THE TIME HAS COME FOR A COMMUNITY AND HOME-BASED PREHABILITATION: NARRATIVE OF AN IMPLEMENTATION PROCESS

CHEGOU O MOMENTO DA PRÉ-HABILITAÇÃO COMUNITÁRIA E DOMICILIAR: NARRATIVA DE UM PROCESSO DE IMPLEMENTAÇÃO

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ABSTRACT

Optimizing patients' condition before surgery, bringing patients to their best fitness status, has always been tried by surgeons, even if it was in stochastic models. Setting up a prehabilitation program should take into account patients and their circumstances. To ensure success, programs should be personalized (patient balanced) and aim to ensure patients' regular support as well as easy and effective contact with the healthcare team. A two-platform clinic was planned based on hospital and community facilities and health care specialists. A wide range of languages and communications systems needed to be merged and operationalized. The governance of this project is a demanding and forever ongoing process. The aim of this paper is to provide a narrative of the why and the how we are setting a community and home-based personalized prehabilitation clinic, and to give a reflective analysis of the process of gathering the right associates to implement this innovation of changing the ways and the places for prehabilitation to happen.

Keywords: *community; general practitioner; home-based; innovation; outcomes; patient-balanced; perioperative care; prehabilitation; prehabilitation clinic; risk assessment; surgery.*

RESUMO

Ainda que geralmente em modelos estocásticos, a optimização das condições clínicas dos doentes, para os preparar para a cirurgia, foi desde sempre pretendida pelos cirurgiões. A criação de um programa sistemático de pré-habilitação deve ter em consideração os doentes e as suas circunstâncias. Para garantir o sucesso, os programas devem ser personalizados (centrados no doente) e ter como objetivos garantir o apoio regular aos doentes, bem como o contato fácil e eficaz com os profissionais de saúde. Neste pressuposto, foi planeada uma clínica com duas "plataformas" interligadas, uma com base em instalações hospitalares e a outra na medicina comunitária, sendo simples e eficiente o contacto entre os especialistas em saúde, e com o doente e seus familiares. Esta ampla gama de "léxicos" e sistemas de comunicação será incorporada e operacionalizada em sistemas simples e acessíveis. A orientação e gestão deste projeto é um processo exigente e contínuo. O objetivo deste artigo é narrar o como, e o porquê, de estarmos a criar uma clínica de pré-habilitação, personalizada, baseada na comunidade e no domicílio. Pretendemos, também,

fazer uma reflexão sobre este "processo de mudança", que visa atingir necessidades percebidas pelos "interlocutores" e pelos "actores" da mudança, integrando-os precocemente no processo de construção e implementação do projeto.

Palavras-chave: *comunidade; clínico geral; domiciliário; inovação; resultados; orientado no doente; cuidados perioperatórios; pré-habilitação; clínica de pré-habilitação; avaliação de risco; cirurgia.*

"It is clear that relevant, innovative ideas themselves cannot bring about change.
Rather, it is the relationship between innovative ideas and the political, economic and social environment into which they are introduced that determines acceptance and growth of the innovation".

Mennin & Kaufman (1989)[1]

INTRODUCTION

In order to improve outcomes after surgery, the pre-surgical period has been recognized to be fundamental. To implement a set of diagnostic and supportive preoperative interventions, named as prehabilitation, is recognized to disclose functional liabilities and to improve them before surgery[2-4].

Many of the surgical candidates these days are old and with significantly high degrees of frailty. Moreover, they are afflicted by many diseases putting them at high-risk of allostatic load. These patients are, nowadays, the common picture seen in wards of surgical departments and justify prehabilitation to be a core discipline.

Prehabilitation intends to improve cardiorespiratory fitness, nutritional status, frailty and neurocognitive function to reduce the length of stay, the incidence and severity of surgical complications and to enhance recovery following treatment. It can also provide an opportunity to promote smoking and alcohol cessation and the adoption of healthier behaviours[2-4]. Prehabilitation should empower patients to enhance their own physical, nutritional and mental well-being and to engage them as participants in the decision-making process of their treatment. This approach will surely enhance quality of life (QoL) as well as overall survival.

Optimizing patients' condition before surgery, improving previous status or event rendering a previously unfit candidate into a fit for surgery one, has always been tried by surgeons, even if it was in stochastic models.

