A retrospective review of inpatient pediatric records in Majuro Hospital, 1996

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Introduction

The Republic of the Marshall Islands (RMI) is part of Micronesia. Majuro, the capital and commercial center lies 2,273 miles southwest of Honolulu. It is a long finger of islands joined together by causeways that encloses a lagoon. The population of RMI has increased dramatically since the late 1980's. The projected population for 1996 was 59,246[1].

The purpose of the study was to investigate the major reasons for hospitalization of children < 14 years at Majuro Hospital. The study provides some recommendations from the results. This type of analysis has not been done in RMI.

Materials and methods

Charts for all children admitted in 1996 to the Paediatric ward were reviewed. Age group included those aged 2 days to 14 years of age, with the average age being 3.26 years. Other variables that were analyzed included; sex, date of admission, date of discharge, duration of hospital stay, diagnosis (on discharge), and ICD Coding. dBASE and EpiInfo were used to analyze the data. Some of the admissions had more than one discharge diagnosis.

Results

A total of 486 pediatric admissions to Majuro Hospital in 1996 were reviewed. Out of the total cases, 273 were male (56.2%) and 213 female (43.8%), giving a ratio of 1.3:1, respectively.

Distribution of cases by age group is shown in Table 1. Thirty-five percent (170) of the cases were 1 year of age or less while 64.4% were 3 years or less. The monthly distribution of cases (see Figure 1) showed that the greatest number of admissions (15.4%) were in August, while the least number of admissions (4.3%) were in April that year. The study showed that the most common causes for hospitalization were Bronchopneumonia (101 cases), Acute Gastroenteritis (94 cases), Pneumonia (82 cases), Skin Infections (38 cases), and Acute Bronchitis (25 cases), respectively. Other childhood problems noted in the study included cases admitted due to accidents (MVA) and/or traumatic injuries. These included 15 fractures (3.1%), 8 burn wounds (1.6%), 6 MVA-related injuries (1.2%), 2 kerosene ingestion (0.4%), 2 near drowning (0.4%) and one esophageal foreign body (0.2%). Other cases (11) were difficult to classify or were of unknown diagnoses.

Patients were hospitalized from 1 to 154 days. The average hospitalization was 7.03 days. There were 15 patient deaths (excluding off-island referrals). The mortality rate was 3 per 1000. Twenty-two cases were referred off-islands (either Honolulu or Philippines) for further diagnosis and/or treatments. Malnutrition and iron deficiency anemia were also relatively common in Majuro during that period which accounted for 9.9% (48/486) and 2.9% (14/486) respectively. Pulmonary tuberculosis was the most common immunization-preventable disease in Majuro, which accounted for 2.5% (including TB pleurisy and TB meningitis). Viral Hepatitis accounted for only 0.4% (2) of the cases. Seven percent (36) cases were admitted twice or more in the year of 1996. The most frequent admission was four times in the year.

Discussion

In 1996, the projected population of RMI was 59246; of which 27408 was from Majuro. Among them, 13498 were under the age of 14 years.[1] Despite a relatively high per capita income ($US 1,937 per capita in 1992), the health situation of the RMI is worse than that of countries with comparable average income.[2]

This study showed that most of the children admitted to the hospital suffered from respiratory diseases, gastrointestinal and sanitation-related diseases (69.75%). Majority of inpatients was at the age of 3 years or less (64.4%). The monthly distribution showed that most of patients were admitted between the months of July and September with the highest being August. This may be due to the climate changes which is comparatively hot and humid during those months of the year.

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In view of these results, we wish to make the following proposals: First of all, as the RMI has a limited budget for health care, it is reasonable for both health policy-makers and health care workers to pay more attention to prevention rather than treatment. Since infections accounted for more than half of the total admissions, we should try our best to educate the people to prevent these common infectious diseases (such as pneumonia, diarrheal disease and skin infections). Mothers should participate in training programs. Kindergarten and pre-schools educators should help children to establish very good hygiene habits in the early stage of lives.

Table 1. Distribution of cases, by age group

Age group	Number	Frequency (%)
0 to <1	170	35.0
1 to <2	105	21.6
2 to <3	38	7.8
3 to <4	22	4.5
4 to <5	12	2.5
5 to <6	16	3.3
6 to <7	16	3.3
7 to <8	19	3.9
8 to <9	17	3.5
9 to <10	9	1.9
10 to <11	13	2.7
11 to <12	10	2.1
12 to <13	15	3.1
13 to <14	11	2.3
14	13	2.7
Total	**486**	**100.00**

Secondly, accident is an increasingly significant cause of morbidity in RMI, particularly in Majuro, reflecting a global trend.[3] Accidents accounted for more than 10% of the death in Marshall Islands.[4] This study showed that 9.26% of inpatient children were hospitalized as a result of accidents (such as MVA, burn, fracture, near drowning, kerosene ingestion etc.). Health care workers, must call upon all community leaders, organizations, churches, schools etc. to reduce and prevent all accidents, especially in children.

Finally, this study showed that tuberculosis (TB) was the most common diagnosis among children admitted to the hospital in Majuro. Therefore, we recommend that public health concentrate on both preventing and treatment of TB. There should be steps to screen TB in the whole population with management and close follow up of cases. There is still a considerable amount of work that need to be done for health workers to improve health care in the Marshall Islands. The study obviously have some limitations (such as only data for one year was collected, and some of the admission charts cannot be found, etc.). Further studies need to be done to address this issue.

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Figure 1. Proportion of pediatric inpatients in Majuro Hospital, by month, 1996