

## THE FIRST YEAR OF LIFE OF THE JOHANNESBURG BANTU (I)

JOAN GRIFFITHS, M.B., B.CH. (RAND), D.C.H., R.C.P. &amp; S. (ENG.) Paediatrician, Johannesburg

The importance of vital statistics in paediatrics and public-health care can hardly be overestimated. As MacDonald<sup>1</sup> said of Africa, in 1954, 'The most important public-health step would be the institution of proper statistical systems'. Without such information the results of preventive and curative measures cannot be evaluated, nor can their need be clearly realized.

In Johannesburg there is a large population of urban Africans, and though the accuracy of the available vital statistics concerning them may fall short of those in the European population of South Africa and those in many Western countries, nevertheless analysis of these statistics in conjunction with other available data is well worth while.

In this paper the Bantu child in the first year of life is considered.

Vital statistics, based on returns from the Registrar of Births and Deaths, were obtained from the Johannesburg City Health Department. Other data were collected during the course of a study on the growth and development of the urban Bantu infant in 1957-1958 by a research team of the National Institute for Personnel Research. In this study, 1,216 Bantu infants in the first year of life were examined, and a fuller description of the material and methods will be published elsewhere.<sup>2</sup> However, it is worthy of note that all 4 main groups of the South African Bantu were represented, the tribal distribution being similar to that of the country at large.

## JOHANNESBURG BIRTH RATES

The population of Johannesburg has increased enormously in the last 18 years, its numbers being virtually doubled. The increase has been greatest by far in the non-White population, the Bantu and Asians more than doubling their numbers (Table I). Yet, in 1950-1951 the Bantu had the lowest birth rate (21.57) of all the races, lower even than

TABLE I. POPULATION OF CITY OF JOHANNESBURG

Race	30 June 1940	30 June 1958
European ..	288,000	368,300
Bantu ..	240,000	504,574
Coloured ..	24,050	36,800
Asian ..	11,200	26,100
	563,250	935,774

the European figure of 24.72. The birth rate recorded for the Coloured and Asian population, on the other hand, was 42.23 and 47.13 respectively (Table II). It was postulated at that time that the birth rate was not a true reflection of the position, but was falsely low owing to

poor birth registration.<sup>3</sup> Nevertheless, it was thought that the large numbers of male Africans in Johannesburg (even though the male African population employed on the gold mines was excluded from the calculations), must affect the birth rate adversely.

There is reason to believe that more recent statistics reflect the birth rates with greater accuracy. Increasing education, longer time of urbanization and greater use of available midwifery services, have all improved the proportion of births registered. Although the registration of births has been encouraged for many years, it only became compulsory in July 1953, and the number of registered

TABLE III. BIRTHS, BIRTH RATES AND CHILD DEATHS IN JOHANNESBURG 1958

Race	Births	Birth rates	Deaths under 12 mths.	Deaths 13-24 mths.	Deaths 2-4 yrs.	Deaths 5-9 yrs.
European	8,941	24.28	224	11	24	20
Bantu	15,855	33.55	2,099	560	251	72
Coloured	1,343	36.49	85	19	15	5
Asian	903	34.60	44	2	13	6

Bantu births jumped from 9,824 in 1952-1953 to 12,580 in 1953-1954. In 1958 it was 15,855 as shown in Table III.

## Birth Rank

Birth rank reflects the birth rate and, if a sample of Bantu infants is analysed according to rank (Table IV), it will be seen that 23.63% were first-born and 26.36% were of birth rank greater than 4. These values lie between

TABLE IV. BIRTH RANK OF 550 BANTU INFANTS—1958

No.	1st	2nd	3rd	4th	Rank greater than 4
No.	130	120	90	65	145
%	23.63	21.82	16.36	11.82	26.36

those found in the Europeans and in the other non-White races in a previous study.<sup>3</sup> Of European babies, 38% were first-born, whereas only 15% and 7% of Coloured and Asian babies, respectively, were first-born. Where the birth rank was greater than 4 there were only 12% European babies compared with 30% and 37%

TABLE V. VARIATION IN BIRTH RANK BY RACE

Race	1st	2nd	3rd	4th	Rank greater than 4	Total
European	303	218	117	47	93	778
Coloured	71	119	81	57	147	475
Asian	10	37	20	21	54	142
Bantu	132	121	88	66	143	550
Total	516	495	306	191	437	1,945

Coloured and Asian babies.<sup>3</sup> These differences in birth rank among the races, shown in Table V, are statistically significant.

