Temporality must be cared for: sensitive trajectories of time in healthcare

Authors
Francisco Tirado
Universitat Autònoma de Barcelona, Catalunya, Spain
franciscojavier.tirado@uab.es
ORCiD: https://orcid.org/0000-0001-7093-056X

Jorge Castillo-Sepúlveda
Universidad de Santiago de Chile, Chile
jorge.castillo.s@usach.cl
ORCiD: https://orcid.org/0000-0002-6315-3798

Fernanda Bywaters-Collado
Universidad de Santiago de Chile, Chile
fernanda.bywaters@usach.cl
ORCiD: https://orcid.org/0000-0002-6902-3185

Mariana Gálvez-Ramírez
Universidad de Santiago de Chile, Chile
mariana.galvez@usach.cl
ORCiD: https://orcid.org/0000-0002-3158-8113

Abstract
This chapter develops an approach to the socio-material composition of temporality in healthcare, emphasizing how time is configured through the interplay of social, technical, and material elements. Challenging the dominant view of time as a linear, external measure, it introduces the concept of "sensitive trajectories," which frames temporality as a relational and emergent product of healthcare mundane practices. This approach, informed by Puig de la Bellacasa's notion of "matters of care", suggests that the alignment of temporalities in healthcare is fragile and requires effort. Being based on a case study of the last major health reform in Chilean healthcare system –the Explicit Health Guarantees regime– and material generated primarily through focused ethnographies, the chapter exemplifies how diverse entities and practices –such as patients, healthcare professionals, meetings, and non-human agents like databases and e-mails– subtly configure different temporal flows in health political design and clinical settings, revealing the precariousness of these temporal alignments, which are constantly threatened by disruptions and require ongoing maintenance. By positioning time as an active agent shaped by these relations, we highlight the need to care for temporality in healthcare, exposing time as a fragile, co-produced phenomenon that emerges from the everyday work of assembling heterogeneous elements.

Keywords
Temporality, Healthcare Policies, Sensitive Trajectory, Care, Chile, Mundane Practices.

La durée est hors de prix.
Paul Valéry.

The quote that opens this chapter is by the famous poet, writer, and philosopher Paul Valéry (1933), which –based on the Spanish interpretation of the French work– we translate as "duration is costly" (Valéry, 2004). This references the concept of "duration" (or 'lived time') proposed by the French philosopher Henri Bergson (1913), which is distinguished from a spatialized construct of time that is measured, for example, by the clock. In the above quote, Valéry (1933) conveys that time is not something given and objective but a complex constructed dimension that requires effort and dedication. More briefly, it demands care.

Valéry's words allow us to contrast this definition of temporality with the definition commonly found in medicine. In the latter, time is considered from its 'modern' concept, i.e., as something exterior, linear and sequential, which implies applying the same definition both to organizational activities and the development of biological dynamics (Cloatre, 2019). However, for some decades, this way of thinking time in medicine has been indicated as ambiguous, and as an approach to time that was imposed to handle the uncertainty caused by changes and alterations in the mentioned biological structures (Roth, 1963). In the same way that transformations of cultural representations of time are intrinsic to sociohistorical changes, as shown by sociology since the mid-20th century (Bourdieu, 1990; Gurvitch, 1964; Hassard, 1990), the link between time, efficiency and action in health is also, at least, a sociocultural product. Therefore, some authors (e.g., Armstrong, 1985; Horobin & McIntosh, 1983) point out that our current understanding of time originates from the post-war period, when disease stopped being conceived as a fixed entity and started to be understood as a process. In a similar line, these post-war studies insisted on showing how socio-spatial arrangement practices that took place at health care centres directly determined the pace of organizational work (Zerubavel, 1979).

This chapter builds on previous critique of the conceptualisation of time as a unitary and homogeneous dimension, including how it is mobilised in medicine and health. As posited by Cloatre (2019): "Medicine is envisaged as a field in which time 'matters': knowledge practices are inherently shaped by particular, often divergent, senses of temporality; at the same time, they become conditioned by series of temporal assumptions predominant in the practice of medicine" (p. 130). Consequently, from approximations like the above, temporal processes and phenomena like duration, among others, whether of an action, a routine, or a biological process itself, cannot be understood as a homogenous and common whole, but as an emerging event based on the overlap between diverse practices that elaborate, situate, and configure in a given scenario.

