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How to shorten waiting lists in public health systems?: lessons learned from three pilots implemented in Chile

Inter-American Development Bank
Social Protection and Health Division

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Lessons learned from three pilots implemented in Chile



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Lessons learned from three pilots
implemented in Chile

**We invite you to consult the rest of the
documents in this series:**

- Determinants of waiting times for specialty care: a proposal for optimizing the management of waiting lists in health care.
- Optimization of the management of waiting lists in health care: three cases of implementation in the metropolitan health network in Chile
- Exploratory study to quantify the results of the model of care management and monitoring of people on the non-GES waiting list in the Chilean public health system.



How to shorten waiting lists in public health systems

Lessons learned from three pilots implemented in Chile

Summary¹

The increase in waiting lists for care is a very relevant problem for health systems. While some of the causes are related to deficits in the supply of professionals, equipment and infrastructure, others are related to poor patient management.

International experience confirms the importance of combining management with financing. And, within management, consideration should be given to the patient's transit or journey through the care pathway. Referral systems play a key role in the management of patient flow and may be affected by the persistence of various sources of inefficiency.

Within the framework of the technical cooperation project of the Inter-American Development Bank (IDB) with the Chilean Ministry of Health (MINSAL), and together with the Public Innovation Laboratory of the Pontificia Universidad Católica de Chile, a study was carried out to identify the key performance points that represent opportunities for improvement in management to reduce waiting lists and waiting times in specialty care. This study resulted in a clinical management optimization model that was applied on a pilot basis in three specialties. In addition, performance metrics were comparatively analyzed to evaluate the results of these experiences. Each of these aspects - diagnosis, implementation experience and results - has given rise to a series of three documents, brought together in this document.

JEL Classification: I12, I18, I31, I38.

Key words: health wait times, waiting lists, waiting times, health system, health care, continuity of care, clinical management, specialty care, monitoring, prioritization, resolution.

1. The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the IDB, its Board of Executive Directors or the countries it represents.



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Introduction



Waiting times for care are a concomitant of any health system, but unnecessary and prolonged waiting times are considered a problem both because of their effects on people's health and because of the performance and costs of health care systems. Waiting times are an expression of the mismatch between supply and demand, and it is necessary to establish an order in the prioritization of care. Managing waiting times makes it possible to effectively prioritize what is most urgent and to respond progressively to the demand for care in a context of limited supply and resources (IDB, 2016).

Waiting list management is understood as the process by which a health system manages its flow of patients. When a health situation requires a patient to be referred to a higher level of complexity, the response will depend on the organizational scheme of resources, processes and procedures for the next level of care. It is in the referral stages between levels of care that congestion is most likely to occur.

Among the most promising strategies for managing health care waiting lists are those that address patient flow by reducing the complexity of time allocation systems. Lessons learned have shown the need to address both dimensions of the problem on the supply side in a complementary manner. On the one hand, by providing the necessary resources to ensure adequate response capacity. On the other, by focusing attention on aspects related to management.

In this context, since 2019 the Inter-American Development Bank (IDB) has been working with the Chilean Ministry of Health (MINSAL) and the Public Innovation Laboratory of the Pontificia Universidad Católica de Chile on the design and implementation of a model for management and monitoring of people on waiting lists in the public health system. As part of this research, the actual flow of patients between the primary and secondary levels of care was observed to identify opportunities for optimizing management and improving their experience. Subsequently, pilots were implemented to identify effective alternatives for reducing waiting lists by optimizing clinical management, as an alternative while advancing in structural redesign processes on financing, payment mechanisms and staffing.

The pilots executed as part of this project took place in two hospitals of the South East Metropolitan Health Service (SSMSO), in the metropolitan area of Santiago, in three specialties not included in the Explicit Health Guarantees Plan (GES)²: the specialties of gastro-

2. These are pathologies that, because they are not included in the GES General Regime, have normal coverage according to the affiliate's health plan and, therefore, the priority of care is not assured except for the prioritization criterion based on the clinical risk presented.



enterology and traumatology of the Health Reference Center (CRS) of the Padre Hurtado Hospital and the specialty of cardiology of the Diagnostic and Treatment Center (CDT) of the San Juan de Dios Hospital.

This document presents the analysis of patient flow in the network and its respective critical nodes. Subsequently, the various elements of the model designed as part of this project are presented. In the next section, details of the implementation of the model in the three pilots mentioned above are described. Finally, the main results associated with the pilots are presented.³

3. This paper synthesizes the learnings gathered in Tello, Riveros, and Jara-Maleš (2023a); Tello, Riveros, and Jara-Maleš (2023b); and Celhay and Jiménez (2023).



2

The importance of clinical management and patient flow in the management of waiting lists*

* For more information, see Tello, Riveros, and Jara-Maleš (2023a).



The most promising results of wait-for-care management strategies combine triage in the initial management of patients and monitoring the relationship between the supply of available care resources and population demand. Patient flow interventions that use one or more of these elements can be effective in community-based ambulatory services (Harding et al., 2018). In addition, classification systems that update clinical risk can improve overall patient flow (Harding et al., 2011).

Referral systems play an important role in managing patient flow and delivery of care. However, these systems may suffer due to the persistence of several pockets of inefficiency in issues such as lack of clarity in risk assessment criteria, prioritization of care, and patient referral (Rathnayake and Clarke, 2021).

The literature on measures and strategies to reduce patient waiting times for elective surgeries shows that the strategies implemented are often multifactorial and multidimensional (Rathnayake and Clarke, 2021). An evidence-based review (Bachelet, et al., 2019) suggests that improved aspects of management need to be combined with additional resources to achieve greater hospital productive capacity. And, within management, broad consideration of the patient's transit or journey through the care pathway (Tello et al., 2020).

Current trends in health care hold promise for improving the timeliness and quality of care. These include predictive and personalized health care incorporating information and communication technologies, home care, prevention and health promotion through patient empowerment, and care coordination (Gandarillas and Goswami, 2018). Also, hospitals are moving from a traditional organizational model to a patient-centered model. In this framework, the use of technology can be decisive and a key enabling condition for integrated care.

We have already seen some promising results related to the incorporation of digital patient management into the healthcare delivery process. However, the evidence seems to warn about the need to combine these strategies with a better understanding of patient flow and design the care process around users. A literature review (Tlapa et al., 2020) showed that this way of optimizing processes based on patient flow management helped reduce waiting times and length of stay in ambulatory care, mainly due to its focus on identifying and minimizing non-value-added activities.

Experiences known in this review that have shown good results in timeliness and quality of care involve professionals from different areas in the process optimization team. In addition, they obtain buy-in from all stakeholders, introducing a collective problem-solving approach. The results of this review suggest that understanding the relationship between capacity and demand is key to improving patient flow (Tlapa et al., 2020).



3

Patient navigation through Chile's public health network*

* For more information, see Tello, Riveros, and Jara-Maleš (2023a).



There are several qualities that stand out in Chile's healthcare system, but there are two that are worth highlighting from the point of view of waiting times for care. On the one hand, the definition of a health benefits plan known as GES, which prioritized the most relevant pathologies. Although this decision has generated problems in the congestion of demand for care for non-prioritized pathologies, Chile is unique in that the maximum waiting times are part of the explicit benefit plan and are enforceable rights for the insured. On the other hand, the periodic publication of the number of people waiting for specialty consultations or surgery and the average number of days they have been waiting, which is not frequent in health systems, stands out.

However, as in most countries, the accumulation of people waiting for care and the extension of waiting times continue to be critical problems. While some of the causes are related to the availability of the supply of health professionals, equipment and infrastructure, others are related to poor management of waiting lists. Thus, this project sought to understand, in particular, what is the flow of patients reaching the secondary level of care and receiving care from a specialist.

The process of generating an interconsultation⁴ not covered by the opportunity guarantee of the GES regime begins when the patient goes to his/her primary care health center for an ailment. There he/she is evaluated by a professional who determines whether a request for an interconsultation to a secondary level specialist should be made. These interconsultations can also be generated in emergency services, from other specialists at the secondary level or after the discharge of a hospitalized patient at the tertiary level. At the conclusion of care, the professional instructs the patient to wait until he/she is called from the secondary level to be seen by a specialist.

At the primary level of care, the request is evaluated by the controlling physician of the health center, who authorizes or rejects the patient's discharge to the secondary level. Although there are general guidelines, each health center defines how to notify a refusal decision to the patient. Requests generated at other levels of care are not audited in this way.

At the secondary level of care, the request may follow different routes depending on the center that receives it. Some centers have work teams that review incoming interconsultations, while in other centers interconsultations are received directly by each specialist.

4. An interconsultation or referral is the evaluation of a patient to make a diagnosis, formulate or adjust a treatment. This referral occurs when the physician of an office or hospital considers it necessary for the patient to be evaluated by a specialist, either in the same health center or in a more complex hospital.



From there, the requests received are prioritized and an order is generated to attend to the patients.

In parallel to the aforementioned process, the patient is waiting for the call from the secondary level of care. In case of doubts, he/she usually goes to his/her primary health center, where they will not be able to provide information about the process since the different levels of care or health centers do not share this type of data. Faced with this, he/she can insist on going to the same secondary health center to seek guidance, where the administrative staff also do not have access to this information and the resolution of the query will depend on the inquiry capacity of the person attending.

If the patient's health condition worsens during the waiting period, he/she will probably return to his/her Family Health Center (CESFAM) or to the emergency department, where a new request for a referral may be generated or the need for hospitalization may be indicated. Thus, the patient's new health condition is not updated in the initial request and the number of waiting requests increases. The patient may also go to private health centers or, in a smaller number of cases, may even die.

Finally, the patient is called to attend his medical admission with the specialist. If after three telephone contact attempts on different days and times it is not possible to reach the patient, a registered letter is sent or a visit is made to the patient's home in order to summon him/her to the consultation. If, in spite of this, it is not possible to reach him/her, the request for an interconsultation will be deleted from the system after a few months.

If the patient has the results of tests previously taken, he/she will take them to his/her first consultation with the specialist. However, due to long waiting times, these tests are probably no longer up to date and the patient may be asked to have them done again, and may be placed on a new waiting list for tests or procedures. Upon receiving this first visit, the request for an inter-consultation is logged out of the system that monitors waiting times, even though the patient may not yet have resolved his or her initial reason for consultation.

In the case of patients with more complex conditions, the specialist usually authorizes additional slots to see them again and requests the necessary steps to expedite care. Patients who do not require urgent care should attend or call on the day that each unit assigns hours of care, and may be placed on a waiting list again until a slot is available for their care.



3.1 • Critical nodes in patient flow

Based on this analysis of patient flow, it was possible to identify the following critical nodes in the non-GES waiting list management process:

3.1.1 • Waiting List Update

In many cases, there is no integrated system for managing the different types of consultations, which makes it difficult to process them in a single waiting list. A second difficulty is related to the updating of information on referrals, since there are no adequate mechanisms to identify cases of duplication (more than one referral generated by the same health problem of the same patient), patient care in another unit or facility, change of domicile of the patient, change of health insurance system or death.