This comparison of samples of infants suggests that the true birth rate of the Bantu lies between that of the European and the other non-White races. In the 1958 figures for birth rates this is exactly the case (Table III).

TABLE II. BIRTH RATES FOR THE VARIOUS RACES FOR 1950-1951

Race	Births	Birth rates*
European ..	8,455	24.72
Bantu ..	8,779	21.57
Coloured ..	1,267	42.23
Asian ..	927	47.13

\* Number of births per 1,000 of population.



In the year 1953-1954 the birth rate of Africans is recorded as slightly higher than the European figure for the first time (24.19 Europeans, 25.75 Africans) and in subsequent years, while the European figure has remained relatively constant, the African figure has risen to 33.55.

#### INFANTILE MORTALITY RATE

As the infantile mortality rate is based on the number of deaths under 1 year per 1,000 live births, poor registration of births will raise the death rate artificially if the deaths themselves are accurately registered. Because of the need to make funeral arrangements in the urban area, infant deaths have nearly always been registered promptly.

The dramatic fall in the graph for the Bantu death rate (illustrated in Fig. 1) between 1953 and 1954, can be ascribed to the improved birth registration which, as has been explained, occurred at that time. While the number of births registered increased by about a third, the deaths recorded in the 2 years did not show a dramatic fall. There were 2,030 infantile African deaths in 1952-1953 and 1,778 in 1953-1954, a drop of 252.

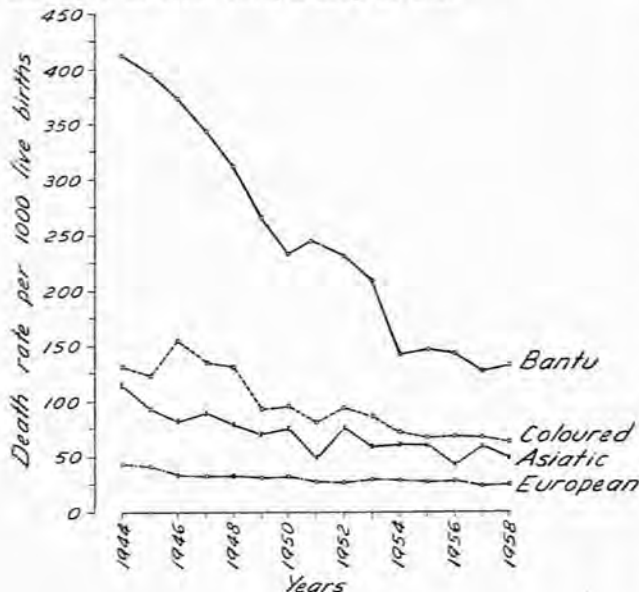


Fig. 1. Graph of infantile mortality rate for all races in Johannesburg, 1944-1958.

While, however, the graph shows a steady decline for all races, it is steepest for the non-White races, especially the Africans, and this is also shown in Table VI. In view of the tremendous postwar rush to the towns by the Bantu and the subsequent difficulties of housing and expansion of health services, this is particularly gratifying. However, the Bantu infantile mortality rate remains at an extremely high figure, 132.39 for 1958, even though there has been a remarkable drop. It is many times higher than the European death rate, and more than twice as high as that of the other non-White races. However, when compared with death rates for non-White cities elsewhere in the world, it is not so high. In 1954, Cairo had an infantile mortality rate of 170, Leopoldville 161, and Bombay 125.<sup>4</sup> The Asians in Johannesburg have a much lower infantile death rate (48.73) than those in