Harrison, Smith & Adams (2024) have previously indicated that sociological studies about temporality in medicine have had several trajectories. First, studies concerned with horology,

which address the question: how do we measure time and how is time related to the practices of patient care? This is fundamental and, among other things, it allows us to understand how care time is organized beyond clinical contexts, such as through mundane domestic practices and personal care routines (Buse et al., 2018; Mol, 2008). Second, sociological studies have critiqued the conceptualisation of time as something linear and sequential. The speed of time and the scale we use when defining it in our studies becomes a critical topic in studies such as those by Rance et al. (2024) and Seear & Lenton (2021). Lastly, several works show that new sociotechnical arrangements in the organization of healthcare reconfigure time for patients and health workers, producing new opportunities but also challenges for healthcare (Grønning et al., 2024; van Pijkeren et al., 2024). In this line, the contributions of cross-disciplinary sociological, anthropological, philosophical and sociopsychological approaches to health (Scrimshaw et al., 2022) should be mentioned, which have integrated research repertories that extend the social and subjective nature of time to view it as a product of heterogeneous articulations that involve both humans and objects in the same plane. This approach has yielded works on health and time that can, to an extent, be associated with a heterochronic perspective that analyses the role of specific social and material techniques in the configuration of different temporalities in health. For example, in their study of 'the medical record,' Berg and Bowker (1997) argue that medical records and databases "mediate" the constitution of a body with a specific history and geography of disease, constructing an immovable medical past that is divorced from the day-to-day rhythms of patients' experiences, and inscribing and coordinating different temporalities (Craciun, 2017).

Regarding these conceptualizations of time in health care, it is interesting to recall that Latour (1993) introduces the metaphor of "sorting" to refer to a means of tracing the temporalities occasioned by the meetings of a wide range of elements and agencies, human and nonhuman, social and material, bringing a socio-material approach: from these, new temporalities emerge and act and have effects (Grabham, 2014). From this point of view, time (as a process) could be composed of different times, and by virtue of that trait alone, it performs as another relational agent in the settings where it is practiced. Temporalizing is therefore a co-product of action, or an action itself, not a background for action. Hence, epistemologies and ontologies of health and illness depend on temporal schemata that entail experiences and practices of anticipation, preparedness, resilience, and response (Lynteris & Prince, 2016). In consequence, and as pointed out by Cloatre (2019): "The temporalities at play in medical practices, and in the law surrounding it, are never fixed or fully determined, but revisited as practices themselves come to be reshaped or experienced" (p. 130).

Following this literature, we attend to time as "a matter of concern" (Latour 2008). In other words, we engage with time as a matter of discussion and relevance for the analysis of situations related to health. To do this work, we present the concept of 'sensitive trajectory', which is strongly inspired by Puig de la Bellacasa's (2017) 'matter of care'. Our use of the expression "sensitive trajectory" deepens the debate on time and health-related practices and discourses. In this chapter, we will define this concept, illustrating it with an empirical study conducted in Chile and we will show how temporality can be viewed both as an effect of the

everyday practices of maintenance of the sensitive trajectories that configure it, and as the place where these trajectories subsequently emerge.

1. Sensitive trajectories

The previous section delineates several consequences for the socio-material analysis of the relations of practices and discourses in healthcare and time. First, it is presumed that time does not precede the practices and discourses in which it is defined and analysed. Temporality appears as fragmented into several temporal lines embedded in the set of relationships between material elements and social practices established in a concrete and localized situation associated with healthcare. Instead of a uniquely technical or natural question, time in healthcare could be thought as the product of articulations between heterogeneous elements, i.e. an alliance between linguistic components, technologies, biological processes, and social conventions, which participate in the elaboration of events (Serres & Latour, 1995).

Second, as noted by Moreira (2005, 2007), the problem that these multiple temporalities pose for the analyst is, precisely, the question of how they are articulated or scaled to be handled in a specific diagnostic and treatment. As this author argues, tensions between different schemes of medical temporality are engaged with each other in a multiplicity of ways; thus, stories are always incomplete accounts of a process and derive some of their value from their open-endedness. As we will show in our empirical analysis, medical practice faces the problem of combining, for example: the temporality derived from the patients and their daily routines, which must be aligned to the requirements of the temporalities of the health services; that of laboratory test takers and their conditions for organising demand; that of the duration of laboratory tests themselves; the temporality of nurses and the organisation of their work; or the temporality required by the computer programme that registers the arrival of people to specific department. These efforts are highly sensitive to the incorporation of the local variability of concrete material qualities and to the "human" conditions of those who interpret such norms and standards (Lynch, 2002).

Third, the socio-material and multiple nature ascribed to time (Grabham, 2016) poses the problem of traceability. This is relevant to the analyst because if time is composed of the association of entities embedded in concrete practices, the establishment of temporalities takes on various forms. Thus, we should understand how the traceability of these forms is configured or established in order to trace how they operate and through which agency configurations they become sensitive, whether by transforming or acquiring continuity, or creating slow-downs, accelerations or other specific temporality schemata (McNeilly, 2021).

