

WEIGHTS OF APPARENTLY WELL FILIPINO INFANTS

VICTOR TANTENGO, M.D., RUTH ALICE DAVIS*, M.D., M.P.H.

and

AMANDA VERGARA-VALENZUELA, M.D., M.P.H.

Institute of Hygiene

University of the Philippines

This study was primarily intended to provide weight standards for a study on mortality from diarrhea-enteritis among infants in Manila whose nutritional status needed to be evaluated.

This paper is an account of the methods used and the results of collecting weight measurements of children during their first year of life.

Estrada and Cancio(1), conducted a similar study in 1951. They used a total of 2482 infants enrolled in the Well Baby Clinic of the Department of Pediatrics of the College of Medicine, University of Santo Tomas. Weight and height readings at birth, at 2 weeks and for every month of age thereafter up to 12 months were presented. We did not use their results for several reasons. First, we honestly believed we might be able to get measurements of children under two years of age to which age group the diarrhea study subjects belonged. Preliminary examination of child records in two health centers revealed that there was a sad dearth of measurements beyond infancy; we had to abandon this plan. Secondly, it was felt that a more representative group of children than that served by one clinic could be studied. Sex specific measurements were also preferred as it was the intention to use the weight to help evaluate the nutritional requirements of each boy or girl in the original diarrhea study.

Del Mundo and Adiao(2) published weights and heights as well as head and chest measurements of Filipino newborns. Again, we needed to have data beyond the newborn stage. It

* Visiting Assistant Professor from John Hopkins' School of Hygiene and Public Health.

was, therefore, decided that data be collected for use in the enteritis project.

MATERIALS AND METHOD

The records of 836 infants from four hospitals and three health centers were examined and weight measurements from birth, at monthly intervals, to the 12th month of age were collected. A set of criteria was formulated and served as guide for the inclusion of infants in the study. The choice of well baby clinics and health centers was based on the availability of records. The project was originally planned to include babies up to two years; however due to the diminishing number of infants and children reporting to the clinics from the 7th month and after, it was deemed unnecessary to collect data, insufficient to be of any use, beyond the first year of age.

The criteria for inclusion of an infant in the study were:

1. A well child one year of age or under:

An infant free from illness during his lifetime, or a child with 1-2 days low grade fever, 6-6 mild respiratory tract infections, and/or 2 mild gastro-intestinal upsets during the year may be considered well. For determining the degree of severity of the infection of the respiratory tract, the occurrence and frequency of coughing and the duration of the illness are taken into account. A mild gastro-intestinal upset should not last more than 2-3 days, nor cause noticeable dehydration, loss of appetite or behavior changes.

Measurements of the child can be utilized up to the time of occurrence of any severe illness.

2. Only infants born on or since January 1, 1952 would be included in the study. The year 1952 was arbitrarily set as we wanted to get as comparable a group of infants as we could to our diarrhea group who were born within the last five years.
3. Gestation age of at least 35 weeks or a birth weight of at least 2275 grams or 5 pounds.
4. Each clinic record to be included must contain the following information:
 - a. date of birth

- b. length of gestation or birth weight. If this is not in the child's record, it may be in the mother's chart. If no information is available in the latter chart, a statement whether the child is full term or premature is made in the baby's record.
- c. reasonably complete morbidity history of child for life span prior to each weight measurement. (The morbidity history may be summarized as a brief monthly evaluation by clinic physician or pediatrician). The child may be considered well in the absence of health evaluation if such lack does not extend to a period beyond 3 months. Each baby may have one record for the well baby clinic and another for general clinic; in which case, both records have to be inspected.
- d. only weight measurements done on a beam balance would be considered. These need not be available for each month for each child. (Obviously only weights taken in the clinic, except birth weight, which may be taken upon home visit, were included). A number of measurements taken by nurses during home visits had to be discarded as these were measured by instruments other than the beam balance in the clinic. If two weights were recorded in one month, we took the measurement with an allowance of plus or minus 10 days taken closest to the last birthday; e.g. a child born on June 2, 1952 may be weighed July 10 and July 20; the weight taken on July 10 is used and recorded for one month of age.
- e. sex of child.

Records of infants seen at the following hospital well baby clinics and health centers were examined and used in the study:

1. Maternity and Children's Hospital
2. Philippine General Hospital
3. St. Luke's Hospital
4. University of Santo Tomas Hospital
5. San Francisco del Monte Health Center

6. Novaliches Health Center

7. Rosario Reyes Health Center

The number and percentage of infants and measurements, excluding birth weight, by source, for separate and combined sexes; and the median weights for each sex, according to age, are shown in the different tables.

