THE INCIDENCE OF BREAST FEEDING ON DISCHARGE FROM HOSPITAL OF EUROPEAN, COLOURED, BANTU AND INDIAN INFANTS *

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This paper is a report on the incidence of breast feeding on discharge from hospital of European, Coloured, Bantu and Indian infants. It also reports on the time when milk first came into the breasts of Bantu and Indian mothers.

MATERIAL USED AND METHOD OF ANALYSIS

1. *Incidence of Breast Feeding*

This study commenced on 1 May 1951, and records were collected for a year thereafter till 30 April 1952. The data were obtained from Addington Hospital, Durban, for the European and Coloured births, and from McCord Zulu Hospital, Durban, for Bantu and Indian births. Since Addington Hospital is a provincial hospital, additional data for Europeans were collected from a private nursing home—Mothers' Hospital, Durban, which caters mainly for mothers of the middle-income group. It was considered that the European sample was then representative of the European population of Durban, with the exception of the wealthiest section.

At the end of the year there were complete records for 1,480 Europeans, 326 Coloured, 1,482 Bantu, and 197 Indians.

Premature babies and multiple births were excluded from this study, as were children with abnormalities such as cleft palate or other conditions which would make a normal breast-feeding situation difficult. Babies whose mothers died were also excluded.

Methods of feeding on discharge from hospital fell into 3 groups: (1) Breast only, (2) breast and bottle, (3) bottle only. The percentage of babies in each of these 3 feeding groups was calculated for the 4 racial groups.

2. *Time when Milk first came into the Breasts*

The examination of mothers for this study was undertaken by a nursing sister at McCord Zulu Hospital, who examined the breasts of the mothers at 8 a.m., 2 p.m. and 8 p.m. each day (I did a sample check to confirm her results). Since the important point here was the comparison between Bantu and Indian mothers, the same sister examined both groups. Being from England she had no preconceived ideas about lactation in these two groups. This study started in February 1951 and unfortunately terminated in June 1951 when the sister returned to England.

Information was then available on 103 Bantu and 61 Indian mothers. The time at which the milk first came into the breasts was calculated from the time of birth. Frequency distributions were drawn up, and means and standard deviations calculated for the two racial groups. Where differences were found, the significance of these differences was calculated.

* This report forms part of the material of an M.D. thesis (University of Cape Town).

TABLE I. FREQUENCY DISTRIBUTION OF AGES OF BABIES ON DISCHARGE FROM HOSPITAL

Days	*European*			*Bantu*	*Coloured*	*Indian*
	Addington Hospital	*Mothers' Hospital*	*Total*	*McCord's Hospital*	*Addington Hospital*	*McCord's Hospital*
1—2	5	3	8	1	—	5
3—4	15	2	17	12	7	18
5—6	79	18	97	201	24	66
7—8	349	139	488	654	216	73
9—10	463	301	764	480	62	39
11—12	44	56	100	108	19	12
13—14	16	15	31	38	6	7
15—16	10	8	18	16	10	5
17—18	6	2	8	8	4	2
19—20	4	—	4	4	1	1
21—22	3	1	4	2	—	1
23—24	2	1	3	—	—	—
25—26	—	—	—	2	1	—
27—28	—	—	—	1	—	—
29—30	—	—	—	—	—	—
31—32	1	—	1	—	—	—
33—34	1	—	1	—	—	—
	998	546	1,544	1,527	350	229
Mean (days)	8·8	9·3	8·9	8·5	8·4	7·6
S.D.	2·54	2·05	2·39	2·35	2·34	3·09

TABLE II. METHOD OF FEEDING OF NEWBORN INFANTS ON DISCHARGE FROM HOSPITAL (MOTHERS STAYING 5-15 DAYS)

1 May 1951 to 30 April 1952

	Europeans						*Coloured*		*Bantu*		*Indian*	
	Mothers Hosp.		*Addington*		*Combined*		*Addington*		*McCord's*		*McCord's*	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Breast	473	89·1	909	95·8	1,382	93·4	319	97·9	1,462	98·6	140	71·1
Breast plus Bottle	24	4·5	18	1·9	42	2·8	6	1·8	19	1·3	53	26·9
Bottle	34	6·4	22	2·3	56	3·8	1	·3	1	·1	4	2·0
Total	531		949		1,480		326		1,482		197	