To understand the action of time as another actor or agent in a set of practices and discourses in a health context, we intend to address two proposals in detail. Our first proposal involves differentiating between the notions of "temporality" and "time". In the literature discussed, authors often employ both terms as synonyms and, alternatively, when they differentiate them, they fail to clarify what the difference consists of, which has resulted in ambiguities. On other occasions, it is unclear why individuals perceive temporality differently from how it is

established by certain contextual conditions (we refer to the conditions that a physician can establish in their diagnosis, or a protocol used by nurses, for example). This ambiguity is well illustrated by Moreira (2007). When this author points out the need to articulate multiple temporal lines, we could legitimately ask if this refers to the articulation of different definitions of time offered by health system users or extracted from certain technologies, or if, on the contrary, it concerns the definition of a temporality as a relationship schema. For example, when a doctor interacts with a patient, the scheme proposed by Moreira does not make it clear whether the temporal lines that operate in this scene have to do with the temporal definition that each actor adds (the doctor has in his protocol a treatment time for a specific illness, the patient adapts the treatment to the temporal possibilities offered by his daily practices, etc.) or whether we are dealing with a final, local and situated temporality that emerges as a combination of the previous ones.

To avoid such confusions, we will define temporality as the quality and condition of time. Put differently, temporality is a kind of schema that describes the relational effects of multiple entities. Its key feature is that it schematizes a set of objectifiable bonds. Temporality is what Deleuze & Guattari (1987) exposes as a diagram. It is a concept provided by the analyst and involves the creation of an abstract schema from a set of concrete relations between different elements or observable practices. It is the result of a specific analysis that is constituted as an explanatory condition of the elements included in such an analysis. The notion of time, however, is the objective measure, e.g. time controlled by a clock, of the performance of an action by a particular entity or associated with a practice. For instance, the temporality of a car is articulated by all the time action of its components and materials (wheels, steel, software, etc.). This temporality varies depending on the nature and organisation of the components of the car. Wheels that wear easily or combustion ratios and forces that demand or delegate greater traction will generate a temporality characterised by constant wheel problems, the need for frequent replacements, etc. The sorting of the elements of the car makes it possible to measure the time it takes for it to start or to cover a distance; however, the temporality differs according to the relationships between the car's components (and their corresponding modes of interaction with the environment) and the movements themselves.

In the case of medicine, temporality can be extracted from the analysis of relations of a wide range of materials, including protocols, the (dis)continuity between tests and diagnosis, room infrastructures and links between technical elements, among others. Thus, a fast rate of implementation for a specific drug, for instance, has different temporalities as it can be enacted variously by different individuals as their organic relations with the medication and their daily routines vary from (as well as relate to) protocolised dosing and prescribing estimates (Mol, 1999); in turn, the deployment of all these combinations along with a clock or a calendar makes it possible to chronologically represent the time it has taken to implement the drug individually and collectively.

The above distinction seems relevant, as it allows us to generate the basis for the description and empirical analysis of the dynamics that emerge and that in turn configure temporalities; that is, specific temporal sortings, which differ from that of chronological time and the

subjective conception or experience of time. To analyse these instances, we build on Timmermans's (1998) framework for attending to multiple trajectories of practice in medicine. The idea of trajectory shows how, in practice, modes of temporality are configured through the articulation of elements of a different nature, and indicates at which point these modes of temporality gain relevance or value (Timmermans 1998). At this point, there become visible a set of varied and heterogeneous elements (e.g. social, technical, ideological, emotional, or material aspects) that play a role in the definition and constitution of a temporality. Furthermore, these various temporalities can clash with or contradict one another.

This brings us to our second proposal: the concept of the "sensitive trajectory." Here, we draw from Puig de la Bellacasa's (2017) concept of 'care': care emphasizes the reflexive and interdependent interaction in the shaping of realities during the process of paying attention and giving durability to things or issues. This means that care is not only a matter of attending to other humans but also a relational process that considers the concern for connections between humans and natural environments, processes, objects, and technological schemes. For Puig de la Bellacasa (2017), a "matter of care" consists of a process configured as vulnerable and that requires the articulation between humans and non-humans to attain its place in the world.

The relationship between the notions of trajectory and sensitivity alludes to the vulnerable and sometimes precarious condition and dynamics through which elements of diverse nature that compose temporalities in health are articulated in practice. With this, we consider both a way to attend to the relational and mundane character of the practices and objects that participate in this composition, and to the sensitivity of these temporalities to the relations that configure them. As temporalities are elaborated by delicate articulations, for their permanence and duration, they must be cared for. This directs the analyst's eyes to the small details and objects that strongly contribute to the establishment and duration of an assemblage but that are systematically forgotten (Michael, 2003). A good example is the effort that cleaning staff make every day using all the basic technology they manage in a laboratory. The concept also emphasizes the importance of attending to emotionality and affectivity in our analysis. We will illustrate these assertions using examples taken from a long-term study of the Chilean healthcare system.

