



Optimising the pathway for pancreatic cancer care

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I. Introduction

Pancreatic cancer is the least survivable and quickest killing common cancer that continues to be challenging to treat. When survival for other common cancers increases, pancreatic cancer is expected to become the fourth-leading cause of cancer death in the UK by 2035 and the second in the United States by 2030. Given the high mortality of pancreatic cancer, there is an increasing need for innovation in care services for pancreatic cancer patients with the aims of maximising length of life, quality of life, and symptom control.

This paper explores the different aspects of care that should be included in an optimal pathway for pancreatic cancer– what innovation currently exists and where, and what more needs to be done.

An **optimal pathway** should cover the whole spectrum of care - **from presentation of symptoms to diagnosis and access to best treatment and supportive care** for those living with and beyond pancreatic cancer. A holistic approach to ensure that patients are **diagnosed quickly**, receive the **best treatment** and access **supportive care to**

manage symptoms and psychological support straight from diagnosis. We want to see an optimal pathway where prehabilitation is a standard of care for pancreatic cancer. Most importantly we want to ensure that patients with pancreatic cancer receive the best treatment and supportive care possible by clinical staff who are specialists in pancreatic cancer regardless of where they live in the UK.

This paper brings together all innovative practice we are aware of that is happening for the care of pancreatic cancer that could be potentially adopted everywhere in the UK. In addition, it highlights areas of unmet need that require new initiatives and new interventions and developments for the care of pancreatic cancer. All collectively forming the optimal care pathway for people who are diagnosed, living with and beyond pancreatic cancer that can be eventually implemented across the UK. This is essential to transform care for pancreatic cancer now and in the future and standardise care across the country.

We used a plethora of resources to collect and analyse the existing evidence such as meetings with key health policy makers and clinical specialists. We also did desk-based research of peer-reviewed academic medical publications and cancer policy papers published by influential bodies such as NICE, NHS England, equivalent bodies in the devolved UK countries and the cancer charity sector (e.g. the [NICE guidance for pancreatic cancer](#), [the Scottish Hepato Pancreatic Biliary Network Audit](#), [NHS long term plan](#), [Macmillan prehabilitation guidance](#)).

We are aware that the case studies presented do not exhaustively cover all aspects of care included in the pancreatic cancer pathway and in no case do we believe that these are the sole solution for the best delivery of the aspect of care they relate to. Moreover, this report at this stage does not outline how to design the pathway (e.g. additional workforce, referral pathway development etc). We welcome any feedback on the practices presented below and we would be grateful if you get back to us to discuss improvements, new developments and interventions you are aware of or you

are currently working on in your area that we could include in this paper and also showcase in our [Promoting Innovative Practice](#) programme of work.

We are keen on working together to build consensus on what the optimal care pathway for pancreatic cancer should look like and set priorities on what needs to be done to make it happen.

II. Context

We very often hear through our Support Line and through discussions with clinical pancreatic cancer specialists that there is not consistency on how care is delivered across the UK. For example, while building the evidence for the case for [Demand Faster Treatment](#), we often heard from healthcare professionals about **avoidable delays happening between the initial scan (diagnosis) and decision to treatment for both operable and inoperable patients with pancreatic cancer**. Very often time is wasted due to inconclusive and outdated clinical tests or because overall it takes too long to do CT scans, fitness tests and biopsies and this is because of lack of coordination between clinical specialists and different hospitals as well as because of lack of standardised clinical pathways, workforce and resources.

In support of this, a study in Birmingham revealed that delays and inefficiencies exist across different stages in the surgical pancreatic cancer pathway. A comparison between patients who had early surgery within 21 days on average and patients who had surgery within 112 days on average from first diagnostic test (CT scan) demonstrated that **patients who had surgery within 112 days** on average

- a)** experienced diagnostic delays as patients required 2.3 times as many investigations compared to early surgery patients
- b)** were stented before surgery unnecessarily
- c)** had more unplanned hospital admissions
- d)** had more associated length of stay per patient
- e)** cost more to the NHS
- f)** were more likely for these patients not to receive surgery after all

Development of an optimal pathway covering all aspects of care from symptom presentation to diagnosis, treatment and supportive care is needed to improve delivery of pancreatic cancer care.

