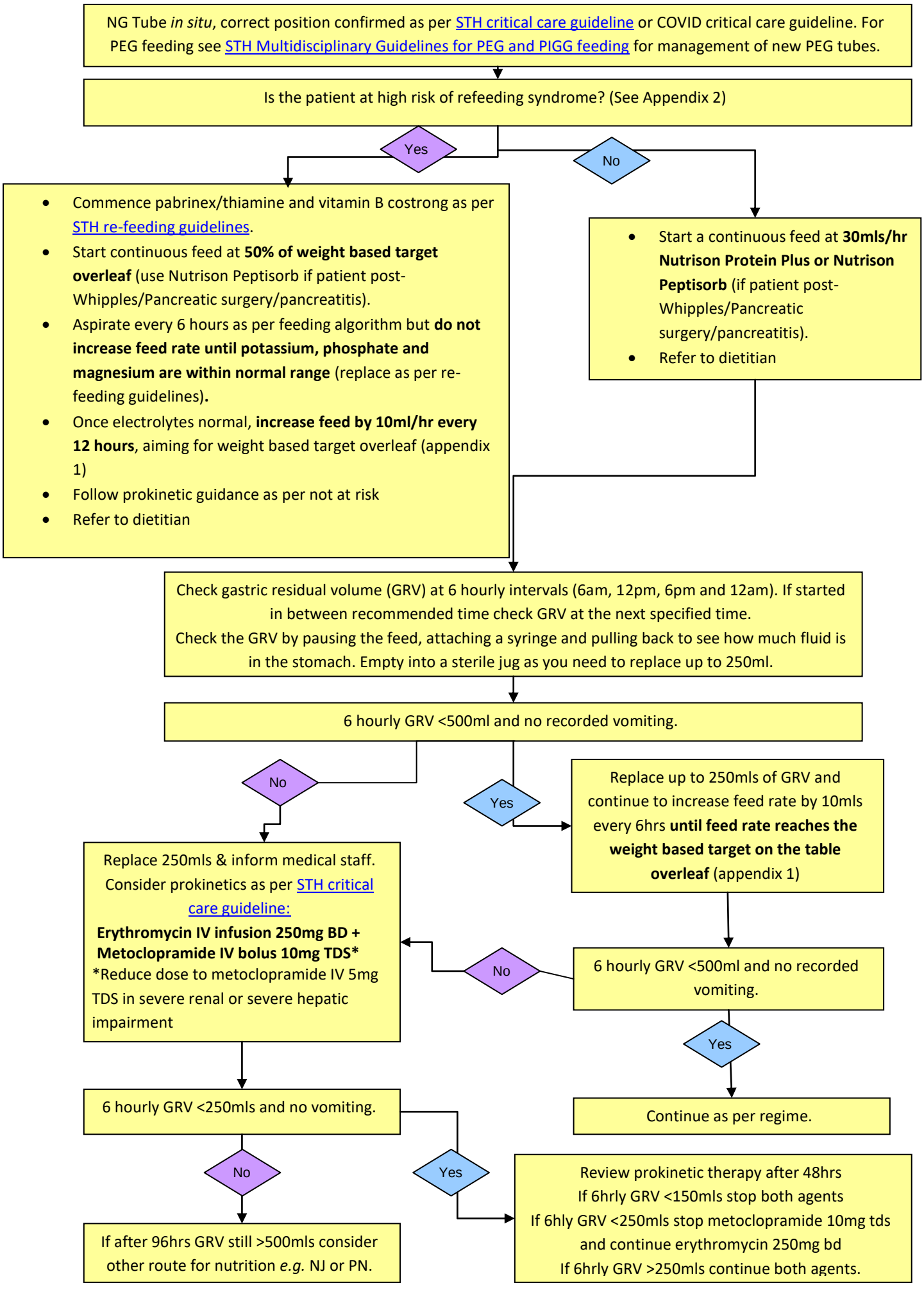
Critical Care Nasogastric (NG) and Percutaneous Endoscopic Gastrostomy (PEG) Feeding Algorithm during COVID19



Refer to dietitian on 14162 (NGH), 12617 (RHH) for further advice.

Jenny Leyland March 2020

Appendix 1: Weight based feeding protocol

On propofol	**Flush 50ml sterile H_2O every 6 hours and pre and post each Prosource TF bolus (400ml additional fluid)**				
Estimated patient weight (adjusted body weight when on Metavision, estimated/actual body weight if on paper records)	**Target feed rate (feed over 24 hours)**	Fluid (ml)	kcal	Protein (g)	CHO (g)
40-49kg	30ml/hr Nutrison Peptisorb and Prosource TF bd	810	810	51	130
50-59kg	35ml/hr Nutrison Peptisorb and Prosource TF bd	930	930	56	149
60-69kg	35ml/hr Nutrison Protein Plus and Prosource TF bd	930	1140	75	121
70-79kg	42ml/hr Nutrison Protein Plus and Prosource TF bd	1100	1340	85	144
80-89kg	50ml/hr Nutrison Protein Plus and Prosource TF bd	1290	1590	97	156
>90kg	55ml/hr Nutrison Protein Plus and Prosource TF bd	1410	1740	105	189

