

# Dehydration Management

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# Shock v Dehydration

	<b>SHOCK</b>	<b>DEHYDRATION</b>
SPEED OF FLUID LOSS	<b>FAST</b>	<b>SLOWER</b>
MOST AFFECTED	CIRCULATION	ORGANS & TISSUES & CELLS
ELECTROLYTES	MAYBE NORMAL OR MILDLY DERANGED	CAN OFTEN BE ABNORMAL HYPERNATRAEMIA HYPOKALAEMIA
SPEED OF DETERIORATION/†	FAST: minutes – hours	SLOWER: hours - days

Danger of too rapid replacement or  
very hypotonic fluids

**NEVER GIVE IV INFUSIONS OF PLAIN 5% OR 10% DEXTROSE**

# Shock v Dehydration

## Shock

- need to replace rapidly
- Isotonic solution: N/Saline or R/Lactate

## Dehydration

- Want to rehydrate more slowly
- Want water & electrolytes to re-balance
- Half Darrows/ 5% Dextrose (1/2 DD)

# Dehydration Management

- Provincial / EM protocol
    - EM – does not mean ambulance
      - means clinic, CHC, hospital
    - Does not replace IMCI protocols
      - no 'shock' in IMCI
  - Provincial = 3pages
  - EM = 1 page
- } both same!

OVERVIEW

# EM PROTOCOL

The hallmark is increased stool frequency with alteration of stool consistency  
Differential: Urinary Tract Infection; Otitis Media; Respiratory Tract Infection; Surgical Disorders

DMIST Handover from ambulance  
Look for IMCI DANGER SIGNS and TRIAGE Patient using SATS  
Measure and Record Vital Signs. Check GLUCOSE



### TRIAGE THE PATIENT

#### RED

IMCI Danger Signs:

- Fitting
- Lethargic or Floppy
- Not drinking anything
- Vomiting everything

OR

SOB or Rapid Breathing  
Cold Hands with poor pulse  
> 2 signs of Dehydration

OR

SATS score > 7

#### ORANGE

Priority Signs:

- Tiny Tot < 3 months
- Visible wasting or oedema

OR

Failed 4 hour ORS trial

OR

SATS score 5 - 6

#### YELLOW

1 Sign of Dehydration

OR

SATS score 3 - 4

#### GREEN

No signs of Dehydration

OR

SATS score 0 -

#### Examination:

Primary: Assess ABCDE's then Secondary Head to Toe Examination

IMCI Danger Signs

Signs of shock (See Criteria below)

Assess Hydration Status (See Criteria below): WEIGH CHILD or estimate weight

Assess nutrition status

Signs of Sepsis and Systemic search for any source of infection

#### SAMPLE History:

Signs/Symptoms: Stool: Duration, Frequency, Consistency; Blood or Mucus; Vomiting; Fever; Drinking/Wet Nappies



# Step 1: shock or no shock?

1. ASSESSMENT OF SHOCK		
Assessment	Shocked (Intravascular Dehydration)	Not Shocked (Extravascular Dehydration)
Level of Consciousness	Depressed or Lethargic	Normal or Lethargic
Peripheral Pulses	Absent, Weak or Thready	Palpable and Normal
Peripheral Temperature	Cool or Cold	Warm
CRT	> 3 secs	< 3 secs
Pulse Rate	Very Rapid	Normal or Rapid
Signs of Dehydration	Normal to Severe <small>(Shock may occur in absence of signs of dehydration)</small>	Some or Severe

# Step 2: level of dehydration

2. ASSESSMENT OF HYDRATION STATUS			
Criterion	Severe Dehydration	Some Dehydration	No Dehydration
Weight Loss	+/- 10 %	+/- 5 %	Nil
Clinical Signs	Very Sunken Eyes Lethargic	Restless or Irritable Thirsty or Drinks Eagerly Decreased Urine Output Dry Mouth Crying without tears Sunken Eyes	Nil
Skin Pinch	> 2 sec	Slow but < 2 sec	Normal