III. Scoping the optimal pathway for pancreatic cancer – an outline

Symptom presentation

1. If patients present with non-specific symptoms (e.g. weight loss and lack of appetite) and the GP cannot refer through any existing referral routes – then the GP should refer to **Rapid Diagnostic Centres (RDCs)** where further clinical tests, including a CT scan can take place.
2. If patients present with jaundice then the GP refers them to a **Hepato-Pancreatic Biliary (HPB) CNS-led rapid access jaundice clinic** where they can have direct access to a CT scan

Diagnosis

3. If **suspected pancreatic cancer**, RDC/jaundice team **communicates with** specialist HPB centre and seeks advice on **further diagnostic tests** to happen on the same day
4. At the same time, patient **is referred to HPB specialist centre**
5. Specialist **HPB team reviews** patient, **confirms** diagnosis and **considers treatment** options and additional tests needed before decision to treat. **Surgical** and **oncology** specialists share treatment decision making
6. In parallel, patient has **access to an HPB CNS and holistic needs assessment** to address supportive care needs (symptom management, physical, nutritional and psychological)

Treatment

- 7.** Patient seen in **RDC and/or one stop clinic** for further clinical tests – fitness, EUS, PET-CT, biopsy as recommended by the NICE Guidelines for pancreatic cancer – all coordinated by an HPB CNS
- 8.** Patient **test reports** are reviewed by specialist HPB multidisciplinary team (HPB) and best treatment option agreed between surgeons and oncologist specialists, including to consider participation in the most appropriate clinical trial (e.g. **Precision Panc , an adaptive clinical trial, clinical trials available across the UK**)
- 9. Operable:** Patient seen by consultant **surgeon** (HPB centre) and **discuss treatment and care plan**
Inoperable: Patient seen by consultant **oncologist** in a dedicated pancreatic cancer clinic for inoperable pancreatic cancer
- 10.** If **operable** and **fit** patient proceeds to surgery - and without endoscopic stenting in the case of jaundice - followed by **enhanced recovery** and referral to oncologist for **adjuvant chemotherapy**. **Managed by specialist HPB surgical and oncological team**. Consider **neo-adjuvant** approach into **a clinical trial** setting as recommended in NICE guidelines.
- 11.** If **borderline operable** and high risk for a positive margin, then consider **neo-adjuvant treatment** in a clinical trial setting as recommended in NICE guidelines.
- 12.** If patient has **inoperable** cancer and **fit**, then **PET-CT and biopsy** need to be performed and reviewed by pancreatic cancer **oncologist** specialist (**one stop clinics or RDC**) and start **chemotherapy** or enter a **clinical trial**. **Managed in a dedicated clinic for inoperable pancreatic cancer**
- 13.** Patient **unfit** to tolerate treatment – put on **prehabilitation** and review
- 14.** Patient with **advanced for treatment pancreatic cancer** should be **managed in a dedicated clinic for inoperable pancreatic cancer** to ensure that these patients can maintain the best quality of life possible.
- 15.** Patients should be provided with **the right information** they need to fully **participate in treatment decision making**. This will ensure that patients **make an informed choice** on their care and treatment. It is likely that some patients will decline treatment in favour of better quality of life.