3.1.2 • Prioritization of the waiting list

There is no single system of clinical prioritization in health facilities. Some facilities have systems with 2, 3 or 4 different prioritization categories within their various specialties. Differences were also observed in the prioritization process itself, since some units categorize according to the severity of the clinical condition based on the history described in the interconsultation. Other units, on the other hand, make counter-referrals (response from the specialist to the requesting professional) to gather more background information. This lack of standardization of the prioritization process contributes to the accumulation of referrals and complicates the timely resolution of requests that need a prompt response.

3.1.3 • Patient Contactability

Health teams try to contact patients based on the data recorded in the interconsultation, but with the passage of time much of the data becomes outdated. Despite the fact that during the waiting phase patients visit health facilities numerous times in search of information, these interactions are not always used to update their contact information. Thus, the older the interconsultation is, the less likely it is that the patient can be effectively contacted at the time of trying to schedule care.



3.1.4 • Scheduling and confirmation of attendance

The various health units and facilities use different criteria for scheduling patients. In some cases, they are scheduled based on the age of the interconsultations. In others, based on their clinical priority. The first criterion allows health care to be provided to those who have been waiting the longest, but leaves recently admitted patients with health problems requiring prompt attention on hold. On the other hand, although the clinical priority criterion allows those with the most serious health problems to be attended first, it may happen that patients of medium or low complexity are never scheduled.

On the other hand, confirmation of attendance at medical consultations is an activity that most health facilities fail to perform. This is due to the shortage of personnel to perform this action and the lack of access to technologies that could fulfill the same function. Since there are no communication channels between patients and the specialty services, the only way to notify about a need for a change of time would be to attend the unit in person.

3.1.5 • Control Queries

According to MINSAL regulations, medical check-ups should correspond to 68% of scheduled consultations in specialty units, leaving the remaining 32% for inpatient consultations. However, in many cases there is a higher percentage of control consultations. Contributing to this situation is the low number of discharges granted by specialists, who often prefer to keep patients with chronic conditions under control for years or indefinitely. In many cases, this decision is promoted by a lack of confidence in the resolution capacity of the primary level of care and the lack of shared follow-up channels between different levels of care. Similarly, patients prefer to continue at the secondary level because they consider specialist consultation to be of «higher quality», in addition to facilitating access to requests for interconsultations to other specialties through internal referrals between specialists.

3.1.6 • Use of telemedicine

Despite its high resolution, synchronous telemedicine (in real time and live between the specialist physician and the treating physician or the patient) requires multiple technological resources and internet connection, which are not always available in the services or by the patients. Also, to be truly efficient, telemedicine requires working hours of nursing and administrative staff to perform pre- and post-care management. Thus, telemedicine is more likely to be used in some specialties and in some phases of the care process.



3.1.7 • Patient information and communication

Patients often do not understand or are unaware of the care management process and their rights and responsibilities in relation to referrals. Not understanding the process leads to feelings of frustration about the wait and reduces their chances of contributing to the successful resolution of cases. In addition, they do not have direct communication channels with the specialty through which to interact without having to go in person. And if they go to the hospital to ask for an interconsultation, the response they receive is generally unsatisfactory.

3.1.8 • Communication and coordination between levels of care

There is weak coordination and communication between Primary Health Care (PHC) facilities and secondary and tertiary levels. There are no formal mechanisms to solve clinical doubts that the PHC physician may have when issuing interconsultations, to alert the secondary level about interconsultations of greater complexity and urgency, or to inform from the secondary level to the primary level about rejected inter-consultation requests. In addition, the lack of a single care record makes it difficult for the various professionals with whom the patient interacts throughout the care process to access patient information.



4

Model of care management and monitoring of people on the waiting list*

* For more information, see Tello, Riveros, and Jara-Maleš (2023a).



Based on the critical nodes identified above, a management model was developed to improve the user experience. In particular, actions were identified to contribute to:

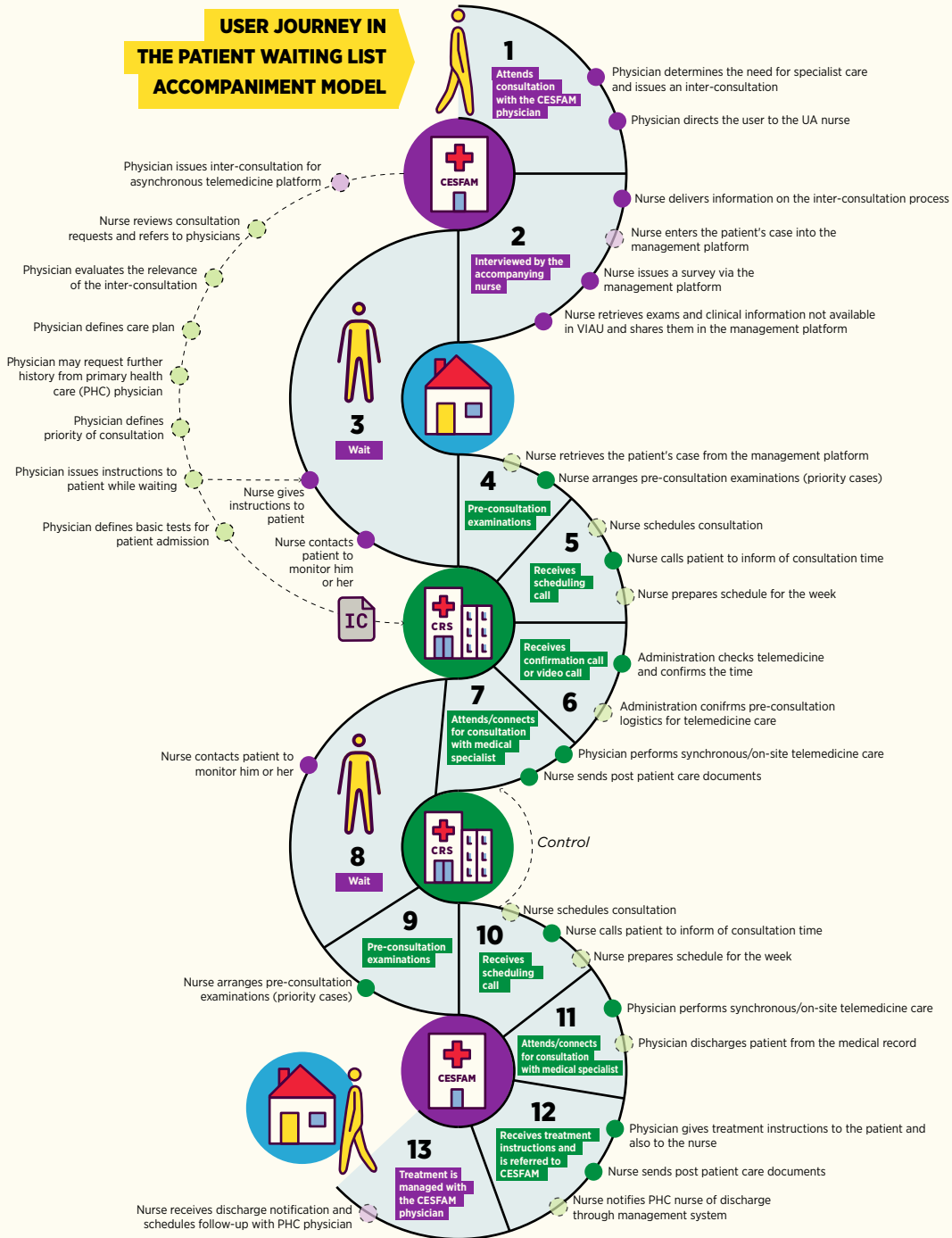
1. To increase users' access to information about their diagnosis, care process and consultation status, in order to improve their self-efficacy in managing their health care and care process.
2. Improve the continuity and comprehensiveness of the patient care process.
3. Improve the management and coordination of the timeliness and effectiveness of the health services available.
4. Implement a process for monitoring the user's health status during the waiting period to update their priority of care and their access to the health benefits they require.

The model constructed proposes a redesign of the process from the patient's perspective, so as to articulate the management of the various functions, activities, operating units and teams according to the needs and times of each patient. Figure 1 shows the redesigned care process from the patient's point of view.



FIGURE 1

PATIENT'S JOURNEY THROUGH THE PROCESS OF CARE MANAGEMENT AND SUPPORT



Source: prepared by the authors.



Faced with an ailment or discomfort, the patient requests an appointment at his or her CESFAM. If during his/her care the physician determines that the patient should be treated by a specialist at the secondary level, he/she generates a request for an interconsultation/referral. The patient is also comprehensively evaluated by this professional, who decides whether he/she is a person in need of further assistance at the secondary level.

When leaving the professional's office, the patient goes to the person in charge of linking the levels of health care, who gives him/her a copy of his/her consultation, guides him/her through the process in the system and gives him/her a supporting document. This person also asks the patient to confirm his or her contact information and informs him or her if it changes during the waiting period.

If the patient belongs to a chronic pathology program at the CESFAM and during his/her check-ups notices any deterioration or relevant change in his/her health condition or goes to the emergency room or to spontaneous consultations due to a compromise of his/her health condition, communication is also generated with the secondary level to evaluate a reprioritization of the referral.

While waiting for the consultation with the specialist, the patient is contacted by telephone by an official from the secondary level, who verifies the patient's need to be seen, updates his or her contact information, evaluates the patient according to pre-established clinical criteria and requests admission tests according to his or her health condition. If the patient requires monitoring, an appointment is provided, in addition to scheduling the patient's care with the specialist. The patient is also given a telephone number or email for direct contact with the specialist.

The patient arrives on the day of his/her consultation, is seen and, as is usually the case, may require at least one additional consultation to confirm a diagnosis. Then, a treatment and pre-diagnostic tests are indicated and the patient is informed about how long he/she should be monitored. Once the diagnosis is defined, the physician can determine their discharge, and the patient continues to be seen in his/her CESFAM with the indications of counter-referral. If it is a more complex pathology, the patient is instructed to remain under specialty care with new tests. Time is provided in the case that monitoring is required.

If the specialist physician determines that the treatment requires a surgical resolution, the patient is referred for evaluation by a surgeon and a pre-surgical team. The latter coordinate the patient's monitoring and preparation for surgery with the connection referral of his/her CESFAM, in order to ensure that he/she is in ideal conditions for the procedure. If there is any change in the patient's state of health during the waiting period, this is notified between



the teams. When the time comes, the patient goes to surgery according to the indications received by the pre-surgical team. After the surgical discharge, the patient returns to his CESFAM with the counter-referral indications to continue his rehabilitation and control.

4.1 • Model components

The components of this new management model can be grouped into seven units, which are described below.

4.1.1 • Information to patients

In order to strengthen their self-efficacy to manage their health care, the first component of the model seeks to increase the information people have about their diagnosis and care process in four specific areas:

1. Improve their level of information about their diagnosis or suspected diagnosis and the health services they will need to receive.
2. Provide information on the process of managing referrals for new specialty consultation (CNE) or surgical intervention.
3. Provide an estimate of the waiting times that similar patients have experienced at the facility to which they have been referred.
4. Provide information on the stage and status of their consultation.

