

## FLUID MANAGEMENT IN THE DEHYDRATED CHILD

(Assuming weight of child as 9.14kg)<sup>1</sup>

| Maintenance Rate<br>(applying the Holliday-Segar formula <sup>2</sup> )  | 914ml/day<br>38ml/hr    |                       |               |                  |                  |                    |
|--|-------------------------|-----------------------|---------------|------------------|------------------|--------------------|
|  | Lucy                    |                       | % Dehydration |                  |                  |                    |
|  | Actual (until collapse) | Intended by O'Donohoe | None          | 5%               | 7.5%             | 10%                |
| Fluid Deficit <sup>3</sup><br>(% dehydration x weight in kg x 10)  |                         |                       | 0ml           | 457ml            | 686ml            | 914ml              |
| Replacement Rate <sup>4</sup>  |                         |                       | 0ml           | 457ml<br>19ml/hr | 686ml<br>29ml/hr | 914ml<br>38ml/hr   |
| Total required hourly rate until no longer dehydrated  | 100mls/hr               |                       | 38ml/hr       | 57ml/hr          | 29ml             | 67ml/hr<br>76ml/hr |
|  |                         |                       |               |                  | 38ml             |                    |
| Rate if 100ml bolus given at beginning of IV fluid administration is deducted <sup>5</sup><br>(to nearest 5ml) | 100mls/hr               | 30mls/hr              | 34ml/hr       | 53ml/hr          | 63ml/hr          | 72ml/hr            |

<sup>1</sup> Ref: 027-009-021

<sup>2</sup> Holliday MA, Segar WE. Pediatrics 1957;19:823-832. The Maintenance need for water in parenteral fluid therapy The calculation can be found at Ref: 220-002-193. The original article can be found at Ref: 220-002-168.

<sup>3</sup> The deficit is added to the daily requirement in order to calculate the 24 hour volume needed and the infusion rate.

<sup>4</sup> Dr. MacFaul advises that this should not be Solution 18 - either 0.45% or normal saline should be used and advised practice for the time was to use 0.45% saline when using IV fluid for replacement / maintenance in the early part of the fluid regime in dehydration.

<sup>5</sup> Views on whether a bolus amount should be deducted from the 24-hour total, thus reducing the hourly rate, differ.