

## Burns admissions to Port Moresby General Hospital 1978-1984

FRANK TOROVA<sup>1</sup> AND S.N. SINHA<sup>2</sup>

Port Moresby General Hospital, and Faculty of Medicine,  
University of Papua New Guinea, Port Moresby

### SUMMARY

A retrospective survey of 169 burns cases admitted to Port Moresby General Hospital was conducted for the period 1978 to 1984. A third of the patients were young children. Hot-water burns were the commonest type of injury, accounting for 43%. This was followed by accidental falls into a fire and suicidal kerosene burns, which accounted for 28% and 13% respectively. Post-burn contractures were the commonest long-term complications. Prevention of burns is theoretically very attractive but hard to achieve in rural and squatter populations who rely almost entirely on open fires for cooking and heating. Burns awareness campaigns by all government and community groups stressing the dangers of open fires and leaving children unattended would no doubt take a long time but might ultimately produce tangible results.

### Introduction

Many burns admissions are preventable as they are almost all caused by domestic accidents associated with open cooking fires in huts or accidental fires during the dry season. A small percentage is due to intentional suicidal burns. A survey in Milne Bay revealed that in this community 48% of burns were due to grass-skirt fires (1). Apart from this, as far as we are aware, there has been no other burns survey done in Papua New Guinea, though the importance of burns was emphasized by Kulunga and Sinha in their review of surgical mortality (2).

The present study was done to determine (i) the annual number of burns admissions from the National Capital District, (ii) the commonest causes of burns and (iii) the most vulnerable group of the population involved.

### Patients and Methods

This was a retrospective study of the case notes of 169 burned patients admitted to Port Moresby General Hospital (PMGH) in the seven years between January 1978 and

December 1984. Inadequate documentation in case notes was a common finding.

### Results

The annual number of admissions is shown in Figure 1, with 1981 showing the highest number. The months of August, November, December and January showed the highest number of cases (Figure 2).

### Age and sex

The male to female ratio was approximately one. Other studies have shown a little more male predominance (3). A third of patients were four years old or less (Figure 3).

### Causes

Scalds due to hot water accounted for 43% and flame burns from falling into a fire occurred in 28% (Table 1). Burns of a suicidal nature with kerosene were responsible for 13% of cases, mainly in the later 20-year-old age group and exclusively in females. This common and serious problem in Papua New Guinea has been investigated by Johnson and

---

<sup>1</sup> Port Moresby General Hospital, Free Mail Bag, Boroko, NCD 111, Papua New Guinea  
Present address: PO Box 6767, Boroko, NCD 111, Papua New Guinea

<sup>2</sup> Division of Surgery, Department of Clinical Sciences, Faculty of Medicine, University of Papua New Guinea, PO Box 5623, Boroko, NCD 111, Papua New Guinea

