEMIA
An Operations Research in two Sub-districts of Indramayu Regency,
West Java, Indonesia.

[INTRODUCTORY CHAPTER OF THE REPORT ON MOTHERCARE
PROJECT AT INDRAMAYU, WEST JAVA]

Prepared by

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The Population Council
Jakarta

APRIL 1992

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APPENDICES

IMPROVED IRON-FOLATE DISTRIBUTION TO ALLEVIATE MATERNAL ANEMIA

An Operations Research in two Sub-districts of Indramayu Regency,
West Java, Indonesia.

CHAPTER I

INTRODUCTION

1. Introduction.

1.1. Background

The relation of maternal nutritional and immunization status with the outcome of pregnancy and survival of the new-born has been well documented (REFERENCES). Nutritional supplementation is aimed at improving the mother's energy reserves and her nutritional status, while the objective of strengthening her immune capacity through tetanus immunization is to boost the chances of infant survival.

The decade of the 1980s has been largely dominated by concerns to improve child survival with research programs aimed at reducing infant and child mortality by adopting multi-disciplinary approaches. However, it has been increasingly realized that interests of infant and child survival are best served by extending the area of concern to well before the infant is born, i.e. to the mother to be. This renewed interest¹ in maternal health is of recent origin and complements the child health focus.

Infant mortality rate (IMR) in Indonesia has declined appreciably since the late 1970s. Estimates based on the 1980 census revealed an IMR of 112 per 1000 live births in mid-1977. Estimates based on the 1985 Intercensal Survey (SUPAS 1985) show that the IMR had declined to 71 per 1000 live births in the early 1980s (Mamas, 1988). However, preliminary calculations based on the 1990 census and the 1991 Demographic and Health Survey indicate that the declining trend of infant mortality may have been

¹ In the decades of the 1960s and 1970s, the focus was on maternal and child health (MCH) and family planning, but in the 1980s, particularly with the publication of the Mosley and Chen (1984) framework on child survival research, the focus had shifted almost entirely to child survival; the maternal factors were taken into account only insofar as they were directly related to the child's health. This apparent exclusive attention to child survival had prompted..... (....) to pose the question "Where is the M in MCH?"

arrested, at least temporarily². While the IMR, an indicator of socio-economic development has shown a downward trend, at least up to the mid-1980s, the perinatal mortality rate (PMR), an indicator of maternal health and prenatal care has not made any significant progress. A study in Bandung regency of West Java in 1980 showed a PMR of 43 per 1000 live births (Alisjahbana 1985), while the 1986 Household Health Survey showed a PMR of 40 per 1000 live births for the same area (Budiarso, 1988).

Perinatal mortality includes fetal and early neonatal mortality. Estimates show that total neonatal mortality accounts for 40 per cent of infant mortality in Indonesia and more than 10 per cent of mortality among all age groups (Household Health Survey 1986). According to this survey, the four main causes of infant death are tetanus, perinatal causes (asphyxia, hypoxia, infection, and other obstetric complications related directly to birth processes), diarrhea and acute respiratory infections (ARI). Of these, neonatal tetanus and perinatal causes are the predominant factors in the neonatal period. Perinatal mortality is generally aggravated by low birth weight and prematurity, both of which are related to maternal nutritional status.

Thus, prenatal health care is crucial for imparting health and nutrition education to pregnant women and for monitoring their health and the health their fetus. Adequate prenatal care is an effective means of minimizing perinatal problems. An integral part of prenatal care is to ensure adequate maternal weight gain during pregnancy and a healthy growth of the fetus, as well as to reduce maternal nutritional deficiency and strengthen the pregnant woman's immunity to tetanus infection.

With respect to maternal nutritional deficiency, particularly maternal anemia, the government has a program of supplying iron-folate tablets through the health centers, but the main problem is the low compliance from the pregnant women in taking the iron-folate tablets in the prescribed quantity and frequency.

²Preliminary calculations based on child survivorship data from the 1990 census and the 1991 DHS show IMR in the range of 85 to 87 corresponding to the period 1987 to 1989. These figures appear to indicate an upswing in the IMR, but they may very well represent a stagnation in the infant mortality rate in Indonesia, as standard errors of estimates due to sampling fluctuations may mean the difference between the rates of the two periods are not statistically significant. Further, such a stagnation, if true is not unexpected given that at such levels of infant mortality further sharp reductions are very difficult to achieve.

1.2. Statement of the Problem.

Problems of child health and the interventions to solve them are relatively well documented. The interventions have either been aimed at the children directly, or indirectly through the mother, taking advantage of the biological link between mother and child. Examples of the latter are nutritional supplementation and tetanus immunization of the mother, which seek to develop the mother's energy reserves, reduce her nutritional deficiencies and strengthen her immune capacity with the object of improving the health and survival chances of infants and children. As stated earlier, the interest in maternal health is of recent concern, which complements the focus on child health.

Maternal health problems originate well before a woman becomes pregnant; in fact they can be traced back to as early as the woman's childhood, transmitted to her from her mother. Due to various reasons, this cyclical process of transmission of health or ill-health from one generation to the next has not been the focus of health programs in developing countries, due, in most part to matters of priority and budget constraints which limit the coverage of primary health care programs. The Indonesian community health program, through its risk approach to maternal and child health identifies pregnant women and children under five as being "at risk". The government's program policies have directed special programs, such as the Integrated Family Planning and Health Posts (Indonesian acronym - *Posyandu*) towards these risk groups comprising women of reproductive ages, pregnant women and children under five.

1.3. Genesis of the Study.

Since its establishment in 1987, the Center for Child Survival, University of Indonesia (CCS-UI) has conducted various research projects in Indramayu Regency of West Java, Indonesia with the object of understanding the determinants of child survival and launching suitable interventions to alleviate the problems. In the first two years all research projects carried out by the Center were cross sectional in design.

The Center for Child Survival and its sister organization in the University, the Center for Health Research owe their establishments to the Morbidity and Mortality Project set up in 1983 with support from the Ford Foundation in response to the need carry out research and intervention studies on child survival and family planning. The need to carry out such studies was felt by the Government (in particular the Ministry of Health and the National Family Planning Coordinating Board) and the University of Indonesia in view of the high infant and child mortality in the country and the global concern to find solutions to such problems in a multi-disciplinary approach. The Mortality and Morbidity Project was set

up after a national conference to review the country's infant and child mortality situation held in December 1982 under the joint auspices of the University of Indonesia and the Ford Foundation. After its establishment, the Project has collaborated with other international agencies such the Population Council, the USAID, the UNICEF and Applied Diarrheal Disease Research Institute. Indramayu, for its many typical characteristics was chosen as the site of many studies carried out by the Project.

In January 1989, the Center for Child Survival started the prospective study of family planning and health in two sub-districts of the Indramayu Regency in collaboration with the National Family Planning Coordinating Board and the Ministry of Health, Republic of Indonesia. The two sub-districts are Gabus Wetan and Sliyeg, the former used for carrying out interventions (the experimental sub-district) and the latter used as a control. The prospective study is longitudinal in nature, i.e. the sample households are observed continuously over time with respect to the members relationships to each other and recording new events in the households and updating the information about each household continuously. The data editing, entry and update are all done through a computer software specially developed for this purpose, so that the updating is done with a minimum of time lag after the collection of new information. The entire system is called the "Sample Registration System", abbreviated into SRS, because registration of demographic events is carried out on a continuous basis among the households originally selected in the sample. The SRS is modelled after a similar data collection technology developed by the Population Council for International Center for Diarrhoeal Disease Research, Bangladesh at the Maternal and Child Health and Family Planning Extension Project in Matlab, Bangladesh.

The fundamental aim behind the setting up of the Indramayu SRS is to have a laboratory site which can be representative of a credible area for policy relevant health services research.

The problem identified in this project is a prevalence of anemia during pregnancy, which is exacerbated by non-compliance by pregnant women in taking the iron-folate tablets even though they are distributed from the village level community health centers or clinics. The intervention designed to solve this problem is directed to a reduction in this pregnancy related anemia through an improvement in the distribution system of iron-folate tablets and in the compliance of taking iron-folate tablets through an intensive health education and social marketing approach.

The present Iron-Folate Distribution project, which addresses the problem is added on to this prospective study and uses Indonesia's only SRS system.

2. Scientific Issues

Studies of family planning and health are generally based on data collected through cross sectional surveys or indirect approaches for estimation of demographic parameters. The growing interest among public health and demographic communities in the health of women and children in developing countries and in interventions aimed at their improvement has revealed the need to apply new and innovative approaches to data collection such as demographic surveillance systems. The design of such a system requires that (a) it is a cost-effective monitoring system which permits evaluation of demographic impacts of interventions; and (b) it produces accurate, longitudinal data systems which allow detailed understanding of the determinants of morbidity and mortality and the interrelations between them - areas of investigation hitherto studied only to limited extent through cross sectional surveys. The Indramayu Sample Registration System, by virtue of its characteristics that meet the above criteria serves as a pilot project for designing and testing public health and family planning interventions designed to improve the health of community, particularly that of women and children.

Various social and demographic indicators point to a continuing progress in the health of the Indonesian people. In keeping with the decline in infant mortality mentioned earlier, there have been improvements in several health service indicators. For example, 65 per cent of infants are immunized against six major diseases³; and the number of community health centers (*Puskesmas*) and Integrated Family Planning and Health Posts (*Posyandu*) has increased from 3,735 in 1974 to 5,331 in 1988.

Although, as a result of expansion in the numbers of these centers and posts, health care services and child care facilities are more accessible to the community than before, such services are still mainly focused on the infant and child. Further, while the government policy is to include maternal health care services into these various health care facilities, it has not received the required attention of health care providers, nor have the clients been forthcoming in utilizing whatever services are available. This is evident from a stagnation of the perinatal mortality rate at 40 per thousand live births since 1980.

³ This percentage is presumably based on records of the Department of Health. But, according to the 1991 Indonesian Demographic and Health Survey (IDHS 1991), which employed more stringent criteria for ascertaining whether a child aged 12 to 23 months had received all vaccinations (BCG, DPT 1 to 3, Polio 1 to 3 and Measles) the percentage of children with complete immunization was 48.3.

2.1. Maternal Morbidity and Mortality.

There has so far been no national level survey of maternal mortality in Indonesia. The 1980 Household Health Survey estimated a maternal mortality rate of 40 per 10,000 live births. Other localized surveys, e.g. the Survey of Maternal Mortality conducted in Central Java by Agoestina (1990) estimates a maternal mortality rate of 45 per 10,000 live births.

Approximately 80 per cent of all deliveries take place at home (CBS-UNICEF, 1984). About 40 per cent of the deaths of women aged 15-44 are supposed to have been caused by complications of pregnancy and childbirth and the vast majority of pregnancy-related deaths have been attributed to hemorrhage, infection and toxemia (Chi et al. 1981; Fortney et al. 1985). The factors contributing to the high maternal mortality in Indonesia include age, parity, socio-economic status, distance to the hospital (Daryono et al. 1981) and poor nutrition, anemia, short inter-pregnancy interval, and poor hygiene (CBS-UNICEF, 1984).

2.2. Prenatal, Intra- and Post-Partum Care.

Neonatal problems including low birth weight and perinatal mortality are more common among women with no prenatal care (Trivedi and Mavlankar, 1986; Harrison, 1985; Brown, 1985).

Prenatal care provides an opportunity of promoting good health and nutrition during pregnancy through counselling and other prenatal services such as iron-folate supplementation and tetanus toxoid immunization. It can also help timely identify and refer cases of high risk pregnancies and manage pre-existing or current problems.

To be effective in providing these services a health system should have the following qualities :

- high level of training of service providers;
- high participation of women in the program including active seeking of counselling;
- good prenatal care services in which maternal morbidity is identified on time and appropriate referrals are made.