2. Caring time in the Chilean health system

This chapter is based on a long-term research project that began in 2014. To date, it has yielded a case study of the Chilean healthcare system consisting of two phases. During the first phase[1], we focused on the practices and epistemic aspects involved in the design and management of population-level care policy. For the second[2], initiated in 2018, we have focused on how epistemic, practical and technological dynamics affect and participate in the configuration of the temporal dimension in political and clinical scenarios in the country. Both phases address

[1] Fondecyt de Iniciación en Investigación Project, N° 11140950, funded by CONICYT Chile.
[2] DICYT Regular Project, Code 032193CS, funded by University of Santiago de Chile; and Fondecyt Regular Project, N° 1241495, granted by ANID Chile.

the last major health reform in Chile and are related, as the question of the configuration of temporality emerges from the analysis of the practical aspects of this policy.

The reform is called Explicit Health Guarantees regime (*Garantías Explícitas en Salud* or GES), and was initiated in 2004 with the main purpose of reorganising the care priorities of the two main health services in Chile: the public National Health Fund (*Fondo Nacional de Salud* or FONASA) and the private Social Security Health Institutions (*Instituciones de Salud Previsional* or ISAPRE), which serve 77.8% and 17.29% of the population, respectively (Sánchez, 2021)[3]. For this purpose, GES regime establishes four legally enforceable guarantees related to *access* (meeting certain diagnostic criteria ensures incorporation into the scheme), *timeliness* (no more than a set period can elapse between each milestone of the treatment process), *financial protection* (a percentage of the total cost of treatment is covered), and *quality* (health providers are accredited only after a review process). These GES benefits are associated with a prioritized set of programs, diseases, or health conditions that are established taking into account a number of medical and financial analyses. These integrate "epidemiological studies that identify a list of health and treatment priorities based on the health status of the population, the effectiveness of each intervention, its contribution to quality of life or its prolongation, and, whenever possible, its cost-effectiveness" (Ferrer, 2004, p. 3).

As of this writing, the GES regime instituted in the public and private health systems has been used to prioritize 87 health problems within the national diagnostic caseload. This implies that for these diseases and biological conditions, relatively standardised technologies and services are made available, as well as deadlines for their implementation[4]. Thus, in order to implement the GES, regulatory and legal aspects must be articulated with the availability of human and technological medical equipment in clinical facilities, establishing subtle dynamics through which prioritisation can be made effective.

Our study stemmed from a very simple question: how could effective coordination be generated in a political healthcare project articulated upon the basis of an extremely wide range of material including political decisions, scientific criteria, technical protocols, users' opinions, and economic restrictions? To answer this question, we analysed several dimensions: (a) decision-making procedures; (b) the types of techno-scientific protocols used; (c) the role of medical experts; (d) the attention paid to users' opinion; (e) the definition and establishment of the so-called "health space"; and (f) the definition of time generated in each of the previous dimensions and how a single and general definition was articulated upon the basis of that variability.

In order to address the above, we developed focused ethnographies (Knoblauch, 2005) at the Ministry of Health, public hospitals, and private clinics. This approach involves making short visits to the centres in question and generating data through the making and recording of textual, visual and audible observations, in-depth interviews and the collection and analysis of

[3] These institutional transformations took place against a backdrop of reforms –encouraged by the World Bank (1993)– aimed at liberalizing health, privatizing services, promoting competitiveness, reducing state investment, and, above all, affecting the administration of care times for selected diseases.

[4] If a guarantee of timeliness is breached, a diagnosed person can sue his or her health provider before the Superintendence of Health, which will ensure that a second provider is assigned to provide the service.

available technical documents (Knoblauch, 2005; Trundle & Phillips, 2023). The main phases of information production in these spaces have taken place during 2014-2017, 2019 and from 2022 to the present. During this time span, we were able to access ministerial coordination meetings with experts and methodological advisors, as well as standards update sessions at the Ministry of Health, transit and waiting spaces, and care scenarios and clinical case analysis sessions in a public hospital and a private clinic. Interviews were conducted by members of the research team in different facilities (Ministry, Hospitals and University), gathering so far 16 experts in in health economics, politics design and clinical guidelines design, 55 healthcare professionals specialized in different diseases, 4 patient associations, and 12 individual patients have taken part of the research.

For the analysis of the information, we adopted what Tavory and Timmermans (2014) call abductive analysis. This involves identifying elements in the phenomenon or process under study, describing them and then looking for theoretical references that allow us to reflect on these elements. From there, it is necessary to return to these elements by formulating new hypotheses that contribute to their understanding. Unlike the inductive approach and the deductive approach, the abductive method focuses on generating plausible new ideas from the observed material.

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of University of Santiago de Chile and the care organisations that have been part of the studies. Informed consent to participate and to publish was obtained from individual participants, ensuring their voluntary, consented to and anonymised involvement. Further details about the study and methods have been published elsewhere (Castillo-Sepúlveda, Tirado & Gálvez, 2023; Castillo-Sepúlveda, Bywaters-Collado & Gálvez-Ramírez, 2022; Castillo-Sepúlveda (in press).