TABLE VI. THE INFANTILE MORTALITY RATE FOR ALL RACES IN JOHANNESBURG DURING THE 15 YEARS 1943-1958

Year	European	Bantu	Coloured	Asian	Total all races
1943-44	44.18	411.98	130.81	114.85	157.14
1944-45	41.34	394.94	122.39	93.05	159.46
1945-46	34.30	372.62	153.55	82.13	161.78
1946-47	32.35	343.43	133.80	90.02	144.90
1947-48	33.34	311.21	129.92	78.33	147.83
1948-49	31.44	264.16	92.08	69.84	135.45
1949-50	31.90	232.00	95.51	75.13	126.88
1950-51	27.44	243.76	80.51	48.54	129.66
1951-52	26.95	230.10	93.68	75.88	129.66
1952-53	29.45	206.64	85.20	58.82	119.11
1953-54	29.52	141.35	71.13	60.67	92.98
1954-55	27.68	146.41	67.13	60.20	95.60
1956	27.60	142.24	67.80	43.02	93.40
1957	24.21	125.67	67.51	59.12	85.12
1958	25.05	132.39	63.29	48.73	90.67

Bombay (125), or those in Madras (136). Their infantile death rate is similar to that for Nairobi's Asian population, which was 50 in 1954.<sup>4</sup>

In an effort to estimate the Bantu infantile death rate for Orlando Township, 90 babies who were delivered by the district midwifery service were visited at the end of the first year of life, within a week of their first birthdays. Of these 90, 9 had died, and their infantile mortality rate was calculated to be 100.00. Although this appears to be a lower rate than the 132.39 for the overall death rate for Johannesburg African babies, it is not statistically significant, and may have arisen by chance sampling.

The tremendous differences in infantile death rates for the various races in Johannesburg are much greater than the differences in infantile death rates for the various social classes in England and Wales.<sup>5</sup> In 1930-1932 social class V had an infantile death rate of about 3 times that of social class I, the gradient rising from the low rate in class I to the high rate of class V. In 1949-1953 the gradient remained almost the same, but the rate for class V was now definitely less than 3 times that of class I, for, although improvement had occurred in all classes, the greatest absolute improvement had been in class V.<sup>5</sup> The infantile mortality rate for social class V in England and Wales is just a little better than that for the Johannesburg Asian population, and the infantile mortality rate for the Johannesburg White population corresponds to a rate falling between social classes II and III,<sup>5</sup> and is about the same as the total for England and Wales for 1954,<sup>4</sup> though not as good as the 1957 figure of 23.<sup>5</sup>

The Bantu infantile mortality rate is similar to that for England and the USA at the beginning of this century, and similar to the death rate for American Negroes in the 1920s.<sup>6</sup> For the USA in 1954 the infantile mortality rate of 43 for non-White persons was about twice the rate for White persons.<sup>4</sup>

#### Timing of Infantile Deaths

In the historical picture of the reduction of the infantile death rate over the years in the USA and Britain, the deaths taking place chiefly in the first month of life and due to congenital defects, prematurity and events occurring during pregnancy and delivery, have not been reduced nearly as much as have deaths due to infection, malnutrition, accident and so on, and this is shown by the much greater reduction in deaths during the second

to twelfth months than in the neonatal period.<sup>5</sup> The majority of infantile deaths now occur in the early weeks of life in these countries.

TABLE VII. PERCENTAGE OF INFANTILE DEATHS IN DIFFERENT AGE PERIODS IN JOHANNESBURG—1958

Race	0 to 1 week	1 week to 1 month	Total for 1st month	1 month to 1 year
European .. ..	70.54	9.37	79.91	20.09
Asian .. ..	40.91	18.18	59.09	40.91
Coloured .. ..	32.95	11.76	44.71	55.29
Bantu .. ..	26.92	11.38	38.30	61.70

In Johannesburg in 1958 the races showed all gradations in this shift of emphasis to the early weeks of life, as shown in Table VII where, though 70.54% of European infant deaths took place in the first week, only 26.92% of African deaths were in the same period.

#### PRINCIPAL CAUSES OF DEATH

In the same way, if the principal causes of death are considered for each race, a different pattern will be found among them, as seen in Table VIII.

