Nutritional management in pancreatic cancer, pre- and post-surgery, enteral feeding and stents

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Overview

- Nutritional management during chemotherapy
- Nutritional management pre-surgery
- Surgery for pancreatic cancer
- Nutritional management post-surgery
- Tube feeding
- Duodenal stents

Nutritional management - chemotherapy

- Significant GI symptoms – abdo pain, nausea, vomiting, anorexia, early satiety, altered bowels
- Weight loss negatively affects treatment – QoL, tolerance of treatment & overall survival (OS), (Fearon et al. 2012, Bachmann et al. 2008)
- Wt stabalisation in un-resectable disease is associated with improved survival &↑QoL (Davidson et al. 2014)
- Patients with ≥5% wt loss at week 4 of palliative chemotherapy have a shorter OS regardless of response to treatment (Carnie et al. 2019)
- Patients undergoing triplet (Flofirinox) palliative chemotherapy are at higher nutritional risk and more likely to develop ≥5% wt loss at week 4 (Carnie et al. 2019)
- Standard nutritional screening tools may not generate dietitian referral for this weight loss

Nutritional management - chemotherapy

- Early nutritional assessment and dietitian involvement – ideally
- Timely and effective PERT dosing, monitoring and adjustment
- Aim to meet energy (25-30kcal/kg/day) and protein (1.5g/kg/day) requirements
- Weight maintenance or gain and improvement of functional measures (GS, TUG) are possible during neoadjuvant therapy (Griffin, 2020)

