

FLUID MANAGEMENT IN THE DEHYDRATED CHILD

(Assuming weight of child as 9.14kg)¹

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

¹ Ref: 027-009-021

² 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.

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

⁴ 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.

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