In recent years, a systematic multimodal approach to reduce modifiable risk factors has emerged, as well as the motivation to implement it. However, it is still an innovation to be implemented on large scale.[5]

Lack of a systematized and multimodal approach may have turned results less than effective[6]. Data from dedicated prehabilitation groups support our view that a multi-modal, multidisciplinary approach induces a synergistic effect between the various measures. This synergism affects the outcome postoperatively[7]. The necessity of starting a prehabilitation program seems to be self-evident, and most of clinicians believe it may be a true makeover in perioperative care, despite the expectable resistance to change.

The aim of this paper is to enlighten the why and the how we are setting a community and home-based

personalized prehabilitation clinic. Through the narrative, the main challenges and barriers to be overcome, the driving and the resisting forces to change, risk assessment to risk attenuation[4,8] and the exclusive outcomes will be postulated.

PREHABILITATION UNIT – PATIENT BALANCED (THE RATIONALE)

Why a patient-balanced program is needed?

To implement a prehabilitation program in clinical practice is a challenge for most hospitals. The majority of programs are based in the hospital or in health facilities. Programs should be personalized (patient balanced) aiming to ensure patients' regular support as well as easy and effective contact with the healthcare team. This objective is key to help maintain motivation, provide feedback, and fine-tuning the patient' prescribed program (Figure 1).

Setting up a prehabilitation program should take into account the patients and their circumstances[9]. We will give elements of the circumstances, that drive us to share the core interventions set of prehabilitation, to be delivered with the patients' own general practitioners (GPs) and specialists' centres, located nearby the home of each individual patient. In these circumstances the proposed change is a perceived need.

The demographic characteristics of candidates to prehabilitation (aging, malnutrition, metabolic diseases, borderline parenchymal functions, low tolerance to exercise) are not an appanage of cancer patients. In non-oncologic hospitals, as is Hospital Garcia de Orta (HGO), a substantial number of non-fit patients suffer from benign diseases and should be candidates to an effective improvement program.

Accessibility is a problem. Almada and Seixal, together, amount to a surface of over 160 km^2, a formal resident population of more than 330 000 inhabitants (with a significant increase in the summer) and one of the largest concentrations of nursing homes in the country. The 22 km of tram are not sufficient to allow patients to come to the hospital. The nearest station is more than 1km away from the hospital door. In order to improve hospital accessibility, Almada municipality established a bus route (Almada Bus Saúde) carrying both patients and workers to the hospital. However praiseworthy the initiative may be, it remains largely insufficient.

Decreased economic income and absenteeism, hallmarks of the crisis we are going through, certainly are cofactors lowering the compliance to repetitive therapeutic sessions in the hospital. The need to accurate monitoring of the effects of neoadjuvant treatments and the compliance to the prehabilitation program is demanding. Proximity strategies are an alternative to minimize these

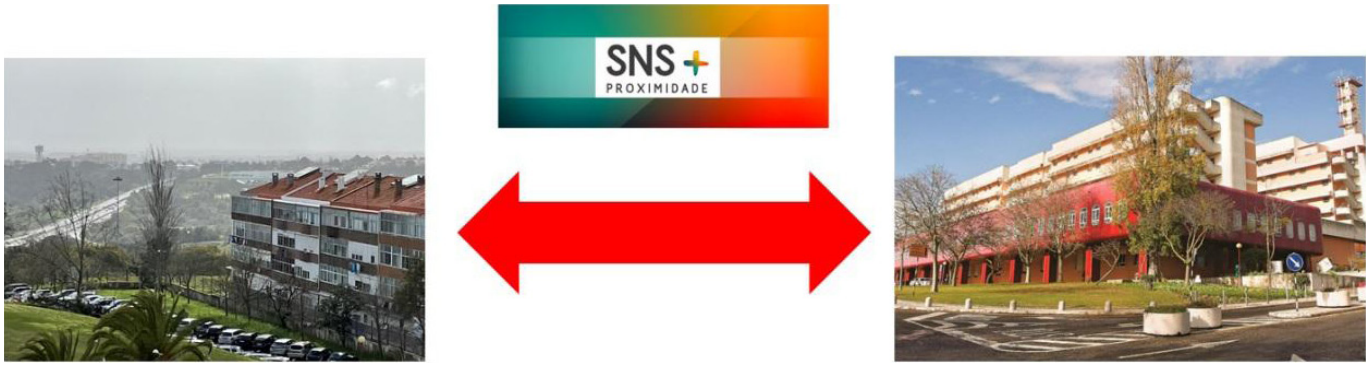

Figure 1 – **Patient balanced program.**

difficulties and the role of general practitioners is indisputable.