# Step 3: any malnutrition?

3. COMORBIDITY: Is the patient malnourished: Visible wasting or oedema ?

Sugar. Treat if < 3mmol/l  
 5ml/kg 10% dextrose IV)  
 e IV (preferred) or IO Line

for help: EM Consultant or  
 Paediatric Registrar

**RESUSCITATE**  
 V/IO bolus N/S 20 ml/kg  
 as fast as possible  
 ml/kg if wasted/oedematous)  
 site IV/IO - Insert NGT:  
 Start ORS at 30 ml/kg/hr  
 ml/kg/hr if wasted/oedematous)

**REASSESS PATIENT**

<b>TILL SHOCKED</b>	<b>NO LONGER SHOCKED</b>
	- Assess hydration - Use appropriate protocol
at IV/IO as above	<b>Admit Level 2 Paediatrics</b>

**REASSESS PATIENT**

<b>TILL SHOCKED</b>	<b>NO LONGER SHOCKED</b>
	- Assess hydration - Use appropriate protocol
at IV/IO as above	<b>Admit Level 2 Paediatrics</b>

Check Sugar. Treat if < 3mmol/l  
 (5ml/kg 10% dextrose IV)

**Assess Nutrition Status**

**Wasted Oedematous Severe Malnutrition**

Insert NGT  
 Infuse ORS @ 10 ml/kg/hr

Site IV to Take Bloods  
 BC; FBC; U&E;  
 Protein; Albumin;  
 Venous Gas

**Admit Level 2 Paediatrics**

**Well Nourished**

Set up IV  
 Commence 1/2DD  
 IV @ 20 ml/kg/hr  
 FOR UP TO 4 HRS  
 (NGT if unable -  
 Infuse ORS 20ml/kg/hr)

Take Bloods:  
 U&E

**Admit Level 2 Paediatrics**

**START ORS TRIAL**

- Supply ORS and cup
- Calculate Volume (table below)
- Give Small Volumes:  
20-50mls every 15min
- If child vomits:  
Give smaller Volume at a time
- If child has loose stools:  
Give Extra 10ml/kg
- Continue breast feeding as usual

Caregiver to alert nurse if child repeatedly vomits or refuses to drink

**Amount of ORS over 4 Hours**

Age	4-12 months	1-2 years	2-5 years
Weight	6-10 kg	10-12 kg	12-19 kg
Mls	400-700 mls	700-900 mls	900-1400 mls

**Record on Chart**  
 Reassess at 2 hours or sooner if required  
 Check ABC; Watch for Danger Signs; Weigh the child  
 Reclassify: Assess Hydration, Vomiting and Willingness to Drink

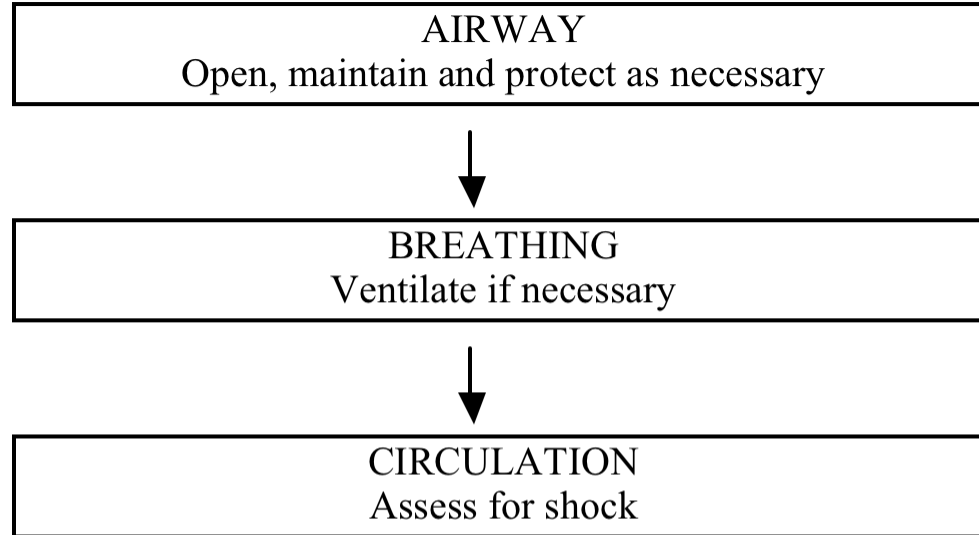
**Vomiting everything or taking nothing  
 Some Dehydration.  
 Failed Trial of ORS**

