USE OF MATERNAL AND CHILD HEALTH SERVICES AND IMMUNIZATION COVERAGE IN PANAMA AND GUATEMALA[1]

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INTRODUCTION

National leaders and health professionals have endorsed the goal of "health for all by the year 2000" *(1)*. This objective was defined by the Thirtieth World Health Assembly in 1977 and adopted by the World Health Organization at the International Conference on Primary Health Care at Alma Ata in 1978. Two of the eight basic components of primary health care identified at the Alma Ata conference that were considered to need worldwide attention were provision of maternal and child health (MCH) services and childhood immunization against major infectious diseases *(2, 3)*. As a measure of progress toward "health for all by the year 2000" in two Latin American countries, this article discusses the utilization of MCH services and the immunization status of children in Panama and Guatemala.

The rate of progress toward "health for all by the year 2000" will of course vary from country to country. Factors affecting the rate for a given country include the existing health infrastructure and the extent of its coverage, the availability and cost of medications, and how people view the importance of preventive care such as MCH services and immunization. The rate will also be affected by where each country begins working toward the goal, as measured by major health indicators.

For example, a 1984 report *(4)* indicated that infant mortality was 66 deaths per 1,000 live births in Guatemala as compared to 25 deaths per 1,000 live births in Panama. The same report stated that life expectancy at birth was 11 years longer in Panama than in Guatemala (70 versus 59 years). Also, as of 1983 the total fertility rate in Guatemala was 5.8 per hundred, with 25% of the currently married women 15 to 44 years

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old using contraception; while in 1984 the total fertility rate in Panama was 3.7 per hundred, with 60% of the currently married women 15 to 44 years old using contraception *(5,6)*. These differences provide a basis for comparison in discussing the use of MCH services and immunization coverage in these two countries.

METHODOLOGY

The analysis presented here is based on two family planning and maternal and child health surveys that were initiated in Guatemala and Panama in 1983 and 1984, respectively *(5, 6)*. These surveys were conducted mainly to estimate the extent of contraceptive use and to provide population-based data on the use of MCH services and immunization levels, in order to measure the impact of these in each country. Both surveys were multistage area probability surveys with two-stage selection. The Guatemala survey was conducted by the Asociación Pro-Bienestar de las Familias (APROFAM) and the Panamanian survey by the Ministry of Health of Panama; in both cases technical assistance was provided by the Division of Reproductive Health, U.S. Centers for Disease Control, Atlanta, Georgia.

In Guatemala, two areas were considered separately—these being the Department of Guatemala, which is largely urban, and all of the country's other departments, which are collectively referred to in this article as "the interior." In the interior, respondents were classified into two ethnic groups, Ladinos and Indians. Ethnic membership was defined specifically by the language spoken in the home and the type of clothing worn, especially by women. Thus, the respondents in Guatemala were divided into three groups—those residing in the Department of Guatemala, Ladino residents of the interior, and Indian residents of the interior. Fieldwork was conducted from September 1983 through January 1984. Completed interviews were obtained from 3,670 women 15 to 44 years of age of all marital statuses, representing 95% of the selected households that had eligible respondents. Individual completion rates ranged from 88% in the Department of Guatemala to 98% in the interior.

Separate consideration was also given to urban and rural areas in the Panama survey, with ethnic membership being defined in a similar fashion to the way it was defined in Guatemala. Thus, the respondents in Panama were also divided into three groups—urban dwellers, rural Ladinos, and rural Indians. Fieldwork was initiated in July 1984, but numerous administrative delays kept it from being completed until April 1985, five months after the scheduled completion date. Completed interviews were obtained from a total of 8,240 women 15 to 49 years old of all marital statuses, representing 91% of the selected households that had eligible respondents. The individual completion rate was slightly higher in the rural area than in the urban area (94% versus 88%).

The sample design in both surveys was not self-weighting. Therefore, the rates, proportions, and means obtained from the survey data are based on domain weighting factors designed to compensate for unequal selection probabilities. In tables 1 through 9, the percentages given are based on the weighted number of observations, but the unweighted numbers of cases are shown.

In order to minimize respondent recall problems and obtain a cross-section of women's recent MCH experiences, only currently married women 15 to 44 years of age who had delivered their last live baby within five years of the date of interview are included in our analysis of each country. Since the Guatemala survey, unlike the Panama survey, did not include women 45–49 years of age, the 45–49-year age group was excluded from the Panama data for the purpose of this analysis. Both surveys also obtained data on the immunization status of children less than five years of age. In both countries questions were asked about the number of doses of vaccine received against poliomyelitis, diptheria-pertussis-tetanus (DPT), and measles by each child living in the sampled households. However, questions about the number of BCG doses each child had received were asked only in Guatemala.