Delivery of nutritional support, psychologic accompaniment and gymnasium facilities are expected to be better controlled by a proximity staff.

The exclusive outcomes, expected to be achieved by sharing the monitoring of prehabilitation intervention between hospital and community health staff and facilities are:

- Health related
  - o Minimize infectious risk of frail patients and those undergoing neo-adjuvant therapies
  - o Improve fitness and QoL by increasing compliance
  - o Decrease stress (personal, familiar, labour)
- Organizational
  - o Increase efficiency and save time by reducing last minute cancelations and minimize unnecessary travel for patients to the hospital
- Economical
  - o Improve treatment savings and reduce daily expenses.

How to drive the change and implement innovation?

A reform of any *status quo,* to be successful, takes time and commitment. Resistance to change is a well-known phenomenon. Any field force analysis[10] of pros and cons toward a change holds that any situation is kept in a temporary *quasi-equilibrium* by a field of forces, some driving toward change and some resisting change (Fig. 2). Dealing with resistance to innovation should start by a correct diagnosis of the resistance forces, compiled according to the main groups expected to be involved. The systemic and behavioural resistance factors should be well understood, in order to define and implement strategic plans and actions. Negative influences against change should be managed, not neglected nor overcome[8].

Opinion leaders and decision-makers, at senior and junior level, should be brought to the group supporting the innovation. They will play an important role to persuade laggards and later adopters to stop resisting and to join the movement. Anyway, the leadership of implementation is owned by the project steering group and keeping the project on the road is on their members.

Over diagnosing, the "paralysis by analysis syndrome", is a risk in the intellectual environment of any institution and should be avoided – "making it happen is what is important"[11]. Involvement and commitment enhancing actions are strategic ways to manage resistance, since the "levels of resistance will inevitably be higher if the levels of involvement are low"[11].

For this project to have had a good chance to prevail, the main directive structures of the Hospital Garcia de Orta and of the Almada-Seixal ACES (group of primary care centres in the HGO geopolitical area of influence) were motivated to "buy the idea" and to embrace its implementation from the beginning – power to act should be internalized by all role players and must be clearly expressed by the steering boards. Nor top-down, nor bottom-up strategies were assumed, and a horizontal involvement was pursued.

Building the team to develop and implement the project

The genesis of the project, the idea, came to light in our department, because some of us were not reliant on the stochastic model of pre-operative risk assessment. We started meetings within the department but aiming to gather a multidisciplinary team.

The common goal of the initial group was to improve bidirectional collaboration involving the hospital and the primary care centres, so that not only preoperative preparation of patients but also initial reference and later discharge processes could