RESULTS

1. *Incidence of Breast Feeding on Discharge from Hospital*

(*a*) *Age of baby on discharge from hospital.* Table I shows the frequency distribution of the ages of the babies on discharge from hospital. The range varies from 1 to 34 days, long delays usually being due to illness of the mother or baby, while in early discharges the mother either signed off against hospital advice, or went home to be visited by the district nursing service. The investigation was therefore confined to those babies who were in hospital from 5-14 days. On the whole, European mothers stayed in hospital about 9 days, and non-European mothers about half a day less, with Indian mothers staying the shortest time (7½ days).

(*b*) *Incidence of breast feeding.* Table II shows the number and percentage of babies on the breast, on breast plus bottle, and on bottle only, for all the mothers (i.e. primiparae and multiparae together) of the 4 racial groups. Several extremely interesting facts emerged. Of the Bantu mothers 98·6% breast-fed their babies completely—very few had to supplement, and only one baby out of 1,482 was bottle-fed. In this case the hospital records stated that the mother was infectious, and the the baby was fed on the expressed breast milk of other mothers. The Coloured mothers were almost as successful, 97·9% of their babies being completely breast-fed, with a correspondingly small percentage partly or fully bottle-fed.

A surprisingly high percentage of European babies were found to be wholly breast-fed (93·4%). An interesting feature here is that more babies were on the bottle only than on breast plus bottle, indicating probably a definite decision on the part of the mother not to breast-feed. The nursing staffs of both the Addington and the Mothers' Hospital were strongly in favour of breast feeding, but at the latter the majority of mothers had their own doctor, whereas at the former they were attended by the hospital staff. At the Mothers' Hospital, the decision to breast-feed was made by the mothers, the nurses and the doctors, whereas at the Addington Hospital there was a definite ward policy. The effect of this can be seen in the high breast-feeding figures (95·8%) at the Addington Hospital as against 89·1% at the Mothers' Hospital.

Health visitors in Birmingham reported that 'doctors are still responsible for weaning babies more than any other single factor. They still take babies off the breast, whenever there is any difficulty, rather than take the trouble to go into the whole difficult question of successful breast feeding' (Neale *et al.*, 1943).

The lowest figures of all were found in the Indian group,

TABLE III. EFFECT OF PARITY ON BREAST FEEDING

(*a*) Primiparae

	Europeans						*Coloured*		*Bantu*		*Indian*	
	Mothers Hosp.		*Addington*		*Combined*		*Addington*		*McCord's*		*McCord's*	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Breast	187	83·9	239	95·6	426	90·0	100	98·0	436	98·0	38	70·4
Breast plus Bottle	13	5·8	2	·8	15	3·2	2	2·0	8	1·8	15	27·8
Bottle	23	10·3	9	3·6	32	6·8	—	—	1	·2	1	1·8
Total	223		250		473		102		445		54	

(*b*) Multiparae

	Europeans						*Coloured*		*Bantu*		*Indian*	
	Mothers Hosp.		*Addington*		*Combined*		*Addington*		*McCord's*		*McCord's*	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Breast	286	92·8	670	95·8	956	94·9	219	97·8	1,026	98·9	102	71·3
Breast plus Bottle	11	3·6	16	2·3	27	2·7	4	1·8	11	1·1	38	26·6
Bottle	11	3·6	13	1·9	24	2·4	1	·4	—		3	2·1
Total	308		699		1,007		224		1,037		143	

where only 71·1% of the babies were completely breast-fed. A very small number (2%) were bottle-fed, but over a quarter of the total group required supplementary feeding. It seems clear that these mothers did not wish to put their babies on the bottle, but had some difficulty with the full establishment of lactation.