The idea is to set up a face-to-face information channel in the CESFAM of origin of the interconsultation, in order to facilitate patient access to the clarifications required. There could be an information kit to explain to each patient the process of care in the network and the estimated waiting times. Also, if the CESFAM had access to patients' clinical information and their care process, they could go there when they want to inquire about the status of their referral. On the other hand, when feasible, a digital channel can be implemented to allow patients to access detailed information about their care process. It may also be relevant to enable the telephone channel of Salud Responde⁵, as a means of providing detailed information about each patient's care process.

5. The Salud Responde Program is a multichannel platform of MINSAL to inform, guide and educate on aspects related to people's health care and the services available in the health care network.



4.1.2 • Patient prioritization and scheduling

The model proposes improvements in the criteria and processes for patient prioritization and scheduling. Regarding the criteria, it is proposed to implement a cumulative priority modality⁶ that combines the patient's clinical criteria with the age of the interconsultations. This modality allows patients with medium or low clinical priority to be scheduled after a reasonable waiting time.

A second area of redesign relates to the timeliness of prioritization. The model proposes to establish a periodic prioritization process for new consultations so that the most urgent and complex cases are identified promptly by a designated medical professional. Complementary, as detailed below, the model proposes to establish formal channels of communication with primary care teams to alert specialty teams when referring patients for urgent care.

A third area for improvement is the need to update prioritization in accordance with the evolution of each patient's health status, so that priority is a dynamic category. In the case of patients who will have to experience a medium or long wait, it is proposed to establish a formal mechanism for updating their priority, a component that is detailed below. In the event that a worsening of the patient's health condition is identified, the specialty team will proceed to update the patient's place in the order of priority.

Finally, in relation to the scheduling of hours, it is proposed to use an allocation tool⁷ based on the cumulative priority modality mentioned above, which allows scheduling hours according to the order of priority built with these criteria. Additionally, it is proposed to establish a process of confirmation of hours through digital tools such as WhatsApp Business.

4.1.3 • Monitoring of patients' health status during the waiting period

In order to monitor the health status of patients while they are waiting for care, two complementary mechanisms are proposed. The main mechanism will operate in the same CESFAM where the patient is to be attended, so that if the patient's health condition worsens, he/she will go to this facility to request a new evaluation. In the event that a worsening of the pa-

6. Proposal developed by the Department of Industrial Engineering of the University of Chile for the SSMSO within the framework of the pilot.

7. Tool designed by the Industrial Engineering Department of the University of Chile for the SSMSO in the framework of the pilot.



tient's health condition is diagnosed, the PHC team will communicate this situation, through a formal channel, to the corresponding specialty team so that it can update its priority.

A complementary monitoring mechanism proposed is the communication channel that is set up between the specialty nurse and the patient once the care process begins, which will be explained later. If the patient perceives a worsening of his/her health condition, he/she may contact the nursing team, who will make an assessment by telephone or video call. In the same call, the patient will also be oriented on the steps to follow in their care and will be given information on signs to go to the emergency room.

4.1.4 • Communication with patients

In order for there to be communication between health teams and patients, patients must be able to be contacted. It is proposed that each time a user contacts a health facility, he/she should be asked to update his/her telephone number, address and email address. In a first stage, the various levels of care will be able to consult each other's contact information, but progress will have to be made towards having a single database.

A second area of communication is related to the establishment of bidirectional communication channels between health teams and patients. It is proposed to implement a telephone and messaging channel in each specialty that patients can contact. In order not to congest this telephone channel and not to overload the specialty team, it is proposed to use platforms that allow scheduling personalized responses and screening of calls that should be answered by administrative or nursing staff, such as Whatsapp Business. Also, as a complementary channel, a dedicated email per specialty is proposed.

4.1.5 • Management of timeliness and responsiveness of health services

The model proposes several strategies for coordinating the timeliness of the various health services required by the patient, seeking the highest possible outcome of care provided. These include:

1. Previous telephone contacts with each patient to check if he/she has the required tests for each specialty. In case of not having them or having them out of date, the medical



order will be provided so that they can be performed before their medical care and the required hours will be arranged with the corresponding services of the health center.

2. Enabling teleconsultations by means of previous video calls by the administrative or managing professional in order to check the correct functioning of the video call or telephone connection. This pre-enabling will allow the specialist to focus on clinical care without wasting time on technical connectivity problems.
3. Management of check-ups of patients who start a treatment in order to schedule them with the periodicity established by the specialist until discharge, but coordinating with the integral scheduling of new cases and other check-ups by the same specialist. It is proposed to incorporate prioritization criteria that allow a fair and efficient distribution of available hours.
4. Management of previous examinations of the patient, resolution of problems that affect the surgical opportunity and operative pass by the pre-surgical team of each specialty at the tertiary level.
5. Evaluation of patients who must wait long periods of time before being operated on by the pre-surgical team, in order to identify if there are factors that affect their surgical opportunity.

4.1.6 • Monitoring priority patients

Although the model seeks to monitor all patients who are waiting for a CNE or a surgical intervention that corresponds to the non-GES waiting list, in view of the restrictions on the availability of teams, it is proposed to focus monitoring on two groups:

1. People with certain pathologies or underlying conditions, such as psychiatric pathologies, intellectual disability, and/or partial or total mobility impairment.
2. Persons under vulnerable social circumstances, considering ICD-10 diagnoses on “Persons with potential health risks related to their socioeconomic and psychosocial situation” (Z55 to Z65).

In addition to presenting any of these conditions, it must also be the case that these patients need to be monitored due to their condition and that they do not have support networks to meet this need.

These patients, identified at the primary health care facility at the time of referral or during the care process, will be categorized as «persons in need of follow-up» and will be entered into the care system.



4.1.7 • Updating the Waiting List

The model proposes to strengthen the capacity of specialty teams to update their waiting lists. This process consists of the following steps:

1. Compilation of all available databases of referral requests and documents, both physical and digital, from the various referral sources.
2. Review and cross-checking of the information collected to obtain the total number of consultations.
3. Identification of interconsultations that can be administratively discharged.
4. Administrative removal of these requests from the SIGTE database.
5. Telephone contact with patients whose consultations are in progress. An attempt should be made to call each available number three times at different times. Depending on the result of this call:
 - If the communication attempt is unsuccessful, a certified letter must be sent notifying the situation or a rescue home visit must be scheduled. The patient has 90 days to respond to the letter and restart the scheduling process.
 - If communication is achieved, the need for care should be updated. This call may be made by a senior nursing technician (TENS) or trained clerical staff.
 - If care is not required, the corresponding administrative discharge procedure is carried out.
 - In the case of patients who change their address, they should be offered to transfer the application to their new health center.
 - In the event that the patient requires care, the case is referred to the nursing team to contact the patient and update the patient's clinical priority for further scheduling.

4.2 • Management of high performance teams

The proposed monitoring model is based on the joint and coordinated work of the teams at the three levels of health care. This approach should aim to provide each patient with a continuous and quality care experience over time.



In the case of the primary level, there should be a team to implement the model in each facility that generates referrals for CNE. Depending on the capabilities and resources of each center, this team could be made up of a health professional (nurse, midwife, social worker or kinesiologist), a physician comptroller, a waiting list management referral, a person responsible for the waiting list registry, center managers, health technicians and administrative staff. Their functions would be:

1. Provide information to patients about the consultation management process and the estimated waiting time.
2. Coordinate with secondary level and pre-surgical teams to ensure screening of urgent cases, update prioritization of interconsultations, coordinate complementary services at the primary level and manage counter-referrals.
3. Evaluate the patient to determine the most appropriate support plan.

In the case of the secondary level, it is proposed to form a team that coordinates the efficient execution of admission consultations, controls, counter-referrals and referrals to pre-surgery. This team will be made up of a health professional who manages the specialty, the head physician of the unit, the prioritizing physician, an administrative assistant and a health technician. Its functions would include:

1. Update the prioritization initially granted, in the event of a worsening condition.
2. Create or have a battery of useful tests and procedures to have as first care.
3. Scheduling patients, after verifying the results of the required tests and procedures.
4. Manage the results of tests requested by the specialist and the issuance of prescriptions.
5. Manage primary level referrals of patients who must continue to be monitored there or who have been discharged (counter-referrals).

After the secondary level, several tertiary level health facilities have created pre-surgical teams or units. These teams manage patient care prior to surgery, facilitating examinations and evaluations by specialists and obtaining medical passes. Also, in some cases, they are in charge of scheduling the surgical table of the wards.

This model proposes to complement the current functions of the pre-surgical units and focus them more on a «surgical process», channeling the actions to an objective beyond the surgery itself, such as the recovery and rehabilitation of the person. Some actions proposed to carry out this process are:



1. Coordinate the management of surgical opportunities of patients with medium or low prioritization with the primary care team, so that when they are scheduled for surgery they are in adequate condition to undergo surgery.
2. Manage postoperative controls and prescriptions issued by the specialist physician.
3. Manage the referral of the patient who has been discharged to the corresponding primary level facility (counter-referral), sending the necessary information for treatment and rehabilitation.

The model requires the existence of instances of coordination and permanent communication between teams, through formal, expeditious and continuous mechanisms for joint work. This can be developed through existing channels, but ideally digital supports should be enabled for the processing and analysis of the information generated by the different levels of care. Also to coordinate the necessary actions with respect to the different cases being managed.

On the other hand, the change management involved in the implementation of the proposed model requires leaders with characteristics that should be transversal across work teams. For this, it is necessary to ensure information is managed and activities are developed that are fundamental for the unit to function in a flexible way that is conscious of the situation that frames its work, including:

1. Set up meetings with all team members and other complementary teams.
2. Ensure an adequate flow of information within the team.
3. Ensure that the team receives adequate instructions and training for high work performance.



5

Implementation of the model*

* For more information, see Tello, Riveros, and Jara-Maleš (2023b).



At the end of April 2020, as a result of the pandemic context, secondary health facilities were practically without care in most health services and CESFAMs, which are the main entry points for patients on waiting lists for specialty care. In this scenario, the alternative of modifying the original design of the model proposed in the previous section was analyzed, focusing on the secondary level and favoring the use of remote channels for patient monitoring and care. In conjunction with the Digital Health Unit and the telemedicine team of the SSMSO and part of the management team of the Padre Hurtado Hospital, the initial model was adjusted for implementation in the gastroenterology specialty of this CRS.

In March 2021, work began with the Cardiology Unit of the San Juan de Dios Hospital of the Western Metropolitan Health Service (SSMOc). Also in March 2021, work began with the team of the CESFAM Poetisa Gabriela Mistral of the commune of San Ramón, part of the Padre Hurtado Hospital network. Together with them, a model was created for requesting interconsultations for non-GES pathologies under the approach of the care management and monitoring model. Its implementation began with referrals to the Gastroenterology Unit of the Padre Hurtado Hospital, in order to achieve both levels of care.

In April 2021, the implementation of the pilot program began in the Traumatology Unit of the Padre Hurtado Hospital. There, the pre-consultation management work was substantially enriched with the collaboration of the medical team, who contributed with the creation of evaluation instruments to be applied by telephone to users and with the standardization of a battery of tests to be requested according to diagnostic suspicion, allowing a higher resolution in the first consultation.

The experience of implementing the model in these health facilities, the processes carried out, the performance statistics and the preliminary results in each facility are detailed below.