It will be seen that deaths due to infection, such as respiratory diseases, infectious diseases, and nervous system diseases (chiefly meningitis), are a more important cause of death in Africans than in Europeans, and more so in

TABLE VIII. SOME OF THE PRINCIPAL CAUSES OF INFANTILE DEATHS FOR JOHANNESBURG IN 1958 SHOWN AS A % OF TOTAL DEATHS FOR EACH RACE

Diseases	% incidence of total deaths			
	European	Asian	Coloured	Bantu
Congenital malformations ..	8.48	6.82	5.88	1.91
Diarrhoea .. ..	6.25	9.09	29.41	24.49
Respiratory diseases ..	2.68	22.73	15.29	12.24
Nervous system diseases ..	0.89	0	1.18	0.86
Diseases of nutrition ..	0	2.27	0	1.67
Infectious diseases ..	2.23	0	3.53	5.10
Diseases peculiar to 1st year of life .. ..	75.00	56.82	40.00	36.68

Africans than in the other non-White races, with the exception of respiratory diseases which show the highest percentage incidence in Asians. Deaths where malnutrition and infection both contribute, as in the category 'diarrhoea', show the same gradation. Until the last 2 years diarrhoea was the most important factor in Bantu infantile mortality, but in 1957-1958, however, it lost its place as the major cause of death among Bantu infants to the category 'diseases peculiar to the first year of life'. 36.68% of the infant deaths in 1958 being due to these diseases, and only 24.49% to diarrhoea. The actual number of registered African deaths due to diarrhoea in the first year of life has fallen from 922 in 1952-1953 to 619 in 1958, and this despite the increase in population. In Cape Town the position seems a little different for there was actually a rise in the non-European infantile deaths due to diarrhoea in 1957 in that city.<sup>8</sup>

#### Diarrhoea

As well as contributing largely to mortality, the acute diarrhoeal disorders remain one of the greatest causes of morbidity in the urban African infant.<sup>7,8</sup>

Two-thirds of the fatalities occur during the summer months.<sup>8</sup> Out-patient departments and clinics attending to

Africans are crowded from about October until March with children suffering from diarrhoea. Only the severest cases can be admitted to hospital, and diarrhoeal disorders head the list of hospital admissions.<sup>7,8</sup>

In the children studied, diarrhoea was also an important cause of morbidity, and the poorer the nutrition the greater was the incidence. Of those babies whose nutrition was classified (according to a slight modification of Kahn's criteria, described elsewhere<sup>9</sup>) as 'excellent' or 'good', 12.42% and 16.55% respectively gave a history of diarrhoea, whereas, of those classified as 'fair' and 'poor' 31.54% and 33.33%, respectively, had had diarrhoea. These differences are of statistical significance as shown in Table IX. The overall incidence in 1,037\* babies was 17.16%.

TABLE IX. RELATION BETWEEN NUTRITIONAL CLASSIFICATION AND HISTORY OF DIARRHOEA

History of diarrhoea	Nutrition				Total
	Excellent	Good	Fair	Poor	
Present .. ..	40	95	41	2	178
			43		
Absent .. ..	282	479	89	4	854
			93		
Total .. ..	322	574	130	6	1,032
			136		

$X^2 = 26.60$ . Highly significant.

The severity or otherwise of diarrhoea depended, of course, on the mother's interpretation of 'illness', but to most Bantu mothers diarrhoea of sufficient importance to be remembered would be fairly marked.

#### Diseases Peculiar to the First Year of Life

This category has been the major cause of Bantu infant deaths since 1957. It includes conditions occurring chiefly in the immediate neonatal period. Most deaths, by far, occur in premature infants. A premature infant is one who weighs less than 5½ lb. at birth, and babies of low birth weight are more common in the Bantu than in the European. At Baragwanath Hospital, Johannesburg, in 1956, 13% of new-born babies in the obstetric section were classified as premature.<sup>9</sup> Salber<sup>10</sup> found an incidence of 12.9% of premature female babies and 10.3% of premature males in a series of 7,611 Bantu births in Pietermaritzburg and Durban. Twin pregnancies were excluded in Salber's figures, and undoubtedly part of the high premature rate is due to the high incidence of multiple pregnancies, which is about 1 in 40 births among the Bantu<sup>3</sup> compared with about 1 in 80 among the Europeans. Usually multiple pregnancies are only found to the extent of 16% in groups of babies of low birth weights, so that this would not account for the whole picture.