Panama's immunization program functions as a routine service, with no mass campaigns. In general, the Ministry of Health and the Social Security Institute recommend that children have complete primary immunization against tuberculosis shortly after birth, against poliomyelitis, diptheria-tetanus-pertussis (DPT) by six months of age, and against measles by 15 months.

The Ministry of Health of Guatemala pursues two activities designed to provide complete primary immunization. One functions as a routine service through clinics, while the second functions through periodic mass campaigns. Children vaccinated by the routine service should receive complete primary immunization against polio, DPT, and measles by nine months of age. In the case of those immunized through the periodic mass campaigns, it is recommended that these immunizations be completed by the age of 15 months. Under both schemes, the Ministry of Health recommends complete primary immunization against tuberculosis during the first year of life.

Results

Maternal and Child Health Services

As indicated in Table 1, the percentages of women using MCH services in Panama and Guatemala were found to differ quite markedly, with a higher percentage of women using them in Panama as compared to a moderate to low percentage of women using them in Guatemala. Nearly two-thirds of the Guatemalan women surveyed reported receiving prenatal care, but only 42% reported taking their last live-born child for a well-baby checkup, and only 26% said they received a postpartum checkup following their last birth. In contrast, between 81% and 94% of the women surveyed in Panama were found to be using each of these services.

The data also show considerable variation among the three groups in each country. In Panama the urban women, followed closely by the rural Ladino women, had the highest percentage of users of MCH services. A similar pattern was found in Guatemala, except that lower percentages of interior Ladino women used the services. In both countries the rural (or interior) Indians had the poorest record of MCH service use.

Prenatal care. In both countries, use of prenatal services was positively associated with education and, in general, was

TABLE 1. Use of MCH services in Panama and Guatemala by survey subjects (currently married women 15 through 44 years old who had delivered their last baby within five years of the interview—1984–1985 in Panama and 1983–1984 in Guatemala) grouped according to place of residence, ethnic background, education, employment status, and facility at which the last baby was delivered.

	% of survey women 15–44 years old using the following services:					
	Prenatal care		Postpartum checkup		Well-baby care	
	Panama	Guatemala	Panama	Guatemala	Panama	Guatemala
Total	89.4	62.3	81.3	26.1	93.8	42.5
Residence/ethnicity:						
Urban (Guatemala Department)	94.7	75.1	88.1	52.3	96.7	74.3
Rural (Interior): Ladino	89.1	68.3	78.8	22.6	94.8	43.4
Indian	56.4	48.3	52.3	17.8	69.1	25.8
Education:						
None	49.5	49.7	48.6	16.5	64.2	29.0
Primary, incomplete	80.1	66.7	67.5	24.8	89.6	43.8
Primary, complete	89.6	80.4	81.5	38.1	95.0	61.9
> Primary, complete	95.9	89.6	88.5	64.0	97.2	82.5
Employment status:						
Not working	88.9	61.9	80.4	23.8	93.8	40.9
Working at home	86.3	58.7	78.6	30.8	94.0	42.0
Working outside home	93.5	71.0	87.5	37.8	93.8	55.4
Place of delivery of last live birth:						
Ministry of Health facility	93.6	74.0	87.9	33.8	96.7	58.8
Social Security facility	97.0	91.2	89.9	72.1	96.4	90.6
Integrated hospital[a]	92.5	—	84.0	—	96.4	—
Private hospital	100.0	95.0	88.2	82.5	98.7	89.0
Midwife	60.6	53.8	42.7	15.3	78.8	27.3
Other	47.5	48.7	35.9	15.3	64.2	41.7

[a] Only in Panama, a joint Ministry of Health and Social Security hospital.

greater among women who were employed outside of the household than among unemployed women or women working out of their homes. The place the last baby was delivered also appeared to be associated with use of prenatal care. Especially in Guatemala, women who had delivered their last babies in a private or Social Security hospital (indicating higher socioeconomic status) were more likely to seek prenatal care than women who had delivered their last babies elsewhere.

As shown in Table 2, in both countries the Ministry of Health was the primary source of prenatal care. In Panama, private facilities ranked second, followed by Social Security facilities. In Guatemala, midwives were the second most important source of prenatal care followed by private facilities. (It should be noted that over 4,000 Guatemalan midwives have been trained by the Ministry of Health to recognize high-risk factors associated with pregnancy and to refer women at risk to health facilities.

TABLE 2. Sources of the prenatal care used by survey subjects (currently married women 15 through 44 years old who had delivered their last baby within five years of the interview).