In Indonesia, prenatal care is an integral part of the MCH program and is available to all pregnant women at very low costs. However, service statistics and surveys indicate rather low utilization or coverage of these services. Although 50-70 per cent of the target population visit a health facility at least once during pregnancy, only a third or fewer have been examined at least four times during pregnancy as recommended by the program. It is contended that most women attending a Posyandu (Integrated Family

Planning and Health Post) only have their children weighed, but do not receive any prenatal care and that those who attend a Puskesmas (Community Health Center) are only examined for pedal edema, and fundal height as measured by the finger method. There is little management of referral for the conditions diagnosed during these visits. One of the conclusions of the 1986 Household Health Survey is that the frequency of prenatal care does not influence perinatal mortality in any significant manner, implying the poor quality of prenatal care received (Budiarso, 1988).

In order to improve prenatal care and delivery services, it is important to know who provides such service, what advice is given to the pregnant woman, how and to what extent maternal morbidity is diagnosed and treated and what, if any referrals are made in case of identification of a high risk pregnancy. Recent findings from the Indramayu Prospective Study of Family Planning and Health in West Java reveal that although about 70 per cent of pregnant women visited the nurse midwife for prenatal check, but almost 80 per cent of the deliveries were attended by traditional birth attendants (TBAs) (Indonesian Epidemiology Network, 1989). However, the scope of the study did not include identification of high risk factors or pregnancy referrals.

In spite of training a large number of TBAs and outreach workers (cadres) throughout Indonesia to improve their skills, there is still a lack of awareness among them about the need for adequate prenatal care and identification of high risk pregnancies and their timely referral. This lack of awareness is shared by women in the community. The problem is aggravated by inadequate logistical support and monitoring of health services at the health service points.

2.3. Maternal Nutrition.

Weight before or during pregnancy is strongly associated with reproductive outcome and low weight is often related to obstructed delivery, a major cause of maternal deaths.

In a study of nutritional status of pregnant women in East Java, Kardjati (1985) found that their pre-pregnancy weight was low. The total weight gain during pregnancy was only 6.6 kg., which was 15 per cent of the pre-pregnancy weight and only half the weight gain recommended in the United States for women with initially low pre-pregnancy weight. She further found that fetal growth was impaired and seasonal fluctuations in birth weight coincided with those in food consumption. The habitual dietary intake was marginal, so that there was no allowance for building up reserves to offset the deficit during lean seasons.

Maternal nutrition status can be measured by various methods, viz., dietary (calorie consumption), anthropometric, clinical and biological. Of these, the anthropometric method is the most cost-effective because of its high degree of accuracy at relatively low cost and because it can be used with the minimal of skill and time (Austin, 1978; Martorell and Ho, 1984).

2.4. Nutritional Anemia.

Weight gain is not the only indicator of improvement in nutritional status of pregnant women as deficiencies in other nutrients, particularly iron and iodine become more marked during pregnancy even though body weight may increase.

Iodine Deficiency Disorders (IDD) are relatively less prevalent in West Java (13.2 per cent) compared to other provinces, as revealed by a review of IDD in Indonesia conducted by the Ministry of Health (1988). Moreover, measurement of IDD poses a great many problems in terms of feasibility (e.g. measurements based on examination of umbilical cord blood), in terms of accuracy (e.g. palpation of thyroid glands, which is based on subjective criteria) or in terms of skills required (e.g. the evaluation of palpation very soft hyperplastic glands requiring much training) (Djokomoelijanto, 1974). The other alternative method of measuring urinary iodine secretion is not sensitive.

Due to the above mentioned reasons, this study focuses on anemia, which refers to either a deficiency in the oxygen carrying capacity or the quantity of red blood cells.

Nutritional anemia refers to dietary deficiencies, such as shortage of iron, folic acid, or B12, which inhibit the production of new blood cells. Anemia may also be caused by tropical diseases, e.g. malaria or hookworm infestation. The prevalence of such diseases should be examined before mounting any programmatic intervention to reduce anemia. Further, in pregnant and lactating women the need for additional iron may lead to anemia, which may be aggravated if, at the same time there are cultural barriers to nutritious diet.

The normal hemoglobin (Hb) level for an adult, non-pregnant women should be above 12 grams per deciliter (12 g/dl). The Hb level declines from the twentieth to the thirty fifth week of pregnancy. If the level goes below 11g/dl the woman is classified as anemic. An Hb level of less than 9 g/dl reflects a safety threshold below which maternal health is threatened. An Hb level of less than 6.5 g/dl directly threatens maternal survival (World Health Organization, 1972, 1975). The risk of maternal death increases eight-fold in cases of severe anemia (Hb level below 8 g/dl) during pregnancy (Belsey and Royston, 1987).

The effect of hemoglobin level on birth weight is not so clear. Studies of malnourished groups have shown that low Hb level (less than 9 g/dl) is associated with low birth weight and higher perinatal mortality (Murphy, 1986; Kuizon, 1985). On the other hand, studies of well nourished groups have demonstrated that Hb level is inversely related to birth weight (reflecting improved plasma volume expansion), and results in a decline in the iron store of the infant's blood, which may lead to anemia in the child with possible behavioral and developmental disturbances.

In 1985 the World Health Organization estimated that 59 per cent of women in developing countries (except China) were anemic. A study of Southeast Asian countries (Philippines, Malaysia, Singapore, Thailand and Indonesia) revealed that pregnant women in Indonesia had the lowest hemoglobin levels (World Health Statistics, 1982). Estimates based on the Household Health Survey of 1986 show that the prevalence of anemia in Indonesia as a whole was 73.7 per cent, while in Bogor Regency of West Java it was 68.6 per cent. The study also showed that the severity of anemia (mild, moderate and severe) increased with parity and maternal age (and thus reduced iron stores over time).

Anemia among pregnant women has been programmatically tackled at the Integrated Family Planning and Health Post (Posyandu) and the Community Health Center (Puskesmas). Program policy dictates that iron supplements be distributed to all pregnant women in their last trimester from these posts and centers. Packets of 30 tablets, containing 200 mg. ferrous sulphate plus 0.25 mg. folic acid (one of the cheapest available compounds), are supplied by UNICEF for this purpose.

Further research is needed to assess the flow of prenatal iron-folate tablet supplies and to find out the number of women who actually use these prenatal services and how many comply with iron-folate supplementation. For the average woman, the need for preventive care is difficult to perceive, particularly when this competes with other household demands. Not much is known about local beliefs and perceptions regarding anemia, or about self-care and dietary practices which may lead to anemia. Anecdotal evidence suggesting that only 33 per cent of pregnant women receive iron-folate supplementation shows that there is a problem in the distribution of the iron-folate tablets.

Despite poor acceptance of iron-folate tablets by pregnant women, prenatal supplementation of ferrous sulphate tablets has been shown to reduce the prevalence of anemia among pregnant women by 50 per cent in Thailand and Burma (Charoenlarp, et al. 1988).

2.5. Birthweight.

Low birthweight (LBW) and tetanus are two of the most important factors associated with perinatal and infant mortality rates in developing countries. Generally an infant is regarded as being of LBW if it weighs less than 2,500 grams. Most LBW infants in developing countries are small but full term (World Health Organization, 1973; Petros-Bervazian and Behar, 1978; Belize, 1978). Apparently the causes of low birthweight in these countries are environmental factors, such as nutritional deficiencies, infections, etc., rather than genetic.

Estimates of the incidence of LBW in Indonesia are based on small, clinical and population-based samples. The World Health Organization estimated an incidence of LBW of between 18 and 20 per cent in 1980, while a 1983 survey of perinatal morbidity and mortality in the rural suburbs of Bandung, West Java found an incidence of 13.5 per cent (Alisjahbana et al. 1983).

In developing countries birthweight, rather than gestational age has a prognostic value for survival. Low birthweight is one of the clearest risks for perinatal mortality (Winikoff, 1988), an LBW infant having a 30 times higher risk of perinatal mortality than an infant with normal birthweight (Belsey and Royston, 1987).

2.6. Perinatal and Neonatal Mortality.

While infant mortality is a measure of socio-economic development, perinatal mortality reflects the state of maternal health and the quality of prenatal and perinatal health care. Perinatal mortality consists of late fetal deaths weighing 1000 grams or more (still births) and early neonatal deaths (within the first week of life); neonatal mortality is defined as deaths in the first four weeks of the infant's life (World Health Organization 1977).

As mentioned in the opening section of this chapter, infant mortality rate (IMR) in Indonesia has declined appreciably since the late 1970s. Estimates based on the 1980 census revealed an IMR of 112 per 1000 live births in mid-1977. Estimates based on the 1985 Intercensal Survey (SUPAS 1985) show that the IMR had declined to 71 per 1000 live births in the early 1980s (Mamas, 1988). Owing to the more resistant nature of perinatal deaths (Edouard, 1985), the perinatal mortality rate (PMR) did not show such a marked decline; the 1978-80 estimate of PMR for the Bandung regency of West Java was 43.7 per 1000 live births (Alisjahbana, 1985), while the 1986 Household Health Survey produced an estimated PMR of 40.5 per 1000 live births (Budiarso, 1988).

According to the 1986 Household Health Survey the most frequent causes of neonatal deaths were prematurity, stresses during the birth process (hypoxia and asphyxia), and obstetric

complications. The next most frequent cause was tetanus neonatorum. Neonatal deaths account for about 40 per cent of all infant deaths in Indonesia. The large proportion of neonatal deaths among infants emphasizes the need for MCH interventions aimed at maternal health, and fetal and neonatal survival.

2.7. Selection of Two Interventions.

There are many problems of maternal health and in the delivery of adequate prenatal care. This project, however, focuses on the problem of maternal anemia. The activities of the project will consist of developing and field-testing (i) information, education and communication (IEC) materials on health education about maternal anemia, and (ii) an experimental service delivery model for the distribution of iron-folate tablets.

The focus on maternal anemia in this project is determined by the factors mentioned earlier, viz.,

(a) more than 73 per cent of pregnant women in Indonesia are anemic;

(b) pregnant women in Indonesia have the lowest hemoglobin levels among the five Southeast Asian countries;

(c) little is known about local beliefs and perceptions about maternal anemia and self-care;

(d) due to logistical problems in iron-folate tablet distribution, there is a need to develop and test an alternative delivery model; and

(e) the Ministry of Health's failure to achieve the target of reducing the prevalence of maternal anemia from 70 to 40 per cent during the Fourth Five Year Plan, in spite of its being a program priority of the Ministry.

Thus the main scientific issue of the Iron-Folate Distribution Study deals basically with the detection of pregnancy among the sample of women (mostly married), the prevalence of maternal anemia among them and interventions to alleviate such problems. Among the expected outcomes of the project are compliance with taking iron-folate tables by the pregnant mothers. Their weight gain from as early as possible in pregnancy and their blood hemoglobin level are monitored through the duration of the project.

3. Policy Origins of the Work

The main policy origin of the study is the program priority of the Indonesian Ministry of Health to reduce the prevalence of maternal anemia in the country. In the Fourth Five Year Plan (Pelita IV), the government targeted the reduction of anemia to a level of 40 per cent (Ministry of Health 1984). But, as the Household Health Survey of 1986 shows, the prevalence of anemia was still as high as 73.6 per cent in the third year of Pelita IV. In the face of this non-success, anemia continues to be a priority problem of the Ministry of Health.

Coupled with this explicit program priority of the Ministry is an implicit objective of the National Family Planning Coordinating Board (BKKBN) to promote maternal and child health and the norm of a "Small, Happy and Prosperous Family". The scientific interest of the academic and international donor communities and their commitment to maternal and child welfare provide the other impetus to this study.

4. Description of Study Sites

As mentioned above, the Iron-Folate Distribution Study is added on to a continuing prospective study of health and family planning at Indramayu Regency of West Java. This section will deal with a brief description of the selection process of the research sites and their demographic and socio-economic profiles. A more detailed description is given Utomo et al. (1990).