The neonatal mortality of prematures is high in even the best conditions, and there are many cases of cerebral palsy and congenital malformations as well, so that a high incidence of Bantu prematurity presents a public health problem. Of 915 premature babies in the obstetric section at Baragwanath Hospital in 1956, only 530 could be admitted to the premature baby unit owing to limited

\* Five of these babies were not assessed nutritionally.



accommodation. When established on the breast they were discharged home at a weight of 4½ lb. Of the first 3,000 admissions to that unit the overall survival rate was 56%.<sup>9</sup> Thus prematurity is a major cause of morbidity and mortality among the urban African infants.

#### Respiratory Diseases

'Respiratory diseases', causing 12% of infant Bantu deaths in 1958, rank third in importance after 'diseases peculiar to first year of life', and 'diarrhoea'. Only 2.68% of White infantile deaths fell into this category. In Coloured and Asian babies, as in African babies, respiratory disease is a prominent cause of death; in the Asians it is often more prominent than in the Bantu, and this is interesting, for, in studying a group of Johannesburg Asian babies in 1951, bronchitis was found as a major cause of morbidity, and showed a higher case rate than in European or Coloured infants.<sup>3</sup>

As a cause of morbidity in the children studied, respiratory diseases were by far the most important group numerically, and the nutritional status did not appear to affect the incidence; 38.51% and 37.46% of 'excellent' and 'good' infants, respectively, had a history of respiratory infection, while 44.62% of 'fair', and 33.33% of 'poor' infants were affected. There is no statistically significant

TABLE X. RELATION BETWEEN NUTRITIONAL CLASSIFICATION AND HISTORY OF RESPIRATORY DISEASES

History of respiratory diseases	Nutrition				Total
	Excellent	Good	Fair	Poor	
Present	124	215	58	2	399
Absent	198	359	72	4	633
Total	322	574	130	6	1,032

(Brackets in original table group 'Fair' and 'Poor' for Present as 60, for Absent as 76, and for Total as 136)

$\chi^2 = 1.876$ . Not significant.

difference (Table X). There was an overall incidence of 38.77% of babies whose complaints included severe coughs, colds, sore ears and 'chestiness'.

In the African children's study of growth and development, 38% of mothers stated that their children had never been ill in any way.

#### CONCLUSION

It can be concluded that the trends of disease in Johannesburg Bantu infants in the last few years offer great encouragement to those engaged in preventive and curative medical work among them. This statement is not in any way intended to belittle the magnitude of existing problems such as malnutrition and gastro-enteritis, so ably reviewed recently by Robertson *et al.*<sup>11</sup>

Collecting data, upon which vital statistics and morbidity rates can be based, is most important. Difficulties are always great, and perhaps nowhere greater than in an African population. However, in Johannesburg, where there is an urbanized African population which is given educational and medical facilities of an unusually high order in comparison with most parts of Africa, statistics are available which, even if only moderately accurate, provide pointers to indicate where promotive health services can best be applied.

#### SUMMARY

Accurate vital statistics have been hampered by poor registration, and the birth rate of the Bantu has been falsely low while the infantile death rate has been falsely high for many years. Evidence is produced to show why the more recent vital statistics are thought to be much more accurate.

The infantile mortality rate has been halved in the last 10 years, but at 132.29 for 1958 it is 5 times higher than that for the Europeans, and more than twice as high as that for the Coloured and Asian population, although it is similar to, and in fact better than that prevailing in many non-White cities elsewhere in the world.

The causes of death, and the relative importance of the early weeks of life in the timing of these deaths, are considered, and a pattern similar to that seen in the historical picture of the reduction of the infantile death rate overseas can be shown. The deaths from 1-12 months are far greater proportionately in the Bantu and Coloured population than in the European and Asian. Congenital malformations and causes of death concerned with prematurity, and events connected with pregnancy and delivery, have been of less importance in the Bantu than deaths due to infection and diarrhoea, whereas the reverse has been true in the case of the Europeans.

However, in the Bantu in 1957-1958, as the infantile death rate has declined, for the first time the category of causes of death known as 'diseases peculiar to the first year of life', chief among them prematurity, became of greater importance than 'diarrhoea'.

The high incidence of prematurity, diarrhoea and respiratory disease among the Bantu, and the consequent morbidity, is discussed. Figures for the incidence of these afflictions are given for Johannesburg babies, and it is shown that there was a much higher incidence of diarrhoea recorded among the poorly nourished. Nutrition did not appear to have the same influence on the incidence of respiratory infections.

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