Off propofol	**Flush 50ml sterile H_2O every 6 hours (200ml additional fluid)**				
Estimated patient weight (adjusted body weight when on Metavision, estimated/actual body weight if on paper records)	**Target feed rate (feed over 24 hours)**	Fluid (ml)	kcal	Protein (g)	CHO (g)
40-49kg	35ml/hr Nutrison Protein Plus	840	1050	53	119
50-59kg	42ml/hr Nutrison Protein Plus	1008	1250	63	142
60-69kg	50ml/hr Nutrison Protein Plus	1200	1500	75	170
70-79kg	55ml/hr Nutrison Protein Plus	1320	1650	83	187
80-89kg	63ml/hr Nutrison Protein Plus	1512	1875	95	213
>90kg	70ml/hr Nutrison Protein Plus	1680	2100	106	239

Note: if patient has pancreatitis/pancreatic cancer/post-whipples, use Nutrison Peptisorb at the above rates and refer to the dietitian on 14162 (NGH)/ 12617 (RHH) (provides less energy and protein)**.**

For patients on variable rate insulin if feed is below 35ml/hr of Nutrison Protein Plus or 28ml/hr of Nutrison Peptisorb 10% glucose needs to be added at 50ml/hr to ensure sufficient substrate for insulin sliding scale

Prone positioning is NOT a contraindication to enteral nutrition. Prior to proning, patient's enteral feed should be temporarily stopped 1 hour prior to the turn and the nasogastric tube should be aspirated (discard any gastric residual volume). Leave the feed connected. Once the turn is complete, recommence feeding following the critical care nasogastric feeding algorithm. Reduce GRV cut off to 300ml every 6 hours (reduce to 4 hourly if continued problems with absorption)

If bolus regime is required due to a lack of feed pumps, please refer to **COVID19 bolus feeding regimen for critical care.** If bolus regimen is not available, please multiply feed rate by four and feed this amount via bolus every four hours. Eg. 35ml/hr of Nutrison Protein Plus becomes 140ml bolus of Nutrison Protein Plus every 4 hours. Start at half of proposed rate for the first day. **Note: bolus feed is not appropriate for patients on variable rate insulin.**

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Appendix 2: Determination of refeeding risk

Patients at high risk of refeeding includes those with **ONE** of the following risk factors

- BMI < 16kg/m^2
- Unintended weight loss >15% within 3-6 months
- >10/7 little/no nutritional intake
- Low potassium (<3.5mmol/l)/magnesium (<0.7mmol/l)/phosphate (<0.8mmol/l)

Or **TWO** of the following risk factors

- BMI < 18.5kg/m^2
- Unintended weight loss >10% within 3-6 months
- >5/7 little/no nutritional intake
- History of alcohol or drug abuse including insulin/antacids/diuretics or recent chemotherapy

Troubleshooting (contact dietetics for advice and begin implementing solution)

Problem	Reason	Solution
Persistently raised $PaCO_2$ (>6kPa), blood glucose (>11mmol/l), Triglyceride (>2.2mmol/l) or increasing insulin requirements	Could indicate overfeeding. Propofol dose may have been increased or IV glucose commenced.	Contact dietitian for individualised plan if possible. If no dietitian available: for every 5ml/hr increase in propofol above 15ml/hr, reduce feed by 5ml/hr and add in 1 x Prosource TF to a maximum of 4 sachets daily.
Diarrhoea (if high output stoma >1500ml please refer to trust guidance)	Medications, GI infection eg. C.diff, feed intolerance	Send stool sample. If negative: 1. Alternate 1000ml bags of Nutrison Protein Plus and Protein Plus Multifibre at the target rate – revert to previous plan after 2 days if symptoms worsen 2. Consider Loperamide – discuss with doctors
Constipation	Gut immotility due to sedation	1. Follow critical care guidelines for constipation 2. Ensure sufficient fluid intake 3. If no improvement, alternate 1000ml bags of Nutrison Protein Plus and Protein Plus Multifibre at the target rate – revert to previous plan after 2 days if symptoms worsen
Raised sodium (>150mmol/l)	Could indicate dehydration or excess sodium input	1. Discuss with pharmacy – are all sodium containing medications required? 2. Discuss with doctors – can water flushes be increased? Consider an additional 50ml every hour (300ml/6 hours) or use Nutricia gravity giving set to deliver water at 50ml/hr. 3. If these steps do not improve sodium levels, **change to low sodium feed and multiply the target rate by 1.25** (eg 42ml/hr becomes 53ml/hr) **and add in 2 x Prosource TF.**
AKI but not on CRRT leading to increased potassium or fluid restriction required	If CRRT is not possible but AKI means potassium levels are raised or fluid restriction is required	1. Discuss with doctors – do they want feed changing to lower volume and electrolyte option? If yes: **change to Nutrison Concentrated and divide target rate by 1.6** (eg 42ml/hr becomes 26ml/hr) **and add in 2 x Prosource TF.**
Overnight feed required	Patient has started to eat and drink	1. Stop feed at 6am for 12 hours 2. Feed at previously tolerated rate over 12 hours (6pm-6am) 3. Prescribe Fortisip Compact Protein bd
NG tube out and patient able to eat and drink	Tube dislodged	1. Ask doctors to prescribe Fortisip Compact Protein tds

Refer to dietitian on 14162 (NGH), 12617 (RHH) for further advice. Jenny Leyland March 2020