Source of prenatal care	% women receiving care from each source listed in:							
	Panama				Guatemala			
			Rural			Guatemala	Interior	
	Total	Urban	Ladino	Indian	Total	Department	Ladino	Indian
Ministry of Health facility	55.2	45.9	64.2	71.8	45.1	35.6	49.0	45.6
Social Security facility	15.5	21.0	10.6	2.2	10.2	35.4	4.1	1.9
Integrated hospital[a]	9.2	4.8	13.4	17.7	—	—	—	—
Private hospital or clinic	18.2	26.3	10.5	3.2	19.9	25.0	23.7	9.1
Midwife	—	—	—	—	23.9	4.0	22.6	41.6
Other/unknown	1.9	2.0	1.4	5.1	0.8	0.0	0.6	1.8
Total	100	100	100	100	100	100	100	100
Number of cases (unweighted)	(2,719)	(1,157)	(1,366)	(196)	(1,349)	(406)	(590)	(353)

[a] Only in Panama, a joint Ministry of Health and Social Security hospital.

However, for lack of equipment and training they do not check blood pressure or do a urinalysis.) No women in the Panama survey reported receiving prenatal care from midwives. In the rural areas of Panama and the interior of Guatemala, the Ministry of Health was the most important provider of prenatal care services. In the urban areas of Panama and in the Department of Guatemala, private facilities and Social Security health facilities were important sources of prenatal care.

Compared to their Guatemalan counterparts, women in Panama reported receiving their first prenatal checkup relatively soon after conception (Table 3). Table 3 also shows that in both countries women who obtained prenatal care from a private physician or Social Security facility were more likely to seek care during the first three months of pregnancy than were women who obtained care elsewhere.

In addition, an analysis of the ages of the women who received prenatal care indicates that young mothers in both countries were more likely to seek prenatal care for their earlier pregnancies than were older women who had already experienced several pregnancies. It is unclear whether this represents a tendency to forego prenatal care in later pregnancies, or whether it points to an increasing tendency for new mothers to seek prenatal care.

Well-baby care. As was shown in Table 1, 94% and 43% of the Panamanian and Guatemalan women, respectively, reported taking their last live-born child for a well-baby checkup. In Guatemala, women living in the Department of Guatemala were 1.7 times more likely to use well-baby care than interior Ladino women and three times more likely to do so than interior Indian women. In Panama, similar percentages of urban dwell-

TABLE 3. The month of pregnancy when the mothers surveyed[a] first received prenatal care, by the type of facility providing care.

Month of pregnancy when prenatal care was first received	% receiving first prenatal care in indicated trimester in Panama from a:						% receiving first prenatal care in indicated trimester in Guatemala from a:					
	Health Ministry facility	Social Security facility	Integrated hospital[b]	Private hospital or clinic	Other/ unknown	Total	Health Ministry facility	Social Security facility	Private hospital or clinic	Midwife	Other/ unknown	Total
≤ 3 months	75.6	85.1	70.5	88.1	—[c]	76.8	46.7	57.5	69.8	38.0	68.8	50.4
4–6 months	21.1	13.5	24.8	10.6	—[c]	18.3	41.1	33.8	24.0	46.7	18.5	38.1
7–9 months	2.6	0.6	3.3	1.3	—[c]	2.2	12.2	8.2	6.3	14.5	6.3	11.2
Unknown	0.7	0.8	1.4	0.0	—[c]	0.7	0.0	0.4	0.0	0.9	6.4	0.3
Total	100	100	100	100	—[c]	100	100	100	100	100	100	100
No. of cases (unweighted)	(1,487)	(380)	(359)	(442)	(11)	(2,719)	(605)	(175)	(264)	(294)	(51)	(1,349)

[a] Currently married women 15 through 44 years old who delivered their last baby within five years of the interview.
[b] Only in Panama, a joint Ministry of Health and Social Security hospital.
[c] Less than 25 cases.

ers and rural Ladinos utilized well-baby care, while a substantially lower percentage of Indian women did so. In general, education, employment status, and place of the last live birth were important factors in the use of prenatal care and use of well-baby care in both countries.

The source of well-baby care also generally corresponded with the source of prenatal care, though as Tables 2 and 4 show, a higher percentage of women in both countries utilized Ministry of Health facilities for well-baby care than they did for prenatal care. In addition, only 3% of the Guatemalan women who received well-baby care used midwives as the source of that care, even though 24% of those receiving prenatal care obtained it from midwives. Similarly, only half as many Panamanian women said they used private hospitals or clinics for their well-baby care compared with women who reported using such facilities for their prenatal care.

