

Exploring health stakeholders' views about the prioritization of patients for the operating theatre

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Abstract

In healthcare, the distribution of resources may imply denying potentially beneficial services to patients, which is known as rationing. Waiting lists for elective surgery are one example of a rationing strategy widely used, but the criteria which should be used to prioritise patients are still not defined. Traditionally, surgeons have been responsible for patient prioritisation in waiting lists of the Serviço Nacional de Saúde (SNS), which may bring issues of fairness regarding patient's needs. Demands for a more explicit process have been increasingly frequent. The work developed in this master's thesis aims at exploring and modelling health stakeholders' views regarding which dimensions should be considered in the prioritization of patients. A literature review was carried out to collect the criteria suggested for priority setting. Afterwards, the elicitation of the views of surgeons about potential criteria was carried out through six semi-structured interviews. These methodological techniques should be followed by a new protocol based on non-numeric judgements, the MACBETH approach. The results showed that the potential criteria which were deemed relevant were: Severity of Disease, Main Symptoms, Functional Impairment, Probability and degree of improvement of HRQoL, Probability and degree of improvement of severity of disease, Limitation to care for one's dependents, Lifestyle, Limitation in the ability to work, study or seek employment, Waiting Time and Evidence-Based Medicine. The results of the interviews also showed experts only make use of the criteria defined in Legislation implicitly. Furthermore, the methodology initially proposed must be altered to draw conclusions about whether the descriptors of performance used to evaluate patients in each criterion should be generic or specific to the medical speciality.

Keywords: Rationing, Patient prioritisation, Waiting lists, Elective surgery, MACBETH approach, Delphi

1. Introduction

Healthcare has been one sector which presents a growing tendency in spending, occupying a larger share of the Gross Domestic Product (GDP) each year [1]. Considering the framework of ageing populations, a transition from a high incidence of acute diseases to chronic illnesses, a massive growth in advances in healthcare technologies, associated with high investment and costly equipment and treatments [1, 2] it is paramount that healthcare resources are allocated as efficiently as possible [1, 3].

Inevitably, this distribution of resources will entail implicit or explicit mechanisms which will deny certain patients potentially beneficial services. In healthcare, this is defined as rationing [1, 4].

Healthcare rationing will impact different stakeholders [1, 5]. These stakeholders could be patients and citizens, representing receivers of healthcare, or physicians and health managers, its providers and regulators.

Waiting lists are a means of rationing as they provide a buffer between the demand for elective surgical procedures and the capacity of the health system to provide them [6], by choosing which patients should be attended first. This is known as prioritization [6].

Nevertheless, it is still up for discussion which criteria should be used to prioritise patients [1]. Firstly, the different stakeholders mentioned above present different goals as far as healthcare is concerned, since they assign different purposes to healthcare services. Secondly, within the same group of stakeholders, the moral views may be different, leading to a different prioritization according to efficiency or equity principles [7].

Due to the ambiguity surrounding which criteria should be used, the process of patient prioritization in many health systems is largely based on the views of the experts. Demands for a more explicit process of patient prioritization have been increasingly frequent, where the criteria used for the prioritization of patients are defined and used uniformly in a transparent process [8, 2, 9, 10].

1.1. Objectives

The work developed in this master's thesis aims at exploring and modelling health stakeholders' views regarding which dimensions should be considered in the prioritization of patients in waiting lists for elective surgery in SNS. To achieve these objectives, several steps will be taken.

First, a literature review will result in a list of criteria suggested for priority setting of patients waiting for

elective surgery in different contexts and different health systems. It is paramount to analyse not only the criteria being used in patient prioritisation instruments, but also how they are defined, and the context in which those instruments are implemented: the specificity or generality of the application of criteria, as well as the ethical framework used to justify the prioritisation tool should be registered.

Once a list of potential criteria to be used in a patient prioritization tool for waiting lists is collected, the elicitation of health stakeholders' views on these criteria ensues.