(*c*) *Effect of parity*. In order to investigate the effect of parity on breast feeding, the mothers were divided into primiparae and multiparae (see Tables III*a* and III*b*. In all cases except the Coloured group (where the difference was 0·2%) multiparae were more successful breast-feeders than primiparae. The greatest difference was seen in the European group from Mothers' Hospital, where there was an increase of almost 9% in favour of the multiparae. Although this result was not unexpected, it was thought that the marital status of the mothers might be an additional factor influencing the incidence of breast feeding in the European group. The records revealed that most of the illegitimate European babies were destined for adoption, and therefore likely to be bottle-fed from birth. In an investigation (to be published) on the incidence of illegitimacy for the 4 racial groups in Durban the results were: Europeans 1·6%, Coloured 30·1%, Bantu 52·6%, Moslem Indian 0·7% and Hindu Indian 1·8%. Since the incidence of illegitimacy in the European group at these two hospitals was 2·6%, it appeared that they catered for a large number of the unmarried mothers in Durban, and in fact this was the case. The incidence of breastfeeding for European legitimate babies is shown in Table IV.

TABLE IV. METHOD OF FEEDING OF NEWBORN INFANTS ON DISCHARGE FROM HOSPITAL

European Legitimate Births only, showing Ranks separately

	Primiparae						*Multiparae*						*All Ranks*					
	Mothers'		*Addington*		*Combined*		*Mothers'*		*Addington*		*Combined*		*Mothers'*		*Addington*		*Combined*	
	No.	%	*No.*	%	*No.*	%	*No.*	%	*No.*	%	*No.*	%	*No.*	%	*No.*	%	*No.*	%
Breast	185	90·2	232	98·3	417	94·6	286	93·1	669	96·5	955	95·5	471	92·0	901	97·0	1,372	95·2
Breast plus bottle	11	5·4	2	·85	13	2·9	11	3·6	16	2·3	27	2·7	22	4·3	18	1·9	40	2·8
Bottle	9	4·4	2	·85	11	2·5	10	3·3	8	1·2	18	1·8	19	3·7	10	1·1	29	2·0
Total	205		236		441		307		693		1,000		512		929		1,441	

(*d*) *Effect of illegitimacy*. The difference is most marked in primiparae, as one would expect, as most illegitimate births are first babies. It will be seen that when legitimate births only are considered, the 9% difference in incidence of breast feeding between primiparae and multiparae of the Mothers' Hospital becomes only 3%, and that there is an increase of over 6% in the percentage of first babies completely breast-fed. There is also a corresponding decrease of babies completely bottle-fed. The trend is the same for the Addington Hospital, although not so marked. Since there is a high incidence of illegitimacy among the Bantu and Coloured communities, and yet an almost one-hundred-percent breast-feeding picture, it is obvious that the marital status of the mothers does not affect the results in these groups. There were no records of any illegitimate Indian births in this group, except for one case which was discarded owing to incomplete data on feeding. The comparatively low incidence of breast feeding in this Indian group then, is not related to the marital status of the mothers.

(*e*) *Effect of age of mother and rank of baby on feeding*. The effects of age of mother and rank of baby on feeding, were analysed in the European and Indian groups only, since so few Bantu and Coloured babies were not breast-fed. Table V shows the percentage of babies breast-fed according to these two factors. The babies were divided into first-born (rank 1), 2nd to 4th-born (ranks 2-4), and 5th and later-born babies (ranks 5+), and the mothers into 3 age groups: up to 19 years, 20-29 years, and over 30 years. Only legitimate births were considered. In the European group having their first babies the youngest mothers were the most successful breast-feeders. For both ranks 2-4 and ranks 5+ the optimal lactation age appeared to be 20-29 years. The most successful single group was that of mothers of 20-29 years having babies of ranks 5+. Here 100% breast-feeding was recorded. In the Indian group the same results were found, except that in ranks 5+, mothers of 30+ years were more successful. The most successful Indian group was that of the youngest mothers having their first babies and, even here, only 74% were recorded as wholly breast-feeding. It is interesting to note that by the time an Indian mother is 30+ years she is almost invariably having her 5th or higher ranking baby, whereas the majority of babies born to European mothers of this

TABLE V. PERCENTAGE OF BABIES BREAST-FED ACCORDING TO RANK AND AGE OF MOTHER

Legitimate Births only

Age of Mother	*Rank* 1		*Ranks* 2-4		*Ranks* 5+	
	No. in Group	*% Breast fed*	*No. in Group*	*% Breast fed*	*No. in group*	*% Breast fed*
Europeans						
19	96	99·0	16	87·5	1	—
20—29	294	94·6	541	98·0	55	100·0
30+	50	86·0	270	91·1	105	92·4
Indians						
19	19	73·7	10	50·0	1	—
20—29	32	68·8	75	73·3	29	69·0
30+	3	—	4	—	22	72·7