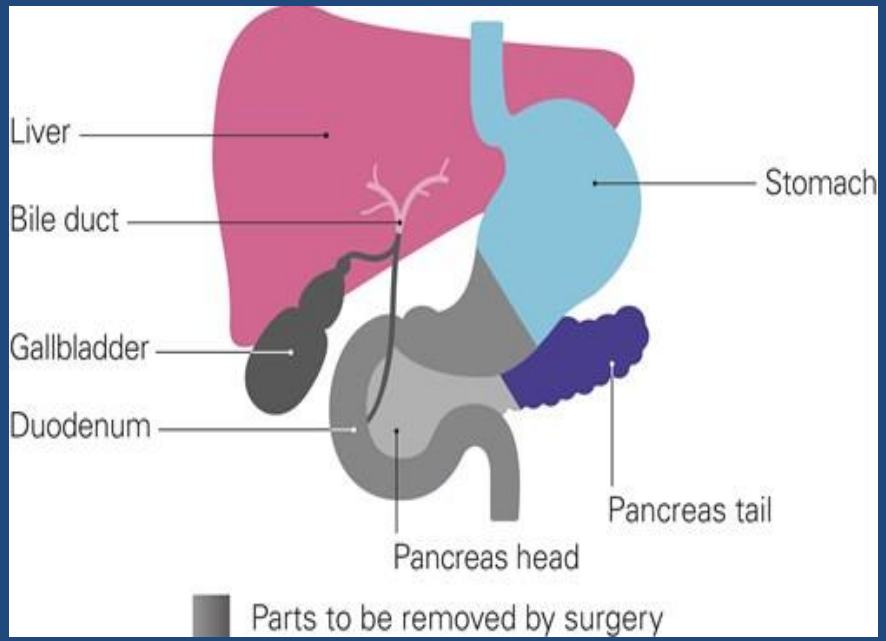
Nutritional management - pre surgery

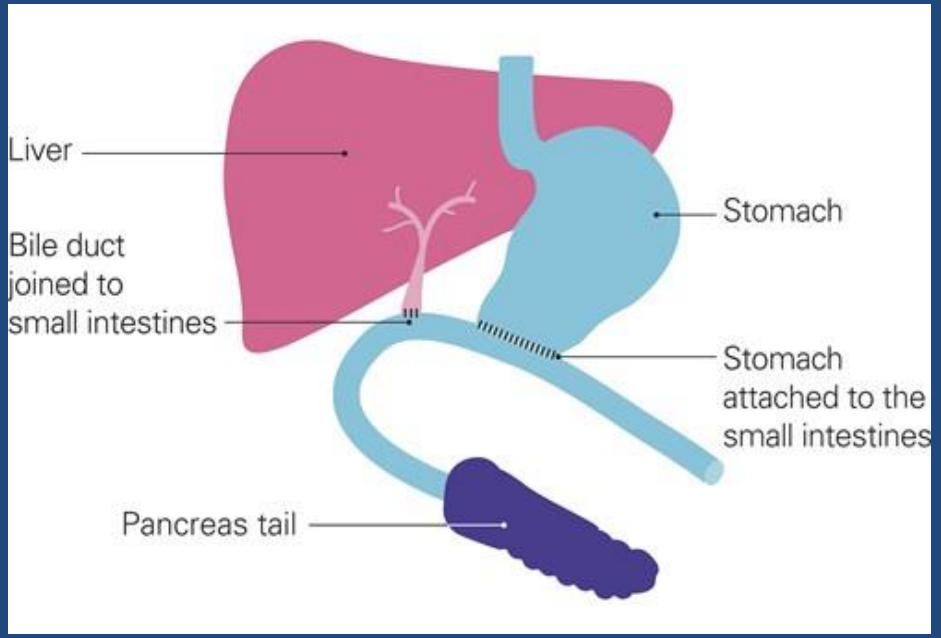
- Prehab/ERAS – aim to optimise nutrition and function before surgery
- Typically include ;
- Comprehensive nutritional assessment – weight loss, BMI, anthropometry, intake, GI symptoms
- Functional tests – Grip strength, timed up and go, 30 second sit to stand
- Early nutritional intervention – HP/HC, ONS, tube feeding & PERT if indicated
- Provide education – patients better prepared mentally
- Can improve outcomes – LOS

Surgery for pancreatic cancer

- Type of surgery will depend on location of cancer (head, body or tail)
- Head – Whipple or modified Whipple (PPPD)
- Body or tail – distal pancreatectomy
- Large mass – total pancreatectomy
- Un-resectable but gastric outlet obstruction – Palliative gastrojejunostomy