3. Sensitive trajectories in the Chilean Health System

The following field note was written by one of the study authors while doing fieldwork in a hospital:

> Just before reaching the counter, I register a conversation between a woman in her mid-sixties and the nurse coordinating the medical appointments in the Endocrinology ward. The woman states that, approximately one year earlier, she had received a doctor's order to have four tests done. Today, she had returned with the results. After the nurse's question, the woman states that she cannot remember the name of the doctor who had treated her and given her the order. At that point, the nurse asks her to see her National ID card. The woman finally notes that she had had a second meeting with the doctor, during which she had showed him two of the tests, but he had stated that he would need all the results to diagnose her. After looking for some documents in a filing cabinet, entering information into her computer, and quickly glancing at the screen, the nurse tells the woman to have a seat in the waiting room. (Field note, March 17, 2017)

This fragment reveals two noteworthy aspects that are repeatedly found in our work. First, it reveals the social (patient, nurse), material (national ID card, computer, database), and epistemic entities (legitimate knowledge in this setting) that must be coordinated in a simple interaction aimed solely at determining the patient's situation and resuming her treatment. Professionals' biological rhythms, machines, and test validity must be connected in a way that allows the patient's case to be interpreted as a single temporal flow. It is only through the alignment of subtle elements such as an identity card and a registration in the database, and the social interplay among them, that biological conditions, test times, multiple appointments, and the personal circumstances of the woman can be configured as a single trajectory. Second, it highlights the sensitive nature of the various elements that take part in the configuration of this temporal trajectory: all the individual elements establish a difference in the possibility of configuring the temporal continuity of the patient's treatment. Put differently, the trajectory of the disorder and the temporality that it configures are sensitive to the participation of the entities that compose and configure them. The continuity of the medical process is not granted directly but must instead be produced or developed.

Therefore, the existence and possibility of supporting a single medical temporality—that is, a single scheme signalling the deployment of individual experiences over time—in healthcare settings is associated with the synchronization of different temporality trajectories that coexist with one another. In other words, it is necessary to make an extra and explicit effort to obtain a central and coherent chronology. In this regard, Timmermans (1998) has pointed out that "these mutual tunings form the main dynamic of trajectories: they are shaped by others and shape others in turn; they define and are defined by, they align and are aligned vis-a-vis other trajectories" (p. 433). Nevertheless, our fragment goes somewhat further, showing that emergent moment when time is cared for and emerges as a problem to be solved. This is what we refer to as sensitive trajectories.

However, our study revealed a second issue. The effort above has certain particularities. Its existence depends on the activities of certain actors, who play a key role in ensuring that different flows can be aligned with one another. Without their participation, the consideration of a single time would be hard to achieve (von Arx, 2023). This situation is illustrated by the following fragment of an interview with a doctor responsible for a health centre:

> Not all healthcare programs or strategies stem from the maturation of something. Sometimes they are generated by somebody's will, and here the personal factor appears again. So, for example, if I know someone who's on the autistic spectrum, and I'm in a place where decisions are made, I'm going to propose a strategy, because we realize that it's a shortcoming, a gap, and so it depends on the position I have to drive this initiative, that will determine how much traction it's gonna get and how many other people I can convince. If I'm in a strategic position, I can talk to an authority and say, "Look, autism is important, I need help to treat people for free, we need to treat autism free of charge". "Okay, let's estimate how many people have autism in the country", "How many children aged 0 to 2 are there?". (Tamara, personal communication, September 1, 2022)

This fragment shows how the composition of a temporality – in this case, of prioritisation or acceleration for the attention of a diagnosis – would be expressed by the strategic exercise of association exercised by an agent. In situations like the above, it was possible to detect how certain agents, human beings in this case, play a key role in the sensitive trajectory. These actors were able to impose their projects over other choices, drive other practices in the same direction, or even redefine and change their format. We have explicitly noted that they were human agents, because the situation may also have involved non-humans; for instance, a cancer treatment imposes a sensitive trajectory that has nothing to do with the biological evolution determined by the pathology and which is articulated by the need to use certain chemical substances before their effectiveness expires or by the opportunities to distribute or administer these elements in a specific clinical centre (Callon and Law, 1982). This can also be seen in the following extract from an interview with the Head of the Emergency Service of a private clinic, in which it can be seen how the incorporation of more simple diagnostic technology, but strategically placed in a location close to the clinical care space, configures a different temporality to that of its remote location:

> [For the last year, in the emergency room] we have been using Point of Care tests. We call them SPOC [Single Point of Contact] tests, which require a sample that can even be a capillary one, for example a finger prick, and with a fast machine it gives you a general test result that allows you to make decisions. With this, they don't have to travel to the lab for viral tests (...) [with this] we go from a test that takes between 45 and an hour, to 10 or 15 minutes. With the result the doctor makes a very good decision for serious patients. (Andrés, Head of the Emergency Service at Private Clinic, individual interview, September 5, 2024)