4.1. Site Identification

The identification of the study site is based on some criteria viz., (i) fertility and mortality are high; (ii) there is minimal urban influence; (iii) the health services are typical of the country; and (iv) there has been no previous special project activity in the area. Using data from existing national surveys, censuses and other health and family planning archives several candidate sites were reviewed with respect to the above criteria by a consultative group comprising members of the CCS-UI, and government officials (from the Ministry of Health and the national Family Planning Coordinating Board). Based on this review and the above criteria two rural kecamatans (sub-districts), Gabus Wetan and Sliyeg of Indramayu Regency were selected as the study sites. Indramayu is located in the province of West Java, near the border of Central Java. Gabus Wetan is designated as the treatment or experimental area, where public health interventions are carried out, while Sliyeg is chosen as the comparison or control area, which follows the current health care system. Once an intervention has been conducted and evaluated in the treatment area, it is repeated in the control area to maintain comparability between the two sites for all future interventions.

In choosing the two sites, extreme care was taken to ensure that the treatment area (Gabus Wetan) and the control area (Sliyeg) were matched with each other in terms of health services, economic conditions, demographic characteristics and ecological aspects. At the same time, in order to minimize possibilities of contamination across treatment boundaries it was ensured that the two sites were not contiguous and separated sufficiently apart (about 50 kilometers from each other or by five sub-districts not included in the study).

A comparison of demographic and health data for West Java and Indonesia is given in Table 1:

Table 1 : Selected Demographic and Health Indicators
Indonesia and West Java

Demographic/ Health Indicator	Indonesia	West Java
Infant mortality rate	71.8**	94.7*
Perinatal mortality rate	40.5**	43.7+
Total fertility rate	3.3*	3.4*
Maternal mortality rate	4.5**	-
Percentage anemic pregnant women	73.7**	68.6++

Source : * National Indonesian Contraceptive Prevalence Survey, 1987.

** Household Health Survey, 1986.

+ Bandung Regency, West Java (Alisjahbana, 1985)

++ Bogor Regency, West Java (Household Health Survey 1986).

4.2. Geographic and Demographic Information.

Compared to other areas of Java and Bali, Indramayu has low contraceptive prevalence, high levels of infant and child morbidity and mortality, low immunization coverage and a high proportion of deliveries attended by traditional birth attendants. Indramayu is approximately 200 kilometers away from Jakarta and is situated in the northeastern corner of West Java, on the Java sea and close to the border of Central Java (see map in the appendix). The Indramayu

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regency is bounded by the Java sea on the north and by other regencies of West Java, such as Subang, Sumedang, Majalengka and Cirebon on all other sides, It takes between 3 and 4 hours to drive by car from Jakarta to reach the center of the regency.

Indramayu regency is approximately 1,971 square kilometers in area. It consists of 19 sub-districts (*kecamatan*s) further classified into 310 villages (composed of 297 rural villages and 13 urban areas). Indramayu is predominantly agricultural with 61 per cent of the land being devoted to agriculture. The administrative headquarter of Indramayu (known as Indramayu) is 207 kilometers away from Jakarta.

Baseline information about Indramayu has been collected at the Household Survey conducted by the University of Indonesia in 1986. This information has enabled the development of a typical profile of Indramayu, which has been used to select the appropriate study sites. Some of salient points of this profile are that Indramayu is a low flat land area with 70 per cent of its population working in the agricultural sector, 80 per cent living in rural areas, women marrying at young ages and only about half of the population having had any formal educational background. Child birth generally occurs at home with assistance from traditional birth attendants. Not more than half of the mothers had ever received any childhood immunization and a third, tetanus toxoid immunization during regency. Breast feeding is almost universal, but the majority of children are given supplementary feeding at ages 0, 1 or 2 months. About fifty per cent of the women had reported using a method of family planning in the month preceding the Baseline Survey.

Based on estimates of 1986, the total population of Indramayu is 1,353,146 (664,140 males and 689,006 females) with a sex ratio of 964 males per 1000 females. The number of children under five was 182,180 or 13.5 per cent. Density of population was approximately 686 persons per square kilometer.

The total number of households in 1986 was 330,209 showing an average of 4.1 persons per household. Village level statistics, though not quite reliable showed that births numbered about 13,838 giving a crude birth rate of 10.2 per thousand and deaths numbered 10,065 giving a crude death rate of 7.4 per thousand. There were 84,444 in-migrants to and 9,022 out-migrants from the regency giving a net in-migration rate of 55.7 per thousand population.

The majority of the population aged 10 years or more has never attended school or have not completed elementary schooling. Less than one half of a per cent of the population aged 10 years or more has attended a university or an academy. More than 99 per cent of the population is Moslem, the remainder being Hindu or Christian.

4.3. Health Facilities in Indramayu.

As of 1986, the health facilities of Indramayu consisted of 25 Puskesmas (community health center at the sub-district level), 45 Puskesmas Pembantu (auxiliary community health center at the sub-district level) and 2,027 Posyandu (Integrated family planning and health posts at the village level).

In each sub-district there is a Puskesmas and a family planning clinic, the two together providing the services of a doctor and a midwife. In addition, there are several mobile "integrated health posts" or Posyandus, set up once a month in each village, which operate out of the Puskesmas. The most number of Posyandus are in Lohbener (160), Sliyeg (128), Widasari (110) and Karangampel (104) sub-districts of Indramayu. The other sub-districts have between 38 and 97 Posyandus.

A total of 473,483 new cases visited the Puskesmas of Indramayu in 1986, giving a contact rate of 35 per cent of the population. The five major diseases suffered by these visitors were influenza, skin diseases, diarrhea, upper respiratory tract infections and gastric disorders.

The total number of immunizations given through the government health facilities in 1986/1987 consisted of BCG vaccination to 27,029 to infants, DPT 3 vaccination to 20,325 children, Polio 3 vaccination to 19,014 children, measles vaccination to 17,640 children and tetanus toxoid 2 (TT 2) injections to 15,610 pregnant women.

5. Objectives and Hypothesis.

5.1. Objectives. This study is multi-faceted and has a number of objectives as follows :

Objective 1: To assess various maternal health problems and prenatal health services in two sub-districts of Indramayu Regency, West Java, Indonesia. This objective has two sub-objectives :

Objective 1a: the description of the indices of maternal and neonatal health, including maternal nutrition (height, weight gain, anemia), utilization of prenatal services at the community level, including iron-folate supplementation (receipt and reported intake), detection of complications of pregnancy (limited to antenatal bleeding and severe edema) and delivery (utilizing pictorial aids, such as those used by the University of Padjadjaran; see Appendix I), use of medications during pregnancy (including traditional medicines), and outcome indicators such as fetal loss, birth weight, and maternal and neonatal mortality.

Objective 1b: the assessment of the knowledge, attitude and practice of pregnant women, health providers, outreach workers and community leaders, regarding maternal health and nutrition requirements and services during pregnancy.

Objective 2: To field test the implementation of two interventions:

Objective 2a: a health education and social marketing strategy to improve maternal and neonatal health and nutritional status focusing on increasing the utilization of prenatal care, and increasing the demand and coverage of iron-folate supplementation.

To enhance replaceable, messages were delivered through the outreach workers, health care providers, and other non-health workers (i.e. community leaders and agricultural workers). They served as the channels through which the pregnant women will be reached. The health care providers were trained and they, in turn, trained outreach workers in nutrition (iron-folate supplementation), and prenatal consultations. The non-health workers were trained in integrating these messages into their own routine activities.

Objective 2b: An experimental iron-folate distribution system in which the TBA or cadre (or other acceptable health service provider living in the community) served as a depot for iron-folate supplies and visited her clients with the supplies. This experimental service delivery model is expected to increase the accessibility of iron-folate in comparison to the existing delivery system of prenatal iron-folate supplementation at the Posyandu, held once per month.

The study assessed the improved coverage of the new service delivery model, and measured the effect of the increased coverage of iron-folate supplementation on maternal anemia (per cent low and mean Hb), adjusted for antenatal bleeding, and on mean birthweight. This effect is compared with that of the traditional Posyandu/ Puskesmas based distribution system.

Objective 3: The project tested the utility of the prospective pregnancy module in collecting information on objectives 1 and 2. This study is an operations research project which tested an SRS-based (sample registration system) management information system (MIS) - as opposed to the more classical operations research data collection approach, viz., baseline, mid-term and follow-up surveys interspersed with various qualitative data collection techniques.

5.2. Hypotheses and Sample Size.

The aim of this study is to describe some maternal and neonatal health and nutritional problems and to test the effects of practical interventions which can answer major maternal health and nutrition problems commonly encountered in Indramayu. The object of this study is not to test hypotheses, but rather to focus on the operations research issues, and the program implications. The operations research hypotheses include both maternal and neonatal survival.

The hypotheses corresponding to sub-objectives 1a and 1b represent the expected incidence or prevalence rates which are hypothesized to be observed in Indramayu based on existing imprecise knowledge; thus these hypotheses do not represent questions to be tested but form the basis for calculating sample sizes necessary for adequate description of rates for maternal nutrition, prenatal care utilization, etc.

Hypothesis 1a refers to complications of pregnancy as a dichotomous indicator of the presence or absence of antenatal bleeding and/ or severe edema. The accuracy of the postulated incidence or prevalence of certain conditions is generally quite lenient to reflect the limited understanding of baseline values and ability to detect these conditions or indices with great precision. Thus, the study will attempt to provide a description of these conditions or indices; the data however should not be viewed as precise estimates or generalizable to other regions.

Sample sizes for each hypothesis are based on the largest requisite sample size per hypothesis. Sample size calculations are based on the assumptions of a Type I error of 5 per cent and utilization of two tailed tests. Sample calculations for hypotheses 2a to 2c are based on Type II error of 20 per cent (Table 2).

Table 2: Sample sizes for Hypothesis 1a

Hypothesized observation	Postulated Incidence/ Prevalence with Range	Required Sample Size of Women
Maternal height <145 cm	25% (20% -30%)	288
Weight gain <9-10 kg	50% (40%-60%)	96
Receive Fe tablets	33% (28%-38%)	340
Receive prenatal care (by trained attendant)	70% (60%-80%)	81
Preg./delivery complications (composite dichotomy)	10% (7.5%-12.5%)	553
Drugs (Prescription), Smoking	2.5% (1.5% - 3.5%)	936
Traditional medicine	97.5% (6.5% - 98.5%)	936

These indices were assessed by a prospective follow-up of pregnant women, with the exceptions of maternal height (which was measured cross-sectionally).

Hypothesis 1b: KAP about maternal and neonatal health and nutritional status assessed cross-sectionally through indepth interviews and observation of health care providers, outreach workers and recipients. The sample sizes for the following examples are given below (Table 3).

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Table 3: Sample sizes for Hypothesis 1b.

Hypothesis	Postulated Incidence/ Prevalence with Ranges	Required Sample Size
Can identify Fe-rich food	10% (7.5% -12.5%)	144
" " "	25% (20% - 30%)	288
Thinks iron-folate is good for the fetus	50% (40%- 60%)	96
" " "	75% (65% - 85%)	72
Know that all pregnant Women should have TT prior to delivery	90% (85% - 95%)	138

Hypothesis 2a: Health and nutrition education during pregnancy can improve utilization of prenatal care, maternal nutritional status through counselling and iron-folate distribution, which in turn will affect birthweight (Table 4).

Table 4: Sample sizes for Hypothesis 2a.

Hypothesis	Postulated Improvement		Required Sample Size (Pre and Post)
	Baseline	Post Health Education	
Prenatal care more than 1 visit	30%	45%	162
Iron-Folate coverage	33%	44%	306
Increase Birth weight		100 gm (500 sd)	394

The effects of health education on utilization of prenatal care, iron-folate coverage and intake is assessed through the Pregnancy Module before and after (pre- and post) the conduct of this intervention.

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Hypothesis 2b: The provision of continuous refresher training to health care providers will improve service delivery utilization (coverage, as assessed by receipt and reported intake, and validated by change in hemoglobin), of iron-folate supplementation. Sample size calculations reflect those for Hypothesis 2a; increases in delivery by a midwife are based upon estimates that 13 per cent of pregnancies are currently delivered by trained midwives, assuming a 50 per cent increase (sample size per study group = 501).

