

Paediatric Renal Case Study

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Background

- **Current Age:** 2 years

Sex: Female

- **Diagnosis:** End stage renal disease secondary to bilateral renal dysplasia
- **Treatment:** Peritoneal dialysis (PD): 9 months until transplant at 2 y

Dietetic aims

- Meet nutritional requirements for adequate growth and achieve catch up growth whilst on PD

Renal Requirements on PD:

- **Energy:** Aim for 100% of estimated energy requirements, further adjustments to energy intake made based upon the response of rate of weight gain or loss.
- **Protein:** Aim for 100% of RNI, plus allowance for dialysis protein and amino acid losses.
- Meet Micronutrient Requirements

Fluid and electrolytes

- Patient passed urine, therefore no fluid restriction.
- Provide feed plan which ensures stable biochemistry:

Aim:

Potassium:(K) 3.5-5.3 mmol/L. Intake:1-3 mmol/kg
(KDOQI 2009)

Sodium: Sodium loser, on sodium chloride
supplements

Phosphate and Calcium

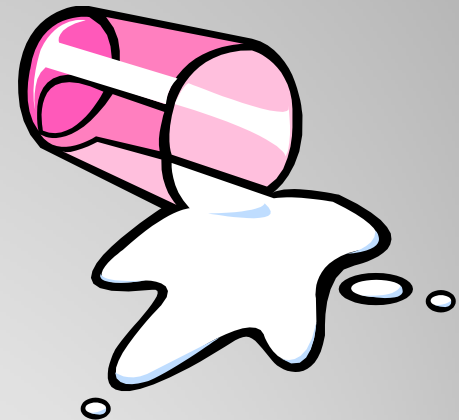
Aim for Phosphorous intake (UK)

- **Infants < 10kg:** < 400 mg/day
- **Children 10-20kg:** < 600 mg/day
- **Children 20-40kg:** < 800 mg/day
- **Children > 40kg:** < 1000 mg/day

Calcium requirements (UK-RNI)

- Up to 1 Year: 525 mg
- 1-3 years: 350 mg
- 4-6 years: 450 mg
- 7-10 years: 550 mg
- Males: 11-18 years: 1000 mg
- Females: 11-18 years: 800 mg

(Safe upper limit for older than 1 year: is 2,500 mg- KDOQI)



Dietetic Treatment

- Nasogastric tube (NGT)/Oral feeds
- Gastrosotomy Feeds
- Solids- Initially low K & PO₄ advice given, however when intake of solids decreased - no restrictions

Infant NGT Feed Plan

Day

Feed Recipe:

- 6 scoops of SMA First
- Water up to 100 ml (25.2%)

100 ml x 3 feeds = 300 ml (oral/over 1 hour)

Overnight:

Feed Recipe:

- 13 clear scoops of Renastart (21%) **or**
- 3 large blue scoops of Renastart (20%)
- Water up to 430 ml

Aim for 420 ml at 38 ml/hr (approximately 11 hours)

Total feed: 720 ml, plus solids



Nutritional breakdown

<u>Product</u>	Amount (g or ml)	Energy (kcal)	Protein (g)	Na (mmol)	K (mmol)	P (mg)	Ca (mg)
Renastart (g)	87	429	6.53	9.14	2.61	80.04	98.31
SMA First (g)	76	401	8.36	4.18	9.96	143.64	251.56
Total		831	14.89	13.32	12.57	224	349
Per kg/BW	7.7	108	1.9	1.72	1.63	29	45

Feed plan age 2 years

Day

Fortini Multifibre:

- 100 ml x 2 feeds = **200 ml** (over 1 hour)

Overnight:

Feed Recipe:

- 2 Scoops of Protifar
- 5 large blue scoops of Renastart
- **Water up to 580 ml**
- **(Concentration 26%)**