Surgery - Whipple

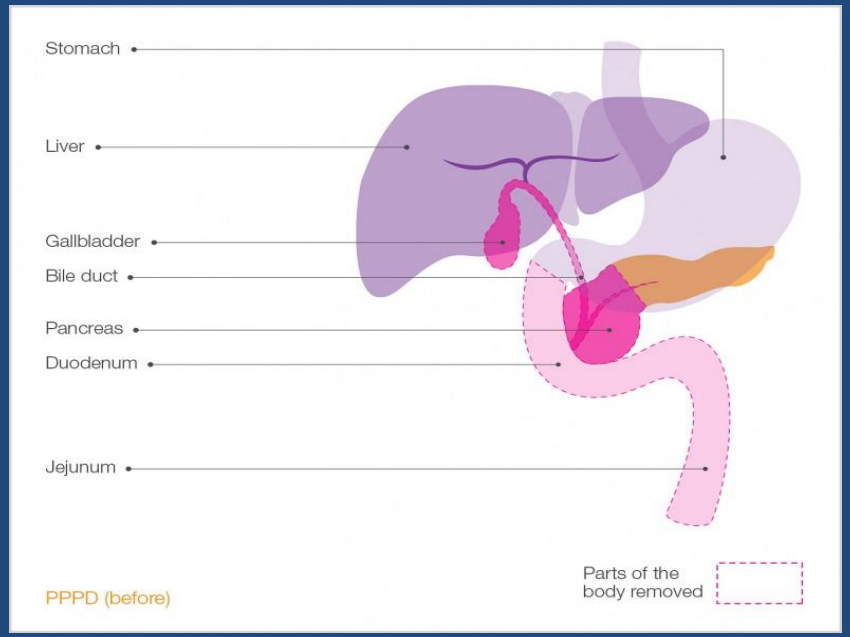


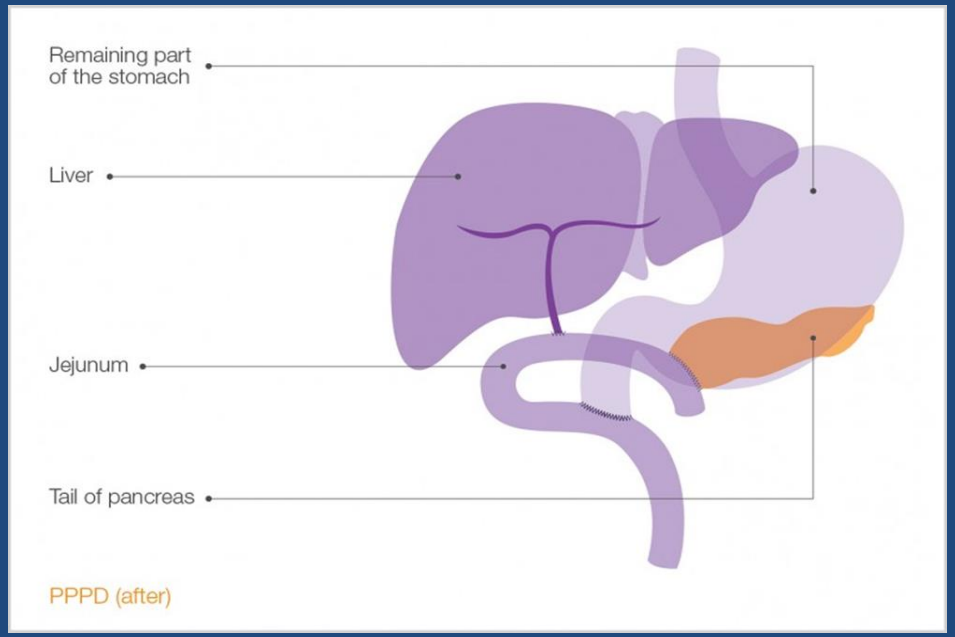


Freeman 2019 – 66/115 (57%) pancreatic resections

(PCUK 2020)

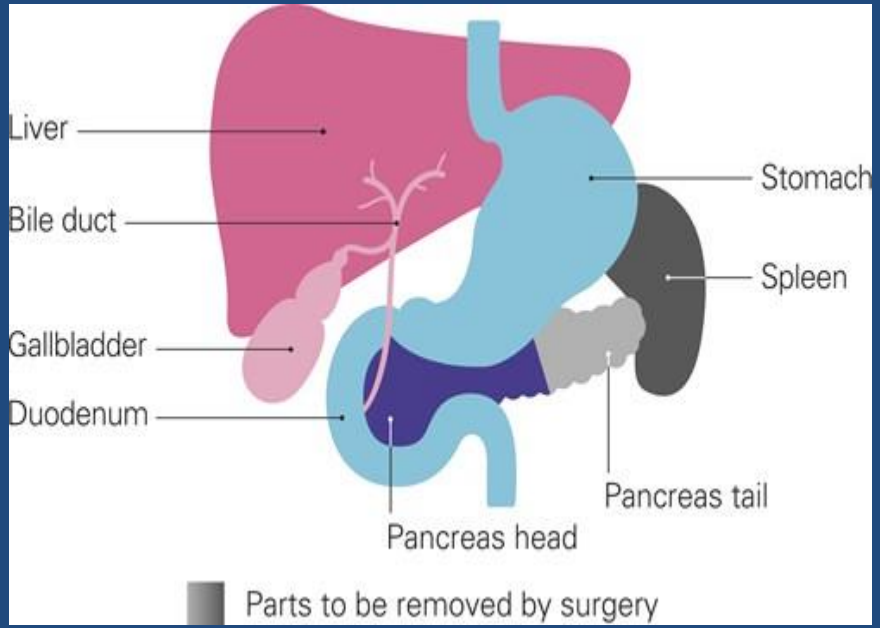
Surgery – Modified Whipple or pylorus preserving pancreaticoduodectomy (PPPD)