5.1 • Gastroenterology Specialty at Padre Hurtado Hospital

At the beginning of the intervention, in June 2020, the gastroenterology service of the Padre Hurtado Hospital had five specialist physicians, a nurse in charge of management and an administrative assistant. However, as the latter performed their duties in gastroenterology as well as in five other specialties, a nurse was hired exclusively for the project. This nurse worked together with a teleworking TENS provided by Padre Hurtado to support the imple-



mentation. This nursing team was joined by the head physician of the specialty and a prioritizing physician. In addition, there was constant assistance from the CRS management team.

The activities carried out in the specialty as part of the pilot are described below.

5.1.1 • Updating the waiting list

When the implementation of this pilot project began, Padre Hurtado Hospital had the largest waiting list for gastroenterology in the SSMSO. To carry out the first administrative update, they proceeded to review the databases and compiled all the existing requests for interconsultation and cross-checked the information to obtain the total number of requests. Then, the interconsultations that could be administratively discharged were identified and their discharge from MINSAL's Waiting Time Management System (SIGTE) was managed. After this update, different percentages of validity per year were obtained for the referrals admitted (which ranged from 49 to 95%).

The second update of the list was made through telephone contact with the patients, in order to corroborate their need to be attended. The contactability was measured through effective telephone communication carried out by the TENS following MINSAL protocols (three telephone calls to each of the available contact numbers, on three different days and at three different times). Following these guidelines, telephone communication was achieved with half of the people waiting.

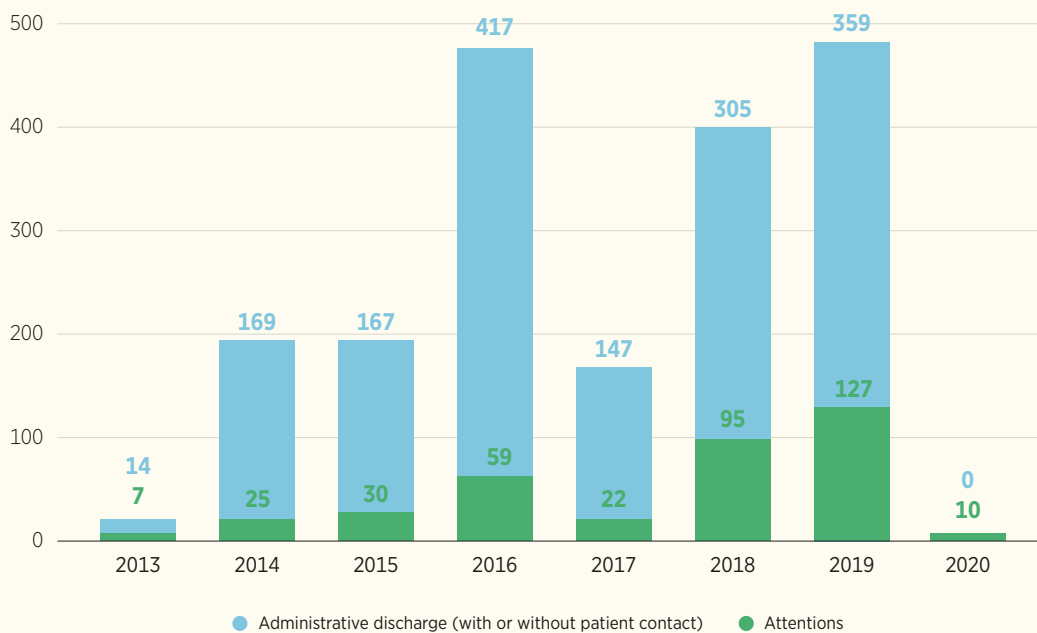
When the TENS was able to contact the patient by telephone, he/she would ask if the patient still needed to be seen and updated the patient's contact information. New administrative discharges could also be generated if the patient refused the care offered.

After updating the waiting list by reviewing databases and through attempts to communicate with patients, it was possible to remove approximately 80% of the interconsultations from SIGTE for administrative reasons. Thus, only 20% of the requests were available to be attended by the specialist and to be discharged for medical reasons (graph 1).



GRAPH 1

NUMBER OF PATIENTS BY YEAR OF GENERATION OF THEIR GASTROENTEROLOGY CONSULTATION, WHO WERE DISCHARGED ADMINISTRATIVELY OR AFTER BEING SEEN BY THE SPECIALIST



Source: prepared by the authors (cut-off in June 2021).

5.1.2 • Monitoring of patients' health status during the waiting period

In a second call to patients who accepted the request for consultation, the nurse carried out a clinical evaluation through the application of a questionnaire. This made it possible to detect aggravations and to prioritize the need for care if necessary. Patients were also provided with a telephone number and email so that they could report changes in their health status, among other issues. The patient could also be contacted via WhatsApp Business.

5.1.3 • Communication with patients

Although at first it was decided to use the telephone for communication with patients, the large number of calls led to the decision to enable the WhatsApp Business application. Through this channel, users could report missed appointments, find out how to schedule



medical check-ups or exams, notify changes in their telephone number and report a worsening of their health condition.

A communication channel was also established with the health center's Office of Information, Complaints and Suggestions (OIRS). The OIRS staff informed the nurse via email about the cases of patients who inquired about the status of their request and then called them back to resolve their request.

In addition, the aim was to contribute to communication with patients through the implementation of the Cotalker tool in a flexible manner at the different health levels. For this purpose, updated patient contact information was shared.

5.1.4 • Monitoring priority patients

The objective was to identify patients in need of monitoring in their care process at the secondary level during telephone contacts and medical care. Here, considering the evaluation flow proposed in the respective protocol, people with serious pathologies, difficulty of movement or impaired vision and older adults without support networks, among other conditions, were identified. These patients were assisted with arranging appointments for medical consultations and examinations.

5.1.5 • Prioritizing and scheduling patients

A weekly routine of prioritization referrals was established. This had a great impact, since delays in this activity had repercussions on the entire subsequent scheduling process.

In a second or third telephone call, the nurse gave the patient an appointment time. The order initially used for scheduling was established considering the medical prioritizations, the patients identified as preferential in the telephone evaluation and the age of the requests. A computer tool was then used to determine the order in which appointments were given, by scoring patients according to medical priority and seniority.

During the care management process, the patient's priority could be modified. With this in mind, it is expected that when the levels of care are better defined, changes in the patient's health status can be reported and their prioritization can be changed.



5.1.6 • Information to patients

During the telephone calls, the nurse indicated to the patient the steps to follow in the care process, provided information on the Unit's means of contact and oriented the patient regarding warning signs which would require emergency attention.

5.1.7 • Management of timeliness and resolvability of health care services

During the telephone call, the nurse would ask the patient about the validity of the tests he/she needed to take to the first consultation. If the patient did not have them or if they were not up to date, the nurse would arrange for them to have them done before their medical care. In the case of patients seen through synchronous telemedicine, the nurse requested that the tests be sent digitally.

When care was provided via synchronous telemedicine, the nurse communicated one day before the appointment with the patient via video call. The purpose of this was to corroborate the functioning of the patient's devices and to guide him in their use in order to facilitate the connection with the physician. After the appointment, the physician handed over all the documents generated to the nurse, who managed their delivery to the patient. Appointments for medical care, tests and procedures were facilitated for patients in need of monitoring or with critical diagnoses.

In the cases of asynchronous telemedicine, it was possible to implement this care format for a short time due to the temporary suspension of its platform. Its use allowed the resolution of low and medium complexity interconsultation requests in a short period of time, which in the traditional modality of care would probably have had a wait of years before their resolution.



5.2 • Traumatology Specialty of Hospital Padre Hurtado

When the implementation of the model began in April 2021, the trauma service at Padre Hurtado Hospital had seventeen specialist physicians. It also had two nurses with administrative and clinical roles with a high demand for their services. For this reason, the Universidad del Desarrollo, an educational institution associated with the Padre Hurtado Hospital, collaborated by hiring a kinesiologist for 22 hours per week for the implementation of the pilot program. For its part, the CRS collaborated with teleworking hours for a TENS and an administrative assistant.

Together with this team, the head physician of the specialty undertook the work of implementing the pilot. A specialist physician and one of the Unit's nurses also collaborated. In addition, as in gastroenterology, the CRS management team provided information and guidance regarding the operation of the center and the application of the ministerial technical bases.

The activities carried out in the specialty according to the components of the model are described below.

5.2.1 • Updating the waiting list

When the pilot implementation began, the waiting list for non-GES CNE of traumatology had accumulated 6,377 requests since 2010. At that time, Padre Hurtado Hospital had the largest waiting list for the traumatology specialty in the SSMSO.

In the first waiting list update, databases containing requests for the first discharges from the SIGTE list were reviewed and cross-checked. At the same time, the information was updated directly with the patient through telephone calls. The purpose of the first call was to ask the patient if he/she still needed to be seen and to update his/her personal and contact information.

Regarding contactability, in a first attempt to communicate with patients, the number of non-effective calls exceeded the effective ones (1,008 vs. 924). The effective calls resulted in different actions, such as the management of accepted interconsultations or the administrative dismissal of rejected ones. Regarding the non-effective calls, as of August 9, 2021,



584 patients had not been contacted. A registered letter was sent to 580 of these cases and 4 were requested to be rescued on-site due to the age of their request.

5.2.2 • Monitoring of patients' health status during the waiting period

In a second call, the kinesiologist applied a questionnaire in order to clinically evaluate and prioritize the patients who accepted his/her request. This evaluation was elaborated with the collaboration of the teams of traumatologists according to subspecialty areas.

In this same call, the patient was informed of the team's telephone number so that they could notify the team in case of an aggravation in their symptoms, in order to prioritize their care process if necessary. In parallel, WhatsApp Business was enabled so that patients could notify about changes in their health status.

5.2.3 • Communication with patients

In addition to the telephone communication channel, a communication channel was established with the OIRS to rescue patients asking for pending interconsultations with traumatology. WhatsApp Business was also implemented to improve the flow of information.

5.2.4 • Monitoring priority patients

In the framework of the implementation of this pilot program, no categorization of patients in need of monitoring was made. This was because the aim was to expedite the delivery of hours for inpatient medical care and the management of tests to all patients who requested them, in order to facilitate the process. More details are shared in the following points.

5.2.5 • Prioritization and scheduling of patients

The kinesiologist scheduled a time for the patient's admission according to the age of the request, the medical priority designated at the time of the request and the new priority detected by the application of the questionnaires.



5.2.6 • Information to patients

During each telephone call, the steps to follow in the care process were explained to the patient. In addition, the contact number of the Unit was given to the patient and he/she was oriented regarding symptoms for which to consult the emergency department.

It is expected to move forward with the approach of the specialty of traumatology with the primary health care level through the Cotalker platform, with a view to achieving the same advantages achieved in gastroenterology.

5.2.7 • Management of timeliness and responsiveness of health care services

A guideline was created with the imaging tests that a patient had to go to his first consultation with and their validity. This information was inquired during the telephone call to the patient and, in case he/she needed new images, he/she was given a time to take them before the medical evaluation. This was possible thanks to the management carried out with the Padre Hurtado Imaging Unit, with which the reservation of quotas for the pilot was agreed. Thanks to the number of examinations managed during the implementation, an increase in the number of examinations was achieved due to the organization of an extraordinary effort.