A new protocol shall be designed, based on the elicitation of non-numeric judgements regarding differences in attractiveness between improvements in the performances of different criteria, through a Measuring Attractiveness by a Categorical-Based Evaluation Technique (MACBETH) approach incorporated in a Delphi questionnaire. This protocol will result in the assessment of weights for each criterion and ultimately in a numerical scoring scale which will allow the relative prioritisation of the patient by comparison with other patients' scores.

After the literature review, the potential criteria collected and their operationalisation through descriptors of performance must be discussed with specialists. This will be carried out through semi-structured interviews with surgeons in charge of patient prioritisation in the SNS.

Although a complete protocol has been proposed, as is explained in Section 4, due to time constraints, it was not possible to completely apply it.

2. Context

Healthcare rationing is a controversial and multiplex exercise, and can result from resource allocation happening at three different levels [11, 12, 13]. In particular, Microallocation concerns clinicians making decisions at the individual level, such as resource allocation between different types of interventions for the same patient or between different patients for the same intervention [11, 12, 13].

The most common strategies of rationing resulting from resource allocation at the micro level, which is often labelled as bedside rationing, include delaying patients from accessing healthcare so that theoretically demand can match supply, through the use of waiting lists [14, 15, 16, 12].

2.1. Waiting Lists as a means of rationing

Waiting lists for high-demand surgical processes especially impact the quality of the health service and costs to the healthcare system, as surgical processes are perceived as one of the most important activities in hospitals [17].

It is paramount that waiting lists are designed with the aim of providing the best possible outcome for patients, and several strategies may be implemented to achieve this outcome [18]:

- Increased funding and capacity, by hiring more staff or purchasing more equipment.
- Setting maximum wait time targets
- Development of surgical pathways and restructuring of the referral process.

- Patient Prioritization Tools (PPTs).
- Policies to induce the take-up of private health insurance.

Waiting lists should be managed with a focus on fairness, and not just on reducing long waiting lines. One strategy which particularly ensures a fair management of waiting lists is the use of patient prioritization tools [19]. Approaches to support the implementation of prioritisation processes for access to elective surgery thus constitute paramount progress in the broader context of health care resource allocation [6].

2.2. Prioritization of patients in waiting lists for elective surgery

Patient prioritization tools can be operationalised in different forms: on the one hand, the healthcare system can make use of two- to four-level classification systems ("high priority" and "low priority"), or systems which work informally based on clinical judgment, without an explicit written tool [20]; On the other hand, more formal tools can be implemented, most frequently in the form of priority scoring systems which assign a score to the needs of each patient [21, 20, 22, 23, 18, 16, 6].

Hence, the development and implementation of prioritisation tools for elective surgery has been far from universal. As a result, prioritization of patients and patient prioritization tools have been presented with different definitions in literature. In this thesis, the following definition presented should be considered: "Prioritisation is a process of ranking referrals in a certain order based on various criteria with the aim of improving fairness and equity in the delivery of care" [20].

2.3. Implicit and explicit prioritization tools

There has been extensive discussion regarding what would be the adequate level of explicitness of the prioritisation system. It is widely accepted that explicit systems reduce the overall burden of waiting lists for elective surgery when compared with implicit strategies. Consequently, explicit, transparent prioritization instruments which enable the waiting list to be ordered fairly, according to patients' needs, are increasingly being supported and developed [20, 8, 23, 24, 25, 26, 16].

Nevertheless, there is still a lack of consensus regarding the most adequate methods for the implementation of priority scoring tools [16], namely what dimensions (clinical, social and/or financial) stakeholders believe should be used to determine the priority of patients in waiting lists [16, 27, 25].

2.4. Generic and specific prioritization tools

Furthermore, there is still ongoing debate on whether those criteria should be generic and used for all surgical specialities, or, on the contrary, should be specific.

Most prioritization systems developed so far have focused on specific elective interventions, including cataract surgery, hip and knee arthroplasty, cardiac surgery, cholecystectomy and hernia [20, 8, 28].