Hypothesis 2c: The delivery of prenatal iron-folate supplements by community based TBA/ cadres will increase iron-folate supplementation to pregnant women which will reduce the prevalence of anemia (defined as Hb < 11g/dl) and, adjusted for the event of antenatal bleeding (measured dichotomously), will increase mean birth weight (Table 5).

Table 5: Sample sizes for Hypothesis 2c.

Hypothesis	Postulated Difference		Required Sample Size per Study Group
	Experimental	Control	
Iron-folate coverage	33%	50%	131
Decrease in per cent anemic	50%	25%	57
Increase in birth weight		100 gm (500 sd)	394

This hypothesis is tested using data collected prospectively on pregnant women and compared pre- and post between the experimental area with TBA/ cadre based iron-folate distribution, and control area with conventional Posyandu/ Puskesmas based iron-folate distribution. Hemoglobin is assessed on a 20% systematic sub-sample of pregnant women prior to delivery. Questions about antenatal bleeding are included in the pregnancy module.

6. Methodology.

6.1. Study Design.

The Iron-Folate Distribution Study was conceived as an operations research project with a quasi-experimental pretest-posttest design. The basic components of the project are diagnosis of the problem, development of solution, implementation of intervention with the proposed solution, and assessment of the impact of the intervention with the help of a management information system based on a computerized sample registration system.

To address the problems mentioned earlier, viz. prevalence of pregnancy related anemia and low compliance of taking iron-folate tablets, two interventions were designed for implementation in the experiment area for 12 months. These interventions are :

- (i) An experimental, community-based distribution system of iron-folate tablets; and
- (ii) Health education and social marketing of iron-folate tablets.

The community-based distribution was carried out by distributing the iron-folate tablets through the traditional birth attendants (TBAs), because they attend most of the births, are trusted by village women and easy to be related to because of their similar socio-economic status to the average village woman. The decision to use TBAs was based on an in-depth study and focus group discussion carried out in a non-sampled area.

It was originally designed that the intervention would begin with the distribution of iron-folate tablets through the TBAs in the experimental area and through the clinics in the control area followed after six months by the implementation of social marketing in both areas. In other words, the experimental area would have TBA distribution alone in the first six months and TBA distribution plus social marketing in the following six months. The control area, on the other hand would have clinic distribution of the tablets alone for the first six months followed by clinic distribution plus the social marketing in the following six months. The design is illustrated in Figure 1.

Figure 1 : Study Design

	Gabus Wetan (Experiment)	Sliyeg (Control)
6 months	TBA distribution of Iron-Folate	Clinic distribution of Iron-Folate
6 months	TBA distribution of Iron-Folate PLUS Social marketing and health education	Clinic distribution of Iron-Folate PLUS Social marketing and health education

This factorial study design where the health education (or information, education and communication - IEC) intervention is phased in to both sub-districts six months after the initiation of the community based iron-folate tablet distribution (through TBAs) in the experimental sub-district. This study design has the ability to analyze the independent effect of TBA based iron-folate distribution devoid of any IEC.

The entire intervention schedule is depicted in Figure 2.

Figure 2 : Schedule of Intervention

	B A S E L I N E	I N T E R V E N T I O N	
	FOUR MONTHS	SIX MONTHS	SIX MONTHS
E X P T	Indepth Survey Module D (1 Round)	TBA distribution of Iron-Folate	TBA distribution of Iron-Folate PLUS Social marketing & Health Education
C O N T R O L	Indepth Survey Module D (1 Round)	Clinic distribution of Iron-Folate	Clinic distribution of Iron-Folate PLUS Social marketing & Health Education

However, as it turned out, due to a delay in developing the social marketing materials⁴, the social marketing and health education components of the intervention could not be started according to original plans, i.e. six months after the start of iron-folate distribution intervention. The project was extended for six months to enable the implementation of the full six months of social marketing and health education intervention. Therefore, the revised study design is as shown in Figure 3.

Figure 3 : Revised Study Design

	Gabus Wetan (Experiment)	Sliyeg (Control)
9 months	TBA distribution of Iron-Folate	Clinic distribution of Iron-Folate
6 months	TBA distribution of Iron-Folate PLUS Social marketing and health education	Clinic distribution of Iron-Folate PLUS Social marketing and health education

⁴The development of social marketing materials was entrusted at the recommendation of the Manhoff Group Inc., the Social Marketing Consultants to the Indramayu project to the advertising agency Saatchi and Saatchi, which has prepared similar materials for the Ministry of Health. However, due to unexpected internal problems in the firm, the development of the material got delayed by six months.

6.2. Sampling.

The total sample size of the Indramayu Iron-Folate project is 10,000 households, 5,000 in the experimental area and 5,000 in the control area. The sample households were identified by mapping and listing all households which occurred in clusters of ten or more. This is a probability sample of households which were followed prospectively to update socio-economic and demographic dynamics.

Given the lack of precision of much of the demographic data (often derived from censuses or surveys and adjusted statistically) and the relative stability in countries or regions of estimates representing annual pregnancy and total fertility rates, age and sex data, the average, rather than the lower estimate of annual pregnancy rate has been used to estimate the sample size. While in general, epidemiologists usually apply conservative estimates in calculating sample sizes, in this study the most conservative approach has been generally applied to estimate effect size and baseline incidence or prevalence rather than basing the calculations on demographic considerations (population sample).

This project has monitored all pregnancies which were identified in this sample at the time of cycle visit. Assuming that 8 to 10 per cent of the women are pregnant at any time⁵, an initial sub-sample of approximately 500 pregnant women was estimated in each of the two sites with continued detection and recruitment of new pregnant women. In this study pregnant women of various gestational ages were followed up prospectively until 42 days after pregnancy termination.

In addition to the prospective monitoring of pregnant women, indepth interviews were conducted among 30 pregnant women in each sub-district and among a small number (though representing a large proportion) of health providers, outreach workers (TBAs), and community leaders were carried out in both the experimental and control sites.

6.3. Site Selection.

The criteria for identifying the research location has been described in detail in Section 4.1.

⁵ This calculation is based on data collected in Indramayu by the research team in 1987.

7. Data Collection Instruments.

7.1. The Core Indramayu SRS.

Two types of data are collected in the Indramayu Sample Registration System (SRS), viz., "longitudinal data" and "fixed record data". Information about households and individuals and about demographic events which must be recorded at 90-day intervals are longitudinal data. Any information which must be updated at each "round" of visit is longitudinal. The determination of the 90-day interval is based on experience and judgement that it is not too close for routine cyclical visits and not too long for time recall. There are also some items of information about households and individuals which are fixed with respect to time. These are classified as fixed record data and do not change once they are collected.

The Indramayu SRS as a whole has three types of data collection instruments, viz.,

(a) Household baseline data : Basic data on socio-economic characteristics of the household and of the household members, and some key characteristics of ever married women and of children under the age of five years. These data were collected at the start of the SRS and form the baseline data;

(b) Household cyclical data : These include the following :

Module A : Also called Household Record Book (HRB). This is a household follow-up module for collecting data on demographic events such as pregnancy initiation, pregnancy outcome, death, individual migration, household migration, and changes in marital status of household members. Dates of occurrence of events and information on a selected number of additional variables pertinent to each variable are also collected in this module.

Module B : This is a follow-up module for women (all marital status) aged 12 to 49 years. It contains monthly information based on three-month recall on occurrence of menstrual period, cross-check information on pregnancy outcome, family planning methods used, reasons for not using family planning, tetanus toxoid injection since the last visit and iron tablet intake since the last visit.

Module C : This is a follow-up module for children under three years of age. It records information based on recall of mothers of such children or their caretakers about immunization, breastfeeding and supplementary food patterns in the last three months. Three reference points are used for the information collected, viz., one day preceding the interview, 30 days preceding the interview and 60 days preceding the

interview. It is recognized that the quality of data differ according to the length of the recall period.

Modules B and C are alternatively called the Mother and Child Module.

7.2. The Iron-Folate Distribution (or MotherCare) Study.

The schedule of data collection for the iron-folate study is Pregnancy Module (Module D), alternatively known as the MotherCare Module. All new pregnancies are continuously identified through modules A and B. When a pregnant woman is identified, a sticker with her name is generated. This is done to reduce data linkage errors. The stickers are stuck on the Pregnancy Module, which is used for the pregnancy and 42 days after parturition, defined here as the neonatal period.

This module was developed in this project jointly by the research team and the project consultants. It was finalized after considerable pre-testing and further discussions. It consists of three parts, viz., Ante-partum, that is from the detection of pregnancy to immediately before pregnancy termination; intra-partum, that is from the beginning of labor to delivery and cutting of the umbilical cord; and post-partum, that is from delivery to 42 days after delivery. An English version of the questionnaire is attached (Appendix II).

While data for the modules A, B and C are collected routinely on a quarterly basis (90-day cycles), the data for Module D were collected prospectively on a monthly basis or a quarterly basis depending on the variable. Module D was administered to all pregnant women beginning with the identification (suspected or confirmed) of her pregnancy until 42 days post-partum.

8. Data Collection.

8.1. Iron-Folate Distribution Study.

Various types of data have been collected in this study as described below. Data collection activities by source of information (respondents) are presented in Table 6.

Baseline data were collected cross-sectionally from pregnant and non-pregnant women, health care providers, outreach workers and community leaders. Data from pregnant women were obtained with the help of a prospective module which followed up all pregnancies in the experimental and control areas.

Data from the small number of health care service providers, outreach workers and community leaders were collected through an indepth survey, because their small numbers did not warrant a large scale survey.

Collection of birthweight data needed special attention and efforts so that these were recorded as soon as possible after the child's birth. This was done by enlisting the cooperation of a family member or head of the neighborhood block (20 households to a block) to inform the research team of the delivery as soon as it occurred, so that a member of the team recorded the birthweight.

Since the Iron-Folate Study was nested in a core prospective study at Indramayu, it was important that the data collection activities of the two studies were properly synchronized in order to avoid logistical problems or chances of clash between the two sets of interviewers.

Table 6: Data Collection Activities by Source of Information and Method of Data Collection at each site.

Source (Respondent)	Method of data collection	Sample size	Site
1. Pregnant women (Module D)	Prospective survey (monthly)	500 each	Experiment Control
2. Women	Cross-sectional survey ⁶	250 each	"
3. Pregnant women	Indepth interviews	30 each	"
4. Doctors	" "	1* each	"
5. Nurse-midwife	" "	1* each	"
6. Health cadres	" "	3* reach	"
7. TBAs	" "	5* each	"
8. Community leaders	" "	5* each	"

Note : * The limited number of indepth interviews was due to the small number of health care providers (there was only one doctor and one nurse-midwife per sub-district) and outreach workers (there were very few active health cadres) at the sub-district level.

⁶This was not done in view of the fact that most of the KAP information sought to be collected through a cross-sectional survey were being collected in Module D.

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8.2. Scheduling of Module D in Relation to Other Modules.

The data collection for the Iron-Folate Distribution Study was done in conjunction within the data collection framework of the Indramayu SRS Project as shown below. Modules marked with an asterisk are collect data for the MotherCare project :

<u>Round</u>	<u>Activity</u>
Baseline (Oct-Dec 89)	Baseline SRS data
1st Round (Jan-Mar 90)	Module A (Household record Book - HRB) Initiate breastfeeding promotion in experimental site (for another intervention study).
2nd Round (Apr-Jun 90)	Module A Module B* Module C* Initiate breastfeeding promotion in control site
3rd Round (Jul-Sep 90)	Module A Module B* Module C*
4th Round (Oct-Dec 90)	Module A Module B* Module C* Module D* Survey of anemia, height and weight of half of 500 women* Indepth interview of 30 pregnant women in each site* Indepth interview of health providers, outreach workers, and community leaders*
5th Round (Jan-Mar 91)	Module A Module B* Module C* Module D* Survey of anemia, height and weight of other half of 500 women*
6th Round (Apr-Jun 91)	Module A Module B* Module C* Module D*

7th Round (Jul-Sep 91)	Module A Module B* Module C* Module D* Initiate TBA iron-folate supplementation in experimental site
8th Round (Oct-Dec 91)	Module A Module B* Module C* Module D* Iron supplementation continues Indramayu SRS first phase final report
9th Round (Jan-Mar 92)	Module A Module B* Module C* Module D* Iron supplementation continues
10th Round (Apr-Jun 92)	Module A Module B* Module C* Module D* Initiate health education in experiment and control sites. Iron supplementation in experimental site continues
11th Round (Jul-Sep 92)	Module A Module B* Module C* Module D* Health education continues. Iron supplementation in experimental site continues
12th Round (Oct-Dec 92)	Module A Module B Module C

9. Institutional arrangements.

9.1. National Institutions and Personnel.

The study has been conducted by the Center for Child Survival, University of Indonesia (CCS-UI) in collaboration with the Center for Health Research, University of Indonesia (CHR-UI), both located at the university campus in Depok, West Java, about 25 kilometers from Jakarta.