50 ml/hr x 11 hours = 550 ml

- 750 ml feed
- 250 ml Water

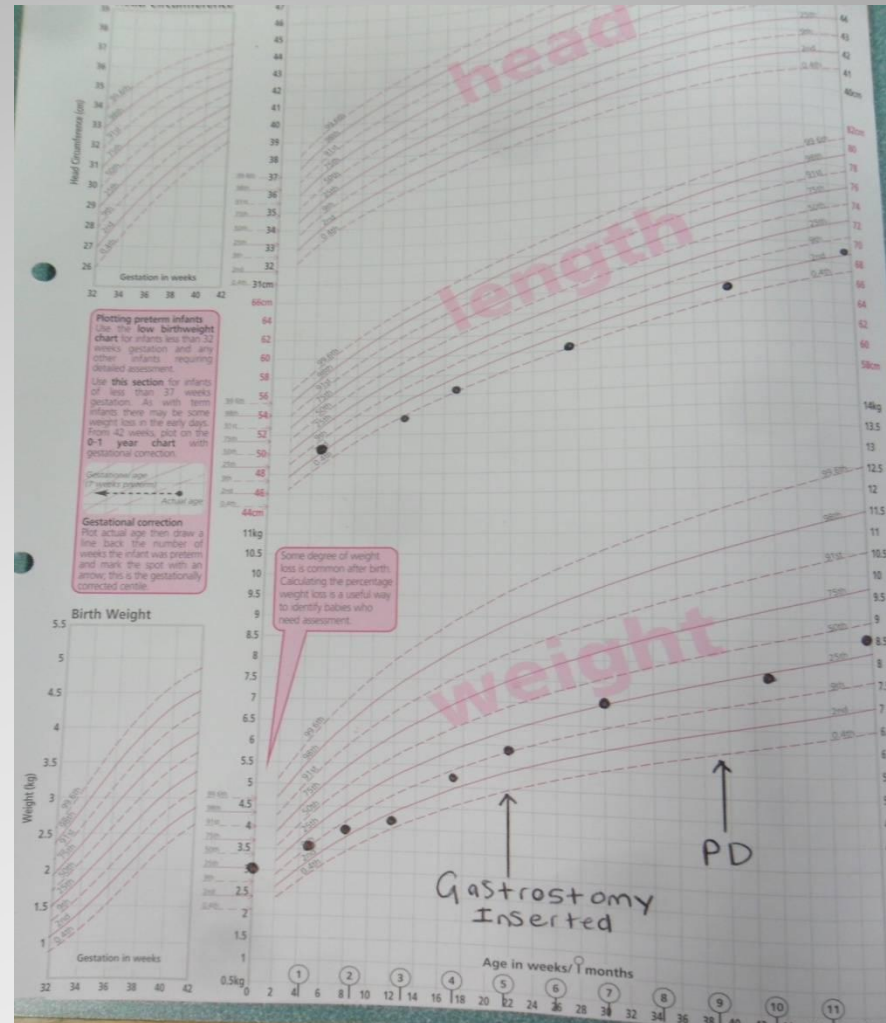
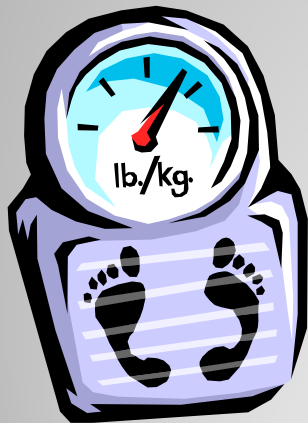
1000 ml total