Postpartum care. In both countries, postpartum care was the least utilized of the three MCH services under discussion. Use of postpartum care varied by residence and ethnic group, with urban (or Department of Guatemala) women having the highest proportion of users and rural Indians having the lowest (see Table 1). The characteristics of women receiving postpartum care were similar to those of women receiving prenatal care. For example, use of postpartum care was positively associated with education. Also, in Guatemala the place of the last live birth (a surrogate measure of socioeconomic status) was associated with the use of postpartum care, in that those women who paid and those who were covered by health insurance were more likely than others to use postpartum care.

The relatively low utilization of postpartum care by the Guatemalan women, compared to their relatively

TABLE 4. Sources of well-baby care used by survey subjects (currently married women 15 through 44 years old who had delivered their last baby within five years of the interview).

	% women receiving care from each source listed in:							
	Panama				Guatemala			
			Rural			Guatemala	Interior	
Source of well-baby care	Total	Urban	Ladino	Indian	Total	Department	Ladino	Indian
Ministry of Health facility	60.3	52.2	67.8	72.3	61.1	38.1	68.0	79.2
Social Security facility	16.6	23.6	10.5	3.9	15.1	39.2	5.7	1.4
Integrated hospital[a]	11.5	6.7	15.8	20.6	—	—	—	—
Private hospital or clinic	9.0	14.4	4.1	0.7	20.1	21.5	24.5	8.5
Midwife	0.1	0.1	0.0	0.4	2.8	0.0	1.5	9.5
Other	2.5	3.0	1.9	2.1	0.8	1.3	0.2	1.5
Total	100	100	100	100	100	100	100	100
Number of cases (unweighted)	(2,881)	(1,185)	(1,454)	(242)	(965)	(392)	(378)	(195)

[a] Only in Panama, a joint Ministry of Health and Social Security hospital.

high utilization of prenatal services, suggests that they viewed prenatal services as being more important. Similarly, the data suggest that although well-baby care may have been considered more important to women in both countries than postpartum care, it was considered less important than prenatal care by the women in Guatemala. Much of the difference between the percentages of women using postpartum and well-baby care in both countries may be due to the fact that health providers in both countries do not always integrate these two services. Our analysis suggests that some women would rather not be bothered with two trips to a health facility, and that well-baby care is more important to them than postpartum care.

All MCH services. Table 5 shows the percentages of women in both countries using either all three types of MCH services or none of them. Over three-fourths of the Panamanian women utilized all three services, compared to less than one-fifth of the Guatemalan women. Conversely, 28% of the Guatemalan women said they used no MCH services, as compared to only 3% of the Panamanian women. As might have been expected, higher percentages of women living in urban Panama (84%) and the Department of Guatemala (44%) reported using all three services, as compared to those living in rural or interior areas. Rural Indians in Panama and interior Indians in Guatemala were the least likely to have used all three services and the most likely to have used none.

Use of all three or no MCH services was associated with education, the place where the last baby was delivered, and (to a lesser degree) with employment status in both countries. With regard to place of delivery, those women who had delivered their last baby in private hospitals or in Social Security facilities were the most likely to have used all three MCH services, while those who had used a

TABLE 5. Use of all three MCH services or no MCH services in Panama and Guatemala by survey subjects (currently married women 15 through 44 years old who had delivered their last baby within five years of the interview—1984-1985 in Panama and 1983-1984 in Guatemala)—grouped according to place of residence, ethnic background, education, employment status, and facility at which the last baby was delivered.

	% of survey women using:			
	All three MCH services		No MCH services	
	Panama	Guatemala	Panama	Guatemala
Total	76.2	18.5	2.9	28.2
Residence/ethnicity:				
Urban (Guatemala Department)	84.1	44.0	0.7	10.2
Rural (interior): Ladino	74.0	16.4	1.9	23.6
Indian	38.8	8.6	22.8	43.0
Education:				
None	35.1	8.5	29.1	40.4
Primary, incomplete	61.0	17.6	5.5	23.6
Primary, complete	75.2	29.1	1.5	8.6
> Primary, complete	85.3	57.8	0.4	5.5
Employment status:				
Not working	74.8	16.7	2.9	28.9
Working at home	75.8	19.4	3.1	31.5
Working outside home	84.6	30.4	2.8	18.6
Place of delivery of last live birth:				
Ministry of Health facility	83.1	24.2	0.1	12.9
Social Security facility	86.0	64.9	0.0	2.2
Integrated hospital[a]	79.2	—	0.9	—
Private hospital	87.6	75.3	0.0	1.7
Home (midwife)	33.0	8.1	15.1	37.8
Other	26.0	9.4	26.6	39.7

[a] Only in Panama, a joint Ministry of Health and Social Security hospital.

midwife during their last delivery (primarily rural women) were the least likely to have used all three MCH services.