**Able to take PO  
 Continue ORS trial**

# **PROVINCIAL DEHYDRATION PROTOCOL**

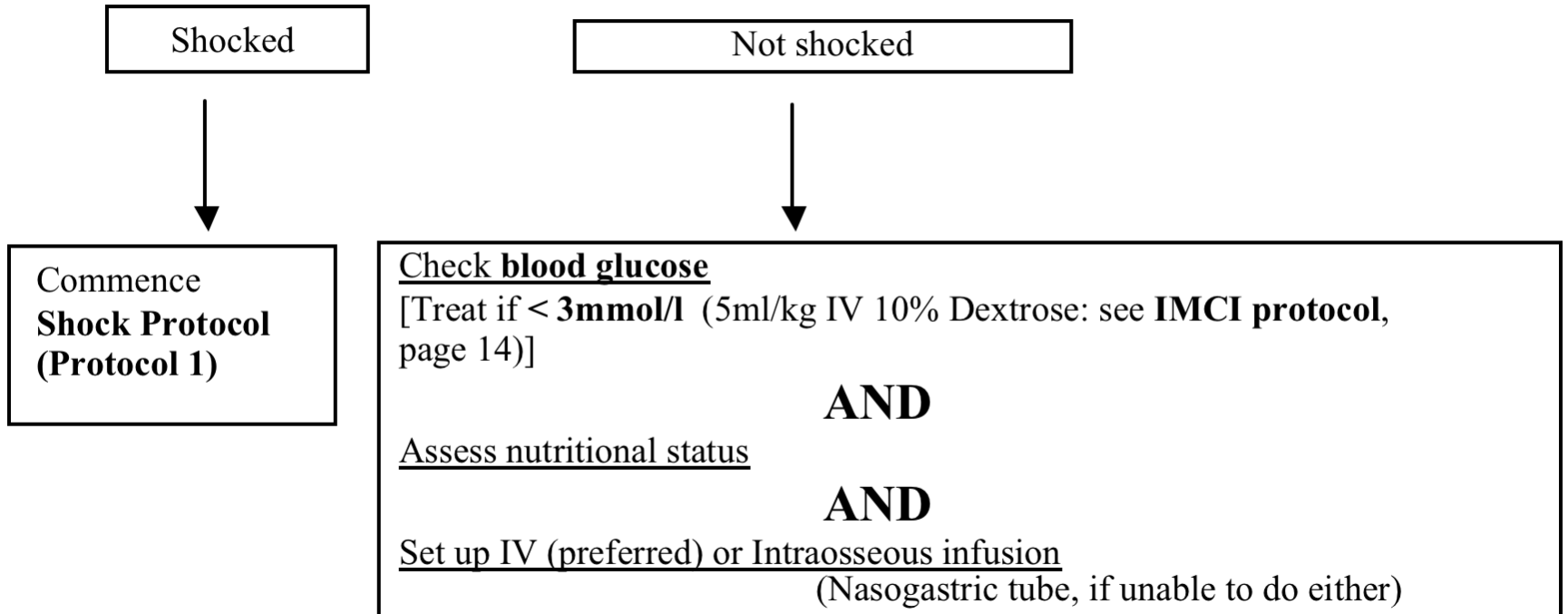
3-pages: 1 = shock 2 = severe dehydration 3 = some dehydration