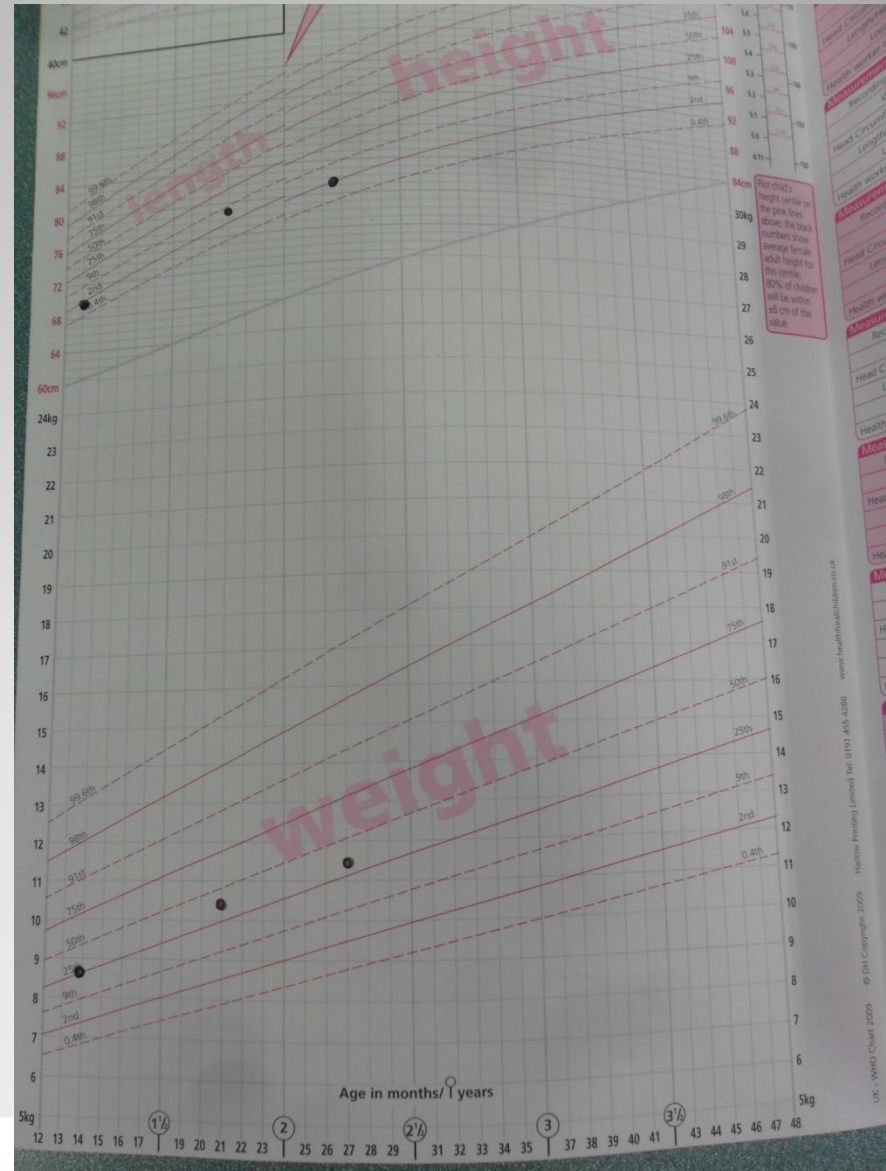
Nutritional Breakdown

Product	Amount (g or ml)	Energy (kcal)	Protein (g)	K (mmol)	P (mg)	Ca (mg)
Renastart (g)	137	676	10.28	3.97	126	154
Protifar (g)	4.5	16	3.92	0.16	31	60
Fortini MF (1.5 kcal/ml) (ml)	200	306.	6	7.20	150	168
Total	341	999	20	11.34	307	383
Per kg/BW	12	83	1.73	0.94	25	31

Growth Chart



Growth Chart



Psycho-Social impact

- Patient discussed in weekly psycho social meetings.
- Opportunity for team to share information, feedback any concerns/issues and make action plans.



- Kidney disease outcomes quality initiative (KDOQI). American Journal of Kidney disease, vol 53, No 3, supplement 2. March 2009
- Shaw, V & Lawson, M. Clinical Paediatric Dietetics. 3rd Edition. Black well Publishing 2007.

References