Supportive care pathway

- 16.** Holistic needs assessments are undertaken and quality of life is measured straight from diagnosis and throughout - all coordinated by specialist CNS/patient navigators – consistent with the personalised cancer care plan
- 17.** Patient enters a personalised prehabilitation programme where they receive support for symptom management (e.g. pain and fatigue) as well as physical, nutritional and psychological support by a clinical specialist (eg physiotherapist, dietitian and psychologist) to ensure best quality of life. This approach should be considered for all patients regardless whether they receive treatment or not.
- 18.** Access to Pancreatic Enzyme Replacement Therapy or PERT to manage malnutrition symptoms, increase chance to access and tolerate treatment and improve quality of life straight from diagnosis
- 19.** Enhanced recovery after pancreatic surgery (ERAS) to ensure that everyone having surgery recovers well, is able to tolerate post-surgery treatment (e.g. adjuvant chemotherapy) and has best chance to live long and well

IV. Case studies of innovative practice and areas of unmet need

Diagnostic pathway for pancreatic cancer

Over 50% of people with pancreatic cancer diagnosed at stage 3 and stage 4, therefore very few receive treatment. Only 1 in 10 patients receive life-saving surgery and only 2 in 10 receive life-extending chemotherapy. More people need to be diagnosed with pancreatic cancer earlier to give them the chance to receive better and faster treatment to survive the disease or survive longer and live well.

The rapid access jaundice clinic.

Many patients develop sudden-onset, painless jaundice before they receive a diagnosis of a tumour in the head of the pancreas. Anyone presenting with jaundice of this type needs urgent assessment and imaging (CT scan) to rule out cancer. It is imperative therefore, that these patients are streamed into the system for suspected pancreatic cancer and can access a CT scan within 48 hours rather than being put onto the 2-week wait referral pathway, so that the chance to undergo treatment such as potentially curative surgery is higher. A clinical nurse HPB specialist, Vicki Stevenson-Hornby, working in the gastroenterology department of the Royal Albert Edward Infirmary in Wigan has designed and implemented a rapid diagnostic pathway using jaundice as a marker of potential pancreatic cancer. This **rapid-access jaundice pathway** has been operational since March 2017 and the number of patients referred for surgery has increased. Since the rapid-access jaundice pathway was implemented, **twice as many patients diagnosed with HPB malignancy** at the Royal Albert Edward Infirmary have been eligible for surgery than before. Of the 28 patients with a malignancy of HPB origin, 15 were confirmed as having pancreatic cancer and 7 had surgery, whereas the rest were referred to specialist oncology/palliative clinics. All patients received holistic physical and psychological support as well. More details of the pathway can be found [here](#).

This clinic managed by a specialist HPB CNS provides an ideal referral route for patients with jaundice to receive a timely diagnosis for pancreatic cancer. The pathway ensures that all patients are reviewed by the specialist HPB team and referred to specialists for either surgery or palliative oncology and care. In addition, the HPB CNS discusses the holistic physical and psychological support the patient needs. It is essential that the pathway is evaluated further to address the impact that it has not only for patients receiving surgery but also for those with inoperable cancer.

Rapid Diagnostic Centres (RDCs). RDCs enable people with **vague symptoms** to have **a range of tests in one place** rather than repeatedly visiting their GP. These centres and have shown promising results for pancreatic cancer. **Pancreatic cancer** is **the second most common cancer to be diagnosed** in RDCs, and it is a promising model to shift to earlier stage diagnosis and reduce emergency presentation for the disease which currently stands at 44%. We believe that RDCs, similar to the model of the rapid access jaundice clinic, can serve as one of the official referral routes for patients with non-specific/vague symptoms (e.g. weight loss, upper back pain). It is essential that RDCs have the workforce and infrastructure needed to offer all the necessary diagnostics for pancreatic cancer as recommended in NICE Guidelines. Find out more on the [pilot RDC](#) project led by Cancer Research UK.

As part of the NHS long term plan in England, all Cancer Alliances have transformation funding to roll out at least one RDC in their area. This is a promising referral route to diagnose pancreatic cancer. Integrating a rapid access jaundice clinic as described above in the RDC setting would be a unique opportunity and should be considered by specialist HPB teams and their Cancer Alliances. The role of an HPB CNS to coordinate and support patients with suspected pancreatic cancer to ensure that they are reviewed and referred to pancreatic cancer specialists for their care and treatment is key.

