RESPONSES OF THE WESTERN AUSTRALIAN TOXICOLOGY SERVICE TO REMOTE, RESOURCE AND RETRIEVAL CHALLENGES IN TOXICOLOGY; THE ROYAL PERTH HOSPITAL EXPERIENCE

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Objectives: To describe the functions of the Western Australian Toxicology Service (WATS) in response to the challenges encountered in servicing a population of nearly 2.6 million people across the 2.5 million square kilometres of Australia's largest state, with significant variability in resource availability.

To examine the activity of the Toxicology Service at Royal Perth Hospital (RPH), focusing on the current clinical model of admitting patients under practicing clinical toxicologists, to facilitate timely and appropriate management and expedited discharge.

Methods: A retrospective review of toxicology services provided over a two year period (January 2013 – December 2014) at RPH is presented, focusing on patients requiring ICU admission. Patient and poisoning characteristics are described and measures of service efficiency, such as time from extubation to ICU discharge and total length of stay, are examined.

Results: There were 226 patients admitted to ICU under the RPH Toxicology Service over the period, with most patients originating from the Perth Metropolitan area (78.31%). Other patients were transferred by aeromedical retrieval from regional areas to the south (3.98%), east (11.95%) and north (5.75%) of Perth.

The majority of patients were admitted to ICU via RPH Emergency Department (74.78%), with the balance consisting of direct transfers to ICU. Most patients were intubated (82.30%) with a median length of mechanical ventilation of 15 hours 47 minutes (15h47m). The median time from extubation to toxicology review was 2h35m and the median time from extubation to ICU discharge was 6h27m. These figures compare favourably with those from an equivalent tertiary hospital without an in-house toxicology service.

Following toxicity resolution, most patients were suitable for discharge (52.19%) or psychiatric admission (27.19%). Smaller numbers were transferred to inpatient wards or other institutions, discharged against medical advice or died. The median total length of stay for those discharged was 1d20h31m. Over a quarter of patients retrieved from remote areas required hospital-organised repatriation (27.08%) with most other patients making their own arrangements (35.42%), discharging against medical advice (8.33%) or being transferred to another psychiatric units (10.42%).

Conclusions: WATS has evolved to meet the needs of a population with significant issues related to remoteness, resource limitations and retrieval challenges, by focusing on safe and pragmatic management using a risk assessment approach.

The benefits of admitting severely poisoned patients to ICU under the RPH Toxicology Service includes timely and appropriate management, expedited discharge, and more efficient use of ICU and hospital resources, likely leading to cost savings and better patient outcomes.