TABLE VI. TIME AT WHICH MILK CAME INTO BREASTS

	Rank 1			*Ranks* 2+			*Combined*	
	No.	*Mean*	*S.D. (hrs.)*	*No.*	*Mean*	*S.D. (hrs.)*	*No.*	*Mean*	*S.D. (hrs.)*
Bantu ..	39	47·5 hrs.	17·3	64	45·7 hrs.	16·0	103	46·3 hrs.	16·6
Indian ..	26	55·4 hrs.	16·3	35	48·3 hrs.	15·5	61	51·3 hrs.	16·2

age are 2nd-4th babies. The most unsuccessful breast-feeding groups were the elderly European primiparae and the very young Indian mothers having their 2nd-4th babies.

2. *Time at which Milk first came into the Breasts*

Fig. 1 depicts the frequency distribution of time after birth at which milk came into the breasts, and Table VI shows the mean time in hours between birth and the appearance of milk, for Bantu and Indian mothers, primiparae and multiparae, separately and combined. It will be seen that for both groups the milk appeared earlier in the multiparae than the primiparae. The difference was most striking in the Indian mothers, being 7 hours earlier, as against only 2 hours earlier in the Bantu mothers. Milk was found to come in earlier in the Bantu than the Indian group for both primiparae and multiparae, 8 hours sooner in the primiparae and about 2½ hours earlier in the multiparae. These differences were not statistically significant, but the trend was consistent and it is possible that if the experiment had continued longer, with a larger number of cases, a significant difference might have been found.

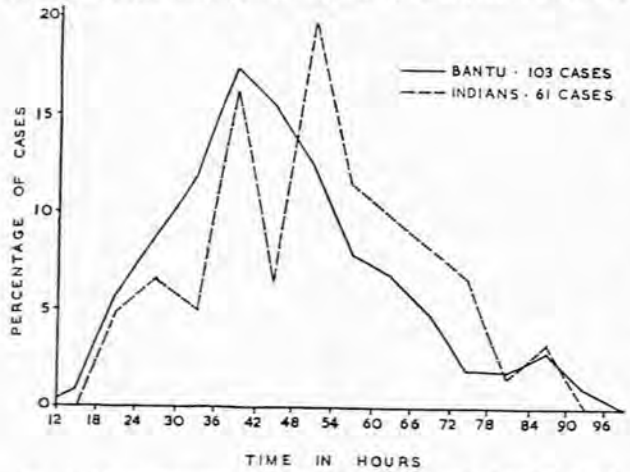

Fig. 1. Chart showing frequency distribution of time after birth at which milk came into the breasts.

DISCUSSION

Incidence of Breast Feeding

There are several features of interest in the incidence of breast feeding in these 4 racial groups. In the first place, the incidence of 93·4% among Europeans is very high in comparison with the findings in America and Britain. This can be seen very clearly when comparing results with those of 13 other recent surveys (Table VII). This report finds also, as did the Ministry of Health Report (1944), that illegitimacy amongst Europeans militates against breast feeding. A further factor to be considered