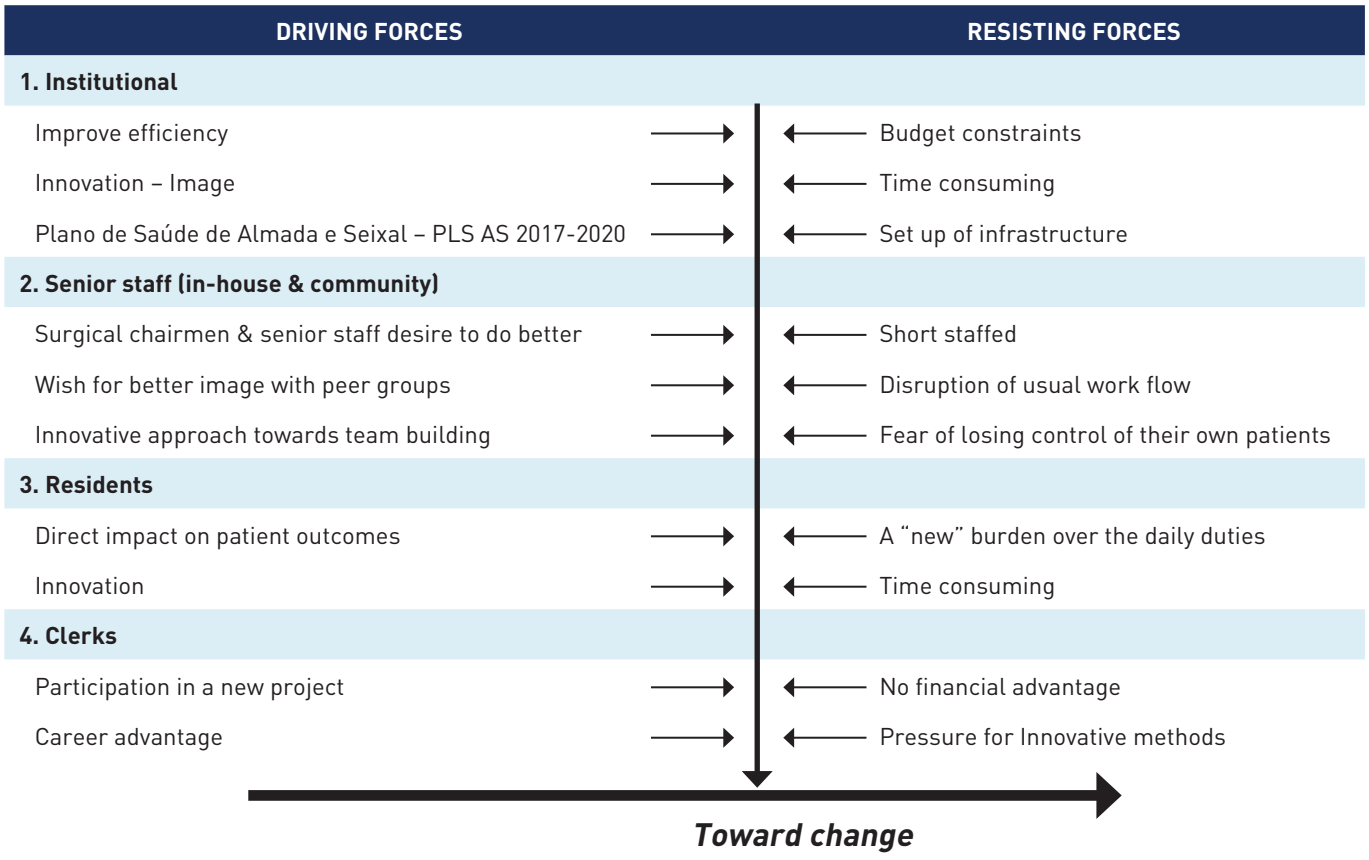

Figure 2 – **Field Force Analysis.**

be optimized. Concerning preoperative preparation, the group set out to create a community and home-based personalized prehabilitation clinic. After that the "ground" proposal was enriched stepwise, by incorporating the experience of each putative partner. Their experience and differentiation were fundamental to select and discriminate the steps and components of the workflow.

The in-house team involved general surgeons, consultants and residents, internal medicine consultants, dedicated nurses, nutritionists, psychologist, physiatrist and physiotherapists.

The project was included in the "Plano de Saúde de Almada e Seixal – PLS AS 2017-2020" as part of the Priority design of the proximity care of oncologic patients.

The GPs and all the other community partners (dedicated nurses, nutritionists, psychologist, physiatrist and physiotherapists) were early adopters of the project and the solutions to set up the program were commonly held. Protocols of action were customized, and logistic issues were solved. After several meetings between primary care players and hospital staff, plans and protocols were outlined (2019, December).

The pandemic COVID-19 has had a profound effect on all aspects of surgical practices, and, the consequences of the related constraints, postponed for several months the launching of the program. The partnership with the Instituto Português de Oncologia do Porto Francisco Gentil (IPO Porto) in several research protocols will help trigger the

program and the kick-off will happen despite the adverse actual circumstances[12].

Process workflow

On the flow chart of the process are summarized the main steps of the prehabilitation at the two twin intervening units, one at the hospital (HGO) and the other one in community (ACES-Almada/Seixal) – Figure 3.

The first general surgery appointment and the prehabilitation / risk group clinic are critical steps that require staff commitment, expertise and accurate communication through the network of involved partners. Surgeons should be committed to early referral of risk patients to prehabilitation/ risk clinic. Why? This clinic is supported by the two complementary platforms where prehabilitation may take place – hospital and community/home facilities and agents[8]. Face-to-face or virtual consultation with health deliverers of both "institutions", will go through the next critical step: planning the individual program altogether.

The accurate selection of patients, by their risk factors, to be amenable to enter the arm of community personal program, is the touchstone for achievement of a fit-for-surgery patient in this platform. Higher risk patients will run a program in the hospital or a mixed one.

The compliance and functional progress of the patients will be the focus of their GPs and of those that take care of each component of the protocol.

The whole process of this project is founded on a delicate network of interrelationships.

