# Prehabilitation

## Synergy for Surgery

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Prehabilitation (Prehab) services provide an opportunity for multi-professional working. Whilst developing a trimodal Prehab service over the last five years I have had the opportunity to broaden my skills and expand my job role alongside a wonderful team of healthcare professionals. Never in my previous years of working in the NHS have I had the opportunity to work alongside, and learn from, registered and unregistered healthcare professionals to provide such a synergistic patient service.

### Why trimodal?

The Prehab service at Liverpool University Hospitals NHS Foundation Trust (LUHFT) delivers a trimodal programme of physical activity, nutrition and psychological interventions to optimise patients for major cancer surgery. When it began in 2017, the team consisted of a physiotherapist, a therapy assistant and me, providing a bimodal Prehab service. Patients would follow a programme of personalised physical activity and nutrition advice and were invited to attend group exercise sessions. However, we would identify that there were patients who were not psychologically ready to make behaviour changes and had psychological barriers to engaging with a Prehab care plan. We came up against challenges with patients' mental health we were unprepared to deal with and would need to make referrals to Clinical Psychology who may not be able to intervene in the short time frame to surgery.

Then, in 2019, Macmillan published its guidance for Prehab services which highlighted these very problems.[1] Psychological wellbeing was included as the essential third domain of Prehab. It was recommended that each patient should be holistically screened and assessed. A Personalised Prehabilitation Care Plan (PPCP) should then be created to support the individual's goals. The Macmillan Prehab guidance showed that Prehab interventions can be considered within three tiers across the three domains, and people with cancer may move from one level of interventions to the next during the course of their Prehab period:

- Universal – applicable to anyone with cancer
- Targeted – applicable to people with a cancer with acute chronic or latent adverse effects of disease or treatment and/or other long-term conditions
- Specialist – applicable to those with people with cancer who have complex acute/chronic needs, severe impairment and/or disability and for those with low functioning levels, unstable or stable cardiac/respiratory.

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The three domains of Prehab interrelate. People with cancer can face challenges related to their diagnosis or treatment which impact their physical, nutritional and psychological health. These can be compounded by chronic conditions and age-related changes.[2] Behaviour changes in one domain can promote changes in the others, and vice versa. Patients may need one domain addressing with specialist interventions before goals can be realistically set in another domain.

Following the publication of the Macmillan guidance, and from our own learning and experience, we have grown our team and altered our clinic structure. Using information regarding physical, nutritional and psychological status provided on our electronic referral form, patients are triaged to receive the most appropriate level of intervention by the most appropriate team members. All three Prehab domains will be assessed in the first consultation, and a PPCP developed with the patient.

## Outcome measure tools

When developing our trimodal programme the team met to decide which outcome measure tools would provide the most detailed assessment and information for all the Prehab domains. We wanted to use those which were the simplest for the patient, whilst being time-efficient and able to be performed within our limited clinical space. The outcome measure tools needed to be validated for use in oncology and, where possible, for predicting surgical outcomes. Finally, the outcome measure tools needed to be able to be completed and interpreted by every member of the team who all have different clinical backgrounds. We currently use the outcome measures detailed in **Table 1**. All of these assessments are conducted at the start of each patient's clinic appointment in less than ten minutes. The team are then able to quickly review the results and predict what the individual clinical priorities are for each patient, allowing the structure of the consultation to address the specific issues highlighted.

Our average patient age at initial assessment is 67 years old. This cohort is higher risk for age-related comorbidities and frailty.[9] The outcome measure tools that we currently use support us to diagnose and treat frailty, sarcopenia and sarcopenic obesity.[9, 10] By identifying frailty and sarcopenia early and intervening appropriately we have had patients who would not have been offered surgery go on to undergo surgery and successfully rehabilitate.

## Nutritional intervention

Goals of nutritional intervention generally target improving body composition and physical fitness alongside physical activity, as identified from the outcome measure tools. At a universal level, patients are educated individually on healthy eating, good sources of protein foods and how to distribute protein evenly across the day and around exercise. Diet and cancer myths will be addressed as they arise.