One stop clinics. Once a cancer diagnosis is confirmed, the patient will need to have further diagnostic tests to accurately stage the cancer and conduct clinical assessments (e.g. fitness, cardiovascular test) to define treatment options. We believe that one stop clinics will be beneficial for patients with pancreatic cancer as it is a disease with complex symptoms, diagnosed late and there is no time to waste in initiating treatment as has been demonstrated in our case for [Demand Faster Treatment](#). We know that the specialist centre at the Royal Free London has implemented a successful model of a one stop clinic for pancreatic cancer with the aim that patients are **treated within 24 days from initial CT scan**. This has a clear benefit in experience and treatment initiation times for these patients. You can find out more here.

One stop clinics have shown a clear benefit in timely diagnosis and initiation of treatment for upper gastrointestinal (UGI) cancers in the UK and pancreatic cancer one stop clinics have shown positive outcomes in the USA. Development of one stop clinic models to serve timely diagnosis could significantly reduce delays in treatment decisions and initiation of treatment for pancreatic cancer patients.

PET-CT scan. Surgery to remove the cancer is the only potential cure, however this is not possible if, as in the large majority of cases, the cancer has already spread at the time of diagnosis or is inoperable. Therefore, **it is vital that the stage of the disease is accurately determined**, so patients do not undergo complex surgery, with associated side effects, that will not benefit them. A team at the University of Liverpool addressed this through a clinical trial in which 550 patients with suspected pancreatic cancer who underwent a standard diagnostic workup were recruited from 18 centres across the UK. Eligible patients also underwent a more specialist scan, **PET-CT within two weeks**. The clinical trial demonstrated that PET-CT scan provides more accurate diagnosis and can better determine the stage of cancer, avoiding

unnecessary surgery. PET-CT corrected the staging in patients with pancreatic cancer, influenced management in 45% of patients and prevented futile resection in 20% of patients due to have surgery.

The analysis also showed using PET-CT would be cost-effective for the NHS. These results could have a significant impact on the diagnosis and management of pancreatic cancer by improving the staging and management of the disease. Ensuring that patients are not subjected to unnecessary surgery and giving them earlier access to chemotherapy. This trial is the first of its kind to examine the diagnosis of pancreatic cancer with PET-CT scan and its findings have informed the latest NICE guidelines on the diagnosis and management of pancreatic cancer. The clinical trial has been published to a peer reviewed academic journal and more information can be found [here](#).

Despite the proven benefits of PET-CT scan, currently not all patients have access to a PET-CT scan in the UK often due to lack of infrastructure and capacity or because there is not a local clinical protocol and guidance. Design of an intervention/clinical pathway to enable timely access to PET-CT for everyone with pancreatic cancer should be considered as part of the one stop clinic or RDC models discussed above.

Treatment pathway of pancreatic cancer

Fast-track surgery. Birmingham (led by Keith Roberts, Consultant HPB surgeon, University Hospitals Birmingham) developed a model of fast-track surgery for jaundiced patients with pancreatic cancer. **The basis of the pathway is that eligible patients with jaundice proceed to surgery instead of endoscopic stenting to treat jaundice**, a procedure that often causes delays, medical complications and can also preclude surgery.

This pathway

- a) **reduced time** to surgery from diagnosis from **2 months to 16 days**
- b) As a result, **an additional 20% of patients had surgery**, the only potential cure for pancreatic cancer
- c) This model has also a **cost-saving benefit**

The model of fast-track surgery supports the successful implementation of NICE Guidelines and the NICE Quality Standard for pancreatic cancer. It also won the [NICE shared learning award 2019](#). However, we know from our communications with clinical specialists that despite the clear benefits to patients, it is challenging to implement the pathway at present due to the lack of a referral guideline for this route and a lack of workforce and capacity. This includes theatre space, beds, and HPB CNS and patient navigators to actively coordinate the pathway, support patients, book clinical tests, chase results and facilitate communication and paperwork across different professionals - all of which is needed for fast tracking. Therefore patients with jaundice often end up receiving endoscopic stenting unnecessarily instead of going straight to surgery. Find out more about the pathway in our Promoting Innovative Practice [showcase](#) and our Demand Faster Treatment [policy report](#).