According to information available in SIGTE as of June 17, 2021 - that is, after two months of pilot implementation - a decrease in the trauma CNE waiting list from 6,377 to 5,531 requests was observed.

5.3 • Specialty of Cardiology at Hospital San Juan de Dios

At the start of the study, in May 2021, the Cardiology Polyclinic of the Hospital San Juan de Dios had 8 care boxes and 4 procedure boxes. It also had 6 cardiologists and 3 subspecialty physicians, in addition to 4 nurses (one in charge of management, one in charge of procedures and 2 in support of the arrhythmia specialty). In addition, there were 2 administrative staff, 2 nursing technicians and a nurse who contributed 44 hours of exclusive dedication per week to the project.



5.3.1 • Updating the waiting list

The cardiology project at Hospital San Juan de Dios began with the update of the waiting list. It worked in conjunction with the Servicio de Orientación Médico Estadístico (SOME) to identify the waiting lists and focused the intervention on the list related to CNE. By that time, this list had 1,141 patients as of 2018.

Particularly in this project, the SOME was in charge of carrying out the first components of the process (administrative discharges, review of duplicity, care provided and discharges due to death). The waiting list was then handed over to the project nurse. The process continued with reviewing interconsultations to evaluate relevance, referral or admission and to grant the preliminary priority rating.

5.3.2 • Monitoring of patients' health status during the waiting period

Health status while waiting will be addressed in the next stages of the project in conjunction with PHC. Currently, monitoring is done during the call to prioritize the patient, where if he/she shows signs of worsening, he/she is given his/her medical hour as soon as possible.

5.3.3 • Communication with patients

In order to make contact with the patient, a search for telephone numbers was carried out in the different computer systems of the SOME, achieving a 98% contact rate. The collaborative work with the SOME staff was essential for this, but the process was ineffective: scheduling a patient took about 20 minutes.

During the project, the importance of updating patient contact numbers for the Polyclinic's window staff was also reinforced. In addition, the process of rescuing patients was reviewed, and it was agreed that if telephone contact is not achieved, a home visit would be made and a certified letter with an appointment time would be delivered. For this purpose, it was decided to schedule patients in over quotas due to the low percentage of attendance in previous experiences of the SOME.

Regarding the establishment of bidirectional communication channels between health teams and patients, progress was made in the call process. However, the call is not an established



official channel. If the patient presented tests that complemented the information to grant prioritization, the nurse indicated that he/she should send photographs to evaluate them. The patient was then given feedback on how the process continued, depending on the prioritization result.

5.3.4 • Prioritization and scheduling of patients

A prioritization guideline was created with nomenclatures to define the priorities, which were then homologated to the nomenclature corresponding to the health service.

- Priority 1: high priority interconsultations whose pathology is of relative urgency. That is, they are pathologies that cannot wait for the monthly supply of quotas, but at the same time do not present an immediate vital risk that merits a referral to the emergency service. It is suggested that the time of attention by the specialist should be before 30 days.
- Priority 2: normal priority consultations. It is suggested that the time of care by the specialist should be before 6 months.

In this pilot, the prioritization of patient care was performed by the project nurse under the supervision of a head physician. When the telephone call was made, a form was completed with patient data, acceptance or rejection of the interconsultation, warning signs identified, tests previously performed and information provided. At the end of the call, the nurse gave priority to the patient and managed his or her scheduling. In some cases, the head physician was consulted by telephone or in person to grant the priority rating.

5.3.5 • Information to patients

Due to the early stages of the pilot in this specialty, no progress was made in this component according to the model. Instead, the pilot focused on improving management and processes.

During contact with the patient, the patient was asked about warning signs and tests performed. According to this, the project nurse was able to get an idea of the severity and apply the prioritization guideline. In this instance, the patient was informed about the continuation of the process. At the same time, the cases in which the patient should consult the emergency department were explained. Finally, the patient was given information on the importance of attending the consultation with the pertinent tests and giving 48 hours' notice in the event of being unable to attend.



5.3.6 • Management of timeliness and responsiveness of health care services

Based on a prioritization guideline, a rating was given and deadlines were established for the patient to receive care. At the same time, mechanisms were created to ensure that the patient was admitted to the doctor's office with the necessary tests performed.

Since the beginning of the project, only 25% of the patients who were admitted for new consultations received pre-diagnostic examinations. The long waiting time to obtain a medical consultation in a specialty as important as cardiology causes patients to look for alternatives. In fact, 50% of the patients had consultations and pre-diagnostic tests outside the system.

On the other hand, we worked on various strategies to improve the timeliness of care. From the beginning, weekly meetings on waiting lists were held with the heads of SOME, CDT and cardiology. The starting point was the modification of the performance of the medical agendas, where, according to the analysis of the waiting list, the number of services for each item was adjusted, taking into account the MINSAL guidelines to grant 30% of the quotas to CNE.

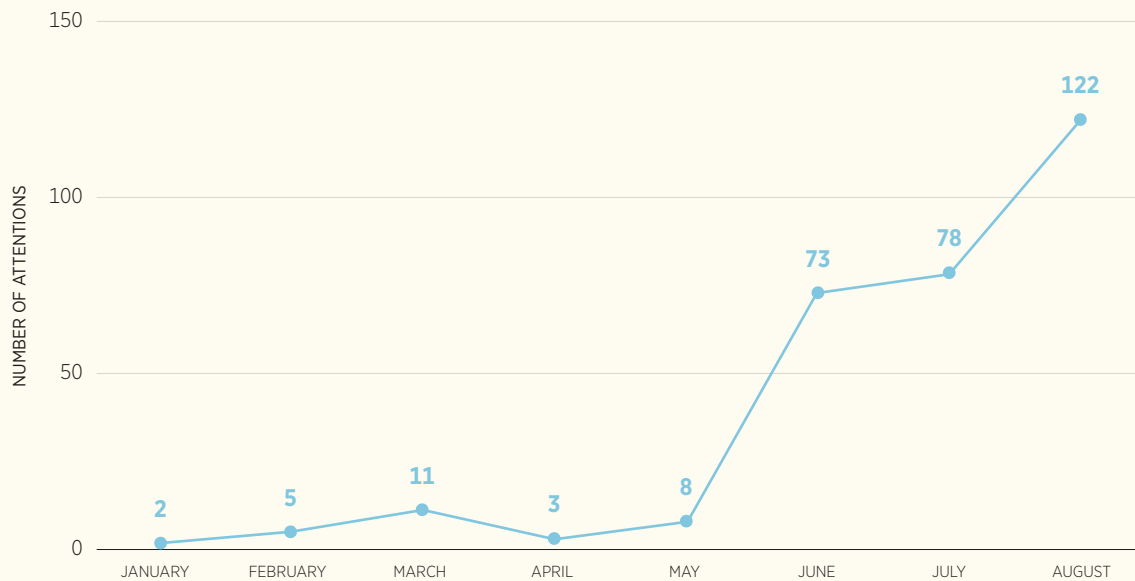
It is important to highlight that the cardiology specialty presents particular challenges in terms of control management. This is due to the fact that most of these pathologies require biannual or annual monitoring, so that many patients are not discharged and are counter-referred to PHC. For the next stages of the project, it is important to consider, within the PHC work, giving tools to physicians to improve their resolvability. We are also working on the creation of a cardiology nurse manager profile, which includes the tasks of waiting list monitoring and demand management.

The implementation of these strategies has reduced the waiting list by 38% since the beginning of the project (cut-off March 2021). Another considerable result is the 600% increase in monthly waiting list discharges (graph 2).



GRAPH 2

NUMBER OF CARDIOLOGY CONSULTATIONS OF PATIENTS DISCHARGED FROM THE SIGTE REPOSITORY BETWEEN JANUARY AND AUGUST 2021



Source: prepared by the authors.

5.3.7 • Direct referral of patients to cardiology subspecialties

Criteria were defined for referring patients to cardiology subspecialties. This strategy requires the exhaustive collection of patient history and diagnostic tests and the implementation of direct communication channels with the rest of the subspecialties. However, it makes it possible to refer patients who meet the criteria for direct admission to the subspecialty, increasing the number of hours available by not requiring an initial evaluation by cardiology.



5.3.8 • Referral protocol for patients with low cardiology complexity

A protocol was implemented that enabled the internal medicine specialty to perform the first care of low complexity cardiology patients, determining whether they required admission to cardiology or continued care in internal medicine. The implementation of this protocol required direct communication flows between specialties, granting access to cardiology tests to complete diagnosis by internal medicine and patient referral flows between both specialties.

5.3.9 • Referral and counter-referral process

Meetings were initiated on the service's referral and counter-referral processes to initiate a collaborative work plan. As part of these efforts, an exhaustive analysis of the waiting list was carried out, detecting critical nodes and making proposals for improvement. As a result, feedback plans were initiated to APS to improve the referral process to the CNE.

5.3.10 • Cardiological operative passes

During June 2021, with the decrease in COVID-19 cases and the reactivation of the wards, an increase in internal referrals for preoperative cardiological evaluation was identified. The need was identified to develop a protocol with admission criteria for patients requiring preoperative cardiologic evaluation.

5.3.11 • Controls management

Interventions were made to improve the management of the Unit's check-ups. Specifically, it was established that after medical attention, patients who require a next checkup must go to a window to be registered in a waiting list. The purpose of this intervention is to grant the medical control within the deadlines defined by the physician.



Descriptive results of the pilots*

* For more information, see Tello, Riveros, and Jara-Maleš (2023b).



When the gastroenterology pilot began at Padre Hurtado Hospital in June 2020, the waiting list had 2,125 users, with interconsultations generated since 2013. At the beginning of December 2021 there were 707 users, with interconsultations generated since 2020. This implies a reduction of 66.7%. The cases that made up the initial waiting list were reduced by 98%. The waiting list trend was sustained downward throughout the period, remaining below 800 requests in recent months despite the sustained increase in interconsultations and the continued attention to priority patients admitted during 2021. Users who left the list for administrative reasons accounted for 46% of total discharges and the rest left due to care provided.

As for traumatology, the initial waiting list was composed of 6,377 users, with admission interconsultations generated since 2010. At the beginning of December 2021, this list comprised 4,029 requests, which implies a reduction of 36.8%. As for the reasons for discharge, 47% of users were discharged for administrative reasons and the rest were discharged after receiving the care requested. Considering the users on the initial waiting list, 3,882 patients were still pending a resolution. This implies a 39.1% reduction of the original waiting list, with a constant downward trend during the implementation of the pilot.

In the case of the cardiology specialty at Hospital San Juan de Dios, at the start of the pilot there were 1,086 patients on the waiting list, with interconsultations created since 2019. At the close, a total of 953 users were registered as waiting since 2016, which implies a reduction of 12.2%. A total of 853 users were discharged for different reasons, which corresponds to a 74% reduction. Patients discharged for administrative causes correspond to 30% and the rest left due to care provided. The trend in waiting list referrals for this specialty remained stable, with a slight decrease in the final months of the pilot program. It was possible to keep the list below 1,000 requests in the last months despite the significant increase in interconsultations.