**Table 1: Outcome measure tools**

| Outcome measure tool | Methodology | Clinical assessment |
|---|---|---|
| EORTC QLQ-C30© (version 3.0)[3] | Patients answer 30 questions with multiple-choice and scaled answers | Physical, psychological and social functions; quality of life |
| Patient-Generated Subjective Global Assessment Short Form© (v 4.3.20)[4] | Patients answer questions relating to four components of nutrition; numerical score generated | Nutritional status, risk of malnutrition |
| Hand grip strength[5] | Grip strength is tested using a digital dynamometer, with the average of three tests taken from non-dominant hand | Arm muscle strength |
| 30 second Sit to Stand test[6] | Patients stand and sit without the use of hands as many times as possible in a 30 second time period | Leg strength and endurance |
| Segmental (4-quadrant) Bioelectrical Impedance Analysis (BIA)[7] | Patient stands on a portable bioelectrical impedance analyser for 20 seconds and a report is generated electronically | Body composition including weight, body mass index (BMI), skeletal muscle mass (SMM), fat mass, fat free mass (FFM), segmental analysis, visceral fat, body water percentage, phase angle and sarcopenia index |
| Clinical Frailty Scale© (CFS)[8] | Clinician scores patients >65 years old based on objective assessment on a scale of 1-7 | Clinical measure of fitness and frailty in older people |

When targeting nutritional interventions, there is a wide variety of problems that may need to be optimised. Improving the management of chronic conditions may be required, e.g. improving glycaemic control in diabetes. Micronutrient deficiencies can be common during cancer treatment, and in the cancer specialties included in our service anaemia can be prevalent. During treatment or as a result of their cancer diagnosis, patients may develop nutrition impact symptoms and need dietary counselling and support to manage these. Where there is a high risk of malnutrition, patients will receive food fortification counselling and prescribing of high protein oral nutritional supplements where indicated. There are also patients where intentional weight loss in the presence of obesity is appropriate and will be guided. Some of these nutritional interventions require collaborating with other health professionals outside of the Prehab team.

It has been necessary, in rare circumstances, to delay surgery to allow patients more time to improve their nutritional status in cases of severe malnutrition or sarcopenia. Nutrition support will be provided either through oral nutritional supplements or artificially via enteral or parenteral nutrition.

## Multi-professional learning and working

Carrying out joint patient assessments and group sessions with my allied health profession (AHP) colleagues has allowed me to observe and learn a great deal. As a team we have prioritised continuing professional development. All members of the team have undertaken motivational interviewing training to support behaviour change.

The Physiotherapist is the expert in movement and exercise. Observing how they provide physical activity education in MDT clinics and the approach they take with different types of patients has been eye-opening. By working alongside the Physiotherapist, I have been able to learn about physical activity guidelines and identifying risks to exercising. I have attended training provided by a Physical Activity Clinical Champion to learn about the Public Health England guidance.[11] I have delivered exercise classes jointly with my colleagues and observed how these are modified and tailored to individuals – something I had never done before. I am now able to give person-centred physical activity recommendations, and signpost patients to virtual resources. I can monitor patient progress with their physical activity plan, and identify challenges, barriers and additional needs requiring specialist Physiotherapy support.

The Prehab Occupational Therapist (OT) is the expert in mental and emotional wellbeing. Moreover, they have skills in the management of frailty and functional problems. Undertaking learning alongside the Occupational Therapist has helped me to understand the psychological burdens of cancer, and how they can be alleviated. The OT role was implemented just at the start of the COVID-19 pandemic, and we have seen first-hand how the pandemic has heightened mental health problems in our vulnerable patient group. The OT has been vital to provide patients with expedited support with their psychological and functional wellbeing. For my own development into this domain of Prehab, I recently attended Level 2 cancer psychology training delivered by Cancer Clinical Psychologists within my Trust. This training has given me the skills to screen patients' mental health and wellbeing, and deliver targeted interventions where required.

I recognise that there have been many benefits in providing my colleagues with nutrition education. Through sourcing virtual education platforms and delivering face-to-face training, I feel confident that all of my colleagues can provide universal nutrition interventions across a wide range of cancer diagnoses. My colleagues are able to give appropriate nutrition literature and signpost patients to evidence-based resources for further information. Through nutritional screening via the outcome measure tools, my colleagues are able to identify 'red flags' and nutritional risks and highlight these for my intervention. When monitoring patient progress through Prehab the team will regularly screen for nutritional changes and consider how these may impact the patient care plan. This means that patients have their nutritional problems dealt with faster.

Due to the synergy and efficiency of our collaborative working, patients have given remarkably positive feedback about their experience via service evaluation questionnaires. Furthermore, patients are indicating that they plan to make long-term behaviour changes to optimise their future health.

## Reflection

My experience of working in Prehab has been one of steep learning and inspiration to work beyond the boundaries of my previous dietetic roles. During my patient assessments I now gather more detailed physical and social histories. I pay attention to changes in function and physical condition. I am able to critically evaluate how a patient's physical condition and functional capacity might present opportunities or challenges affecting nutritional status. I recognise the implications of psychological health and can address problems with greater confidence.

Finally, I have been inspired by the knowledge I have received, as well as the dedication and motivation of my patients, to make my own behaviour changes. Physical activity has become part of my normal routine. I am more aware than ever of the need to monitor my psychological health and communicate my mental health and wellbeing with those around me when necessary. I am 'prehabilitating' myself!

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