2.5. Waiting time guarantees

Recommended waiting times have generally been specified for specific interventions, relying on literature reviews [86,103].

It has been noted by Tebe et al., 2015 that the implementation of a prioritization system aims at reordering the list so that those patients with a higher priority are operated on earlier. Nevertheless, this measure does not necessarily guarantee an overall reduction in waiting times, once again raising uncertainty about the acceptability of unrealistic waiting time guarantees [19].

2.6. Delegation of responsibility for patient prioritisation

When discussing the delegation of responsibility for patient prioritisation, it is fundamental to distinguish between the development and the implementation of a prioritisation tool.

Many researchers argue that the general public, and patients in particular, should be involved in healthcare rationing, including in defining important criteria to be considered in patient prioritisation tools, albeit at different intensities [29, 30].

Even though there is not a clear consensus on what group of stakeholders should be responsible for implementing patient prioritization models, clinicians are usually mentioned as the most capable stakeholder group, despite the possibility of holding a bias towards medical criteria, since they possess a clearer perception of the process and consequences of patient prioritization [31, 25].

3. Literature review

A literature review of the published literature was carried out with the goal of identifying scientific papers which describe criteria to be used in prioritisation of patients waiting for elective surgery, and/or which mention an estimation of the relative strength of those criteria. Available articles in PubMed, the Cochrane Library, Ovid Medline, Embase and Web of Science databases were searched between February and July 2020.

3.1. Methodological approach to literature review

On account of the heterogeneity of contexts in which studies were carried out and the different methodologies adopted for the presentation of criteria in literature, a descriptive reporting approach was deemed appropriate, hence the context of the study is also synthesised in terms of:

- Range of applicability of the patient prioritisation tool (generic or specific);
- The ethical framework (EF) used to justify the prioritisation strategy. The category "Ability to benefit" (AB) included papers which utilized a measure of the ability of the patient to have their need satisfied as a basis for finding criteria for patient prioritisation. The other category, "Urgency of need" (UN) concerns papers which considered temporal factors when deciding the prioritisation of the patient;

- The method(s) used to derive criteria;
- The existence of waiting time recommendations or guarantees;
- Whether the goal of the study concerned the proposal of a patient prioritisation tool or simply the statement of elicited preferences

3.2. Criteria suggested in literature for use in prioritisation of patients in waiting lists for elective surgery

Similar to what was frequently implemented in literature, five domains of criteria were defined. These domains are: Clinical/Functional Impairment, Expected benefit, Social Role of the patient, Management and Personal factors.

These dimensions are used in Table 1 to present the criteria which were collected from the literature review.

Table 1: Criteria suggested in literature for use in prioritisation of patients in waiting lists for elective surgery

Dimension	Criterion
Clinical/ Functional Impairment	Severity of disease
	Pain (and other main symptoms)
	Rate of disease progression
	Functional Impairment
	Psychological distress
Patient benefits	Probability and degree of improvement
Social Role of the Patient	Limitation to being independent
	Limitation to care for one's dependents
	Limitation in the ability to work, study or seek employment
Clinical Management	Cost-effectiveness
	Economic efficiency
	Waiting time
Personal Factors	Age
	Socioeconomic Status (SES)
	Lifestyle
Evidence Based Medicine (EBM)	Evidence Based Medicine (EBM)

Generally, papers have presented prioritisation tools which reflect a public preference for a combination of distributive assumptions (that is, they involve, at least to some extent, both the frameworks of AB and UN). Consequently, several domains are usually represented in prioritisation tools [32, 33].

3.3. Methods used for the development of patient prioritisation tools

3.3.1 Methods for exploration and elicitation of stakeholders' preferences regarding criteria used in PPTs

In Table 2 follows a list of relevant exploration (qualitative) and elicitation (quantitative) methods for gaining insight of stakeholders' preferences regarding criteria to be used in patient prioritisation tools [34].