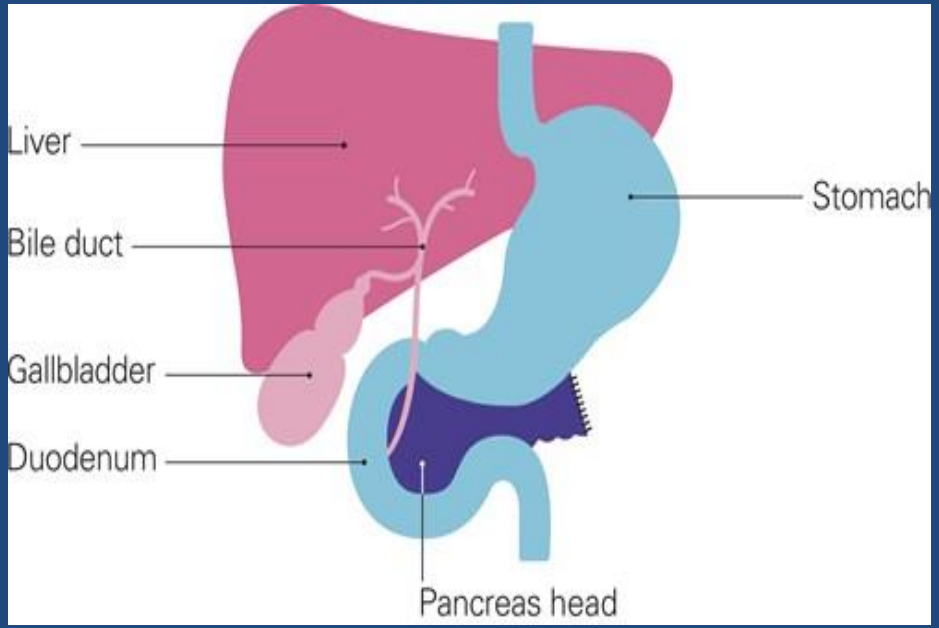




(PCUK 2018)

Surgery – Distal pancreatectomy

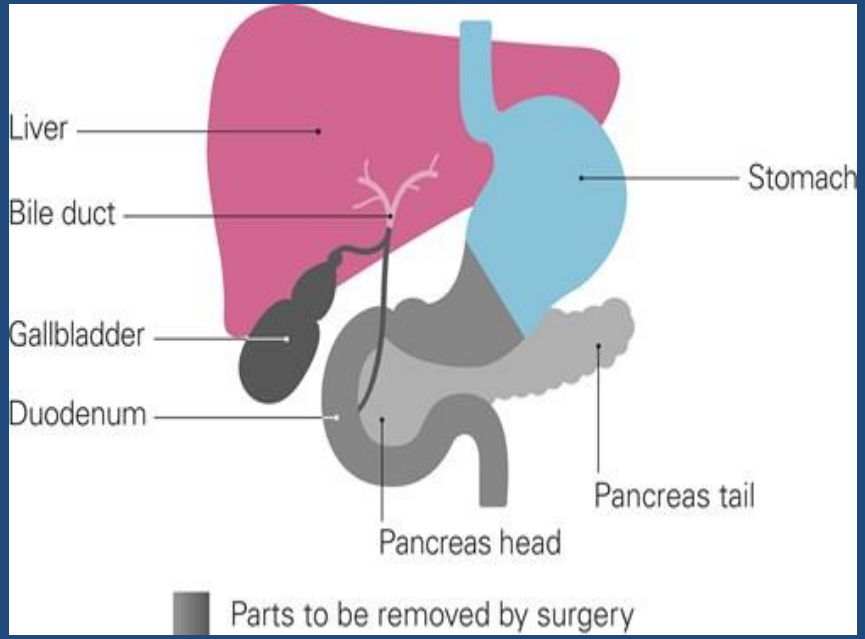


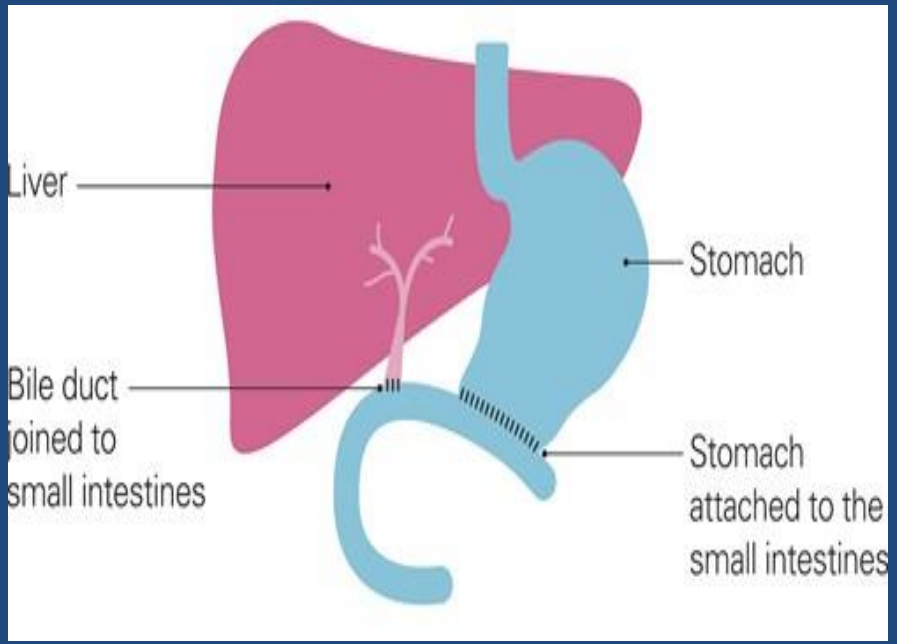


Freeman 2019 – 33/115 (29%) pancreatic resections

(PCUK 2020)