TABLE VII. INCIDENCE OF BREAST FEEDING IN PREVIOUS SURVEYS COMPARED WITH PRESENT SURVEY

Author	*Place and Date of Survey*	*No. of Cases*	*Results*
Gordon, 1942	Ilford 1920-24	1,168	87% breast-fed at health visitors' first visit (2-3 weeks after birth).
	1930	1,772	87% breast-fed as above.
	1938	1,093	73% breast-fed as above.
McNeil, 1942	Edinburgh Children's Hosp.	100	62% weaned by the end of the first month.
Ministry of Health Report, 1944 ..	E. and W. 1931—41	?	80% breast-fed on discharge from hospital. 95% breast-fed when midwife leaves (if delivered at home).
Bain, 1948	2513 hosp. USA 1946.	39,171	38% breast-fed completely on discharge from hospital.
Hughes, 1948	Newbiggin 1941-45.	548	29%weaned by 2 weeks.
Maternity in Great Britian, (1948)* ..	Gt. Britain 1946.	13,687	78·3% breast-fed completely at 2 weeks. 55·1% breast-fed at 8 weeks.
Newton and Newton, 1950	Hosp. Univ. Pennsylvania.	91	55% successful breast-feeders during hospital stay.
Ross and Herdan, 1951	Bristol 1947-48	1,047	81·5% completely breast-fed at 2 weeks.
Lussky, 1951	Evanston Hosp. Illinois.	1,754	37·2% completely breast-fed on discharge from hospital.
Miller, 1952	Simpson Memorial Maternity Pavilion, Edinburgh 1948-49	2,024	77% breast-fed on discharge from hospital.
Stocks and Stang, 1953	Health Division No. 14, Lancashire County Council 1950.	650	62% breast-fed at 2 weeks.
Curtin, 1954	Cork 1952-53.	1,007	46·6% breast-fed at 2 weeks.
Hytten, 1954	Aberdeen Maternity Hosp. 1951-1953.	6,456	84·5% fully breast-fed on discharge from hospital.
Present Investigation (Europeans), 1955	Durban 1951-52.	1,480	93·4% breast-fed on discharge from hospital

* Survey, granted by Douglas (1950).

is the attitude to breast feeding on the part of the people responsible for the delivery. The sister in charge of the maternity ward at the Addington Hospital was determined that the babies should be breast-fed, and she achieved very good results, The nursing staff at Mothers' Hospital could not be so dogmatic, since many of the mothers had private doctors, and the incidence of breast feeding is lower there. The fact, however, that 93% of European babies are completely breast-fed on discharge from hospital does not mean that breast-feeding is continued for long afterwards. There is a very rapid falling-off in breast feeding, as can be seen when the mothers return with their babies to baby clinics. Since artificial feeding has become safe and easy there has been a swing against universal breast-feeding by European mothers, but in South Africa it is quite definitely the custom of the non-European groups to breast-feed their babies, the general pattern being a self-demand regime. Barrow (1952) in an analysis of the feeding of 1,565 infants (mainly Coloured patients) at St. Monica's Home, Cape Town, found 96·5% to be fully breast-fed on discharge from hospital. I expected to find an almost one-hundred-percent breast-feeding picture in the non-European groups, and was surprised at the comparatively low incidence (71%) in the Indian mothers.

From our experience at the Institute of Family and Community Health, Durban, which deals with all races, and at the Springfield Health Centre, which is predominantly an Indian health centre, Indian mothers continue to breast-feed their babies for a long time, 18 months-2 years being quite common. There is certainly no desire to put their babies on the bottle and, in fact, very few are on the bottle (2%). A large percentage, however, (27%) are supplemented by bottle feeding in addition to the breast when delivered in hospital.

Mention has been made of the influence exerted by the medical and nursing staff of a hospital. Indian babies are small—average weight at birth 6·46 lb. (Salber and Bradshaw 1951), and it is possible that their smallness influenced the sister of the ward to supplement their feeds. If the babies continued losing weight for 4 days they were test-weighed on the 5th day, and if this result was unsatisfactory the feeds were supplemented. However, the sister was not likely to advise supplements on discharge from hospital if she did not consider it essential, since she was fully aware of the poverty of the people.

With these facts in mind, 1 year's records of the Health Centre midwife at Springfield (about 1/4th of the total births in the area) were examined. This sister was a determined advocate of breast feeding, and 95% of the babies were fully breast-fed on the 9th day. However, an examination of 1 year's records of babies attending the mother-and-baby sessions at the Springfield Health Centre showed 87% totally breast-fed at 0-2 weeks, 86·6% at 2-4 weeks and 72·6% at 4-8 weeks. The truth probably lies somewhere between the hospital and the Health Centre figure, but the indication is that Indian mothers are not so successful in breast-feeding as the Coloured and Bantu mothers.

One possible factor which militates against breast feeding in hospital for Indian mothers is the complete lack of privacy. African mothers breast-feed their babies in the streets with no self-consciousness; Indian mothers, on the other hand are extremely shy, and conceal their breasts and the baby during feeding. As visiting hours at McCord's Hospital are very free and easy, and as Africans and Indians occupy the same wards, the breast-feeding situation must often be embarrassing for the Indian mothers. Newton and Newton (1950) consider that, amongst other causes, embarrassment inhibits the let-down reflex, and therefore should be avoided in the feeding situation.