Table 2: Overview of qualitative and quantitative methods for exploring and eliciting health stakeholders’ preferences

Exploring stakeholders’ preferences
Delphi method
Focus group
In-depth individual interview
Nominal group technique
(Semi-) structured individual interview
Eliciting stakeholders’ preferences
Allocation of points
Analytic hierarchy process
Best–worst scaling
Discrete choice experiment
Swing weighting
Visual analog scale

According to evidence found in the literature review [34], the most frequently cited exploration methods include Focus groups and (Semi-)structured individual interviews, while most cited elicitation method papers included Discrete choice experiments and the Visual analog scale.

3.3.2 Methods used for summation and weighting of criteria

Some methods mentioned in Subsection 3.3.1, which concern the elicitation of preferences regarding patient prioritization in waiting lists, also allow the derivation of weights associated with the strength of preference of each criterion.

Therefore, taking into account the performance of the patient in each criterion, summation methods can be applied to present an overall prioritisation score.

Although many approaches have been used in literature as far as summation and weighting are concerned, as Table 3 shows, there has been a predominance of linear models.

Table 3: Summation methods used in the computation of patient prioritisation scores

Summation method
Weighted additive linear model
Additive then multiplicative
Non-linear
Matrix
Power Function

Nevertheless, in articles where derivation of weights for criteria were performed, weighting and summation methods were often found to be inconsistent. It has been reported that those methods do not present valid mathematical models supporting their use [32].

3.4. Patient prioritisation tools in Portugal

Traditionally, individual surgeons have been responsible for patient prioritisation in waiting lists of the SNS. As

one would expect, surgeon practices differ between clinical specialities and even between individuals, which may bring issues of equity regarding patient’s urgency.

Therefore, certain measures have been implemented to improve the transparency of patient prioritisation at a national level. A national platform, called *Sistema Integrado de Gestao de Inscritos para Cirurgia* (SIGIC), has been developed since 2005 with the aim of ensuring consistency in the management of patients in any hospital of the SNS.

3.4.1 Patient’s inclusion in waiting lists of SNS

After implementation of SIGIC at the national level, SNS patients may gain access to surgical treatment in hospital care through registration in waiting lists, commonly referred to as *Lista de Inscritos para Cirurgia* (LIC).

The patient’s priority in the waiting list, which is directly translated into a maximum waiting time guarantee, depends on the priority category assigned. It is defined in the Portuguese legislation that the patient should be evaluated regarding the disease and associated symptoms and signals, base pathology, disease severity, impact in life expectancy and quality of life of the patient, impact on daily activities, rate of disease progression and time of exposure to the disease. No descriptors of performance have been presented to operationalise these criteria, hence favouring an implicit and unfair process of prioritisation.

3.4.2 Waiting time guarantees in SNS

As mentioned above, maximum waiting time guarantees for completion of a surgical procedure from the time the patient is inserted in the waiting list, referred to as *Tempos máximos de resposta garantidos* (TMRG), were established nationally according to priority levels based on the urgency of the patient’s clinical condition.

The maximum waiting time guarantees for each priority level are also dependent on the type of surgery: for oncological and cardiac diseases, the TMRGs are inferior to TMRGs for general elective surgical procedures.

Although several measures have been implemented with the aim of achieving a more efficient management, the clarification of the weights of criteria which are used for determining a patient’s quantitative prioritisation score is yet to be achieved in Portugal. It thus becomes evident that there is a demand for a prioritisation scoring tool which considers multiple criteria, but is at the same time mathematically consistent and has the potential to be applied in the real context of waiting lists for elective surgery.

4. Methodology

Considering the lack of reliable and grounded patient prioritisation tools, explained in Section 2, a new protocol for the development of a patient prioritisation tool is developed. This prioritisation tool will be based on the elicitation of stakeholders’ preferences regarding which criteria could be included in that tool. The modelling approach chosen to elicit stakeholders’ preferences and develop a

scoring and weighting tool is a multiple criteria decision model (MCDA).