The core prospective study of health and family planning in Indramayu Regency has been funded under a bilateral USAID grant through the BKKBN for the initial three years, January 1989 to December 1991. This study has been extended, at least initially for ten months to October 1992 under a World Bank loan through the BKKBN. The Iron-Folate Distribution Study is added on the prospective study and is funded under a central USAID grant through the MotherCare Project of John Snow International Inc. The initial Iron-Folate study under MotherCare was of 21 months duration, but was extended for another six months to enable the completion of the social marketing component of the intervention. However, it is essential that the core prospective study continues without which some of the fundamental aspects of the MotherCare funded study such as identification of pregnant women will not be possible.

Dr. Budi Utomo of the CCS-UI and CHR-UI was the Principal Investigator of the Iron-Folate Distribution Project. He was assisted by Dr. Pandu Riono as Co-Investigator. Fieldwork coordination was done by Teguh Budiono, Yuswardi and Oktarinda. Computer programming assistance was provided by Yusran Nasution. Dr. Alex Papilaya, Director of the CCS-UI provided overall advisory support.

The project was advised by a Steering Committee and an Ethical Review Committee, both consisting of key personnel from the University, the National Family Planning Coordinating Board and the Ministry of Health.

9.2. International Institutions and Consultants.

Several organizations and consultants were involved in the technical and administrative management of the study. The Population Council was designated as the overall technical manager of the study. The contribution of the Council in technical and administrative terms has been crucial to the study. First, the consultancy of the Council's New York based Senior Associate, James Phillips with his extensive experience of running a similar longitudinal study in Bangladesh helped set up the Indramayu prospective study including sampling design, site selection, various record books and the questionnaire. The backbone of the

prospective study - the computerized data management system based on computer editing and entry of data, calculation of demographic event rates and the development of software for the various modules including "Household Record Book" module, the "Mother and Child" module and the "Pregnancy" (MotherCare) module was created by the Council's Bangkok based Associate and computer expert David Leon, who had also developed the computer data management system of the Bangladesh SRS. Technical assistance and administrative guidance from the Council's New York based Associate Nancy Sloan and Senior Associate Beverly Winikoff and its Bangkok based Senior Representative for South and East Asia Peter Donaldson in terms of proposal development, study design, questionnaire formulation, analysis and tabulation plans and continuous monitoring of the project helped sustain the study through its often difficult and complex period of implementation. The Council's Jakarta based Associate Gour Dasvarma, being located at the place of implementation of the project provided day-to-day technical advice, administrative assistance and the liaison among various organizations and consultants. He helped the project managers with project monitoring and reporting of progress and helped arrange consultancies of other Council staff.

The management of the social marketing component of the study was assigned to Manhoff International. Staff of Manhoff, Marcia Griffiths, Mona Moore and Richard Pollard visited the project site and helped create the instruments for the social marketing intervention.

Technical assistance was also provided by the USAID mission in Jakarta. Michael Linnan and Joy Riggs Perla of the mission provided continuous technical and administrative support for project implementation. At the early stages of the project, the USAID consultant then resident at CCS-UI, Christine Costello had provided substantial technical assistance during setting up of the Indramayu SRS system and the proposal development of the MotherCare project.

The CHR-UI's resident consultant from the Ford Foundation, Lily Kak fulfilled a very important role in helping complete the MotherCare proposal and later in formulating the questionnaire.

At approximately the mid-period of the study, Mothercare appointed two consultants, Mary Jo Hansell and Caroline Hasseler Radelett to assist in all of its activities in Indonesia. They provided technical assistance to the Indramayu study. The MotherCare Project Director, Marjorie Koblinsky has provided technical and managerial assistance to the study from its beginning.

9.3. Reporting and Monitoring.

To facilitate monitoring of the progress a regular reporting schedule was prepared. The most frequently prepared report was the Monthly Financial Report, submitted within 10 days of the completion of each month. The most frequently prepared substantive report was the Quarterly Progress Report submitted within one month of the completion of each quarter. It described the progress of the project during the reporting period, any problems encountered in the field or the central project office in Jakarta and steps taken to solve them and about visits by consultants from the collaborating agencies. While the financial reports were submitted by the project's financial administrator to MotherCare, the substantive progress reports were circulated to key personnel at MotherCare, Washington D.C.; the USAID, Jakarta; and the Population Council, New York and Bangkok.

In addition to the above reports and the results of the intervention, the project has generated a number of various other reports and/ or deliverables, viz., the questionnaires and data bases including the computer software for data editing and data entry for modules B, C and D; Interviewer Training Guidelines; IEC Indepth Interview Protocol; Hematologic Protocol; IEC Materials and Strategy; TBA Training Plan; Analytic Plan; Baseline and Indepth Survey Reports.

10. Organization of this Report.

This report is divided into several chapters as described below :

Chapter One is introductory in nature and provides a background to the study and its origin; description of study sites; scientific issues; methodology including sample selection and hypotheses used for sample selection; study instruments; institutional arrangements; and reporting and monitoring.

Chapter Two provides information on training and refresher courses for interviewers and supervisors; total number of interviewers and supervisors employed by their age, sex, qualifications; methods of collecting anthropometric and hematologic data; measuring instruments; data collection; schedule of field supervision; data editing and entry via the SRS software for Modules A, B, C and D; sample of errors found and checked - in the field and by computer editing and the rewards and penalties with regard to quality of data collected; logistics of data collection and entry (frequency of transportation from the field to the central project office in Jakarta); and difficulties encountered.

Chapter Three provides the baseline demographic and anthropometric characteristics of the households and respondents in the two sites.

Chapter Four provides reports on indepth surveys conducted on sub-samples of pregnant women, health providers and the traditional birth attendants (TBAs).

Chapter Five describes the development of iron-folate tablet distribution and the training of TBAs in such distribution.

Chapter Six describes the development of the social marketing and the Information, Education and Communication (IEC) strategies including the development of logos, radio and TV spots and their trial in non-sample areas.

Chapter Seven provides information maternal health (by anthropometric and hematologic measures) in the two sub-districts at both pre- and post-intervention periods; and the effects of Clinic vs Community distribution of iron tablets; weight gain among pregnant women as in the experimental area as compared to that in the control area; and comparison of birth weight in the two areas with respect to the intervention.

Chapter Eight gives information on the effects of IEC and social marketing on Knowledge, Attitude and Practice (KAP) and compliance with iron supplementation.

Chapter Nine analyzes the validity of maternal and neonatal conditions by reports from the respondents.

Chapter Ten examines the utility of the SRS in identifying pregnant women and maternal and neonatal conditions.

Chapter Eleven summarizes the results, describes the lessons learned from the project and provides policy recommendations.

Appendices : questionnaires, other study instruments, interviewers' and supervisors' manuals, hematologic protocols, samples of all forms including IEC and social marketing materials.

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APPENDIX I

PICTORIAL SYSTEM DEVELOPED BY THE UNIVERSITY OF PADJAJARAN

"KARTU IBU-ANAK"
(MOTHER-CHILD CARD)

AP 10

APPENDIX II

English Translation of Module D

APPENDIX 11

The output database file created has English language labels. This file would be used for the initial analysis, and variables would be extracted from it for the later regressions. I am listing below the names of the variables on this file, as well as some notes on how they were created. I hope my variable names are clear. You can review this to be sure I understood everything correctly. It does not include any tablet variables as this is one of the items on which I am awaiting clarification.

MID - Present ID number of woman
AREA - 0 (Sliyeg/control) for Desa 11 to 22
1 (Gabuswetan/intervention) for Desa 1 to 10
BRTHDATE - Birthdate of woman
AGE - Age in completed years of woman at time of 1st visit
MAR_STAT - Marital status of woman at time of 1st visit
EDUCATN - Baseline education code of woman
BICYCLE - 1/0 for yes/no bicycle (household baseline data)
MOTORCYC - 1/0 for yes/no motorcycle (household baseline data)
LATRINE - Type (household baseline data; Tpbab)
LAND_HSE - Area (household baseline data; Tanruu)
ELECTRIC - 1/0 for yes/no electricity (household baseline data)
RADIO - 1/0 for yes/no radio (household baseline data)
HD_ETHNC - Head ethnic group (household baseline data)
HD_RELG - Head religion (household baseline data)
LITERATE - 1/0 for yes/no head literate (household baseline data; coded 1 if Bicara, Baca, or Tulis=1; else 0)

LMP_DATE - Date of woman's last menstrual period
 PARITY - Variable AP5
 HEIGHT - Variable AP45
 PLAN_PRG - 1/0 for yes/no AP10_1=Y or AP11_1=Y (conditional clause in your notes already in software)
 INTR_GES - LMP date minus AP7 (days); 9999 if AP7 has no data
 ID_GES - First visit date minus LMP date (days)
 LST_LIVE - 1/0 for yes/no AP8=KL1
 ALCOHOL - 1/0 for yes/no AP17=Y
 JAMU_AB - 1/0 for yes/no any of Jamu categories of AP11_2_1 or (first visit only) AP23_1 are in range 201-203 or 401-420
 BSE_IRON - Sum of first visit values of AP13_2, AP13_3, AP13_4 and AP13_29
 CGRETTES - first visit value of AP12_1_1A
 INHIBTRS - Mean sum of values of AP13_1, AP13_10, AP13_22, and AP13_30 (mean of sums for each visit)
 PROMOTRS - Mean sum of values of AP13_7, AP13_13, AP13_16, AP13_17, and AP13_23 (mean of sums for each visit)
 ANM_IRON - Mean sum of values of AP13_2, AP13_3, and AP13_4 (mean of sums for each visit)
 VEG_IRON - Mean of AP13_29 (mean of value for each visit)
 COFFEE - Mean of AP15_1_1 (mean of value for each visit)
 TEA - Mean of AP16_1_1 (mean of value for each visit)
 NO_HBS - Number of Hb measurements recorded
 HB1_MEAS - First Hb measurement (AP46A), 0 if none
 HB1_GEST - Gestation at first Hb measurement (AP46B-LMP), 0 if none
 HB2_MEAS - Second Hb measurement, 0 if none
 HB2_GEST - Gestation at second Hb measurement, 0 if none
 HB3_MEAS - Third Hb measurement, 0 if none
 HB3_GEST - Gestation at third Hb measurement, 0 if none
 FVR_CHLS - 1/0 for yes/no for AP25=Y at first visit
 PRE_WGHT - Weight of woman (AP48); 0 if no weighing done within 91 days of LMP
 DIARRHEA - 3 if diarrhea (AP27=Y) occurred in third trimester, 2 if occurred in second trimester but not third, 1 if occurred in first trimester but not second or third, 0 no diarrhea recorded
 VOMITING - 3 if vomiting (AP34=Y) occurred in third trimester, 2 if occurred in second trimester but not third, 1 if occurred in first trimester but not second or third, 0 no vomiting recorded
 VO_TYPE1 - 3 if heavy vomiting occurred in first trimester, 2 if medium but not heavy vomiting occurred in first trimester, 1 if light but not heavy or medium occurred in first trimester, 0 if no vomiting in first trimester (AP34_1)
 VO_TYPE2 - 3 if heavy vomiting occurred in second trimester, 2 if medium but not heavy vomiting occurred in second trimester, 1 if light but not heavy or medium occurred in second trimester, 0 if no vomiting in second trimester
 VO_TYPE3 - 3 if heavy vomiting occurred in third trimester, 2 if medium but not heavy vomiting occurred in third trimester, 1 if light but not heavy or medium occurred in third trimester, 0 if no vomiting in third trimester
 LERTH - 1/0 for yes/no single livebirth (IP12A=LHT)
 B_WGHT - Weight (IP31A) of newborn, 0 if missing or no birth