User friendly communication systems are key in achieving the intended results. The initial step, to customize the *Sistema Nacional de Saúde* (SNS)

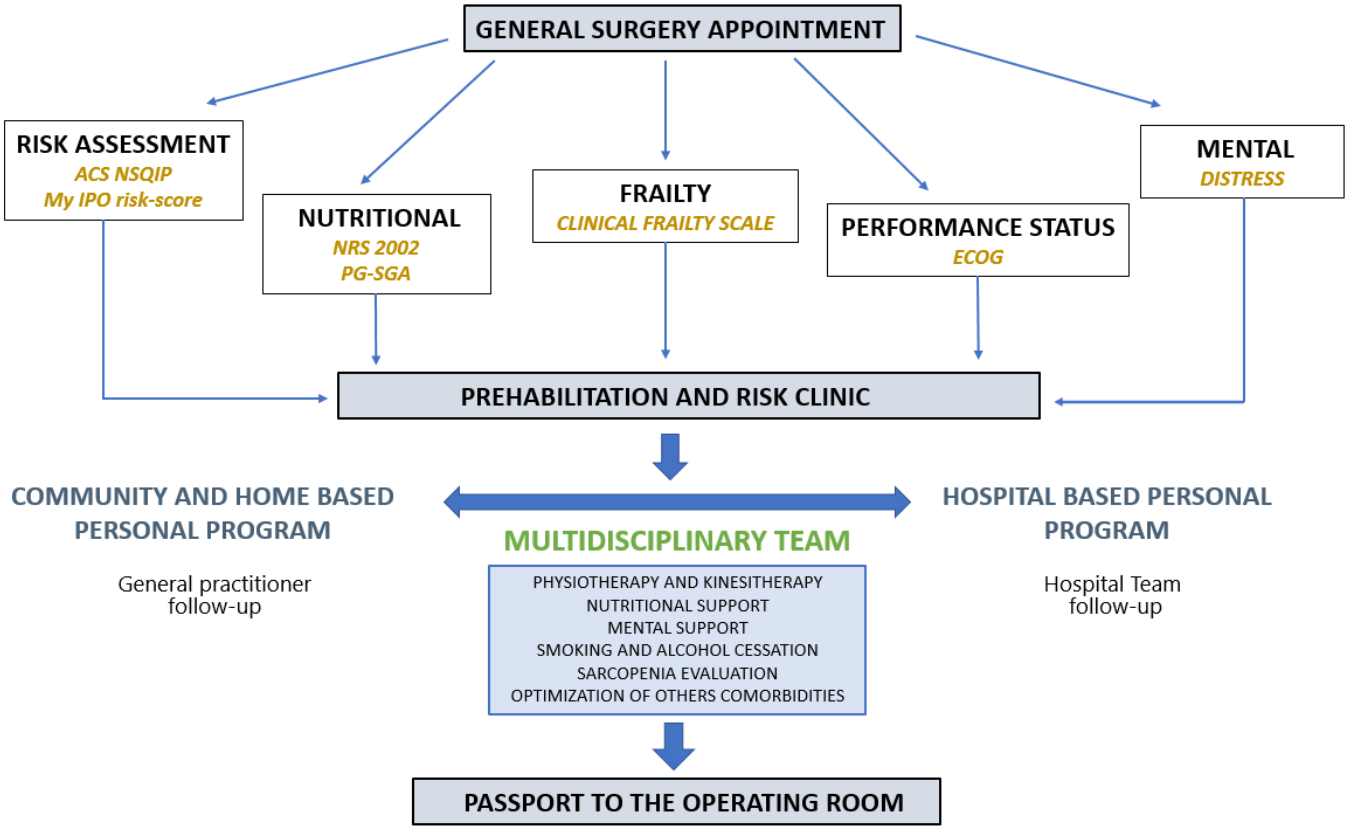

FIGURE 3 – **Prehabilitation flowchart according to the patient level risk stratification.**

adopted software, in order to share patients' clinical data, in an interchangeable language, is nowadays feasible. The safety of the data transfer, in accordance with ethical statements and the *"Lei da proteção de dados pessoais" (Lei n.º 58/2019, de 08 de Agosto)* is not an issue today, as most software are compatible and linked in the SNS network.

The easy and widespread use of internet-based communication solutions, for decision meetings and personal appointments, is one positive achievement of the pandemic period.

Managing this amount of in-transit information is predictably to be a huge workload. Precision and dedication to new platforms of communication are a requisite to keep all the data clean, updated, self-evident and friendly accessed. Confidentiality will be assured by different granted levels of access to data base.