4.1. Multiple Criteria Decision Model

A MCDA model is based on the decomposition of a single, more complex problem into a combination of non-overlapping dimensions of that problem. The simpler problems are then analysed independently and integrated into a global analysis. Hence, this model will allow the evaluation of prioritisation of different patients by evaluating the performance of each patient in each criterion and then performing a weighted sum which represents the overall patient prioritisation score of the patient.

4.2. Methodological Design

The methodological design proposed in this thesis, which is presented in Figure 1, is based on a MACBETH socio-technical approach applied to the problem of prioritisation of patients in waiting lists for elective surgery. The MACBETH approach is a mathematically-grounded MCDA technique, as the complex problem of patient prioritization will be divided into smaller problems of scoring the patient in each criterion.

The MACBETH socio-technical approach combines both technical elements of the MACBETH approach and social elements of participatory methods (such as semi-structured interviews and Delphi processes) to build a multi criteria model.

As far as the technical elements are concerned, MACBETH is a non-numerical approach, which allows the quantification of a prioritisation score for each patient through both scoring and weighting techniques. This socio-technical approach will be divided into three phases:

- **Phase I:** the structuring phase, which consists of a literature review, semi-structured interviews, a Delphi and a second round of interviews to validate with a large group of experts the criteria necessary for the prioritisation of patients in waiting lists. The first steps of this phase, the literature review and the semi-structured interviews, will be executed;
- **Phase II:** the building phase, in which the MACBETH technique should be applied to construct value scales and calculate trade-offs among the criteria identified in the previous phase;
- **Phase III:** testing, validation and recommendation phase, based on the analysis of the results.

4.2.1 Phase I: the structuring phase

Phase I starts with collection of information about the problem of patient prioritisation in waiting lists for elective surgery. Specifically, one goal is to acquire knowledge regarding up-to-date literature on the evaluation criteria that are currently used in patient prioritisation tools in a national and international context.

Since these evaluation criteria have not yet been validated in the context of the patient prioritisation tool to be developed, these should be referred to as variables.

With the aim of combining additional sources of information, semi-structured interviews will be carried out with six experts in patient prioritization, namely surgeons of the SNS. A list of relevant variables mentioned in literature should be reviewed by and possibly altered taking into account the views of these experts. This list should include the corresponding descriptors of performance of each variable, which are ordered sets of plausible performance levels which operationalise the variable.

Once the list of variables and descriptors of performance have been analysed in the semi-structured interviews, this list should serve as the basis for the Delphi that ensues. The aim of the Delphi concerns the validation of the list of variables at a national level, since the variables and corresponding descriptors of performance will be presented to a larger sample of experts, geographically distributed.

It will also be necessary to confirm the preference independence of variables in the same Delphi, and alter them if dependencies are found. Only then can the variables be adopted as evaluation criteria (ECs) influencing patient prioritisation.

Moreover, the Delphi should be carried out online, with the aim of having a sample of geographically distributed experts from different surgical specialities, as well as potentially increase the response rate to the Delphi.

4.2.2 Phase II: the building phase

In Phase II, a new protocol for the calculation of a priority score for each patient will be presented. This protocol uses the construction of value scales for each EC and the evaluation of the strength of each EC in the overall prioritisation of a patient, according to the stakeholders' views.

The elicitation of decision-makers' preferences shall be carried out using a modified Delphi process, since it frames a Delphi process with the MACBETH multi criteria approach.

In order to compute the value functions, the differences of attractiveness between the levels of performance in each EC must be computed. Using the respective value functions, the performance of a patient in each EC is converted into a partial value score.

In order to compute the weighting coefficients, the differences of attractiveness between the levels of performance in different ECs must be evaluated. The partial value scores are summed to present an overall priority score for each patient using the weights for each EC.