# Severe Dehydration Protocol

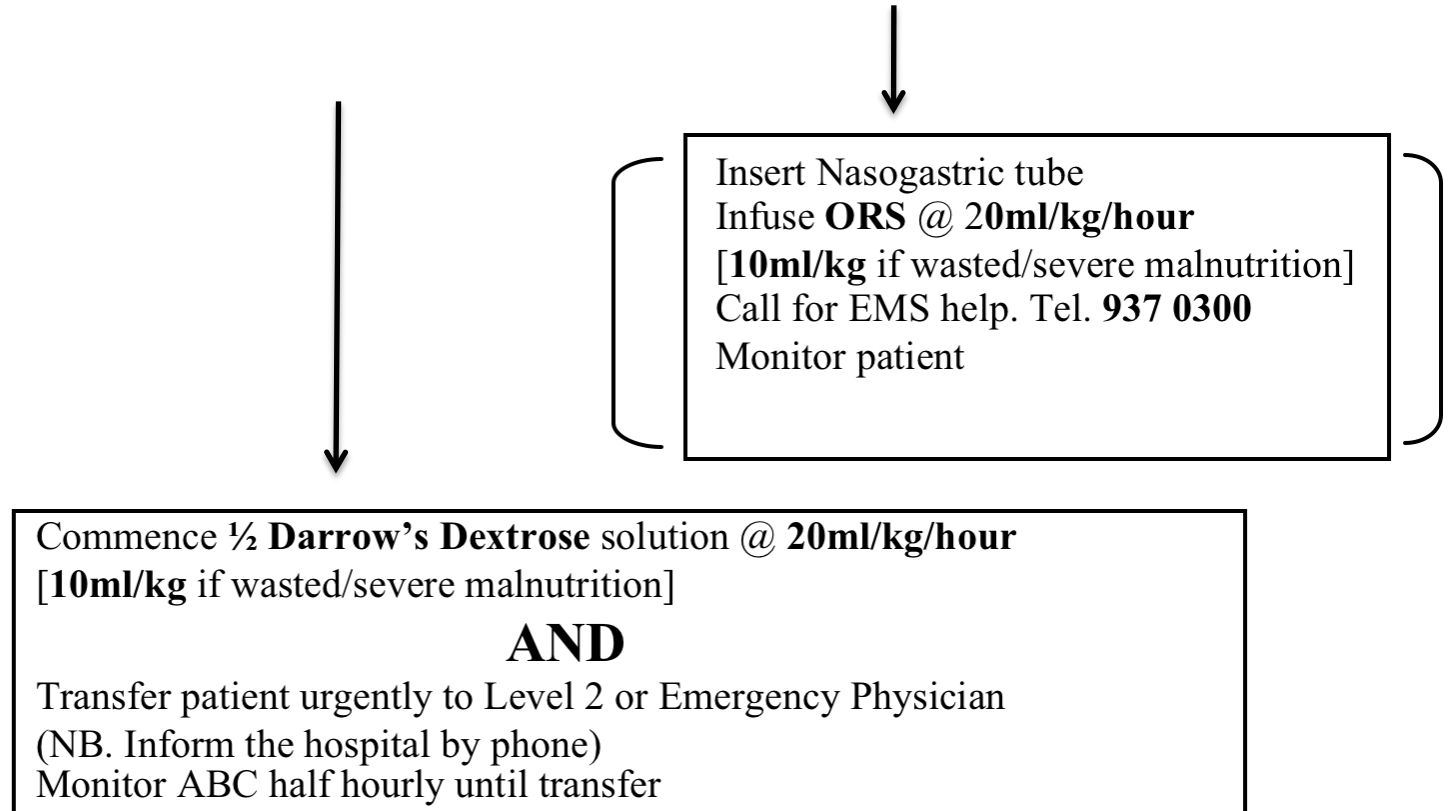


	<i>Shocked</i> ( <i>Intravascular dehydration</i> )	<i>Not shocked</i> ( <i>Extravascular dehydration only</i> )
<b>Level of consciousness</b>	Depressed/lethargic	<b>Normal/lethargic</b>
<b>Peripheral pulses</b>	Absent/Weak/Thready	<b>Palpable and normal</b>
<b>Peripheral temperature</b>	Cool/cold	<b>Warm</b>
<b>Capillary refill time</b>	> 3 secs	<b>&lt; 3 secs</b>
<b>Pulse rate</b>	Rapid	<b>Normal</b>
<b>Other signs of dehydration</b>	Normal to Severe	<b>Some or Severe (5% or 10%)</b>