Figure 1 shows that mothers with relatively few living children in both countries were more likely than higher parity women to have used all three MCH services. In rural Guatemala, however, parity appears to have had little influence on the use of MCH services, as interior Indian mothers were not likely to use these services regardless of their number of living children.

Table 6 examines the relationship between use of MCH services and family planning. In both countries, those women who used all three MCH services were much more likely to use contraception than were women who received only some or none of these services. Women who used none of the MCH services reported the lowest contraceptive use. This association between the

FIGURE 1. The influence of parity upon use of MCH services. The charts show the percentages of survey subjects with one, two, three, four, and five or more living children in Panama (A) and Guatemala (B) who reported using all three kinds of MCH services.

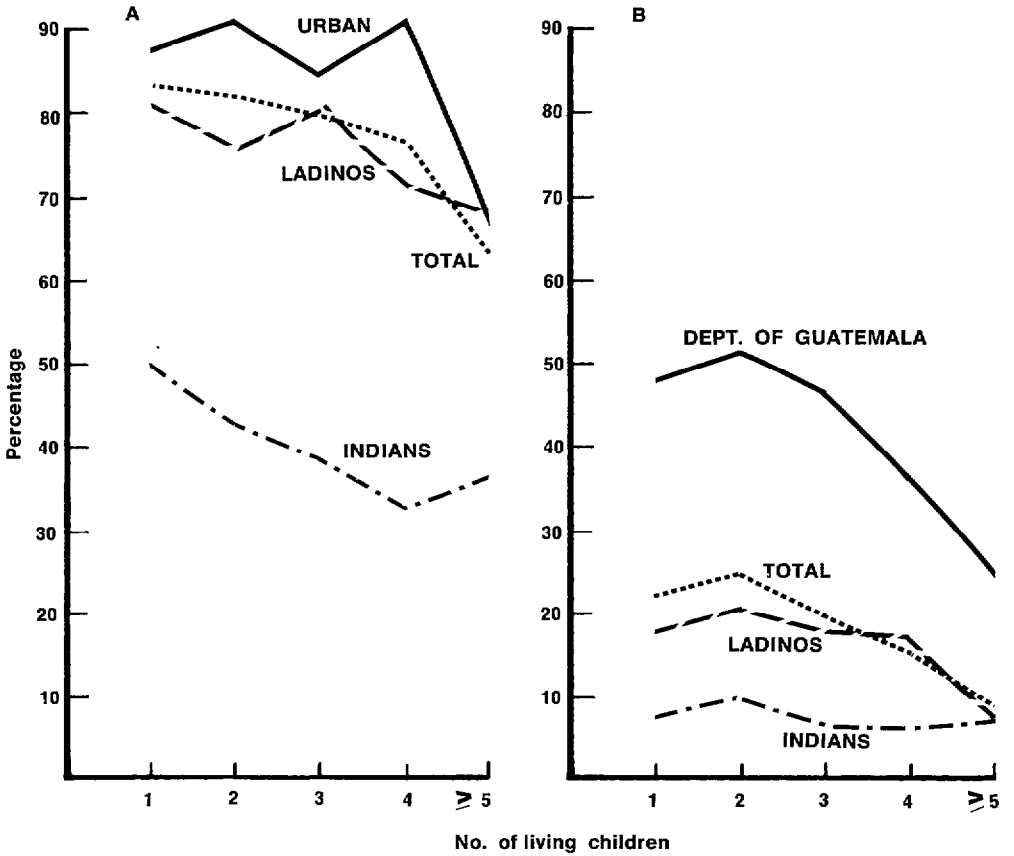


TABLE 6. Current use of contraception by survey subjects using no MCH services, one or two services, or all three services. (The data shown are for currently married women 15–44 years old who delivered their last baby within five years of the interview.)

	% using contraception in:							
	Panama				Guatemala			
			Rural			Guatemala	Interior	
Types of MCH services used	Total	Urban	Ladino	Indian	Total	Department	Ladino	Indian
None	12.6	—[a]	4.6	12.9	7.9	20.0	14.0	2.2
One or two types	34.8	43.1	32.6	21.8	19.1	35.8	23.5	4.4
All three types	61.8	68.0	57.0	30.1	49.6	65.5	48.8	11.2
Number of cases (unweighted)	(3,110)	(1,232)	(1,537)	(341)	(2,145)	(538)	(855)	(752)

[a] Less than 25 subjects.

use of MCH services and contraceptive use varied by place of residence and ethnic background, but the pattern was similar in both countries. As expected, urban residents in Panama and women living in the Department of Guatemala who used all three MCH services were the most likely to be using contraception. Contraceptive use by rural Ladinos in Panama and interior Ladinos in Guatemala was only slightly lower than that of their urban counterparts. In contrast, 30% of the rural Indians in Panama and only 11% of the interior Indians in Guatemala who used all three services were using contraception.