The role of back-office clerks is paramount. This is a full-time job. Formal training of the staff in the overall program and in all the details and interconnected links of web platforms, will enhance their commitment. Automatic alarms to staff and patients, reminding appointments and deadlines, helps to minimize protocol deviations (i.ex.: texting).

The frontline team will consist of two nurses acting as managers and patients' providers. They will have the most valuable mission of supporting patients and their families, assisting them through the complex world of health facilities and processes. As a consequence, they will be in the most favourable situation to alert the other team members of the patients' achievements and intercurrences.

The scheduling of midway analysis, and feedback among partners, should be pre-determined in respect to each individual patient's condition. If alerts come in case of any intercurrence, a medical appointment should be timely warranted and a rescue solution triggered.

The record of functional progresses, and the assessment of anaesthesiology and operative risk, will determine the scheduling of the operation. For this propose, a report of all the critical steps or specific needs should be handed out to the anaesthesiology department, to the intensive care unit (ICU) and to surgical scheduling team – a passport to the operating room (OR) should be given to the patient, together with informed consents.

Pilot phase

A pre-pilot test, with virtual patients, is mandatory to test the universality of interpretation of the "concept" among the group, to test the network of circuits and programs, to test the acuity of data entering and saving, to be reassured of the commitment of the partners and to test the cement that build up the group.

The Nolan's model[13], Do, Evaluate, Replan, Redo, Stabilize (Fig. 4) is well established to implement this kind of innovation processes.

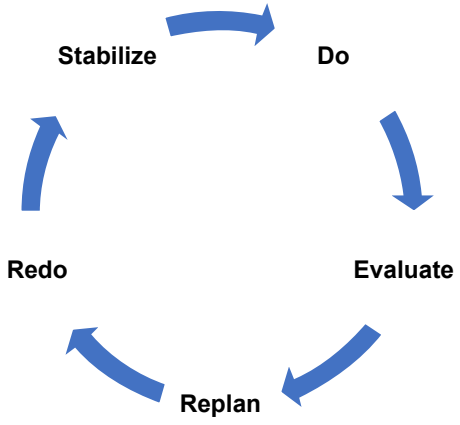

FIGURE 4 – **Implementation cycle.**

To **D**o a pilot phase we intent to focus our efforts on elderly patients and on candidates to a major surgery (n=15). To systematize and optimize circuits before widely offering the program is cautious. To **E**valuate the process and the results of the pilot phase, an audit and a meeting with the involved groups will be held (6-12 month). To **R**eplan if it is

necessary to fix disclosed fails and after then decide to **R**edo the process of enrolling patients.

To **S**tabilize change is necessary to become confident during the period of selling the project and team leaders are endowed to keep the group going ahead and to enlarge the numbers of adopters (keep cycling alive).

Accountability, auditing and governance

Evaluation of performance, by the report of intended results of the project, is a mandatory piece of accountability.

In clinical programs, the auditing of policies, plans, programs and projects and the monitoring and mitigation of financial issues follows the governance principles of all institutional projects. Our project shall be governed by the same principles. In clinical projects another important piece method of evaluation is the peer-assessment of the project conception and results. These data will be submitted to scientific journals with peer-review, in a periodicity paced by the volume of enrolment of patients.

FINAL REMARKS

The design and the implementation of a prehabilitation program should take into account the patients and their circumstances. It should be a Community and Home-Based Prehabilitation strategy.

Sharing the core interventions set of prehabilitation, with the patients' own general practitioners (GPs) and specialists' centres, located nearby the home of each individual patient, allowing prehabilitation to run in two distinct and interactive health platforms, is a change. The proposed change was a perceived need.

This paper was focused on the process to drive the change and to implement its innovation.

ABBREVIATIONS

ACES: Agrupamento de Centros de Saúde; ACS NSQIP: American College of Surgeons National Surgical Quality Improvement Program; DISTRESS Scale: Kessler Psychological Distress Scale; ECOG Scale: Eastern Cooperative Oncology Group Scale; GP: General practitioner; HGO: Hospital Garcia de Orta; ICU: Intensive care unit; NRS 2002: Nutricional Risk Screening 2002; OR: Operating room; PG-SGA: Patient Generated Subjective Global Assessment; QoL: Quality of Life; SNS: Sistema Nacional de Saúde.

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This project was held by the knowledge and commitment of all the partners involved in. The merging of concepts, experiences and solutions of community and hospital participants was a challenging experience.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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