Fast-track surgery for eligible patients with pancreatic cancer should be an option everywhere in the country. Development of interventions to ensure that patients can access CT scans and considered for surgery before endoscopic stenting is key. The role of an HPB CNS to ensure that such a route is explored in jaundiced patients through a jaundice rapid access clinic or the RDC model could be considered. Further exploration and development of a guideline for patient selection criteria suitable for fast-track surgery is also essential to maximise the benefits of surgery to those patients e.g negative resection margins, being well enough to receive post-surgery treatment, survive the disease and maintain a good quality of life.

Neo-adjuvant treatment for borderline localised operable patients.

Prognosis for patients undergoing surgery is highly dependent on margin status, with the best outcomes seen in patients with total gross excision and histologically negative margins. There is emerging evidence to support the role of neo-adjuvant chemotherapy to downstage the tumour and allow surgery in a subgroup of patients with borderline operable pancreatic cancer, previously considered poor candidates for surgery. An initial study led by Dr Derek Grose, Consultant Clinical Oncologist and his team at the Beatson Glasgow showed that a neo-adjuvant approach is deliverable for patients with borderline operable pancreatic cancer. In a cohort of 85 patients, median survival of patients who received surgery following the neo-adjuvant regime was 37 months as opposed to the median survival of the total cohort which was 22.2 months. Also, from the histologically assessed specimens following neo-adjuvant treatment and resection, 60% had negative margin status. Currently, the NICE guidelines for pancreatic cancer recommend neo-adjuvant treatment at a clinical trial setting. Find out more about the pathway in our Promoting Innovative Practice [showcase](#).

More evidence is required to help inform the decision making process about patient and treatment selection and to answer the challenging ongoing questions with regards to the role of neo-adjuvant treatment in the localised pancreatic cancer setting. This is what the UK multi-centre Primus 002 clinical trial seeks to address as part of the multimillion Precision Panc research programme. It is important that all specialist centres participate in the clinical trial.

Adjuvant chemotherapy. ESPAC clinical trials have explicitly demonstrated a survival benefit for patients receiving chemotherapy after surgery. Especially, [ESPAC-4](#) has shown that **Gemcitabine/Capecitabine (Gem/Cap) combination chemotherapy** can **increase survival** for **surgical pancreatic cancer patients** up to 30% compared to the 20% for patients having surgery only. The Gem/Cap combination now has become available to the NHS for pancreatic cancer patients who have surgery and is also recommended in the NICE guidelines.

However, [national data](#) shows that only 50% of patients who have surgery undergo adjuvant chemotherapy and there is variation among Cancer Alliances. This data is available in the [National Cancer Registration and Analysis Service](#).

Everyone with pancreatic cancer having surgery should be offered adjuvant chemotherapy; however, this is not the case in the UK as shown by the national data. From discussions with clinical specialists, we often hear that a major factor for this is that patients are often not referred to pancreatic cancer oncology specialists to follow up with their care and treatment. Ensuring that patients with pancreatic cancer receive specialised care and adjuvant chemotherapy is important and it represents a relatively easy improvement target for pancreatic cancer treatment.

Dedicated pancreatic cancer clinics for inoperable patients. The model in Clatterbridge Cancer Centre (CCC) in Merseyside and the team at the University of Liverpool demonstrated that pancreatic cancer dedicated clinics for people with inoperable pancreatic cancer have better disease outcomes than clinics where oncologists are not pancreatic cancer specialists.