Place and Type of Last Live Birth

Table 7 shows the place of the last live delivery. The extensive use of midwives in Guatemala relative to Panama (for 58% versus 6% of the deliveries) is the most striking difference between the two countries in this regard. In Panama, only rural Indians made fairly extensive use of midwives (for 27% of the deliveries), while in Guatemala over half the interior Ladinos and over 80% of the interior Indians used a midwife for their last delivery.

Women whose last delivery was in a hospital were asked if their most recent delivery was vaginal or cesarean (Table 8). In both Panama and Guatemala, 16–17% of these women reported that their last delivery was cesarean. In both countries, the percentage of women whose last delivery was cesarean was highest for urban (or Department of Guatemala) women, for women who had at least a primary school education, for low-parity women, and for women who delivered in a private hospital. Similar relationships have been found in Brazil *(7)*. It is also noteworthy that of the women who had a cesarean, 44% in Panama and 25% in Guatemala had a tubal sterilization at the time of delivery.

TABLE 7. The place or type of facility at which the survey subject's last baby was delivered. (The data shown are for currently married women 15–44 years old who delivered their last baby within five years of the interview.)

	% using indicated place of delivery in:							
	Panama				Guatemala			
			Rural			Guatemala	Interior	
Place of last live birth	Total	Urban	Ladino	Indian	Total	Department	Ladino	Indian
Ministry of Health facility	38.7	48.9	30.6	20.6	24.2	40.5	30.2	8.5
Social Security facility	12.9	20.7	6.5	1.0	6.3	30.2	2.0	0.0
Integrated hospital[a]	33.2	22.9	45.9	23.7	—	—	—	—
Private hospital	3.7	5.5	2.2	0.8	4.1	10.6	4.5	0.3
Home (midwife)	6.2	0.7	8.6	27.3	57.7	15.8	53.2	84.2
Other[b]	5.3	1.3	6.2	26.6	7.7	2.9	10.1	7.0
Total	100	100	100	100	100	100	100	100
Number of cases (unweighted)	(3,110)	(1,232)	(1,537)	(341)	(2,145)	(548)	(855)	(752)

[a] Only in Panama, a joint Ministry of Health and Social Security hospital.
[b] At home with physician, nurse, other person (except midwife), or unattended.

TABLE 8. Cesarean deliveries among the survey subjects 15–44 years old whose last deliveries occurred in a hospital—by place of residence, ethnic background, education, parity, and the facility where the last live delivery occurred.

	Cesarean deliveries in:			
	Panama		Guatemala	
	%	No. of cases (unweighted)	%	No. of cases (unweighted)
Total	16.2	(2,444)	17.1	(889)
Residence/ethnicity:				
Urban (Guatemala Department)	18.4	(1,180)	18.8	(473)
Rural (interior): Ladino	13.5	(1,151)	15.7	(340)
Indian	11.4	(113)	16.8	(76)
Education:				
None	6.5	(80)	15.4	(173)
Primary, incomplete	9.4	(321)	12.5	(324)
Primary, complete	12.6	(732)	20.3	(180)
> Primary, complete	19.7	(1,311)	22.6	(212)
Parity:				
1	17.8	(595)	22.0	(207)
2	22.4	(649)	21.7	(228)
3	18.6	(484)	18.8	(152)
4–5	6.5	(429)	9.7	(176)
6+	6.9	(287)	8.9	(126)
Place of delivery of last live birth:				
Ministry of Health facility	15.4	(855)	15.2	(591)
Social Security facility	17.9	(321)	18.2	(194)
Integrated hospital[a]	14.5	(1,167)	—	—
Private hospital	31.2	(101)	27.7	(104)

[a] Only in Panama, a joint Ministry of Health and Social Security hospital.

Immunization Coverage

The results shown in Table 9 indicate the immunization coverage of children less than five years old in Panama and Guatemala. In Panama, some two-thirds of the children were reported to have completed immunization for polio, DPT, and measles. This relatively high coverage was found in both the urban and the rural Ladino groups; however, coverage of rural Indians was relatively low. The percentage of children with completed immunizations was positively associated with their mother's educational level, as less than half the children of mothers with no education were reported to have been covered, while about two-thirds of those whose mothers had at least completed primary school were said to have been covered.