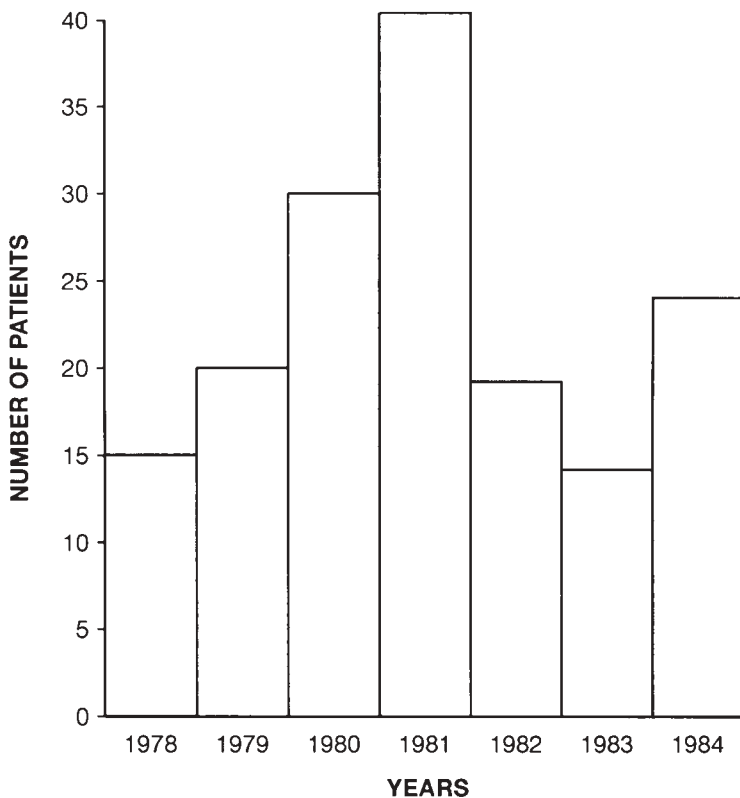


Figure 1. Histogram showing numbers of burns injuries admitted yearly, in a total of 169 cases from 1978 to 1984.

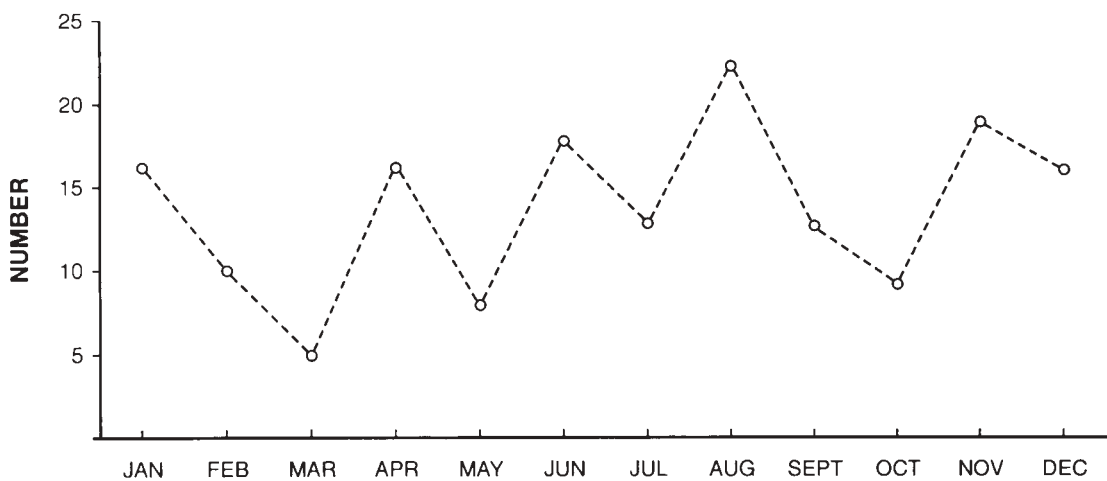


Figure 2. Monthly variation in the number of burns admissions, in a total of 169 cases from 1978 to 1984.