Outcomes from these clinics showed that:

- a) **Treatment was initiated within 18 days** on average after initial CT scan review rather than 28 days in non-pancreatic cancer oncology clinics
- b) **Chemotherapy was given in 25% more people**
- c) **Median survival was increased to five months** as opposed to three months
- d) **Better outcomes** for older and frail patients.
- e) **Better supportive care** for patients who could not receive any active treatment as their cancer was very advanced.

Find out more about the study in our Promoting Innovative Practice [showcase](#).

It is important for inoperable patients with pancreatic cancer to be managed by specialist pancreatic cancer oncologists, ideally in a dedicated pancreatic cancer clinic setting. Development of clinics like the one in Merseyside is a key development to ensure that people with pancreatic cancer receive specialised care and treatment.

Patient participation in treatment decision. Making **an informed decision** for the **treatment and care** that each patient receives should be a key element of the optimal pathway for pancreatic cancer. This is of particular relevance for patients who may decide to decline treatment in favour of quality of life.

Patients should be provided with the information they need for an informed choice about their care and treatment. Treatment decision making should include participation of patients who will have the opportunity to discuss with clinical specialists their care and treatment.

Supportive care pathway of pancreatic cancer

Holistic Needs Assessment (HNA) and Quality of life. Personalised care is a cornerstone of cancer care in the NHS long term plan and a key element of cancer care across the UK. This is even more crucial for **pancreatic cancer** as it is an aggressive disease and has **complex symptoms** such as **pain, malnutrition and psycho-social issues** and the importance of integrating early supportive care in the clinical management of pancreatic cancer has been demonstrated in a recent academic review that you can read [here](#).

Access to an HPB CNS, holistic needs assessment and supportive care straight from diagnosis is key to ensuring all those diagnosed with pancreatic cancer can **maintain the best quality of life** throughout their care pathway. A survey we commissioned from Oxford Brookes University and The Picker Institute has demonstrated the supportive care needs that people with pancreatic cancer have, including long after diagnosis. Almost **half of the respondents reported unmet supportive care needs** with **psychological ones being the most prominent**. Visit our [website](#) to find out more about the survey.

Moreover, currently very little evidence exists on **Patient Reported Outcomes Measures (PROMs)** that should be incorporated into pancreatic cancer care and research to **improve quality of life and patient experience**. [The Dutch Pancreatic Cancer Group](#) has published a study on PROMS [here](#).

Initiatives and developments on early supportive care models to ensure that everyone with pancreatic cancer receives symptom management, physical and psychological support straight from diagnosis are urgently needed, as recommended in the NICE guidelines for pancreatic cancer. A systematic approach to identify the most important set of PROMs to be integrated into supportive care is a key component in the delivery of supportive care.

Pancreatic Enzyme Replacement Therapy (PERT) is an intervention to manage malnutrition of pancreatic cancer patients and there are published studies showing the importance of PERT in managing malnutrition and weight loss in pancreatic cancer patients. PERT also has an impact on **improving quality of life** and **survival** for both operable and inoperable patients. You can find out more on the benefits of PERT [here](#).

Although there is no direct evidence, it is plausible to speculate that a lack of PERT could result in patients being unwell and malnourished and this impacts their ability to tolerate and receive treatment. This is potentially relevant to the fact that [7 in 10](#) patients with pancreatic cancer do not receive treatment in England. Importantly, the NICE guidelines on pancreatic cancer recommend the prescription of PERT.

However, despite the positive outcomes of PERT, evidence shows that not all people with pancreatic cancer take PERT and that the number is lower among people with inoperable cancer. What we have often heard from healthcare specialists is lack of awareness of PERT benefits on malnutrition management of the

disease. Moreover, a key difference between the patients who receive surgery and those who do not, is that the former receive care in a specialist centre, whereas the latter can receive care in the wider local care setting.