The Effect of Parity and Age of Mother

The *Maternity in Great Britian* report found that age of mother or parity were of little importance as factors affecting the success of lactation. Norval (1947), though she did not consider parity to influence the supply of breast milk, stated that there was a decrease in the adequacy of the breast-milk supply after the age of 30, particularly in women having their first child. Miller (1952) agreed with Norval, and Lussky (1951) also found that while parity was not important, breast-feeding decreased with increasing age of mother. Hughes (1948) and Dummer (1949) found incidence of breast-feeding to be higher among primiparae but Neale *et al.* found a lower incidence among first-born up till 2 months of age. Waller (1950) found that younger women produced more milk than older women, and that multiparae produced more than primiparae. Dean (1951) found a fall in milk yield with increasing age of mother in the 1st week, and Hytten (1954) found a highly significant negative correlation between age of mother and success of breast feeding in hospital. Age for age, multiparae were more successful than primiparae. In this investigation multiparae were more successful breast-feeders than primiparae, and European elderly primiparae were not so good lactators as young primiparae. On the other hand, in the Indian group the most unseccessful breast-feeders were mothers under 20 years having their 2nd and 4th babies. This last finding points directly to the importance of adequate nutrition in the establishment of lactation.

The Effect of Nutrition

There is abundant evidence in the literature that markedly inadequate calories in the food, and particularly deficiency in protein, will reduce the yield of milk—Adair (1925), Ebbs and Kelley (1942), Debré (1945), Williams (1945), Stuart (1947), Antonov (1947), Platt and Moncrieff (1947), and Kon and Mawson (1950). Dean says that undernutrition and anxiety usually occur together and that it is difficult to say which is the more important in lactation failure. Our experience at the Institute of Family and Community Health has shown that the diets of the pregnant Indian mothers are markedly deficient in both calories and protein, and that their nutritional state is the worst of the 4 racial groups. Added to that is their high fertility-rate and close birth-spacing, so that, as previously mentioned, mothers of 30 years and over are almost invariably having their 5th and later babies. In addition, Indian custom is to eat very little for the first few days following delivery and to increase food intake from the 3rd day. Further,

the food provided by the hospital is predominantly a Bantu-type diet, which the Indian mothers do not like.

It is doubtful if the Indian mothers at McCord's Hospital can be regarded as representative of the Indian community in Durban, for it is not the general custom among Indians to have their babies in hospital. Although this is slowly changing, on the whole it is probably the better-off section of the population who are delivered in hospital. Their nutritional state would presumably be better than that of the mothers who have their babies at home. The fact that a greater percentage of babies delivered at home are wholly breast-fed may mean that the home environment is more conducive to breast feeding, but it may also mean that the babies are inadequately fed.

The incidence of breast-feeding in a community cannot be taken as a complete measure of the capacity to lactate. Much depends on the attitude of the mothers, doctors, nurses and relatives concerned in the delivery at hospital or at home, and the availabiltiy of artificial foods and the money to buy them, quite apart from the production of milk in the mother's breasts.

We have not found any literature on whether inadequate nutrition has any effect on the time when milk first comes into the breasts, but is is interesting to note that the Bantu mother lactates earlier than the Indian mother.

Quantitative and qualitative studies of breast-milk production in the 4 racial groups, both in hospital and at home, would provide some of the answers to our questions, if made in conjunction with growth analysis and detailed studies of community attitudes to breast feeding.

SUMMARY

The incidence of breast-feeding on discharge from hospital was analysed in 1,480 European, 326 Coloured, 1,482 Bantu, and 197 Indian mothers delivered in Durban from 1 May 1951 to 30 April 1952. The time when milk first came into mothers' breasts was studied in 103 Bantu and 61 Indian mothers from February to June 1951.

1. The mean length of stay in hospital varied from 7½ to 9 days.

2. Only those cases being used where the babies stayed 5-14 days, the incidence of breast feeding on discharge was found to be: Bantu 98·6%, Coloured 97·9%, European 93·4% and Indian 71·1%.