Surgery – total pancreatectomy

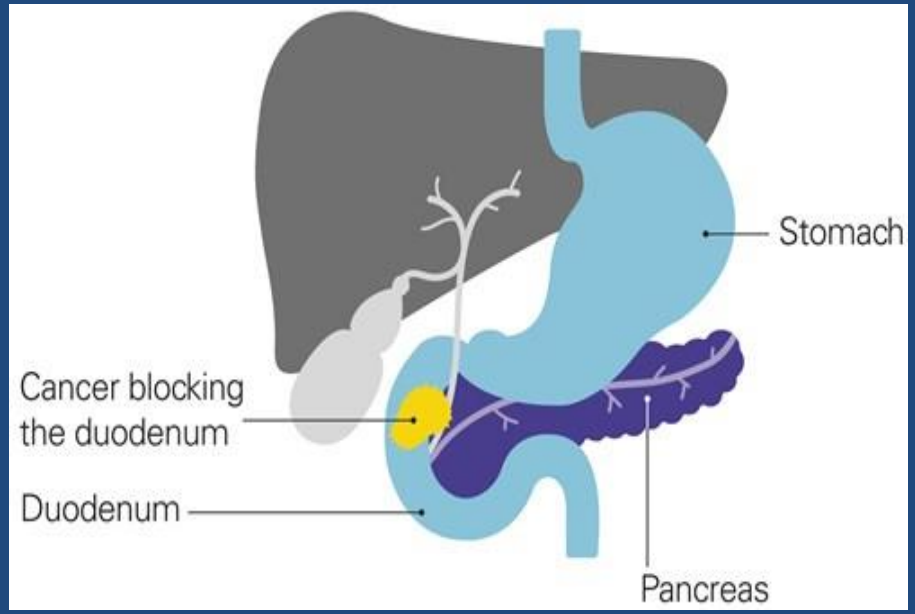


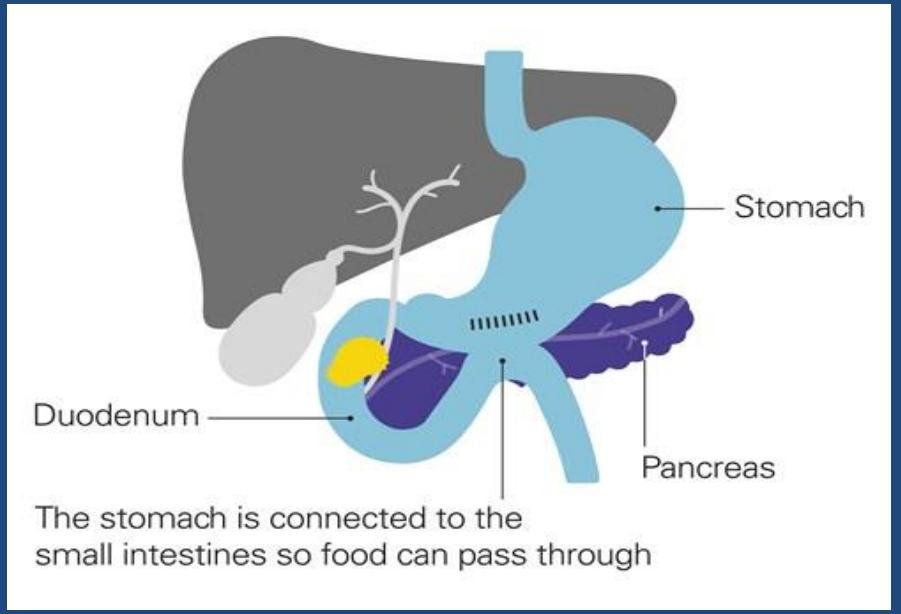


Freeman 2019 – 16/115 (14%) pancreatic resections

(PCUK 2020)

Surgery – Palliative gastrojejunostomy





(PCUK 2020)

Nutritional management - post surgery

- Some centres have ERAS pathway
- Normally intraoperatively inserted NG (drainage) & NJ (feeding)
- Day 1 – NJ feed 25ml/hr x 24hrs PHN, soft diet, 2 Fortisip Compact Protein & PERT (75K meals 50K snacks and ONS)
- Day 3 – NJ feed 50ml/hr x 24hrs PHN, normal diet, 3 Fortisip Compact Protein & PERT (75K meals 50K snacks and ONS)
- Day 5 – Tube out if >50% meals and ONS
- Aim home day 7-10