The low levels of PERT prescribing remains a huge concern for people's survival outcomes, ability to tolerate treatment and also for their quality of life. Without PERT people with pancreatic cancer can suffer from malnutrition and cachexia and have to deal with very unpleasant digestive symptoms that can be painful and make it difficult to leave the house, meaning people can find it hard to take part in activities with family and friends. We believe that interventions to ensure that PERT and dietary specialist support is provided to everyone with pancreatic cancer from diagnosis is key and is a critical part of the pathway for pancreatic cancer that should be improved.

Prehabilitation. A common issue for patients with pancreatic cancer is the complex symptoms such as malnutrition, pain and low fitness. As discussed above, this might prevent patients from having life-saving and life-extending treatment. In fact, although 18% of patients are diagnosed at an early stage, less than 10% have surgery. Moreover, even among people who receive surgery, very often surgery outcomes are poor; associated with comorbidities and post-surgery mortality.

Additionally, although adjuvant chemotherapy for operated patients is critical to improve survival outcomes, not all of the patients receive it or able to complete it. A contributing factor is that many patients are not fit enough to tolerate treatment.

Prehabilitation can **optimise patients to tolerate treatment** such as surgery through a joint approach of **fitness, physical activity** and **nutritional** optimisation. This has been demonstrated by the team in the specialist pancreatic cancer centre in Manchester which has won a Service Improvement Excellence Award (Neil Bibby, Senior

Specialist HPB Dietitian, Manchester Royal Infirmary). The **benefits of prehabilitation** are also extended to **faster post-treatment recovery and the wellbeing of patients to live with and beyond cancer**. Prehabilitation is a programme that can be applied to other treatments as well such as **chemotherapy** and **clinical trials**. Prehabilitation as a supportive care programme for those with **advanced pancreatic cancer who do not receive active treatment** to ensure that they maintain the best quality of life possible should be also considered. New guidance published by Macmillan recommends **prehabilitation as a standard of cancer care** covering not only **symptom management, physical activity and nutritional optimisation** but also **psychosocial support and cancer education for all cancer patients**. Read the detailed guidance [here](#).

Development of prehabilitation programmes for people with pancreatic cancer focusing on symptom management and optimisation of physical, nutritional (including access to PERT) and psychological needs as well as educating and empowering the patients is a critical component of pancreatic cancer optimal care.

Enhanced recovery after pancreatic surgery (ERAS). Pancreatic cancer surgery is one of the most complicated operations and is associated with comorbidities, long-stays in the hospital and readmissions that affect quality of life for the patient and also increase NHS costs. Moreover, post-operative complications may prevent patients from having adjuvant chemotherapy that increases the chance for long-term survival. Enhanced recovery after pancreatic cancer surgery is a focus of the prehabilitation programme discussed above (physical activity and nutritional optimisation, including PERT prescription). Overall, ERAS principles in the context of pancreatic surgery have generated encouraging results. However, what we often hear from the clinical specialists for pancreatic cancer is lack of capacity in the Intensive Care Unit (ITU) and this may even lead to surgery cancellations due to lack of beds. The team in Liverpool has developed a pancreatic cancer specific unit for **better peri-operative management** (pancreatic cancer ERAS), **better nutritional optimisation** (Dietitian and access to PERT) and **greater physiological reserve** of pancreatic cancer patients – the **Pancreatic Enhanced Recovery Unit (PERU)**. This model is associated with **reduced 30-day post-operative mortality**, **reduced length of stay in the hospital** and has enabled **92% surgical patients to receive adjuvant chemotherapy in 2017** – (national average based on 2015 data is 50%). This data is not publicly available but you can contact georgia@pancreaticcancer.org.uk to find out more. As mentioned above, a barrier to implementing this holistic care model, wrapped around surgery is a lack of capacity and infrastructure (lack of beds) that also results in surgery cancellations.

To transform the very low survival for pancreatic cancer it is essential that those people who have life-saving surgery are given the best chances of being able to tolerate the treatment, to recover post-surgery and access adjuvant chemotherapy.