Alternatively, these processes may be steered by the presence or absence of information, "evidence", or data in health policy decision-making. This is illustrated in the following field note, which describes a situation in an expert meeting to update a GES clinical practice guide, specifically, to modify the temporality and regularity of depression care:

> One of the attendees asks whether there is any information about depression treatment waiting lists. Another attendee notes that database records are only generated for treatment provided by specialist physicians, not psychologists, and that, therefore, the databases contain no records or information about this (…) In consequence, it is impossible to determine the actual costs involved, as the information from other countries that is indeed available can only be used to make an estimate. Although the participants use these statistics to try to ascertain the size of the target population and the number of sessions needed, they ignore the total number of sessions that their planned measures will require. (Field note, October 25, 2016)

As the above fragment shows, a trajectory that orients the temporality of healthcare processes is configured both by the care that humans express and by the conditions for the establishment

of agency that non-humans provide. Interestingly, these problems tended to resolve when temporary trajectories were established. In other words, the problem reflected by the sensitive trajectory operated as a black hole that absorbed the other problems. This led us to believe that sensitive trajectories could be understood as a mechanism necessary for the creation of meaningful entireties that facilitate single and coordinated action.

3.1 How do trajectories work?

In the GES regime, diseases that are added to the listing are associated with complex infrastructures that make it possible to control the relative temporality of their processes. Trajectories do more than indicate a problem with temporality: they establish that it is necessary or logical to introduce some type of anticipation. In these situations, an unavoidable temporality is established (based on certain elements such as political involvement or the characteristics of a pathology) and then imposed over every other aspect of a given healthcare-related practice. In the following fragments, we see how a sense of inevitability is introduced as an argument to impose this temporality:

> It's like the message we have to convey, we couldn't put seventy-nine diseases on the list, it looked inadequate [since 80 looks better], because there's an underlying political motivation. So, the Minister of Health called me and said: "I need to inform you that we can't include glaucoma, we're over budget". And I tried to sway him a little... "But, Minister, you know it's important…". And he said: "I'm not asking you", he said, "I'm telling you, because otherwise the President won't give us the budget for GES". Such a terrible thing to say… (Fernanda, individual interview, April 9, 2015)

> Oh, no, but before the glaucoma thing! The boss told us she had a new vision, but the process was coming to an end at the time, so she didn't do much (…) So she informed us that it wasn't going to, due to budget issues, I don't remember which pathology, but it wasn't going to be included, and one pathology would have to be split in two, mitral and aortic regurgitation, well. And actually, we had to divide it into subcategories. So that's what happened… (Fernanda, personal communication, April 9, 2015)

In the examples above, the logic of evidence is not enough to define this prioritised care process in the care system. This logic also incorporates unexpected events, which are incorporated into the relational play of previous elements and introduce a variation on the relationship between speed and pathology. This prioritisation is a sensitive process that attends to the infrastructural, social, political, and ethical conditions of the settings where prioritization is exerted. In other words, this trajectory organises how temporalities become accelerated or acquire a distinctive rhythm in relation with various epistemic, ethical and political concerns.

In other cases, we have identified sensitive trajectories that express the need for total *synchrony* in the health system. For example:

> You know the Ministry of Health has several divisions (…) We managed the healthcare networks and are always going to meetings with them during the day because our challenge here is to articulate this, work together, because it would be pointless to work in isolation, primary care in its own lane, specialists in another, in the end we're not looking at the whole person. The person moves through the system, actually, they don't just stay in primary care. So, on a normal day, we have meetings with them, meetings with inter-sectoral counterparts [other institutions involved in social care], we need to strengthen this and repeat these meetings, and make sure they have concrete products. (María José, personal communication, September 21, 2022)

> Timing is important when you're giving an answer. Some things require immediate answers, because after a while the window of opportunity to do something has already passed (…) [To do that,] the network should activate itself, and you only need to monitor how it operates (…) there are periodic meetings with people. When things happen, local agents should activate automatically and we, at the central level, what we do is check that it actually, the things that have to be done are actually being done, and check if they need further support or if they can handle things at the local level (…) we have periodic meetings precisely to make sure they activate automatically and then check that things have actually happened. (Samantha, personal communication, January 11, 2022)

These examples highlight a need for a single articulation of different temporalities. In some cases, problems stem from a temporality that demands that certain events occur simultaneously, as observed in Samantha's case. Both extracts illustrate the careful work required to configure a common synchronous temporality that allows both regular and unexpected events to be dealt with, as well as for the care networks to operate in a timely manner. Without this care, the network would probably not operate in terms of expectations or achieve its intended health, political, or intervention outcomes.