4.2.3 Phase III: the testing phase

Phase III is related to the validation of the prioritisation model using the MACBETH approach. Before the implementation of this model in the SNS context, it is crucial that the sensitivity and robustness of the model are tested, to ensure the reliability of the prioritisation tool.

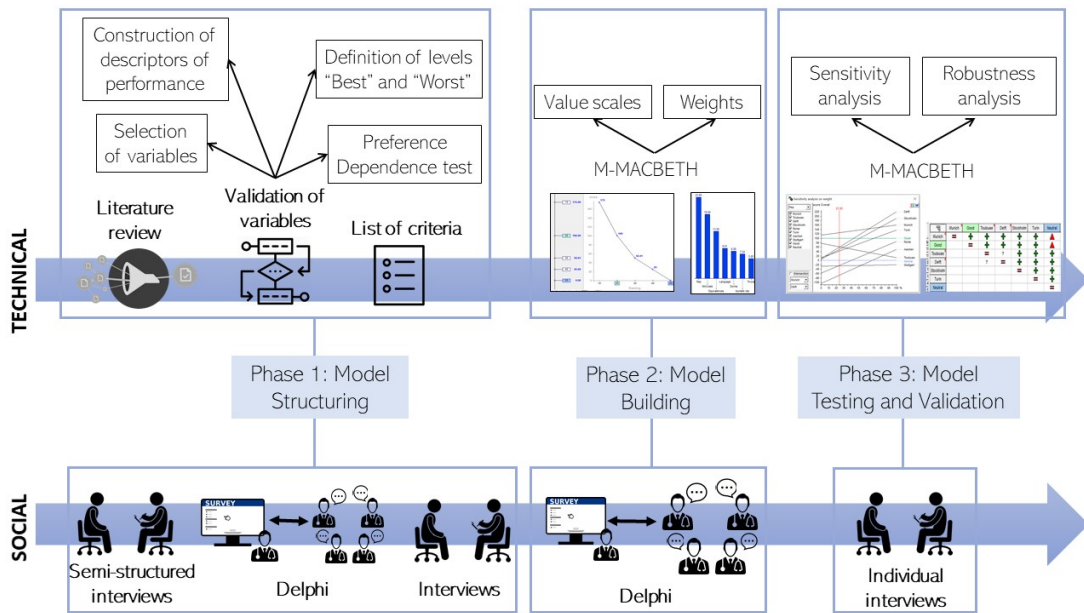


Figure 1: Schematic diagram representing the proposed methodology for the construction of a patient prioritisation tool to be used for waiting lists in SNS.

4.3. Application of MACEBTH to patient prioritisation

It was decided that the focal point of the methodology would be restricted to the literature review and semi-structured interviews, hence it is possible to present an initial list of variables that could be considered in patient prioritisation in waiting lists for elective surgery in SNS.

4.3.1 Step 1: Literature review

The variables are presented in Table 1, in Section 3. Possible descriptors and levels of performance were also taken from the articles used to present the results of the literature review in Section 3. Whenever there was not any relevant data, research in other articles was used. The list of variables, together with each descriptor and levels of performance were presented in semi-structured interviews to surgeons, with the aim of obtaining its validation.

4.3.2 Step 2: Semi-structured interviews

The validation which has been mentioned above can be specified into smaller and more specific objectives:

- Defining which variables resulting from the literature review should be kept in the list, defining which variables should be excluded from the list, and which variables (if any) should be inserted in the list.
- Validate the definition of relevant variables.
- Validate the adequateness of the proposed descriptors and levels of performance for each variable.

Six surgeons from a Portuguese public hospital were contacted for an individual semi-structured interview, lasting between thirty minutes to one hour. There were six guideline questions which aimed at achieving the objec-

tives specified just above. As these were semi-structured interviews, the answer to these questions could lead to follow-up questions, with the aim of better understand the point of view of the expert.