Common post op complications

- **Pancreatic leak - 20% Freeman 2019**
- Leak of pancreatic juices from pancreatic – jej anastomosis
- Identification – High drain amylase
- Treatment – Freeman, Octreotide, NBM & PN ~ 7-10 days. Reduces severity of complication (Thakkar, et al. 2019)

- **Chyle leak - 6% Freeman 2019**
- More common with surgeons who do extensive lymph node dissection
- Identification – Chylous appearance of drain fluid & presence of triglycerides
- Treatment – Very low fat diet (low volume) or TPN & NBM (high volume or not resolving)

- **Delayed gastric emptying – 5% Freeman 2019**
- Gastric – jej anastomosis not working
- Identification – Significant and un-resolving vomiting/high NG output
- More common in palliative bypass – tumour often encasing nerves
- Treatment – Ongoing NJ feeding, NBM, TPN if no NJ (may not resolve)

Tube feeding

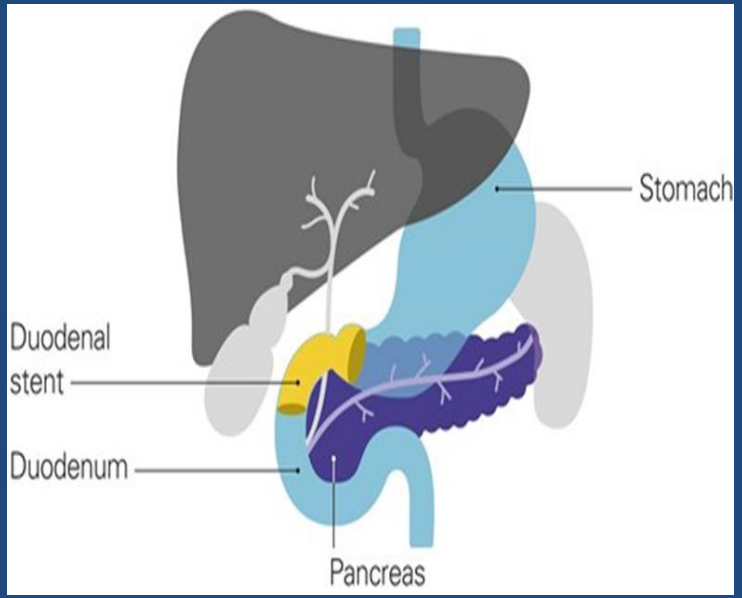
- Tube feeding may be required during all modalities and stages of treatment
- Peptide feeds as first line
- Monitor for signs of malabsorption
- Make sure no obvious causes for loose stools e.g. laxatives, infective cause, antibiotics etc.
- PERT may be indicated – Pancreatin powder
- How?
- Not enough evidence to make recommendations on best method
- Options
  - Regular flushes – every 2-4 hours
  - Mixed with feed – every 6 hours

Weight (g)	Measure (ml)	Lipase (PhEur units)
1	1.25	25,000
2	2.5	50,000
3	3.75	75,000
4	5	100,000
5	6.25	125,000
6	7.5	150,000

Tube feeding

- Mixing enzymes with feed – our experiences
- Well tolerated, no adverse events, nurses happy with process, important to engage with pharmacy – off licence
- Add prescribed enzymes to volume of feed required for 6 hours
- Work with clinical biochemist
- Enzymes are mixed evenly in feed
- Enzymes are still active when delivered into digestive system
- There is no adverse effect on CHO, fat or protein content of feed
- There will be no effect of this process on vitamins/trace elements
- **The process works – now included in Trust PERT guideline**

Duodenal stents



(PCUK 2020)

- Relief of duodenal obstruction
- Take up to 3 days to expand fully
- Soft moist diet – build up as tolerated
- Little and often HP/HC & ONS
- May need pro-kinetics – metoclopramide/erythromycin
- Avoid bread – absorbs fluid and expands
- May get problems with – hard foods, stodgy foods, stringy veg and pith/skins

Take home messages

- Poor nutrition can negatively impact all modalities of cancer treatment
- Early nutritional assessment and intervention important to ameliorate poor nutrition
- Prehab and ERAS are able to improve nutritional markers pre surgery and improve recover post surgery
- Pancreatic surgery has significant nutritional implications that require life long management
- Tube feeding may be required at all stages of treatment – peptide feed, consider PERT

Thank you