In both gastroenterology and traumatology, the Padre Hurtado Hospital gradually made available working hours of technical staff to collaborate in the telephone rescue of patients. In the case of gastroenterology, the medical role of demand manager was implemented in the asynchronous telemedicine platform and in the internal hospital platform to manage the waiting list. Also, the role of the managing physician was distributed within the team, where, in addition to prioritizing the interconsultations admitted to the waiting list, pre-diagnostic tests were indicated. In the cardiology specialty of the Hospital San Juan de Dios, the role of demand manager was also established, together with a nurse manager. In the case of the orthopedic specialty of the Padre Hurtado Hospital, a kinesiologist was hired for 22 hours per week.



In the three specialties, weekly team meetings were established for decision making and presentation of information regarding the pilot and management of the waiting list. In the particular case of traumatology, a monthly meeting was also established with the Hospital Director and the specialty team, where an updated report on the waiting list is presented. As for cardiology, meetings were also held with teams from the Félix Bulnes Hospital and the Talagante Hospital to identify their service portfolio, and future meetings were planned to improve the referral and counter-referral processes.

In the specialties of gastroenterology and traumatology, agreements were established with other units of the Padre Hurtado Hospital to guarantee protected quotas for examinations or imaging for patients prior to their first consultation. In the case of gastroenterology, the agreement was with the Laboratory Unit and in the case of traumatology with the Radiology Unit. In traumatology, massive monthly sessions were also carried out to perform ultrasound scans on patients prior to their first consultation.

In terms of communication practices and mechanisms, at Padre Hurtado Hospital, an email channel was established between both specialties and the OIRS staff, allowing the resolution of cases of patients who ask about the status of their interconsultation. Additionally, in gastroenterology, Whatsapp Business and a direct communication channel with APS were enabled, focused on patient rescue, updating telephone contact and training in telemedicine platform and SIDRA of the SSMSO. In addition, a communication channel was established with the adult care management team.

The following protocols were drawn up for procedures in both specialties of the Padre Hurtado Hospital:

1. Guideline for personnel who make telephone calls to patients.
2. Questionnaires for telephone calls.
3. Flowcharts and questionnaires for clinical evaluation, in addition to the determination of laboratory or imaging tests for the first consultation.
4. Flow chart and protocol for prioritization and scheduling.

In the case of the cardiology specialty at the Hospital San Juan de Dios, a protocol for internal cardiology care flow was developed.



7



Quantification of model results*

* For more information, see Celhay, P.; and Jiménez, H. (2023).



After the implementation of the pilots, a study was conducted with the objective of analyzing the results obtained. To this end, indicators were constructed to study waiting times and non-GES waiting list management in SSMSO facilities, including the specialties of traumatology and gastroenterology at the Padre Hurtado Hospital. In addition, the experience of the Cardiology Unit of the Hospital San Juan de Dios was considered, emphasizing changes in trends that could be related to the implementation of the monitoring model.

7.1 • Data available for the study

The main sources of the data used in this study were the SIGTE in the SSMSO and the Waiting List Information System (SISLE) of the Hospital San Juan de Dios. The attributes available for each record make it possible to identify, among other variables, the waiting case, the patient's sex, date of birth, the specific health service for which the patient was or is waiting, the specialty responsible for resolving the service, the date of entry onto the waiting list, and the facilities of origin and destination. For closed cases, the date and reason for discharge can also be identified.

7.1.1 • SSMSO Data

In the case of the SSMSO, historical information on the waiting list for a CNE from 2010 to June 30, 2022, the cut-off date for this study, was analyzed. This source has information on all the specialties present in the SSMSO network. It consists of 1,236,700 observations of single interconsultations associated with CNE.

The SSMSO waiting list discharges are mainly observed since 2015. Since then, there has been a steady increase in the number of discharges until 2018, a period in which 214,431 cases were closed. On the contrary, and as expected as a result of the pandemic, the year with the lowest number of discharges is 2020, with 104,575 discharges. In 2022, 75% of the discharges were closed for medical reasons and 16.3% for administrative reasons without contact with the patient.

In relation to open cases, the dataset has 128,178 observations associated with single cases of interconsultations that correspond to CNE. Data validation shows that 33.4% of the open cases were admitted in 2022, which means 42,707 admissions. In 2021, 32.4% of open cases were admitted, showing an increase over the last two years. In addition, only 1% of open SSMSO cases were admitted in 2015 or earlier.



7.1.2 • San Juan de Dios Hospital data

In the case of Hospital San Juan de Dios, the oldest closed cases are from 2015. In cardiology, all recorded discharges correspond to those identified between 2015 and 2022. Regarding the reasons for discharge, both at the general level and in cardiology, most of the discharges are associated with medical reasons.

Both at the general SISLE level and at the cardiology level, most of the open cases were admitted in 2021, followed by 2022. Most came from the Salvador Allende CRS, followed by the Pudahuel Estrella Family Health Center.

7.2 • Methodology

7.2.1 • Indicators

First, the number of interconsultations awaiting medical attention is analyzed. The waiting time for these consultations corresponds to the number of days elapsed between the date of admission and the cut-off date established for the analysis (June 31, 2022). For the purposes of this study, the median waiting time is analyzed in order to better reflect its distribution.

Secondly, the evolution of closed cases is analyzed, identifying relative changes in the composition of the causes of discharge. Thus, it is expected that the intervention will contribute to increase the number of discharges based on the care provided. In the case of administrative causes, it is expected that there will be greater contact with patients.

In addition, given the nature and objectives of the model, the age of the cases discharged before and after the pilot is analyzed, considering the efforts to ensure that patients with longer waiting times see their situation resolved.

7.2.2 • Stakeholders and comparison groups

In the three specialties that were part of the pilot, the data presented meet one of the following conditions:

1. Closed cases that were released from the waiting list between June 2020 and June 2022.
2. Cases open as of the cut-off date of June 31, 2022, which were in the same condition at some point during the period from June 2020 to June 2022.



In order to compare the results of the pilot with other untreated groups, for the specialty of gastroenterology at the Hospital Padre Hurtado, the changes in the trend of the aforementioned group were analyzed. The interconsultations of the same specialty at Hospital Sótero del Río and Hospital Clínico Metropolitano La Florida, both other SSMSO hospitals, are also analyzed. In addition, the results are compared with the cardiology and bronchopulmonary interconsultations of the Hospital Padre Hurtado. These specialties have been chosen as a reference because of their requirement for specific tests that have a long waiting time. In addition, these are medical specialties in which surgeries are rarely performed, as in gastroenterology.

In the case of traumatology at Hospital Padre Hurtado, the results are also compared with two groups. On the one hand, open and closed cases of traumatology at Hospital Sótero del Río and Hospital Clínico Metropolitano La Florida. On the other hand, the results are contrasted with the specialties of gynecology and otorhinolaryngology at the Hospital Padre Hurtado. In this case, the specialties for comparison were chosen because of their similarity to traumatology, since they are medical-surgical specialties in which the professionals perform surgeries in addition to attending medical consultations.

As for the cardiology specialty of the Hospital San Juan de Dios, the evolution of the ENT and bronchopulmonary specialties of the same hospital is analyzed. These specialties were chosen because they also require referral to a surgical specialty. In addition, in the case of otorhinolaryngology, the requirement for tests to determine an accurate diagnosis is similar.

7.3 • Results

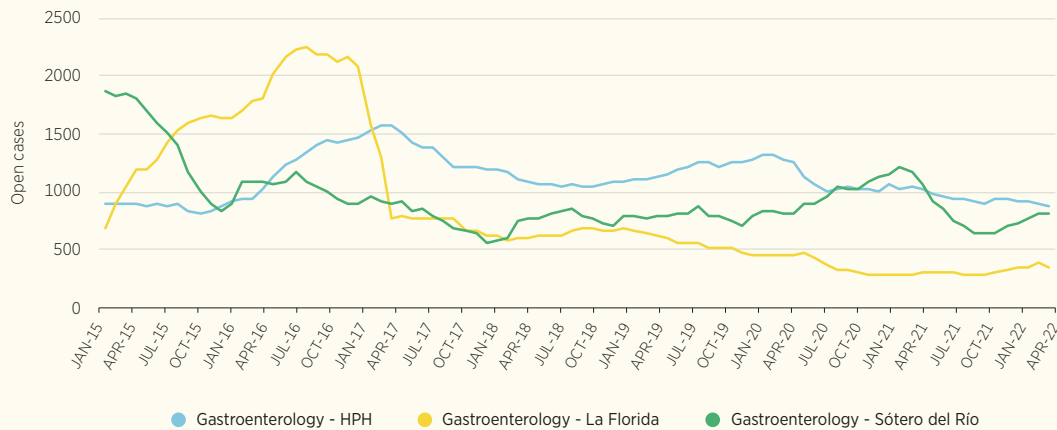
7.3.1 • Open cases

In relation to open cases, significant drops are observed in the three interventions. From the beginning of the pilot until December 2021, an average monthly drop of 1.7% is observed in gastroenterology at Padre Hurtado Hospital. In comparison with other facilities, good results are obtained: during this period, the waiting list decreased by 347 cases at Hospital Padre Hurtado, while in the same specialty at Hospital Clínico Metropolitano La Florida and Hospital Sótero del Río the drop was 169 and 173 cases, respectively (Figure 3).



GRAPH 3

EVOLUTION OF OPEN CASES IN THE SPECIALTY OF GASTROENTEROLOGY AT HOSPITAL PADRE HURTADO, METROPOLITANO DE LA FLORIDA AND SÓTERO DEL RÍO



Source: Prepared by the authors based on SIGTE data.

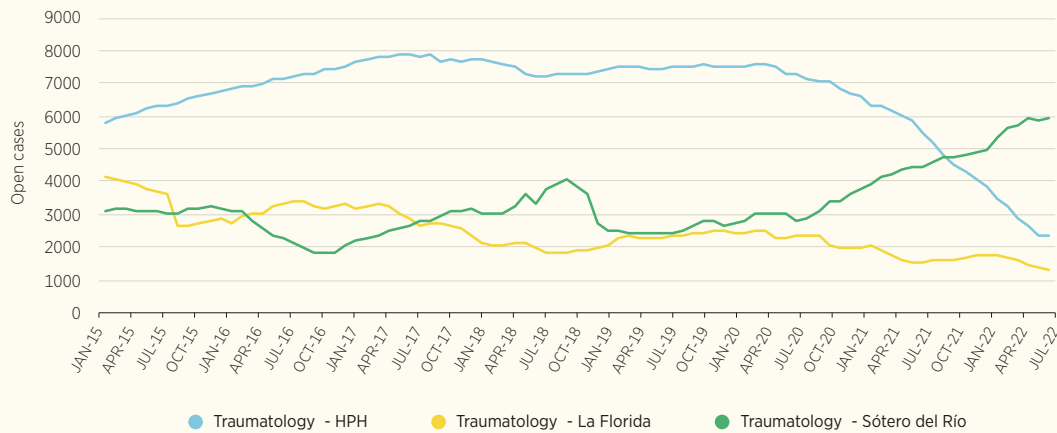
Distinguishing by specialty, the drop in gastroenterology at Padre Hurtado Hospital is relatively smaller than cardiology and bronchopulmonary at the same hospital. However, only in cardiology and gastroenterology are there changes in trend in the number of open cases, decreasing steadily since 2020.