Attention: Dr. Budi Utomo

Gour



EASYLINK MBX 6383005C001 21MAY91 15:00/20:15 EST
FROM: 62807870
THE POPULATION COUNCIL (CRN: SLOAN)
TO: 62452630

ATTN: G. DASVARMA

The following was sent to David Leon. Please pass this along to Budi and Mike. Thanks

DATE: 21 May 1991
FROM: NANCY SLOAN

Attached are some logical and range checks plus dietary data variable definition. I will send a copy to Mike Linnan for his review and modification where necessary. Gour can forward his comments on to you. Thanks much. How's Tahiti?

cc: Gour Dasvarma
Budi Utomo
Mike Linnan
Peter Donaldson
Ann Helveston

for missing C. 2 HCU or def var then will be sent from

LOGICAL & RANGE CHECKS, VARIABLE DEFINITION:
INDRAMAYU MOTHERCARE STUDY

Prenatal Instrument

1. $\sim (4.1+4.2+4.3+5) = \text{Gravidity}$
Gravidity-5=3
Gravidity-(4.2+4.3) = Parity
Parity - 4.1 = Number of livebirths
2. LMP-7 = Intergestational period
3. 12.1.1 range 0-90
4. Iron in diet = (days*freq per day) of liver + beef/lamb + congealed blood + vegetables
5. Iron inhibitors in diet = (days*freq per day) of milk + Kerupuk + Tahu/Tempe + rice/Mi/bread + Tea (16.1.1)
6. Iron promoters in diet = (days*freq per day) of Belimbing + Tomato + Mango/Papaya + Citrus fruits + Jambu
7. Iron folate tablet compliance = 41.4 - (43.2 * 4.25 weeks)
8. Height range 132-170
9. Weight range 31.75-81.75

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10. Weight for height ranges:

Height =	(BMI .15-.30) Weight =	(BMI .16-.25) Warning Weights =
132-139.9	26.1-59.0	<27.9, >48.9
140-144.9	29.0-63.0	<31.4, >52.5
145-149.9	31.5-67.4	<33.6, >56.1
150-157.4	33.8-74.3	<36.0, >61.9
157.5-162.4	37.2-79.1	<39.7, >65.9
r162.5	39.6-86.7	<42.3, >72.3

11. Arm circumference range: 15.0-30 (suspicious s17.5, r25)

12. Hemoglobin range: 3-14 (suspicious s6, r13)

Intrapartum Instrument

1. Birthweight (31): For question 12 outcome=livebirths only, range 500g - 3750g (suspicious s750 g, r3250g)
2. Length (32): For livebirths only, range 35-55 (suspicious s37, r53)
3. Head Circumference (33): For livebirths only, 28-38 (suspicious s30, r36).

Postpartum Instrument

1. Weight (20): use warning weight from prenatal instrument as upper bound and regular lower bound from prenatal.
2. Arm circumference (21): Use prenatal ranges.
3. Hemoglobin (22): same as prenatal.

MMMM

YOUR MAILBOX IS NOW EMPTY
EASYLINK

-BREAK-

59061020 9JUL91 04:21 EST

PTS

/BATCH

62807870:Donaldson:9999+

9 July 1991

To: Beverly Winikoff/Nancy Sloan
cc. Leon, Donaldson, Joy Riggs Perla

From: Gour Dasvarma and Budi Utomo

Subject:Consistency checks/creation of variables for Module D

After discussing with David, we have prepared the following check list for consistency checks and variable creation for the data entry software of module D. Your comments and response for the relevant sections are awaited.

1) Changes in the Hb level (quarterly measurement) and anthropometric measures e.g. upper arm circumference and weight (monthly measurement) between any two successive observations (visits) should not exceed given values. What should these values be?

Attention: Nancy Sloan and David Leon

2) Dates of anthropometric and related measures during intra- and postpartum periods must be later than the date of birth, otherwise the program should reject the data entry.

Attn: David Leon

3) Date of a pregnancy terminating in a live or a still birth must be later than the date of LMP and the difference between these two dates must not exceed 300 days. Otherwise the date of LMP should be checked and corrected. Attn: David Leon

4) Date of a pregnancy terminating in abortion must be later than the date of LMP and the difference between the two dates should not exceed 200 days. If it exceeds 200 days and if the date of LMP is checked and found correct, then the pregnancy outcome will be corrected to show a still birth.

Attn: David Leon

5) Date of measuring Hb level can be different from the date of a visit by MotherCare interviewer because Hb is to be measured by midwife. Thus the data entry software should request date of Hb measurement. (Dates of anthropometric measurements are already shown in the questionnaire which need not be the same as the date of Hb measurement). Attn: David Leon

6) The following variables should be created from module D:

- (i) Date of visit by interviewer
- (ii) Visit number
- (iii) Interviewer code

Indrawan - Computer

9/7/91

Gour

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- (iv) Date of measuring Hb
- (v) Date of LMP

Attn: David Leon

7) Use the range checks proposed by Nancy for anthropometric and related measures. Attn: David Leon

8) Consult with Nancy re range checks for birth weight considering that some new born babies may be weighed as late as 7 days after birth. Attn: David Leon

9) The intrapartum variable IP4 (birth attendants) can have multiple response. The data entry software should be designed accordingly. Attn: David Leon.

Many thanks and regards.

/MBX
EASYLINK MBX 6279008C001 10JUL91 12:12/20:32 EST
FROM: 62807870
THE POPULATION COUNCIL (CRN: SLOAN)
TO: 62452630

ATTN: GOUR DASVARMA

RECEIVED
10 JUL 1991
THE POPULATION COUNCIL J A K A R T A

Thank you for the recent communications you have sent from Bangkok.

1. As you know, I have 3 working days left in 1991 to provide technical assistance such as the additional data checks you have requested (see comments to David). There is little I can do to assist the project beyond this due to real limitations on my time.
2. As far as I can tell David's curricula looks fine and in keeping with what Bruce mentioned would be his emphasis were he to conduct the training. I spoke with him yesterday and he said he will look forward to more fishing in Maine instead of the trip to Jakarta.
3. Because I have no knowledge of the existence of the tapes to which you refer, I would suggest you contact Bruce MacLeod directly by fax to his office (fax number 2077804933) or home (fax 2077256794). Not only will you be able to find out this information directly, but this would enable you to take care of any related administrative matters (composing any written request and justification for such a purchase, determining whose budget would pay for this, and submitting such documents to MotherCare for approval) if such tapes actually exist.
4. Marge has agreed to David's providing the training to the CCS staff, but said you need to clear this through the mission and inform her when/if you receive mission concurrence. This probably includes receiving permission from the Jakarta and Bangkok missions for travel for the CCS staff to Bangkok; please ask David as this will follow the same procedure as his trip to Jakarta only Budi will be paying their travel and expenses (or per diem) as these expenses are to come from his budget. You will also need to arrange with Budi and Peter how CCS will pay for David's time, as Marge informs me that Budi has already received the money for this training from JSI.
5. Re the qualitative study: I am very glad our comments were useful. I agree that rephrasing is the essence of the report's revision, and believe our comments should be specified (item by item) in a manner which demonstrates the inconsistencies to help Manoff in their revision. The most important inconsistencies relate to the statements about the majority of women doing x, y and z when these are mutually exclusive. There are minor infractions as well (page 11 says 25 household trials were conducted, page 19 says 30). I also concur that the TBAs need training in the distribution of the tablets, but clarified with Budi that their training should NOT BE substantively DIFFERENT from the instructions given to clinic personnel (i.e., they do not need to get special sensitized instructions and they do not need to get into the "side effects" issue - or nonissue). I realize the permission aspect is reasonable justification, and

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("next time" should be sought for a pretest site) unfortunate due to the fact that contamination is to be expected even if the activities were carried out with next door neighbors. Of course this will have less (but still some) effect than if actual study participants were included, and I think there is no basis beyond the number of women involved to judge whether the contamination will be small, large or in-between. The n of 42 is about the equivalent of 5% of pregnant women (and these women were pregnant and thus purportedly eligible to be actual study participants, not just next door neighbors; see page 9).

I am sending the following comments to David.

DAVID

1. I spoke with Bruce MacLeod yesterday who suggested that the training focus on commands, programming examples and hands-on programming. Seems to be exactly what appears in your draft curriculum, which looks great.
2. I will work on logical checks for Hb and anthropometric longitudinal data and on neonatal weight within 7 days of birth as requested and will send by next week. I will (next year?) probably have to describe some of the requisite transformations for the longitudinal analysis of these variables (as they are continuous and we can therefore create slopes for each woman, adjusting for the measurement and gestation at the first point of data collection) when we ultimately conduct the regression analyses.
3. I am unsure if the difference between LMP and birth cannot exceed 300 days; indeed in areas where service delivery is poor it is physiologically possible (though not likely) to be as great as 308 days. Also, I would be VERY WARY of disabling data entry (as opposed to creating a "flag" based on the edit checks and printing out the id and problematic data) based on any variable related to gestation. Gestation is always a touchy variable (in part due to LMP) in the best of circumstances. In countries where women breastfeed for long times, it is important to remember that a legitimate "normal" LMP could be 2 or more years ago.
4. Dates of any measurement and the intrapartum period can be EQUAL TO OR later than the date of birth.
5. Dates of pregnancy terminating in SPONTANEOUS abortion must not exceed 200 days post LMP; the same criteria cannot be applied to INDUCED abortions (as women who are desperate enough may continue to attempt this into their second and even third trimesters).
6. I concur with your comments a, b, c, and d, re living with husband, income, occupation, and prepreg weight, but thought Budi had structured the cigarette question in a manner that would distinguish between woman and spouse. The latter is terribly

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important because the effect of a woman's smoking on fetal growth is three to five times greater than that of indirect passive smoking (living in the room with a smoker). I thought massage was listed as a FP method, but probably just left it on accidentally when I copied a previous table to create the FP table structure and typed over the other rows.

7. BMI is body mass index = weight (kg) times 100 divided by squared height (cm).

MMM

OUR MAILBOX IS NOW EMPTY
ASYLINK

...

12/4



Gow

**PUSAT KELANGSUNGAN HIDUP ANAK UNIVERSITAS INDONESIA
(PUSKA-UI)**

Center for Child Survival, University of Indonesia
Address : Fakultas Kesehatan Masyarakat, Kampus UI, Depok, Jawa Barat, INDONESIA Telp. 7270014

Fax No.: (662) 253-6318

Jakarta, 16 February 1990

Mr. David Leon
The Population Council
PO Box 11-1213
Nana Post Office
Bangkok, Thailand

Dear David,

Thank you for your notes on data to be recorded by field interviewers necessary for updating and correcting the Indramayu databases. I have accommodated and translated the notes into the Indonesian revised field manual. We have also retrained both the interviewers and data entry persons on the above matter both in Gabus Wetan and Sliyeg at 11 and 12 February 1990 respectively.

How is the progress of the software development for entering cycle household visit? I hope that everything is in order. Let me know when the software would be ready and the convenient time for you to instal the software in Jakarta.

The cycle data collection the field is now entering the fifth week. In addition of on going cycle data collection activities, we are now carefully checking and editing the HRB data which have been collected during the first to the fourth week in order to match with the latest revise procedure.