In Guatemala, over half of the children were said to have received BCG and measles immunizations, while only a third were reported to have received complete immunization against polio and DPT. Coverage of Indian children in the interior was notably poorer than coverage of Department of Guate-

TABLE 9. Percentages of children of the survey mothers who were under five years of age at the time of the interview and who had reportedly received complete immunization against the indicated diseases—by country, maternal residence and ethnic background, and maternal education.

	% children with reported complete immunization in:								
	Panama, 1984–1985				Guatemala, 1983–1984				
	Polio	DPT	Measles	No. of cases (unweighted)	Polio	DPT	Measles	BCG	No. of cases (unweighted)
Total	65.0	65.0	66.6	(4,851)	33.4	33.0	53.0	57.8	(4,185)
Residence/ethnicity:									
Urban (Guatemala Department)	67.4	67.6	67.1	(1,825)	43.6	43.0	48.8	66.8	(1,100)
Rural (interior): Ladino	66.2	65.9	67.2	(2,481)	38.2	37.9	60.4	63.1	(1,706)
Indian	43.3	43.1	59.3	(545)	19.2	18.9	45.7	43.7	(1,379)
Maternal education:									
None	40.8	41.8	51.7	(310)	24.6	24.2	47.1	48.0	(1,877)
Primary, incomplete	58.4	58.4	64.0	(904)	35.8	35.3	56.6	64.2	(1,372)
Primary, complete	66.7	66.5	69.2	(1,492)	44.1	43.8	58.4	72.0	(420)
> Primary, complete	68.6	68.7	67.4	(2,145)	49.0	49.0	59.6	63.7	(516)

mala and interior Ladino children. As in Panama, immunization coverage for all the diseases covered by the survey was positively associated with maternal education.

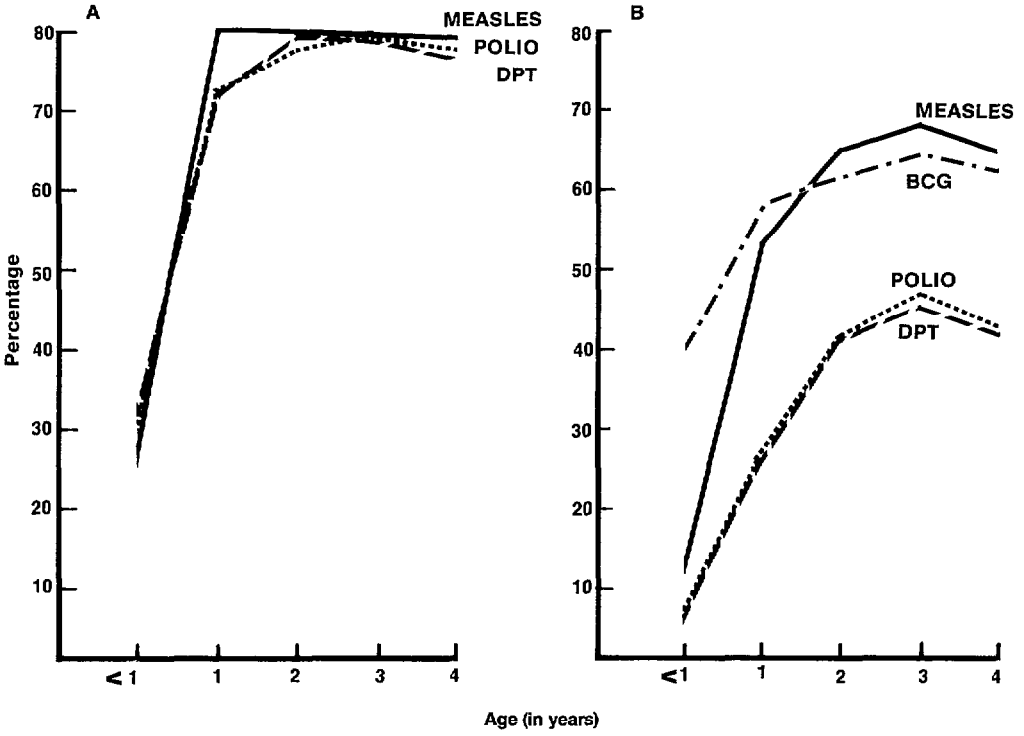
As indicated in Figure 2, the data show that in both Panama and Guatemala immunization coverage was strongly related to the child's age. That is, the largest percentage increase in children with complete immunization occurred from those less than one year old to those one year of age. This was to be expected, since both countries were recommending complete immunization of children by nine months of age.