3. There were more European babies bottle-fed than partially breast-fed, but the Indian group had a small percentage on the bottle only, and a large group receiving supplementary feeds.

4. With the exception of Coloured mothers, where the difference was 0·2%, multiparae were more successful breast-feeders than primiparae.

5. When illegitimate babies were excluded, the percentage of European babies who were breast-fed rose to 95·2%. Illegitimacy did not appear to affect the feeding in the non-European groups.

6. Multiparae were more successful breast-feeders than primiparae. Increasing age in European mothers was inversely related to successful lactation, the most unsuccessful group being the elderly primiparae. Very young Indian mothers having first babies were the most successful group in that community, but this same age-group showed the worst results if they were having their 2nd-4th babies.

7. It is considered that the poor nutritional state of the Indian mothers, due largely to a very inadequate intake of calories and proteins, plus a high fertility rate resulting in big families with closely-spaced births, was probably responsible for their difficulty in the establishment of lactation.

8. Milk came into the breasts sooner in Bantu than in Indian mothers, and in both groups earlier in multiparae than primiparae.

9. It is doubtful whether the incidence of babies who are wholly breast-fed can be taken as a complete measure of capacity to lactate. Quantitative and qualitative studies of breast-milk production, together with analysis of growth and investigation of community attitudes to breast feeding, would provide valuable information.

10. The literature is discussed.

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REFERENCES

Adair, F. L. (1925): Amer. J. Obstet. Gynec., **9,** 1.
Antonov, A. N. (1947): J. Pediat., **30,** 250.
Bain, K. (1948): Pediatrics, **2,** 313.
Barrow, E. (1952): S. Afr. Med. J., **26,** 329.
Curtin, M. (1954): Irish J. Med. Sci., 6th Ser., No. 346, 447.
Dean, R. F. A. (1951): Spec. Rep. Ser., Med. Res. Coun., No. 275. London: H. M. Stationary Office.
Debré, R. (1945): Brit. Med. J., **1,** 341.
Douglas, J. W. B. (1950): J. Obstet. Gynaec. Brit. Emp., **57,** 336.
Dummer, F. H. M. (1949): Brit. Med. J., **2,** 14.
Ebbs, J. H. and Kelley, H. (1942): Arch. Dis. Childh., **17,** 212.
Gordon, I. (1942): *Ibid.*, **17,** 139.
Hughes, E. L. (1948): Brit. Med. J., **2,** 597.
Hytten, F. E. (1954): *Ibid.*, **2,** 1447.
Kon. S. K. and Mawson, E. H. (1950): Spec. Rep. Ser. Med. Res. Counc. No. 269. London: H. M. Stationery Office.
Lussky, H. O. (1951): Quart. Bull. Northw. Univ. Med. Sch., **25,** 251.
McNeil, C. (1942): Brit. Med. J., **2,** 271.
Miller, R. A. (1952): Arch. Dis. Childh. **27,** 187.
Ministry of Health (1944): Rep. Publ. Hlth. Med. Subj., No. 91. London: H.M. Stationery Office.
Neale, A. V., Cassie, E., Braid, F. and Pierce, M. (1943): Arch. Dis. Childh. **18,** 59.
Newton, N. R. and Newton, M. (1950): Pediatrics, **5,** 726.
Idem. (1950): *Ibid.*, **5,** 869.
Norval, M. S. (1947): J. Pediat., **31,** 415.
Platt, B. S. and Moncrieff, A. (1947): Brit. Med. Bull., **5,** 1109.
Ross, A. I. and Herdan, G. (1951): Lancet, **1,** 630.
Roy. Coll. Obstet. Gynaec. and Pop. Invest. Comm. (1948): *Maternity in Great Britain.* London: Oxford Univ. Press.
Salber, E. J. and Bradshaw, E. S. (1951): Brit. J. Soc. Med., **5,** 113.
Stocks, A. V. and Stang, F. (1953): Med. Offr., **89,** 111.
Stuart, H. C. (1947): New Engl. J. Med., **236,** 507.
Waller, H. (1950): Lancet, **1,** 53.
Williams, P. F. (1945): J. Amer. Med. Assoc., **127,** 1052.