On the other hand, there has been a downward trend in open cases in the specialty of traumatology at Padre Hurtado Hospital since May 2020. However, since the implementation of the pilot, the drop is even more significant. Between May 2020 and April 2022, open cases in the specialty decreased by 1.7% per month, on average, while between May 2021 and June 2022 the drop was 6.5% on average. Thus, as of April 2021, the Traumatology Unit had 4,250 open cases, decreasing by 2,380 cases as of June 2022. This reflects a drop of 61.5%, which stands out above that observed in the same specialty in other establishments and with other specialties in the same hospital (Figure 4).



GRAPH 4

EVOLUTION OF OPEN CASES IN THE SPECIALTY OF TRAUMATOLOGY AT HOSPITAL PADRE HURTADO, HOSPITAL METROPOLITANO DE LA FLORIDA AND HOSPITAL SÓTERO DEL RÍO



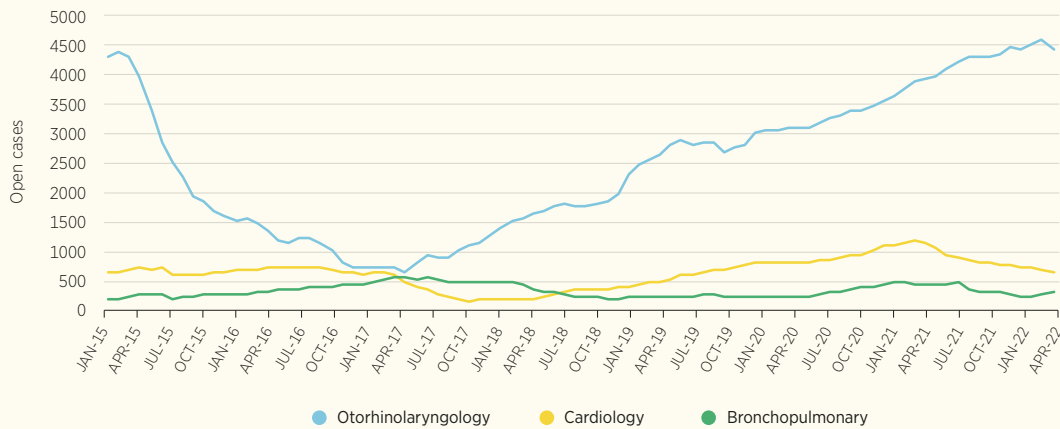
Source: Prepared by the authors based on SIGTE data.

In the case of cardiology at Hospital San Juan de Dios, 1,201 open cases were recorded in May 2021 and then steadily declined until June 2022, when 682 cases were observed. This trend differs from the sustained increase in the number of cases opened in otorhinolaryngology and bronchopulmonary (Figure 5).



GRAPH 5

EVOLUTION OF OPEN CASES IN CARDIOLOGY, OTORHINOLARYNGOLOGY AND BRONCHOPULMONARY SPECIALTIES AT HOSPITAL SAN JUAN DE DIOS



Source: Prepared by the authors based on SIGTE data.

7.3.2 • Waiting times

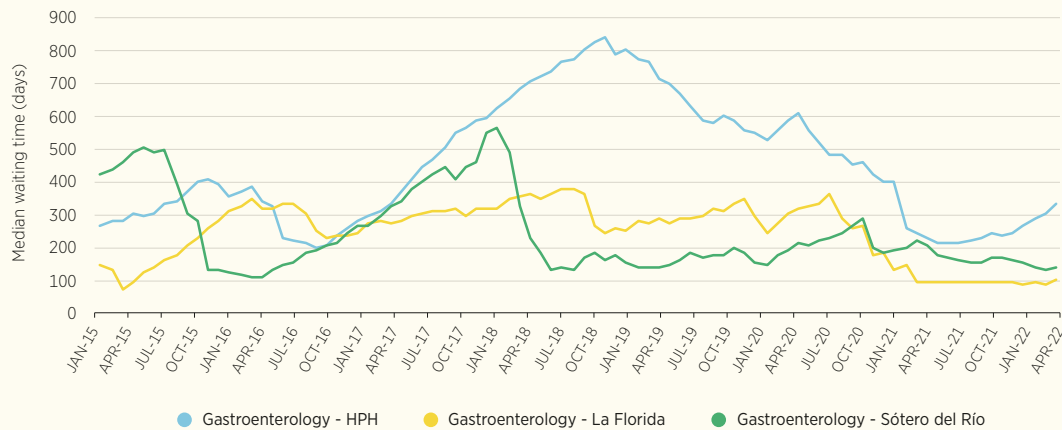
In the gastroenterology specialty at Padre Hurtado Hospital, since the beginning of the pilot, waiting times have fallen, consolidating a downward trend in the median number of waiting days. Between February 2019 and June 2020, on average this indicator falls 1.7% per month, while from July 2020 to December 2022 the median number of waiting days falls 4.4% per month on average, accentuating the fall in most of the pilot period. Specifically, while the median waiting time reached 608 days at the beginning of the pilot in 2020, in December 2021 it reached 246 days. In other words, there was a 59.5% decrease.

The rest of the SSMSO hospitals analyzed also show drops in this indicator. However, in terms of reduction of waiting days, the drop is more significant in gastroenterology at Padre Hurtado Hospital (Figure 6). During 2022 there is an increase in waiting times in gastroenterology at Padre Hurtado Hospital. As the rest of the facilities did not experience this situation, it is possible that it is related to the discontinuation of the pilot during this period.



GRAPH 6

EVOLUTION OF WAITING TIMES FOR OPEN CASES IN THE SPECIALTY OF GASTROENTEROLOGY AT HOSPITAL PADRE HURTADO, HOSPITAL METROPOLITANO DE LA FLORIDA AND HOSPITAL SÓTERO DEL RÍO



Source: Prepared by the authors based on SIGTE data.

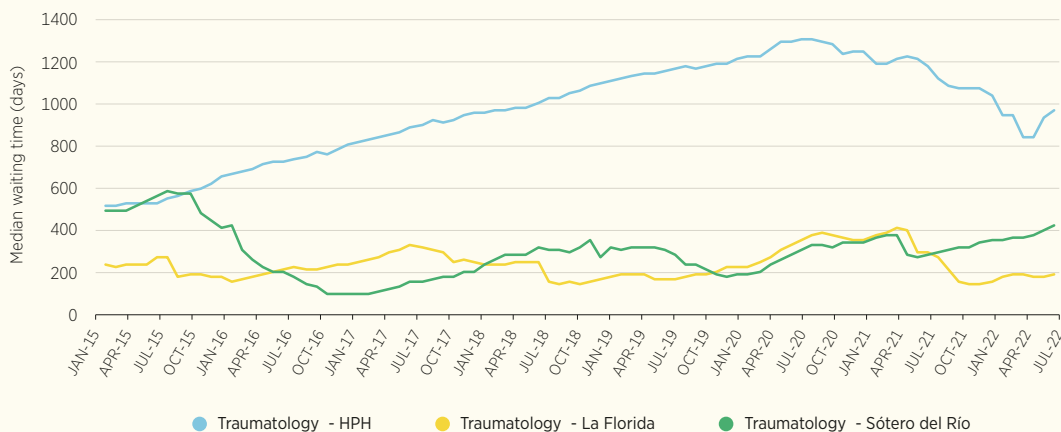
When compared with other specialties of the same hospital, in the case of cardiology at Padre Hurtado Hospital, waiting times fell by 50% between June 2020 and December 2021, while in bronchopulmonary the decrease was 29%. Then, in 2022, the trend in waiting times in gastroenterology is similar to that observed in cardiology and bronchopulmonary. Thus, at least until the pilot was implemented in the Gastroenterology Unit, considerable drops in waiting times are observed, both when compared to the same specialty in other facilities and in relation to other specialties in the same hospital.

A similar situation in relation to waiting times for open consultations is observed in traumatology at Padre Hurtado Hospital, decreasing by an average of 3% monthly between June 2021 and May 2022, with a sustained drop. Compared to the month prior to the start of the pilot, the median waiting time decreased 30.6%, from 1,217 days in April 2021 to 845 days in May 2022. Considering the same specialty in other facilities, only the Hospital Clínico Metropolitano La Florida also shows a significant drop in waiting times.



GRAPH 7

EVOLUTION OF WAITING TIMES FOR OPEN CASES IN THE SPECIALTY OF TRAUMATOLOGY AT HOSPITAL PADRE HURTADO, METROPOLITANO DE LA FLORIDA AND SÓTERO DEL RÍO



Source: Prepared by the authors based on SIGTE data.

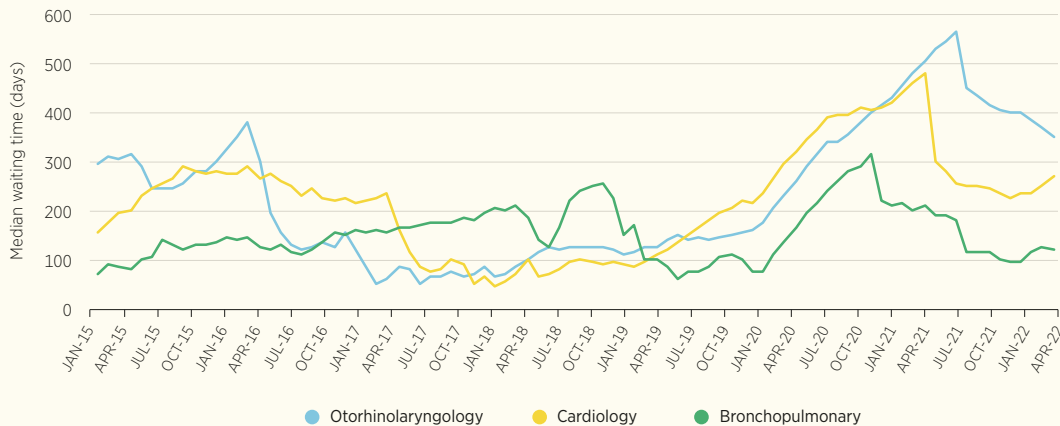
Compared to gynecology and otolaryngology, the Traumatology Unit performs well. All three specialties show decreases in waiting times between April 2021 and the beginning of 2022. However, in the mentioned period the median waiting time decreased by 180 days in otorhinolaryngology, by 69 days in gynecology and by 324 days in traumatology.

In the cardiology specialty at Hospital San Juan de Dios, waiting times have been decreasing since the start of the pilot program. While in June 2021 the median number of waiting days reached 481 days, in February 2022 it was 230 days. In other words, there was a reduction of 52.1%. In any case, this decrease is also observed in specialties such as otorhinolaryngology and bronchopulmonary.



GRAPH 8

EVOLUTION OF WAITING TIME FOR OPEN CASES IN CARDIOLOGY, OTORHINOLARYNGOLOGY AND BRONCHOPULMONARY SPECIALTIES AT HOSPITAL SAN JUAN DE DIOS



Source: Prepared by the authors based on data from SISLE, Hospital San Juan de Dios.