The followings are my comments and questions regarding the notes:

1. For household items (a). (see last paragraph of page 1 and the first two lines of page 2 of your notes). I have used ALB as a code for changing of address of an entire household due to household moving to a new, previously non-existing address in the same kecamatan. Please accommodate this code in the software.
2. For household items (b). GKL and the date of GKL event and the present household identification (after merged with the other sampled household) will be recorded near household identification. Before the new next printed HRB, I have instructed the interviewers to record the GKL household members into the HRB of the sample household (where the GKL household members move-in). Since interviewers will use this HRB to update the GKL household members, the records will also include the permanent id member and other basic characteristics. My question to you is whether interviewers should still need to record GKL to each of the GKL household members or software will automatically take care of that. Please advise me on this.
3. For member level updates (g). (see second paragraph of page 4 of your notes). You noted that PHA event is restricted to changes of the data fields for relation to head, mother and father line number, and spouse line numbers, and the interviewers would need to indicate which field(s) are being changed and what the new values are. I need your advise on the way to record PHA. Suppose a man migrated into household because married with the widowed lady household head. Suppose also that the man become the new head. Hence, PHA occurred to that lady and other hh members (changes of the relation to the head). But at the same time the spouse line number of that lady is also changed. My question is whether the interviewer need to record PHA twice with the same dates or just one PHA is enough.

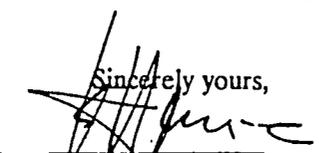
4. For the AMD procedure. I am aware that AMD procedure is procedure for correcting the databases because of error. I need your clarification on the followings. Will the procedure be written in the software or the data entry person just call the record that suffered from errors and correct the errors directly? If the later is true then the AMD code written in the HRB is the communication medium between interviewers and data entry persons. Hence, AMD will not be entered in the computer. But if there is a special procedure in the software, then the way to record AMD in HRB should match with the software procedure. If this is the case, please explain how to properly write AMD in the HRB.

We are now drafting the combined mother and child modules. Enclosed are the appeared form and the related code book for your review and suggestions. We need comments and approval from both Marge and James Phillips. We plan to start using the combined module in cycle II of the study (mid April 1990). By that time we should finish the computer generated module forms. We need your help in this matter. The software development of the module can be done afterward. The following are my notes on the module:

1. Mother is defined as a woman aged 15 to 49 years, and child is defined as child aged under 3 years. Age is determined based on the date of birth and the date of last visit.
2. Mother info will be printed. This includes member line number, name, member id number, relation to head, and date of birth. Printing will start with all mothers in the HRB. Following the last mother, all children under 3 including the info will be printed. The info includes line number, name, member id number, relation to head, and the date of birth.
3. The form will accommodate data to be collected during 4 cycles. For each cycle there will be 4 small columns. The first three small columns will record data of first, second and third month respectively within the particular cycle. Data for each month representing a point prevalence at the end of the month for a continued characteristic (i.e. family planning status) or an incidence within that month for an event (i.e. TT immunization). In the form, "akhir" means "at the end of the month". The fourth small column ("ket" column) within cycle will record notes or additional info specific to that cycle. Notes involving all cycles or not specific to any cycle will be written in last big column ("catatan").
4. For every cycle, interviewer should write cycle visit number, date of visit, and name and code of interviewer.
5. Data to be recorded for mother include pregnant/menstruation status, contraceptive use, tt immunization, and iron tablet/ sources (see code book).
6. Data to be recorded for child include type of immunization receive, average of frequency of breastfeeding receive, fluid intake, non-breastmilk intake, softfood intake, and solid food intake.

With many best regards.

Sincerely yours,


Budi Utomo

cc.
Carpenter-Yaman
Donaldson
Koblinsky
Phillips
Dasvarma
Costello

1758

STUDI PROSPEKTIF KB - KES KABUPATEN INDRAMAYU - JAWA BARAT
 BUKU IBU DAN ANAK

Nama Kepala Rumah Tangga : KALIK
 Kecamatan [1] : GABUS WETAN
 Desa [2] : RANCAHAN

Nomor Wilcah : 5
 Nomor Segmen : 16

Tanggal Kunjungan Terakhir : 13/11/89
 Nomor Bangunan : 61
 Posisi Rumah Tangga : S

I B U D A N A N A K	Kunjungan siklus ke: Tanggal: / / Pewawancara: Kode:			Kunjungan siklus ke: Tanggal: / / Pewawancara: Kode:			Kunjungan siklus ke: Tanggal: / / Pewawancara: Kode:			Kunjungan siklus ke: Tanggal: / / Pewawancara: Kode:			CATATAN			
	AKHIR			AKHIR			AKHIR			AKHIR						
	BLN1	BLN2	BLN3	KET	BLN1	BLN2	BLN3	KET	BLN1	BLN2	BLN3	KET		BLN1	BLN2	BLN3
2. WACEM No.ang RT: 2516061S02 Hub KK : IST Tglhr : 06/07/60	HAMHAID															
	KBALAS															
	TT															
	FERRIGUS															
3. CASWITA No. Ang RT: 2516061S03 Tglhr : 23/07/87 Ibu : 2	IMMUN															
	FREKUSU															
	FLUID															
	SUSUPLG															
	MKNLAK															
	MKNPLT															

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DESCRIPTIVE OF VARIABLE - INDRAMAYU PROSPECTIVE STUDY

NO	VARIABLE	TYPE	LENGHT	VARIABLE LABEL	CATEGORY
1	HAMHAID	C	3	Pregnant/ or menstruation	BIA = Normal menstruation --- DEFAULT HML = Pregnant KL1 = 1sd livebirth KL2 = 2nd livebirth KL3 = 3rd livebirth KM1 = 1sd stillbirth KM2 = 2nd stillbirth KC1 = One livebirth and one or more stillbirth KC2 = Two livebirth and one or more stillbirth ASP = Spontaneous abortion GUR = Abortion
2	KBALAS	C	3	Contraseptive/ or Reasons	PIL = Pill IUD = IUD KON = Condom STK = Injections SUK = Norplant MOP = Vasectomy MOW = Tubectomy KAL = Calender system LLN = Other TTH = Do not know TP1 = Not using (Reason:Not efective) TP2 = Not using (Reason:Husband disapproves) TP3 = Not using (Reason:Health concerns) TP4 = Not using (Reason:Costs too much) TP5 = Not using (Reason:Inconvenient to use) TP6 = Not using (Reason:Religious/moral) TP7 = Not using (No reason) --- DEFAULT
3	TT	C	3	<i>TT dari mana saja</i> Tetanus or Resources <i>source</i>	TDK = Not receive --- DEFAULT TTR = Receive TT from hospital/midwife clinic TTP = Receive TT from health center TTY = Receive TT from posyandu TTS = Receive TT from midwife/doctor in private practice TTK = Receive TT from household visit TTL = Receive TT from other services
4	FERROUS	C	3	Iron Tablets <i>source</i>	TDK = Not receive --- DEFAULT TBR = Receive iron tablets from hospital/ midwife clinic TBP = Receive iron tablets from health center TBY = Receive iron tablets from posyandu TBS = Receive iron tablets from midwife/docto in private practice TBD = Receive iron tablets from TBA TBK = Receive iron tablets from health cadars through visits

DESCRIPTIVE OF VARIABLE - INDRAMAYU PROSPECTIVE STUDY

NO	VARIABLE	TYPE	LENGHT	VARIABLE LABEL	CATEGORY
5	IMMUN	C	3	Immunisast ^{2 kali}	TDK = Not receive --- DEFAULT BCG = TB vaccination DPT = Dyptheria/Perthusis/Tetanus vaccination CAM = Measles vaccination POL = Polio vaccination
6	FREKSUSU	N	2	Average frequency of breastfeeding per day	00 - 20
7	FLUID	C	3	Fluid	AIR = Mostly water TEH = Mostly tea LLN = Other TDK = No fluid
8	SUSUKLG	C	3	Non-breastmilk	SFB = Mostly baby formula milk SKM = Mostly sweet condensed milk SBT = Mostly non-baby formula powdered milk SSP = Mostly fresh milk TDK = Not receive any non-breastmilk breastmilk --- DEFAULT TTH = Do not know
9	MKNLNK	C	1	Soft food	Y = Yes T = No --- DEFAULT
10	MKNPDT	C	1	Solid food	Y = Yes N = No --- DEFAULT

Gour

THE POPULATION COUNCIL

MAIL : P.O. BOX 20 / JKSA, JAKARTA 10350 A, INDONESIA
OFFICE : 4 TH FLOOR UNIT 3 GEDUNG JAYA
JL. M.H. THAMRIN 12, JAKARTA 10340, INDONESIA
CABLE : POPCOUNCIL
TELEX : 61244 PTJAYA 1A (ATT : THE POPULATION COUNCIL)
FAX : (021) 328051 (ATT : THE POPULATION COUNCIL)
TELEPHONES : (021) 327508 EXT 247, (021) 327992 (DIRECT)

27 November 1989.

Mr. David Leon
The Population Council
37/1 Soi Somprasong 3
Petchburi Road
Bangkok.

Dear David,

Herewith a revised copy of the field manual. The initial manual was written by Jim in consultation with us, but we found several things which needed revision. These revisions are already reflected in the list of variables and consistency checks sent to you earlier.

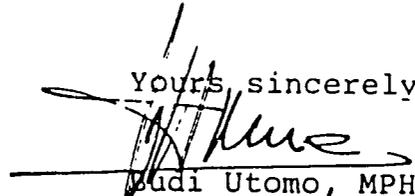
Also enclosed is a diskette containing the latest version of the manual. It is in WordPerfect ver5 and the name of the file is SRSDOC.12.

I understand that you are due to proceed on your home-leave in December. Will it be possible for you to visit us before you go? We are now working on sending the necessary requests to JSI, USAID and the PopCouncil to facilitate your subsequent visits.

I look forward to seeing you.

With best regards,

Yours, sincerely,


Budi Utomo, MPH.

- cc. 1) Peter Donaldson
2) Jim Phillips
✓ 3) Gour Dasvarma

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MMH

Fax No.: (662)253-6318

Jakarta, 16 November 1989

Mr. David Leon
The Population Council
PO Box 11-1213
Nana Post Office
Bangkok

Dear David,

How are you David? I hope you are doing fine.

Thank you for your letter of November 3, 1989 including an updated software user's manual, one diskette, and sample HRB page of the Indramayu Prospective Study. This software has been installed according to your instruction.

Herewith a list of variables and their consistency checks based on the most recent version of the manual sent by Jim from New York. These were initially developed by Chris and later discussed among she, Gour and I. We leave to you as to how to arrange them in the computer data base, but there are a few items which we would like to bring to your attention. These are as follows:

DESCRIPTION VARIABLES

- 1. Date of interview round Tgsik01-Tgsik99

If a unique name for round date is needed use Tgsik01-Tgsik99. If you don't need a unique name use Tgwawan.

- 2. Event occurring in the last three months-Peris. must events be entered in chronological order? Please note that two events can occur on the same day. If they do, do they also have to be entered chronologically? e.g. mother gives a birth and then maternal death.

- 3. Split household numbering.

Split households- Unfortunately, our households are numbered consecutively from 001 to 300. Numbering of a split household will be done by adding 300 to the parent household number. This will allow a maximum of 2 generations of splits, but it seems an easier option at this point than trying to add a digit. We will change the baseline program to allow household numbers up to 999, after baseline is completed. If a household has more than 2 generations of splits we will assign numbers in the field and keep track by hand.

Example: HH ID: 01 1 01 250 A
 Split HH ID: 01 1 01 550 A

4. Date of event- Tanggal

Date of household change (PHA) should be included in the data base?

In case of household status change due to the death of a household member, should we record the date twice (i.e. date of death in the MAT and date of household status change in the PHA).

FATAL ERRORS AND WARNING ERROR

1. A list of fatal and warning errors is attached here.
2. Is the age of member (Tgwawan-Tglhr) updated in every cycle for error checking?
3. Automatic updating of RHM if in the current interview: if RHM is found to be HML, the date of HML is the same as RHM (i.e. date of LMP for RHM). If it is SHM in the current interview, then the record for RHM should be deleted.