Table 1 shows a breakdown of the number and percentage of the infants by source of records. The number from hospital well baby clinics comprising 81.7 per cent of the total studied, outnumber by more than four times those from the health centers. By and large, the total number of deliveries from these hospitals far exceed those from the city and suburban health centers; hence, the greater number of records to choose from. Although health centers had many well kept records, several could not be used because they fell short of the requirements for inclusion of a record in the study.

TABLE 1

NUMBER AND PERCENTAGE OF INFANTS, BY SOURCE

HOSPITALS	Males	Females	Both Sexes	Percent of Grand Total
Philippine General Hospital	135	101	237	28.0
Maternity & Children's Hospital	94	88	182	22.1
St. Luke's Hospital	80	65	145	17.6
U.S.T. Hospital	61	48	109	13.2
TOTAL	371	302	673	81.7
HEALTH CENTERS				
Novaliches	28	25	51	6.2
San Francisco del Monte	40	32	72	8.7
Rosario Reyes	15	12	27	3.3
GRAND TOTAL	462	371	823	99.9

Table 2 shows a total number of 2141 weight measurements, excluding birth weights, from the records of 823 infants. Each child may have one, sometimes two or more measurements taken at various intervals, which were utilized in the study. Hence, the measurements are neither strictly cross-

sectional for the group, nor longitudinal; but a combination of both. The original plan was to collect at least 100 measurements for each month of age, but this did not materialize because of the decreasing numbers of children reporting for check-up during the second half of infancy.

TABLE 2

NUMBER AND PERCENTAGE OF MEASUREMENTS, BY SOURCE

HOSPITALS	Males	Females	Both Sexes	Percent of
				Grand Total
Philippine General Hospital	422	310	732	34.2
Maternity & Children's Hospital	130	118	248	11.6
St. Luke's Hospital	174	147	321	15.0
U.S.T. Hospital	189	175	364	17.0
TOTAL	915	750	1664	77.8
HEALTH CENTERS				
Novaliches	98	116	209	9.8
San Francisco del Monte	124	104	228	10.6
Rosario Reyes	16	23	39	1.8
TOTAL	238	243	476	22.3
GRAND TOTAL	1148	993	2141	100.0

Table 3 gives the number of measurements collected from the various sources during the first and last halves of infancy.

TABLE 3

NUMBER OF MEASUREMENTS, BY SOURCE AND AGE GROUP

Hospital	Age in Months	
	1 - 6	7 - 12
Philippine General Hospital	668	64
Maternity & Children's Hospital	235	13
St. Luke's Hospital	278	43
U.S.T. Hospital	213	151
Health Centers		
Novaliches	141	68
San Francisco del Monte	159	69
Rosario Reyes	34	5
TOTAL	1728	413

RESULTS

Birth weights for 357 males and 296 females were obtained. The males had a mean weight of 3,053 grams and a standard deviation of ± 425 grams. The females had a mean weight of 2,999 grams and standard deviation of ± 300 grams.

In Table 4 the median weight for given age is shown together with the 10th and 90th percentile points. The numerical values have been rounded to the nearest hundred grams.

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TABLE 4
 MEDIAN WEIGHT, 10th AND 90th PERCENTILES
 FOR MALE AND FEMALE INFANTS, BY AGE
 (Values rounded off to nearest 100 grams)

M A L E S					F E M A L E S				
Age in Months	No. of Measure- ments	Percentile			Age in Months	No. of Measure- ments	Percentile		
		10th	50th (Median)	90th			10th	50th (Median)	90th
1	255	3500	4100	4900	1	229	3300	3900	4700
2	196	4300	5000	5800	2	177	4000	4700	5500
3	159	4900	5700	6600	3	126	4700	5500	6400
4	125	5200	6500	7500	4	102	5200	6100	7200
5	98	5900	6700	7700	5	81	5600	6400	7400
6	94	6400	7200	8300	6	87	5800	6900	7700
7	79	6600	7600	8600	7	63	6100	7100	8100
8	50	6800	7800	8800	8	51	6800	7600	8700
9	35	7300	8100	9400	9	29	7000	7800	8800
10	24	7500	8700	9800	10	22	7400	8300	9600
11	20	7800	8500	9600	11	12	7300	8200	9700
12	14	8200	9200	10500	12	14	7900	8700	9200