7.3.3 • Closed cases

In the gastroenterology specialty of Padre Hurtado Hospital, between 2019 and 2020 there was a 55.6% increase in discharges, from 498 to 775. Although this is the first year of the pandemic, it should be noted that this situation is not observed in the same specialty in other hospitals. In 2021 there was an increase in discharges of 160.2% compared to 2019. In the same specialty and in the same period, the variation was -0.4% in Hospital Sótero del Río and -15.8% in Hospital Clínico Metropolitano La Florida.

The management strategy employed in the pilot is reflected in the age of the cases closed in the years of implementation. At Padre Hurtado Hospital, the participation of cases waiting between 2 and 3 years and 3 years or more in 2020 and 2021 stands out, as almost 50% of the cases discharged in 2020 are part of this group. The situation in other facilities differs considerably, with a concentration of discharges less than one year old.

As for discharges at Padre Hurtado Hospital, while gastroenterology discharges increased by 160% between 2019 and 2021, in otolaryngology and cardiology they increased by 54.3%



and 97.6%, respectively. Furthermore, considering that prior to the gastroenterology pilot the cases discharged were more recent, after the intervention there was an increase in older discharges.

In the specialty of traumatology at Padre Hurtado Hospital, the number of cases discharged from the waiting list in 2021 was the highest since 2015, reaching 3,693 discharges. The above means an increase of 142.2% compared to the cases closed in 2019 at the same facility. On the other hand, at Hospital Sótero del Río and Hospital Clínico Metropolitano La Florida the increase in cases closed in the same period was 30.8% and 5.8%, respectively. In addition, up to June 31, 2022, in traumatology at Hospital Padre Hurtado an increase of 32.8% was observed compared to discharges in 2019, a situation not observed in the comparison establishments.

Regarding the age of the discharged cases, in traumatology at Padre Hurtado Hospital almost 70% of the closed interconsultations correspond to cases with three or more years of age, while in 2019 this proportion reached 49%. This situation is considerably different from what is observed in other SSMSO facilities, since most of the cases discharged from these hospitals are less than two years old.

On the other hand, the increase in cases discharged in traumatology is considerably higher than in gynecology and otolaryngology at the same facility. Between 2021 and 2019, in gynecology discharges decreased by 28.3% and in otolaryngology they increased by 54.3%. Since 2020, also in traumatology, about 60% of the discharges are 3 years old or more, reflecting the effort to discharge interconsultations with longer waiting time.

In the case of cardiology at Hospital San Juan de Dios, since the start of the pilot, cases discharged increased by 114.1% compared to 2019, from 481 to 1,030. In addition, through June 31, 2022, there are 466 cases discharged, only 15 fewer than in all of 2019. Compared to other specialties of the facility, the Cardiology Unit is positioned as one of those showing the greatest growth in the number of discharges.

Regarding the age of closed cases, in both 2021 and 2022, cases were discharged with waiting times of between two and three years, thus changing the trend of previous years. In particular, in 2021 only 406 of the 1,030 cases discharged in that period were less than one year old.



7.3.4 • Reasons for termination

In relation to the causes of discharge in gastroenterology at Padre Hurtado Hospital, both in 2020 and 2021 there were increases in discharges due to medical reasons. Between 2019 and 2021, discharges from medical care grew 90.2%, while in the comparison establishments a reduction of 2% is observed. In the other specialties of the same hospital there was also an increase, but lower than that experienced in gastroenterology (14.7% in otorhinolaryngology and 79.9% in cardiology). In addition, in gastroenterology there was a significant increase in interconsultations closed for administrative causes with patient contact, from 5.4% in 2019 to 20.3% in 2020.

In traumatology at Padre Hurtado Hospital, about 55% of the cases discharged between 2021 and the first half of 2022 had a medical resolution. Discharges associated with medical care increased 107.9% between 2019 and 2021, from 951 to 1,977. In the same period, in traumatology at Hospital Clínico Metropolitano La Florida, discharged cases increased by 5.8% and at Hospital Sótero del Río by 30.8%.

Finally, in cardiology at the San Juan de Dios Hospital, the increase in the number of cases closed between 2020 and 2021 is mainly due to medical care and administrative causes with contact with the patient. Medical reasons accounted for 71.7% of discharges in 2021. On the other hand, while in 2020 only 4.2% of the discharges corresponded to an administrative cause with patient contact, in the year of application of the pilot this proportion reached 11.9%. In comparison with the reference specialties, the increase in discharges for medical reasons is substantially higher in the case of cardiology.

7.3.5 • Waiting times, open cases and discharges

One of the fundamental characteristics of the model implemented is related to focusing efforts on ensuring that interconsultations with long waiting times are discharged. In addition, the aim was for cases to be closed mainly due to medical attention. Thus, it is essential to analyze how these variables are related and whether the trend changes after the pilots.

In the case of gastroenterology, since the beginning of the pilot program, there has been a constant decrease in the number of cases waiting for health care, together with considerable increases in the number of discharges due to medical reasons. On the other hand, the downward trend in waiting times continued and the number of discharges with more than two years of waiting time increased. However, in 2022, the number of discharges for older



interconsultations fell and the median waiting time increased; this situation coincides with the end of the pilot program in this Unit.

A similar pattern is observed in the case of traumatology. Since June 2021, discharges older than two years have increased, although they follow the trend that began at the beginning of 2020. Since the same time, there has been a constant drop in waiting times. Likewise, the drop in open cases is accentuated along with increases in discharges due to medical reasons.

The situation is different in cardiology at the Hospital San Juan de Dios. While the number of open cases has fallen considerably since the beginning of the pilot program, discharges for medical reasons have been irregular. In addition, this is a specialty with cases with shorter waiting times, so there was also no increase in discharges for older interconsultations.



8

Conclusions



Optimizing management throughout the care delivery cycle can be an important contributor to the creation of permanent mechanisms for improvement in health care. Given the importance of combining management with financing, within the former it is imperative to design the care process around users.

The exercise carried out as a starting point for proposing this model identified that patient management is strongly influenced by categorization criteria, with the age of the origin of the consultations and clinical risk being two criteria that do not always coexist within the system for scheduling consultations.

On the other hand, it was found that communication can be a key element when setting up a dynamic prioritization scheme that reviews health status, reassigns priority in care, and updates the request for the necessary tests for consultations, minimizing contacts between the administrative and clinical management teams with users but increasing their efficiency. In addition, the mechanisms and frequency of contact with patients are key to their follow-up.

The analysis of the results of the pilots shows that the model helped to reduce the waiting time for open cases, also reducing the number of cases. This could be related to the modifications driven by the pilots themselves in the prioritization strategy, focusing efforts on attending the oldest and most serious cases first (which directly affects the waiting times for open cases).

Secondly, in all three specialties there were increases in the number of closed cases, mainly due to medical reasons. In addition, there were also increases in the rate of contact with patients and in the discharges of cases with longer waiting times. Although in the long term it is desirable to have a low rate of administrative discharges (in favor of discharges for care provided), this process of “updating” the waiting lists is necessary to reduce waiting times for open cases and improve the quality of patient care.

Finally, the analysis of the results in comparison with the same specialty in other establishments or other specialties in the same hospital suggests that the changes introduced could be effective for better management of waiting lists in the Chilean health care network as a whole. However, they should be made more specific according to the clinical particularities of the specialties and hospital centers.

This experience is an intervention that, from the supply side, addresses opportunities for optimization of patient flow management. Only with descriptive data is it possible to state



that the pilots achieved their goals of updating the initial CNE waiting lists, reprioritizing contacted patients waiting for initial waiting list care, and decreasing waiting lists and waiting times.

In order to further develop these strategies, it would be necessary to strengthen the comparison methodology used. This could be achieved, for example, by taking intervened hospitals as treated units and generating synthetic units with the rest of the hospitals and specialties to the extent that there is access to the information originated by the respective systems. A good next step, then, would be to evaluate the impact of this strategy on a larger scale, which would make it possible to obtain more rigorous causal impacts.



9

References



- Bachelet, V., Goyenechea, M., and Carrasco, V. Policy strategies to reduce waiting times for elective surgery: A scoping review and evidence synthesis. *Int J Health Plann Manage.* 2019 Apr;34(2):e995-e1015. doi: 10.1002/hpm.2751. Epub 2019 Feb 22. PMID: 30793372.
- Inter-American Development Bank (IDB). Waiting lists: a mechanism for prioritizing health spending. Brief 15. 2016. Policy and methods series based on presentations to experts. CRITERIA, Knowledge Network on Prioritization and Health Benefit Plans. Washington, DC.
- Celhay, P.; and Jiménez, H. (2023). Exploratory study of quantification of results of the model of care management and monitoring of people in non-GES waiting list in the public health system of Chile. Inter-American Development Bank. Social Protection and Health Division.
- Gandarillas, MA, Goswami, N. Merging current health care trends: Innovative perspective in aging care. *Clin Interv Aging.* 2018 Oct 23;13:2083-2095. doi: 10.2147/CIA.S177286. PMID: 30425463; PMCID: PMC6203171.
- Harding, KE, Taylor, NF, Leggat, SG. Do triage systems in healthcare improve patient flow? A systematic review of the literature. *Aust Health Rev.* 2011 Aug;35(3):371-83. doi: 10.1071/AH10927. PMID: 21871201.
- Harding, KE, Leggat, SG, Watts, JJ, Kent, B, Prendergast, L, Kotis, M, O'Reilly, M, Karimi, L, Lewis, AK, Snowdon, DA, Taylor, NF. A model of access combining triage with initial management reduced waiting time for community outpatient services: A stepped wedge cluster randomised controlled trial. *BMC Med.* 2018 Oct 19;16(1):182. doi: 10.1186/s12916-018-1170-z. PMID: 30336784; PMCID: PMC6194740.
- Rathnayake, D., Clarke, M., and Jayasinghe, V. Patient prioritisation methods to shorten waiting times for elective surgery: A systematic review of how to improve access to surgery. *PLoS One.* 2021 Aug 30;16(8):e0256578. doi: 10.1371/journal.pone.0256578. PMID: 34460854; PMCID: PMC8404982.
- Tello, C., Fulgueiras, M., Riveros, S., Parra, J., and Jara-Maleš, P. Patient-centered health. Model for monitoring people waiting for care in the public health system in Chile. 2020. Inter-American Development Bank. Social Protection and Health Division. Technical Note N°IDB-TN-2030.



- Tello, C.; Riveros, S.; and Jara-Maleš, P. (2023a). Determinants of waiting for specialty care: a proposal for optimizing the management of health waiting lists. Inter-American Development Bank. Social Protection and Health Division.
- Tello, C.; Riveros, S.; and Jara-Maleš, P. (2023b). Optimizing the management of health waiting lists: three cases of implementation in the metropolitan health network in Chile. Inter-American Development Bank. Social Protection and Health Division.
- Tlapa D, Zepeda-Lugo CA, Tortorella GL, Baez-Lopez YA, Limon-Romero J, Alvarado-Iniesta A, Rodriguez-Borbon MI. Effects of Lean Healthcare on Patient Flow: A Systematic Review. *Value Health*. 2020 Feb;23(2):260-273. doi: 10.1016/j.jval.2019.11.002. Epub 2020 Jan 23. PMID: 32113632.