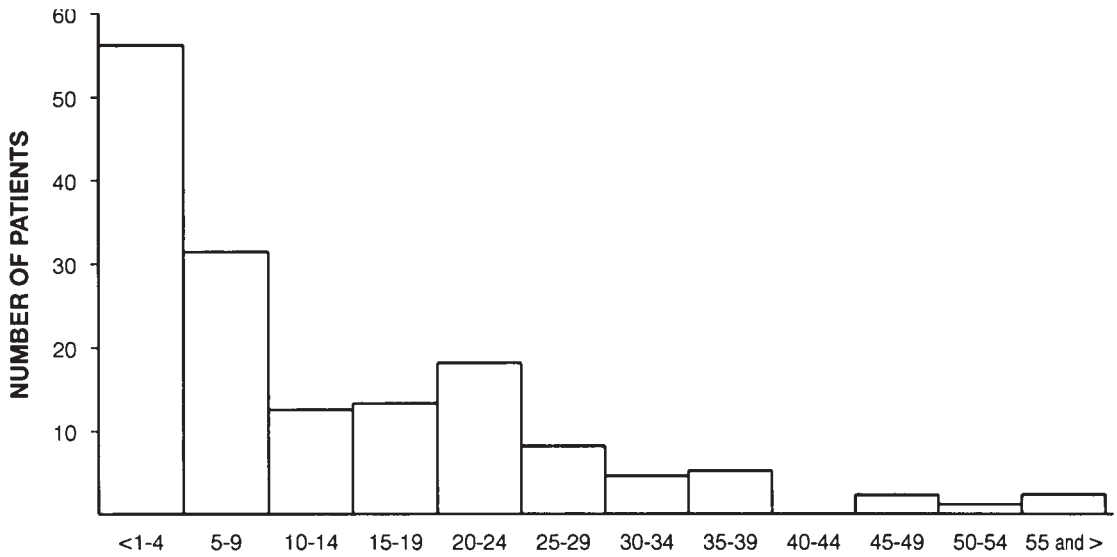


Figure 3. Histogram showing distribution of burns injuries by age, in a total of 169 cases from 1978 to 1984.

**TABLE 1**

CAUSES OF BURNS IN PORT MORESBY GENERAL HOSPITAL 1978-1984

Cause	Number	%
Scalds	73	43.2
Flames	47	27.8
Kerosene	22	13.0
Petrol	13	7.7
Electric	5	3.0
Flash	3	1.8
Not known	6	3.6
<b>Total</b>	<b>169</b>	

Sinha (4). Seven (4%) of the burns patients suffered from epilepsy.

**Severity and duration**

The percentage of body surface area (BSA) affected in the burns patients in this series is shown according to age and sex in Table 2. Most of the burns involved 10% of the body surface area or less.

The average hospital stay of burns patients in this series was 22 days, which was twice the

average stay reported from Australian hospitals (3).

**Management and outcome**

The majority of our patients were managed by daily cleaning and dressings with silver sulphadiazine cream. Almost one-third of the patients required debridement and skin graft (Table 3). Bacteriology results were often not available but those in 58 patients are listed in Table 4. Post-burn contractures were the commonest long-term complications, but only

**TABLE 2**

PERCENTAGE OF BODY SURFACE AREA (BSA) BURNT BY AGE AND SEX IN 169 PATIENTS

% Burns (BSA)	Age in years												Age not known		Total				
	0-9		10-19		20-29		30-39		40-49		50-59		60-69		M	F	M	F	T
	M	F	M	F	M	F	M	F	M	F	M	F							
0-5	13	12	2	2	4	4	2	-	-	-	1	1	1	1	2	3	24	23	47
6-10	12	20	1	4	4	4	3	1	-	-	1	-	1	-	-	1	22	30	52
11-20	9	5	2	5	4	1	-	2	2	-	-	-	-	2	2	19	15	34	
21-30	5	3	3	1	-	-	-	1	-	-	-	-	1	3	-	11	6	17	
31-40	1	1	3	-	-	-	1	-	-	-	-	-	-	-	-	5	1	6	
41-50	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	1	
51-60	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	
61-70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
71-80	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	
81-90	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	1	2	3	
Not known	-	3	2	-	2	-	-	-	-	-	-	-	-	-	-	4	3	7	
<b>Total</b>	40	45	13	13	16	10	6	4	2	-	1	1	2	3	7	6	87	82	169

**TABLE 3**

SURGICAL PROCEDURES IN BURNS PATIENTS

Surgery type	Number
Debridement and skin graft	35
Debridement only	12
Release of contractures	6

**TABLE 4**

BACTERIOLOGY OF 58 BURNS CASES

Organism	Number
<i>Staphylococcus</i>	18
<i>Pseudomonas</i>	12
<i>Klebsiella</i>	6
<i>Enterobacter</i>	5
<i>Streptococcus</i>	8
<i>Escherichia coli</i>	3
No growth	6

**TABLE 5**  
FATALITIES IN BURNS PATIENTS

Cause	Sex/Age	% Burns (BSA)
Mentally retarded Septicaemia	M/4 years	20%
Septicaemia	F/4 years	36%
Septicaemia	F/10 months	60%
Cardiac arrhythmia Glottic oedema Septicaemia	F/16 years	90%
Shock	M/20 years	90%
Shock Septicaemia	F/20 years	90%
Septicaemia Shock Respiratory failure	F/62 years	80%

BSA= body surface area

6 out of 169 cases underwent surgery for release of contractures (Table 3).