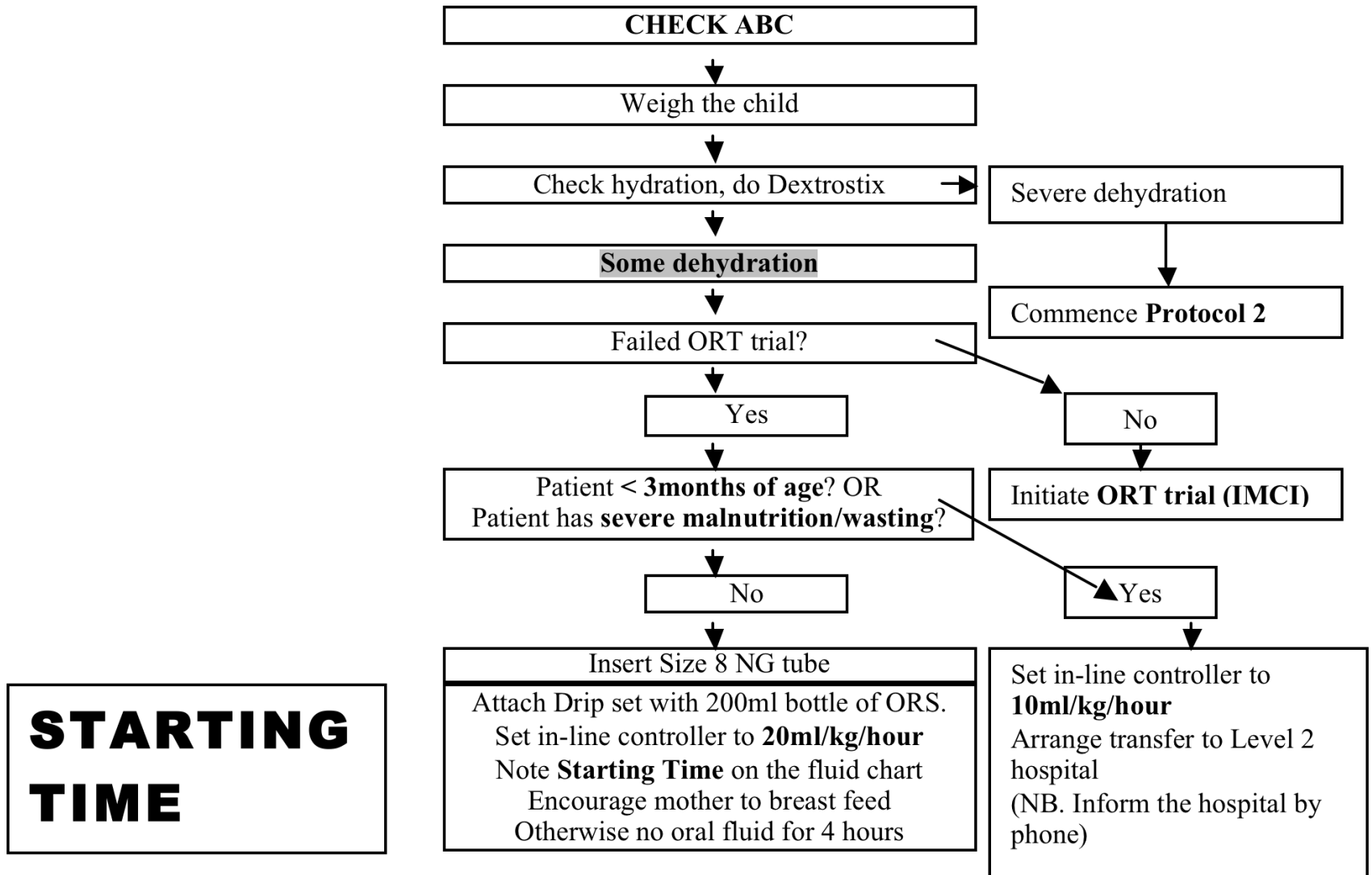
# Severe Dehydration



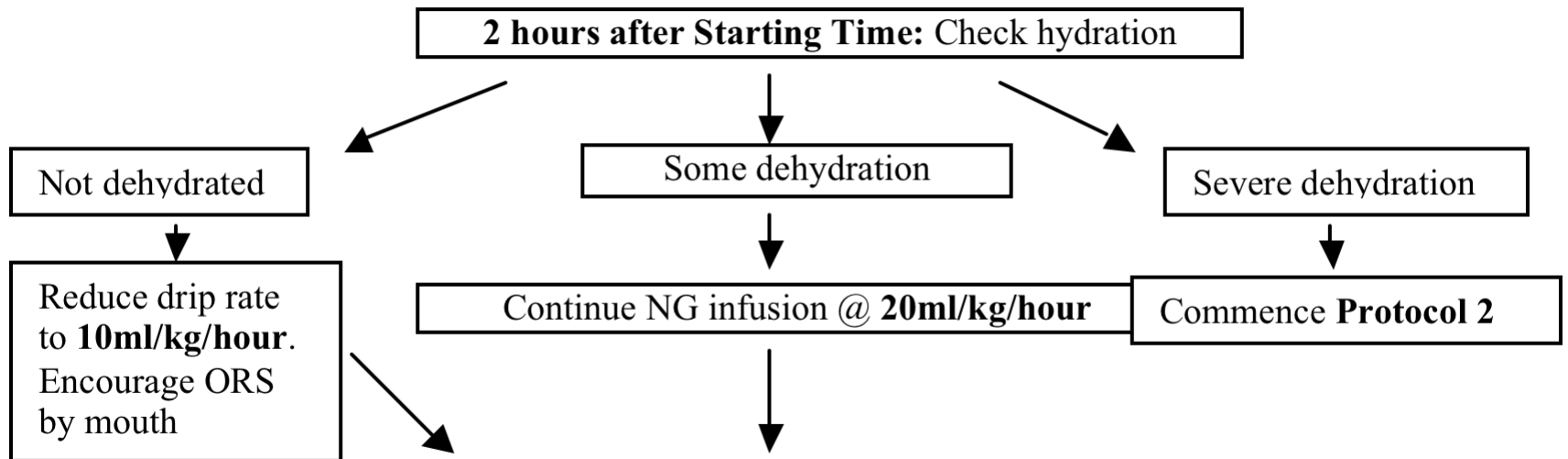
# Severe Dehydration



# Some Dehydration Protocol



# 2 hours



**4 HOURS**

**4 hours after Starting Time: Check ABC**  
Weigh the child  
Assess hydration  
Assess willingness to drink

Not dehydrated  
**AND**  
Increased weight  
**AND**  
Willing to drink

Stop drip  
Give an oral feed

Retained

Discharge with SSS; Encourage feeding, Reinforce danger signs.  
Advise to return for review the following day.

Some dehydration  
**OR**  
No increase in weight  
**OR**  
Unwilling to drink

Increase infusion to **30ml/kg/hour**  
Arrange transfer to Level 1 hospital.  
Slow this rate back to **20ml/kg/hour** if  
transfer delayed beyond 1 hour.

Vomited

Severe dehydration

Commence **Protocol 2**

**ANY QUESTIONS?**

# Severe Dehydration

- IVI / IOL (NGT if neither possible)
- $\frac{1}{2}$  DD @ 20ml/kg/hr for 4hrs
- Malnutrition 10ml/kg/hr for 8hrs
- Refer all to level 2 paediatrics for admission

# SOME dehydration

Trial of fluid:

- ORS – oral (+ breast feeds)
- 20ml/kg/hour
- 80ml/kg in 4hours

MALNUTRITION

10ml/kg/hr for 8hrs

Refer early

Failed trial:

- NGT  $\frac{1}{2}$  DD 20ml/kg/hr for 4hrs

Failed NGT

- Increase to 30ml/kg/hour
- Arrange transfer to Level 1 hospital.
- Slow this rate back to 20ml/kg/hr if transfer delayed >1hr