

## CHARACTERISTICS OF BURNED CHILDREN AND THE AFTER EFFECTS OF THE INJURY

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In the Registrar General's Review for 1963 more children under the age of 5 years are recorded dying from thermal injuries than from any other cause except traffic accidents. It is therefore of interest to enquire into the characteristics of children suffering burns and into the after-effects in those who survive. This was the purpose of a small-scale survey relating to 119 children (below the age of 15) who were admitted to the plastic surgery wards of the Stockton-on-Tees Children's Hospital as the result of burns or scalds in 1963. Children who were re-admitted in respect of burns prior to 1963 were excluded. The survey covered only burns which were sufficiently serious to warrant admission to the plastic surgery wards ; some children who were kept in hospital under observation may not have been hurt more seriously than others treated by their own doctors at home.

In addition to the analysis of hospital records, the parents of the patients were visited at home. These visits were undertaken between May and July 1967, *i.e.*, between three and a half and four and a half years after the accidents had occurred. This interval was thought desirable for three reasons : to assess the after-effects of the burns, to enable the children to have reached school age and to test the recollection of the children. The main findings are summarised in Tables I, II and III.

**Characteristics of the Patients.**—The children suffering burns are by no means a random sample of children in general. There appears to be a bias in respect of sex, age, size of family, rank in family, occupation of parents and tenure of house. The typical case seems to be a boy aged 2, a younger child of a large family, whose father is an unskilled labourer living in a council house. Amongst the 119 children 67 (56 per cent.) were boys ; 72 (60 per cent.) were under the age of 3 and the average age was 3.8 years. Families having three or more children under 16 accounted for 62 per cent. of all patients, families having five or more for 20 per cent. The corresponding proportions for children in all U.K. families were 23 per cent. and 4 per cent. While Teesside families are larger than average, the difference is not of this magnitude. Even so, the ultimate number in the families surveyed is understated ; the children were often so young that many families had not been completed at the time of the accident (Tables I and II).

Fifteen (13 per cent.) were only children, while half the remainder were the youngest child in the family. For a variety of reasons it was only possible to interview four-fifths of all families. Amongst these 93 child patients, 14 had fathers who were either dead, retired, unemployed or sick. Almost half of the fathers who were working had changed their place of employment between 1963 and 1967 and about three-fifths of the fathers were semi-skilled or unskilled manual workers (Table III).

The number of monthly admissions fluctuated quite widely ; there were, for example, 17 in May but only 5 in December. One might have thought that the incidence of burns in winter would be greater than in summer, but this was not the case in the year under review : less than half (57) were admitted between October and March and only 3 in the first ten days of November—the fireworks season.

TABLE I  
Child Patients Analysed by Age, Sex and Skin Area Affected

	Skin Area Affected				Total of Children	Sex		Interval in Years
	-9%	10-19%	20-29%	30%+	Total	Male	Female	
0-	10	2	0	0	12	7	5	1 year
1-	55	5	0	0	60	33	27	2 years
3-	11	2	2	1	16	10	6	2 years
5-	5	2	0	1	8	6	2	2 years
7-	8	1	3	1	13	5	8	3 years
10-14	7	2	1	0	10	6	4	5 years
Total	96	14	6	3	119	67	52	15 years

TABLE II  
Families by Number of Children Under 16 Years

No. of Children in Family	Burns Survey %	Other Child Patients %	U.K. (Family Allowances) %
1	13	17	43
2	25	34	34
3	20	23	14
4	22	14	5
5+	20	12	4
Total	100	100	100
Average number of children per family	3.3	2.8	2.0
Average age of child	3.8	4.8	7.8

TABLE III  
Child Patients by Size of Family and Skin Area Affected

No. in Family*	Skin area affected			Total
	-9%	10-19%	20%+	
1	12	3	...	15
2	25	1	1	27
3	17	2	3	22
4	20	4	2	26
5+	20	4	3	27
Not recorded	2	...	...	2
Total	96	14	9	119

\* Children under 16.

The number of families who moved house at least once during the four-year period is very high ; excluding the two children who died and the three who lived outside the ten-mile radius, 41 families out of a total of 114 had changed house. About two-thirds of the families interviewed lived in council houses which account for only about one-third of all households in the area. Seventeen of the families which could not be traced had lived in slum clearance areas.

Since 1963, 18 of the 93 children had a further spell in hospital as a result of various illnesses and another 13 received hospital treatment as a result of another accident. Two of the latter had each had two more accidents. Twenty-two of the patients' siblings had accidents requiring hospital treatment, four of these proved fatal. These 93 families had thus between them in a period of about four years, a further 41 accidents, seven of which were burns or scalds ; one girl was fatally burned.

**Parents' Views on Hospital Care.**—The interviewers were a married woman who is a qualified teacher and social worker of many years' experience assisted by a younger woman who had recently qualified as a teacher. They introduced themselves as working for the Social Studies Department of the University of Durham. The letter introducing them was signed by the two researchers.

The majority of mothers were well satisfied with the treatment and care their children had received in hospital. Twenty-nine expressed positive gratitude and approval. Fifty-one used such phrases as " Yes, it was all right ", or " I had no complaints ". Nine expressed general satisfaction but made specific criticisms. Three of these referred to treatment received prior to admission. Three complained about careless treatment by a nurse, one complained that she had not been told that her child would be operated on and another said that her baby's rash had been neglected. Only two mothers were dissatisfied and very critical ; one discharged her child from hospital and the other referred to the nurses as harsh and unimaginative.

Just over half the mothers thought that their children had been affected at least temporarily by staying in hospital ; 38 mentioned the child crying, fretting or being distressed either at visiting time or especially on admission to hospital. Many mothers mentioned symptoms of distress occurring within a few days or weeks of the child returning home such as over-eating, clinging, weeping, being very quiet, over-nervous, frightened or restless at night. Some children had several of these symptoms, others only one.

Many of the children had more lasting symptoms but it is virtually impossible to distinguish between the effects of the accident, the scar and the stay in hospital. It is also difficult, even for a mother, to isolate the effects of general temperamental and environmental problems from those which had their origin in causes connected with the accident. There was no apparent relationship in this group between long-term symptoms as mentioned by the parents and, either the seriousness of the accident, as measured by the skin area affected, or the length of stay in hospital. The majority of the mothers did not think that the accident had affected their child's relationship with other children or their progress at school.

**Statistical Note.**—The number of patients treated in one year and the corresponding number of patients and parents interviewed was small so that the various percentages quoted cannot be taken as necessarily valid for other years and are not always statistically significant. For example, the fact that 56 per cent. of 119 children suffering burns are boys is not significant at the 5 per cent. level and cannot be taken to indicate that more boys than girls suffer from burns. Similarly, the finding that 60 per cent. of all children are under the age of 3 years means no more than that  $60 \pm 9$  per cent. (not less than 51 per cent. nor more than 69 per cent.) at the 5 per cent. level are below 3 years. There is even then a one in twenty chance that the actual percentage is lower or higher.