5. Results

5.1. Semi-structured interviews

The updated list of variables, and corresponding descriptors and levels of performance, to be considered in the computation of patient prioritisation scores is presented in Table 4. This list was constructed taking into account the results of the semi-structured interviews.

Although the goals of the interviews did not directly concern the definition of the range of applicability of the proposed PPT, the respondents' answers hinted that the tool should be adapted according to the medical speciality.

It was unanimously highlighted that research work on this topic, patient prioritization in waiting lists for elective surgery in the context of SNS, is fundamental.

6. Discussion

The six semi-structured interviews carried out brought some clarification to the topic of management of waiting lists in SNS. Firstly, the most widely implemented strategy concerns the establishment of maximum waiting time targets. The targets defined in the Portuguese legislation were often used to define prioritization of patients.

The prioritization of patients is often adjusted to ensure a correct management of the hospital budget, pushing the needs of the patients into second place.

On the other hand, PPTs have been in place in SNS with a four-level classification system (Deferred urgency, Very high priority, High priority and Normal priority), but experts often stated that they were not aware of these

criteria which should be used to classify patients into these four categories.

Whereas the criteria present in the Portuguese legislation are mainly related to the clinical dimension of the patient's case, the majority of experts defended that other aspects of the patient case should be considered. The same criteria present in the Portuguese legislation were also criticized for being too generic, and for the absence of descriptors of performance, which may favour implicit processes of prioritization.

Similar comments were made regarding the variables proposed in the literature which were related to the clinical dimension of the patient. The six interviews with experts revealed that these variables would only be approved by experts if they were adapted according to the medical speciality, since they were too generic.

Moreover, the weights given to the performance in each criterion, might also be adapted to the medical speciality in future steps of the methodology. Hence, it is recommended that the prioritization tool developed in the context of elective surgery in SNS uses a mixture of general and specific criteria.

6.1. Changes to the proposed methodology

The proposed methodology must be altered to include the results of this work in the prioritisation tool to be developed. It is proposed that this Delphi has three rounds.

The first one is an introductory round, which will ascertain if (some or all) the variables should be adapted to the medical speciality. In this first round, it would also be relevant to collect information on potential descriptors of performance for these two variables.

The remaining rounds could then be dedicated to the validation of the variables presented, as well as their levels and descriptors of performance.

7. Conclusions

The proposed methodology and collected information make an important contribution to the field of patient prioritisation. Few articles have been published in the Portuguese context about this topic, and the semi-structured interviews have allowed those in charge of prioritisation to express their points of view. It was possible to understand both how and with which criteria patients are prioritised currently, and the variables that these experts consider relevant.

Moreover, the construction of a generic patient prioritisation tool might be inconceivable as a fair process of prioritisation. It was understood that the descriptors of performance of variables associated with the Clinical dimension must be specific to accurately evaluate the performance of the patient in each variable.

If this tool is to be implemented at a national level, it is paramount that the variables are validated with a larger sample of experts, from different specialties and different geographic regions.

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Table 4: Results of the six semi-structured interviews performed: relevant variables in the context of patient prioritisation in waiting lists in SNS, and their definition. The descriptors of performance which were accepted are also presented, as well as the levels of performance for each descriptor. **Legend:** **SD:** Severity of disease, **MS:** Main symptoms, **FI:** Functional Impairment, **PHRQoL:** Probability and degree of improvement of HRQoL, **PSD:** Probability and degree of improvement of severity of disease, **LCD:** Limitation to care for one's dependants, **LS:** Lifestyle, **LAW:** Limitation to the ability to work, study or seek employment, **WT:** Waiting time, **EBM:** Evidence-Based Medicine.