DISCUSSION AND CONCLUSIONS

In general, the survey results reported here can be compared to findings from earlier surveys in Panama in 1979 and Guatemala in 1978 *(8–10)*. In Panama, the use of all three MCH services increased by 16 percentage points between 1979 and 1984, reaching 76% in 1984. Conversely, the percentage of women in Panama who reported not using any MCH service decreased from approximately 7% in 1979 to 3% in 1984. However, immunization coverage increased only slightly between the surveys. Available data suggest that use of MCH services and childhood immunization coverage did not change significantly in Guatemala during the five years between surveys *(5)*.

This information provides a useful basis for orienting programs, assigning resources, and defining goals in each of these countries in pursuing the goal of "health for all by the year 2000." For example, the relatively low use of MCH services in Guatemala indicates a need to promote these services and make them more accessible to all women, regardless of their socioeconomic and demographic status. In Panama, on the

FIGURE 2. Percentages of survey children less than five years old who reportedly received complete poliomyelitis, DPT, measles, and (in the case of Guatemala) BCG immunizations, by age of child in (A) Panama and (B) Guatemala.



other hand, the data show that the rate at which MCH services are used is relatively high, but that rural Indians do not enjoy the same level of health protection as rural Ladinos, indicating a need to strengthen the preventive health services provided to the Indians.

In general, the Indian populations in both Panama and Guatemala made relatively little use of MCH and immunization services. The problem is more severe in Guatemala since over 40% of the population is Indian, whereas less than 10% of Panama's population is Indian. Why Indians tend not to use MCH services in Guatemala is unclear, especially since 50% of all Ministry of Health centers and posts are located in the altiplano where most of the Indian population lives. Chen et al. *(11)* have suggested that the Indians' tendency not to use contraceptive services was due in part to their isolation within Guatemalan society and their cultural resistance to change. It is likely that these factors also influence their acceptance of MCH services. Clearly, priority should be given in both countries to better serving the MCH needs of the Indian population.

Immunization coverage of young children is relatively high in Panama and moderately high in Guatemala. However, the results of the surveys suggest that if a child is not vaccinated by two years of age it is unlikely that he or

she will be vaccinated at all. This suggests that all MCH services need to stress the importance of timely immunization before one year of age. Also, in view of the extensive use of midwives in Guatemala, consideration should be given to training them so that they stress the importance of child immunization to the mothers they attend.

Overall, in order to reach the goal of "health for all by the year 2000" it appears that a great deal of work remains to be done in Guatemala. Our findings suggest that Guatemala needs to stress both the importance of MCH services and child immunization. One possible program that might prove useful is an educational program directed toward midwives, since midwives attend over half of all births in Guatemala and the current utilization of MCH services is relatively low by women who are attended by midwives. In Panama, the general levels of MCH service use and child immunization are quite high. For this reason the program needs to focus more sharply on specific groups making relatively slight use of these services—most notably Indians and rural women of low socioeconomic status.

Summary

Two surveys designed to assess the extent to which maternal and child health services were being used in Guatemala and Panama were conducted in 1983–1984 and 1984–1985, respectively. The Panama survey obtained complete interviews from 8,240 women 15 through 49 years of age, while the Guatemala survey obtained complete interviews from 3,670 women 15 through 44 years of age. These surveys were conducted principally to estimate the prevalence of the use of contraception and to provide population-based data on the use of maternal and child health services, including immunization levels, in order to measure program impact in each country. For purposes of this analysis, only women 15 through 44 years of age who were married at the time of the interview and who had given birth to a live infant within the preceding five years are included.

A considerably higher percentage of married women aged 15–44 reported using maternal and child health (MCH) services in Panama than in Guatemala. In both countries a relatively high percentage of women residing in the urban areas said they made use of these services, while Indian women in both countries reported making relatively little use of them. In addition, associations were found between use of MCH services and maternal education, maternal employment, parity, and the type of facility at which the last baby was delivered. Also, women who used all three types of MCH services were found far more likely to be using contraception than were women who reported using only some or none of these services.

Regarding immunization coverage of young children in Panama and Guatemala, the survey data indicated that completed immunization levels were relatively higher in Panama than in Guatemala, and that the degree of coverage was associated with the mother's education and ethnic background and with the age of the child involved.

Overall, the low percentages of women making use of MCH services in Guatemala indicate an across-the-board

need to promote these services and make them universally available, while the rural Panamanian Indians' relatively low use of these services suggests a need to strengthen the preventive health services available to them.

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