Seven (4%) patients died, the commonest reason being a major burn over 50%, which occurred in five (Table 5). The other two deaths, with burns of 20% and 36% respectively, were in children aged less than 5 years.

### Discussion

The increase between November to January corresponds to the wet season and is probably due to open fires and home heating accidents. Epilepsy was seen as an associated factor in only 4% of cases as compared to the findings of Dr Barss, who reported from Milne Bay a much higher percentage of burns cases with epilepsy (1).

The majority of patients were managed by daily cleaning and dressings with silver sulphadiazine cream, according to the usual clinical practice of PMGH (5). The figures for surgical procedures (Table 3) are not truly representative of the number of cases that could have been done as some patients refused operation. The fatality rate (Table 5) was 4%.

In the absence of a burns unit in Port Moresby it is reasonable to conclude that any patient admitted to Port Moresby General Hospital with greater than 40% burns has a poor prognosis and that some with lesser burns will die of infection. Most of the burns in this series were 10% BSA or less (Table 2). This is similar to findings from Australia (3), India (6) and England (7).

A burnt child is an emergency admission and is also a failure in preventive medicine. In our series one-third of patients were aged 4 years or less; at this age children are curious and explore their environment without being aware of its dangers. Similar findings have been reported from Africa (8).

Most civilian and domestic burns are preventable. Preventive measures must be directed towards teaching parents and the community at large to recognize and minimize the potential hazards. A nationwide campaign informing the public of the inherent dangers of burns and outlining preventive measures is advised.

We recommend the following practical preventive measures directed against the major causes of burns found in the series.

- 1 Containers of hot liquid must be placed out of reach of children.
- 2 Saucepan handles should be turned towards walls so that they cannot be grasped.
- 3 The child's tendency to pull tablecloths must be remembered and guarded against.
- 4 Fireplaces must be raised off the floor or if one is unable to do so the fireplace must be fenced off.
- 5 Older school-age children should be warned about the flammability and explosive nature of kerosene and petrol.
- 6 Parents should keep flammable liquids out of the reach of children.
- 7 Electric cords and appliances should not be left lying around as children are likely to sustain electrical burns.
- 8 Children with epilepsy and other mental disorders should receive proper medical treatment.

Health education officers in urban and rural areas should visit women's clubs, clinics and schools stressing the dangers to children of accidents in the home involving open fires, hot fluids and inflammable clothing.

#### REFERENCES

- 1 **Barss P, Wallace K.** Grass-skirt burns in Papua New Guinea. *Lancet* 1983;1:733-734.
- 2 **Kulunga A, Sinha SN.** Review of surgical mortality. *PNG Med J* 1983; 26:13-16.
- 3 **Pegg SP, Gregory JJ, Hogan PG, Mottarelly IW, Walker LF.** Burns in childhood: an epidemiological survey. *Aust NZ J Surg* 1978;48:365-373.
- 4 **Johnson FYA, Sinha SN.** Deliberate self-harm by means of kerosene fire by women in Papua New Guinea. *PNG Med J* 1993;36:16-21.
- 5 **Sinha SN.** Management of thermal burns. *PNG Med J* 1991;34:75-78.
- 6 **Sinha SN.** Burns in tropical countries. *Clin Plast Surg* 1974;1:121-127.
- 7 **McNeill DC.** A survey of 1600 admissions to a regional burns unit. *Recent Adv Plast Surg* 1976;1:93-119.
- 8 **Auchincloss JM, Frank Grave G.** The problem of burns in Central Africa. *Trop Doct* 1976;6:114-117.