In the excerpts above, sensitive trajectories perform with a common synchronous temporality, which enables a large set of resources to be mobilised in a specific moment enacted by a collective that the trajectories define. In turn, it is also enacted as a collective temporality, i.e., defined as the effect of a coordinated and organised activity at a single time. But this collectively enacted time is not given. Here, sensitive trajectories materialise through practices of caring for and monitoring relationships over time to ensure that many temporalities can be reconfigured in synchrony when required. This temporality does not emerge as a "natural", fully formed, or spontaneous effect; rather, it is produced by progressive and simultaneous care aimed at preserving, protecting, and monitoring connections. In these cases, synchronicity is woven by the activity of agents who care for their event.

Where the above examples enact synchrony as the primary problem to be cared for, we also identified cases where temporality became constituted as a problem of *continuity*:

> You hold these meetings, mainly with people from other teams, you prepare minutes, send them by e-mail, leave a paper trail of what goes on, so that if anyone leaves the process, whoever replaces them can stay on the path that we had previously defined. (Samantha, personal communication, January 11, 2022)

> … If I leave, that program will still be there [in the specification sheet for the relevant social scheme]. All the objectives are there, all the coverage details are there. I make sure to leave all the formulas, how I calculated everything, because when people leave, you say, "Hey, why did you calculate it like this? Why do we want to get that result? Is this objective badly described or did they describe it this way for a reason?". How can we reconstruct history when it's so dependent on people? And the only way to do it is to be rigorous, we must do it in a way that is understandable when it's presented like this, in a specification sheet… (Tamara, personal communication, September 1, 2022)

These fragments reveal concerns over whether social and healthcare schemes will continue to operate if changes in decision-making occur when those responsible for them switch positions in their organization or when new protocols are introduced. Tamara, for example, indicates that if she abandons the project in which she is involved, it will continue there, in the corresponding institution, compiled in a series of documents and schemes. Tamara represents a temporality, and another time; when new relationship networks are incorporated, they will contribute this element that will need to conjugate with other contributions from other agents, and combine into a timeline, i.e., in the definition of a time that is operational and that stands out over all these temporalities.

In these examples, the fluidity and continuity of the temporality of processes and programmes is cared for through concrete activities and their conversion into durable materialities that can be easily articulated into habitual routines and practices. In all cases, a sensitive trajectory is prefigured that problematizes the issue of continuity –the establishment of a single or fixed temporality that does not harm the system or the patients. All this is linked to the problem of how to generate continuity and the registering processes that make it possible to reconstitute it if necessary. Again, this flow is not the product of a natural phenomenon, but a cared-for process that stems from practices and the articulation of specific objects used to monitor the ways in which relationships have been composed, thus facilitating their reconfiguration.

4. Discussion and conclusions

The trajectories we have explored throughout this chapter describe different situations and articulations of human and non-human elements; however, they share some relevant features. The sensitive trajectory signals the moment when time is cared for, is problematized, and becomes a matter of care. This step towards the resolution of the complexity problem does not emerge from nowhere; it comes from, and simultaneously updates, a scheme of relationships among heterogeneous elements that we have termed *temporality*. The coherency produced

through this scheme enables the multiple actors implicated in our study, as well ourselves as analysts, to discuss something we call *time*.

These trajectories are deemed to be sensitive for two reasons. First, they clearly show the precariousness of the articulation of temporality by revealing that this is composed of diverse and heterogeneous elements. Second, they stress the fact that temporality coexists with other schemes that constitute other similar or neighbouring practices. Nevertheless, in the trajectories examined, we detected the prevalence of certain actors and characteristics that are shared with other trajectories. These two elements, a prominent actor, and the existence of common terms, make it possible to understand how some temporalities predominate over others or how general syntheses are attained and situations where various temporality schemes coexist are homogenized.

This characteristic is in line with works that put forward the question of how from a network of diverse elements, there emerges some sort of cohesion or meaningful entirety (Moreira, 2005). Our study has shown that in such relationship networks, there is no naive symmetry. On the contrary, there are always agents of elements that for diverse contextual reasons have some preeminence that grants them the possibility of imposing themselves or stand out in the relationship with other entities.

The traits of sensitive trajectories enrich the studies conducted thus far on similar topics. For instance, in their editorial on matters of time in health and illness, Harrison, Smith & Adams (2024) point out the problems of ambiguity and uncertainty that regularly emerge in the sociological literature in this field. These sociological studies highlight that health interventions often re-organise how illness is experienced over long periods of time, and the complexity of the organising limits of the clock when health, illness, and care are investigated at larger scales. Sensitive trajectories, as we have mentioned, offer approaches to articulating how this ambiguity and uncertainty is closed in each particular context.