Variable	Definiton	Descriptor of Performance	Levels of Performance
SD	Extent of organ system derangement or physiologic decomposition of a patient, which are a consequence of the disease in question if surgery is delayed. It must also include the Risks associated with a postponement in the surgery, such as risk of death, risk of serious complications, development of co-morbidity and/or worsening the severity of the illness, past complications, risk of affecting adjacent organs or spread of the disease, and progression that might affect the survival and/or can modify the type of surgery.	[No descriptor suggested. The descriptor of performance must be adapted according to surgical specialities]	
MS	Degree of the main symptoms (type, intensity or frequency) affecting health related quality of life (HRQoL), usually referring but not limited to physical pain. It must also include the risks associated with a postponement in the surgery, such as risk of progression of symptoms.	[No descriptor suggested. The descriptor of performance must be adapted according to surgical specialities]	
FI	First, this variable assesses the impact of the disease in question on health-related quality of life (HRQoL), arising from limitations, due to the health condition, to undertake daily life activities that were held prior to the disease, therefore threatening the level of independence of the patient in his daily life; second, in case there is a significant impact, it assesses whether there exists a caregiver or someone who helps with daily life activities.	Being dependent and having a person to take care of them	<p>The patient has a caregiver or his/her ability to carry out daily life activities is not threatened or more difficult</p> <p>The patient does not have a caregiver and his/her ability to carry out daily life activities is not threatened but it is more difficult</p> <p>The patient does not have a caregiver and his/her ability to carry out daily life activities is threatened but not immediately</p> <p>The patient does not have a caregiver and his/her ability to carry out daily life activities is immediately threatened</p>
PHRQoL	Probability and/or degree of overall improvement in health-related quality of life, through the improvement of functional impairment, main symptoms, socio-economic status, psychological distress or other characteristics related to the disease.	Difference between WHOQOL- BREF before surgery and predicted WHOQOL- BREF after surgery	0-20
PSD	Probability and/or degree of improving the disease condition for which the patient is being inserted in a waiting list.	Probability of improvement with surgery	Low (<50%) Moderate (50%-70%)

PSD			High (70%-90%) Very High (>90%)
LCD	Possible limitations to exercise the responsibility of taking care of dependents (i.e. children, elder parents, etc.), due to the condition which could be treated with the programmed surgery.	Having dependents	The patient has dependents The patient does not have dependents
LS	Impact of lifestyle or the potential responsibility of the patient concerning their current health status. This could include self-inflicted conditions, resulting from unhealthy lifestyles, such as smoking, leading an unhealthy diet, or having unprotected sexual.	Impact of lifestyle on patient's condition	The patient's lifestyle did not cause the onset of the condition The patient's lifestyle contributed to the onset of the condition The patient's lifestyle was the main cause of the onset of the condition
LAW	Possible limitations to work (in paid or unpaid jobs), including limitation for schooling, educational activities and job-seeking, due to the condition which could be treated with the programmed surgery.	Impairments in working	Still able to work fully or the patient has no interest in working Has to skip work partially (partially on sick leave) Not able to perform job anymore
WT	Time the patient has spent waiting for surgery.	Waiting time (in months)	0-48+ months (continuous numeric descriptor)
EBM	Insights and opinions derived from high-quality research on population samples, to inform clinical decision-making in the diagnosis, investigation, management or care of individual patients.	Grading of Recommendations Assessment, Development and Evaluation	High Quality Evidence ¹ Moderate Quality Evidence ² Low Quality Evidence ³ Very Low Quality Evidence ⁴

¹ **High Quality Evidence:** The authors are very confident that the estimate that is presented lies very close to the true value. One could interpret it as "there is very low probability of further research completely changing the presented conclusions."

² **Moderate Quality Evidence:** The authors are confident that the presented estimate lies close to the true value, but it is also possible that it may be substantially different. One could also interpret it as: further research may completely change the conclusions.

³ **Low Quality Evidence:** The authors are not confident in the effect estimate and the true value may be substantially different. One could interpret it as "further research is likely to change the presented conclusions completely."

⁴ **Very Low Quality Evidence:** The authors do not have any confidence in the estimate and it is likely that the true value is substantially different from it. One could interpret it as "new research will most probably change the presented conclusions completely."

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