We are still discussing many issues and corrections to the manual for Jim. We will be in touch with you and Jim soon.

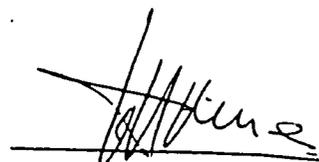
Baseline data collection is in progress. We have entered about 3,200 households (including the members) information into the computer data base. So far, the field activities are going well. We will finish the baseline data collection by mid December 1989. The first cycle of the study should start by mid January 1990 if we want to have the same pattern of household visitation in which every household should be visited regularly in every about 90 days.

Regarding the above plan, we need your assistance in finalizing the software for cycle data collection. It is most desirable if it can be done before mid January 1990.

Please fax to Gour the possible date of your visit once you know. Mid December 1989 would be the best timing for us for your visit, although we have to print the HRB books as well.

With many best regards.

Sincerely yours,



Budi Utomo

cc.
Dr. Peter Donaldson
Dr. James Phillips
Dr. Marjorie Koblinsky

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November 16, 1989

DESCRIPTION OF VARIABLES - INDRAMAYU PROSPECTIVE STUDY

NO	VARIABLE	TYPE	# COL	VARIABLE LABEL	CATEGORY
	Iq51KU1- Iq51K99			Date of round inter- view, (or Iqawan used each time)	dd/mni/yy
	Kode			Interviewer's code #	001-998
	Kunjung			Round number	01-99
	Hadir			Attendance of household member at time of interview	NOT ENTERED INTO DATA BASE H = Present I = Absent
	Peris	C	3	Event occured in the last 3 months	MAT = Death RHM = Unsure pregnancy HML = Pregnant SHM = Mistaken pregnancy KL1 = 1 live birth KL2 = 2 live births (twins) KL3 = 3 live (triplets) KM1 = 1 stillborn KM2 = 2 or more stillborn KC1 = 1 live birth, plus 1 or more stillborn KC2 = 2 + live birth, plus 1 or more stillborn ASP = Spontaneous abortion GUR = Abortion MIM = In Migration MIK = Out Migration KWP = First marriage KWL = Second marriage or more BER = Living together CRH = Divorced CRM = Widowed RJK = Reunion PSH = Separated
	SRT	C	3	Household status change in last 3 months	PHA = Update relation codes spouse no., other no. PKL = SRS Members who move to new SRS household "Split out" PKD = Mems. remaining after other mems. move "Split in" GKD = SRS members joined by other SRS members "Merge in" GKL = SRS Mems. who move to other SRS hh "Merge out"

13-Nov-89 , 1

DESCRIPTION OF VARIABLES - INDRAMAYU PROSPECTIVE STUDY

NO	VARIABLE	TYPE	# COL	VARIABLE LABEL	CATEGORY
	Tanggal			DATE OF EVENT: MAT RHM, HML, SHM KL1, KL2, KL3, KM1, KM2, KC1, KC2, ASP, GUR MIM, MIK KWP, KWL, BER CRH, CRM, RJK, PSH PHA	dd/mm/yy Date of event Date of last menst. period Date of event Date of move Date of event Date of HH Stat. change
	Tempkes	C	3	PKL, PKD, GKL, GKD Health service contact place: place of delivery or last place of health contact before death (Only for events MAT or KL1, KL2, KL3, KM1, KM2, KC1, KC2, ASP, GUR)	Date of HH Stat. change PEM = Govt health facility PRI = Private health facility RMH = Home of respondent or decedent RMK = Other home in kecamatan RML = Other home outside kecamatan LLN = Other non-residential TTH = Unknown
	Penk lh	C	3	Attendant for pregnancy termination or death (Only for events MAT or KL1, KL2, KL3, KM1, KM2, KC1, KC2, ASP, GUR)	AHL = Obstetrician DOK = General physician BID = Midwife PAR = Paramedical worker KAD = Health cadre DUB = Traditional Birth attendant SDR = Relative LLN = Other TTH = Unknown
	Asaltuju	C	3	Origin/Destination of Migrant (Only for MIM, MIK)	RUM = Same village DES = Other village, same kecamatan(study area) KIS = Other kecamat., same kabupaten(study area) (btwn Gab.wet & Sliy.) KCL = Other kecamat., same kabupaten (not in study area) same kabupaten JKT = Greater Jakarta KAB = Different kabupaten within West Java PRO = Other prov. in Java LUA = Other province,

DESCRIPTION OF VARIABLES - INDRAMAYU PROSPECTIVE STUDY

NO	VARIABLE	TYPE	# COL	VARIABLE LABEL	CATEGORY
	Alasm19	C	3	Reason of migration (Only for MIM, MIK)	outside Java NEG = Other country TTH = Unknown PEK = Job related employment unemploy., retire KWN = Marriage, reunion, living together LEB = Seek improvement in living conditions CRH = Divorce or separation CRM = Widowed SEK = Onset or termination of studies IKU = Join hh because of family relations TRA = Transmigration (out only) LLN = Other TTH = Unknown (out only)

call : s1keng2.wk1

13-Nov-89 , 3

16 November 1989

DESCRIPTION OF ERROR CHECKS FOR DATA ENTRY
OF HOUSEHOLD ROUNDS DATA
INDRAMAYU HEALTH AND FAMILY PLANNING PROSPECTIVE STUDY

FATAL ERROR 1:

IF:
ANY EVENT except MIM

AND:
NON-MEMBER (Not previous MIK
without MIM following, or previous
MAT)

FATAL ERROR 2:

IF:
RHM = Unsure pregnancy
HML = Pregnant
SHM = Mistaken pregnancy
KL1 = 1 live birth
KL2 = 2 live births (twins)
KL3 = 3 live (triplets)
KM1 = 1 stillborn
KM2 = 2 or more stillborn
KC1 = 1 live birth, plus
 1 or more stillborn
KC2 = 2 + live birth, plus
 1 or more stillborn
ASP = Spontaneous abortion
GUR = Abortion

AND:
SEX=L
(Male)

FATAL ERROR 3:

IF:
RHM = Unsure pregnancy
HML = Pregnant
SHM = Mistaken pregnancy
KL1 = 1 live birth
KL2 = 2 live births (twins)
KL3 = 3 live (triplets)
KM1 = 1 stillborn
KM2 = 2 or more stillborn
KC1 = 1 live birth, plus
 1 or more stillborn
KC2 = 2 + live birth, plus
 1 or more stillborn
ASP = Spontaneous abortion
GUR = Abortion

AND:
AGE < 10

WARNING ERROR 1:

IF:
RHM = Unsure pregnancy
HML = Pregnant
SHM = Mistaken pregnancy
KL1 = 1 live birth
KL2 = 2 live births (twins)
KL3 = 3 live (triplets)
KM1 = 1 stillborn
KM2 = 2 or more stillborn
KC1 = 1 live birth, plus
1 or more stillborn
KC2 = 2 + live birth, plus
1 or more stillborn
ASP = Spontaneous abortion
GUR = Abortion

AND:
AGE > 49

WARNING ERROR 2:

IF:
RHM = Unsure pregnancy
HML = Pregnant
SHM = Mistaken pregnancy
KL1 = 1 live birth
KL2 = 2 live births (twins)
KL3 = 3 live (triplets)
KM1 = 1 stillborn
KM2 = 2 or more stillborn
KC1 = 1 live birth, plus
1 or more stillborn
KC2 = 2 + live birth, plus
1 or more stillborn
ASP = Spontaneous abortion
GUR = Abortion

AND:
AGE >= 10
AND AGE <15
AND
STSKAWIN=BKW

WARNING ERROR 3:

IF:
KL1 = 1 live birth
KL2 = 2 live births (twins)
KL3 = 3 live (triplets)
KM1 = 1 stillborn
KM2 = 2 or more stillborn
KC1 = 1 live birth, plus
1 or more stillborn
KC2 = 2 + live birth, plus
1 or more stillborn

AND:
Not HML (pregnant)
in last or next-
to last round

(Except if MIM in just
previous round)

FATAL ERROR 4:

IF:
KL1 = 1 live birth
KL2 = 2 live births (twins)
KL3 = 3 live (triplets)
KM1 = 1 stillborn
KM2 = 2 or more stillborn
KC1 = 1 live birth, plus
 1 or more stillborn
KC2 = 2 + live birth, plus
 1 or more stillborn

AND:
Event KL1--KC2, ASP,GUR
Within last 7 months of
this event

FATAL ERROR 5:

IF:
ASP = Spontaneous abortion
GUR = Abortion

AND:
Event KL1--KC2, ASP,GUR
Within last 3 months of
this event

FATAL ERROR 6:

IF:
KWP = First marriage

KWL = Second marriage or more

BER = Living together

CRH = Divorced or
CRM = Widowed

PSH = Separated

RJK = Reunion

AND:
Previous status STSKAWIN not BKW

Previous status STSKAWIN is BKW

Previous status is KWP,KWL,PLG
and no event in same round of
CRH, CRM, PSH.

Previous status not KWP,KWL,PLG,PSH
Previous status not KWP,KWL,PLG,PSH

Previous status not KWP,KWL,PLG,BER

Previous status not PSH or CRH

WARNING ERROR 4:

IF:
KWP = First marriage
BER = Living together

KWL = Second marriage or more

AND:
Age < 10
Age < 10

Age < 15

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WARNING ERROR 5:

IF:
MAT,
KL1, KL2, KL3,
KM1, KM2, KC1, KC2
ASP, GUR
KWP, KWL, BER, CRH,
CRM, RJK, PSH

AND:

Date of event is more than
7 months before date of
interview

WARNING ERROR 6:

IF:
RHM

AND:

Date of event (Last menstrual period)
<4 weeks or >10 months before
interview date

HML

Date of event (Last menstrual period)
<6 weeks or >10 months before
interview date

SHM

No event code of RHM in previous
round

WARNING ERROR 7:

IF:
MIM or MIK and ALASMIQ
=PEK, KWN, CRH, CRM

AND:

Age < 10

WARNING ERROR 8:

IF:
MIK and alasmig is not
KWN, CRH, CRM, IKU

AND:

Date of event is less than 3 months
before interview date

WARNING ERROR 9:

IF:
MIM, and not new member

AND:

No previous MIK

WARNING ERROR 10:

IF:
MIM, and not new member

AND:

Previous MIK > 3 months before
interview date

WARNING ERROR 11:
IF:
MIM, and ALASMIG
not KWN, CRH, CRM,IKU

AND:
(Date of Interview - Date of
event) < 3 months
(IKU included for dependents who
move with migrants not subject to
3 month rule)

WARNING ERROR 12:
IF:
MIM, and new member
be

AND:
Date of other events must
after date of MIM

FATAL ERROR 7:
IF:
Any date of event

AND:
After date of interview

WARNING ERROR 13:
IF:
KL1, KL2, KL3, KC1, KC2

AND:
Must be a new member in household
(In the event of a birth to a maid
who does not live in household, the
child will become a member of the hh
and then migrate out with reason IKU

WARNING ERROR 14:
IF:
For eligible women with
unresolved HML:
(Date of interview -
Date for HML) > 9.5 months

AND:

No KL1, KL2, KL3, KM1, KM2,
KC1, KC2, ASP, GUR in round

FATAL ERROR 8:
IF:
KWP, KWL, BER, CRH,
CRM, RJK, PSH

AND:
Same event recorded in last round

FATAL ERROR 9:
IF:
KWP, KWL, BER to a new
member

AND:
MIM not a previous event

FATAL ERROR 10:
IF:
KWP, KWL, BER, RJK, and spouse
number is given

AND:
Person of that spouse number is of
same sex

WARNING ERROR 15:
IF:

KWP,KWL,BER,RJK, and spouse
number is given, e.g. if
line no. of person married
=01 and spouse number=04

AND:

Spouse lists correct spouse number
error is spouse no. of line
no. 04 is not 01