Other scholars in this field show how difficult it is to integrate into a meaningful totality practices and discourses that often operate in different directions (e.g., Moreira, 2005; 2007; Mol, 2002; Mol & Law, 1994). Moreover, they cleverly show how the medical professional faces the challenge of such coordination and how the analyst, in turn, has to explain such actions. Once again, the trajectories of sensitivity, based on their differentiation between temporality and time, their insistence on the existence of dominant actors in the schemes of temporality, or the existence of practices that impose themselves on others by appealing to common terms, shed light on: (a) how to understand the creation of totalities with meaning, and (b) how the analyst, based on the notion of temporality that functions as a diagram of intelligibility, explains and understands the creation of this articulation.

If we consider medicine to be a field in which time ‘matters’ (Cloatre, 2019), the concept of the sensitive trajectory is concerned with *how* and *why* time matters. A sensitive trajectory operates as the basic infrastructure that gives meaning to that individual experience and connects it with similar experiences. The various sensitive trajectories that can be established

as certain practices represent, above all, a problematization of temporal experience. In other words, they constitute that experience as a problem that has certain effects, over which an action must be exerted, and which grounds one's operation. Echoing the words of Puig de la Bellacasa (2017), we can say that they turn that experience into a matter of care because they turn time into a problem that must be addressed, analysed and understood in its evolution. Temporality, in this sense, can be viewed both as an effect of the everyday practices of maintenance of the sensitive trajectories that configure it, and as the place where these trajectories subsequently emerge. They signal a moment when change may occur, that is, the irruption of an event that can have certain effects on a concrete practice. Likewise, they indicate that experience associated with the temporal domain is more important than it has usually been said to be in healthcare. Such experience tends to be treated as a merely technical problem, involving activity management, the rational usage of human resources, or the establishment of protocols of varying effectiveness; alternatively, it can be viewed as a biological problem, that is, as something related to the natural course of a process.

The examples that we have included in our case study have involved the articulation of differentiated temporal regimes, inducing acceleration vectors for those health problems that satisfy a series of evidence requirements, based on a complex and dynamic epistemic network used to prioritize certain bodies and the medical and economic activities and technologies associated with timely care (Castillo-Sepúlveda, 2019; Castillo-Sepúlveda et al., 2022; Castillo-Sepúlveda et al., 2017). Our analysis attends to time as an emergent process based on relations between epistemic, ethical, political, material, and even spatial processes, which enact it differently in each health entanglement. In applying our concept of sensitive trajectories, we show that temporality, and the time that can be derived from it, is relevant enough to affect the definition of a pathology, the implementation of a treatment process, or even the composition of a whole public healthcare service. In addition, these trajectories show that tension and dissent – i.e., difference – are the norm and not the exception, even in a sphere as delicate as that of healthcare. This differentiation concerns local and wholly situational practices and problems. Thus, these trajectories insist that something apparently as objective and abstract as “time” is yet another matter open to discussion.

Competing Interests

This study was funded by DICYT, Project Code 032193CS, granted by University of Santiago de Chile, and Fondecyt Regular Project N° 1241495, granted by ANID Chile.

References

Armstrong, D. (1985). Space and time in British general practice. *Social Science and Medicine*, *20*(7), 659-666. https://doi.org/https://doi.org/10.1016/0277-9536(85)90054-1

Berg, M., & Bowker, G. (1997). The Multiple Bodies of the Medical Record: Toward a Sociology of an Artifact. *The Sociological Quarterly*, *38*(3), 513-537. http://doi.wiley.com/10.1111/j.1533-8525.1997.tb00490.x

Bergson, H. (1913). *Time and Free Will. An Essay on the Immediate Data of Consciousness*. George Allen & Company, Ltd.

Bourdieu, P. (1990). Time Perspectives of the Kabyle. In J. Hassard (Ed.), *The Sociology of Time* (pp. 219-237). Palgrave Macmillan.

Buse, C., Martin, D., & Nettleton, S. (2018). Conceptualising 'materialities of care': Making visible mundane material culture in health and social care contexts. *Sociology of Health & Illness*, *40*(2), 243–255. https://doi. org/10.1111/1467-9566.12663

Callon, M., & Law, J. (1982). On Interests and their Transformation: Enrolment and Counter-Enrolment. *Social Studies of Science*, *12*(4), 615-625. https://doi.org/10.1177/0306312820120040

Castillo-Sepúlveda, J. (in press). Opening the black box of time in health: analysis of temporal sorting through objects in Chile. *Saúde e Sociedade.*

Castillo-Sepúlveda, J. (2019). Gubernamentalidad y somatocracia en el Régimen de Garantías Explícitas en Salud en Chile. *Revista de Estudios Atacameños*, *62*, 247-275. https://doi.org/https://doi.org/10.22199/issn.0718-1043-2019-0009

Castillo-Sepúlveda, J., Bywaters-Collado, F., & Gálvez-Ramírez, M. (2022). On the production of certainty in public health: biopolitics and speculative objects. *Saúde e Sociedade*, *31*(1), e200891. https://doi.org/https://doi.org/10.1590/S0104-12902022200891

Castillo-Sepúlveda, J., Espejo, M., Tapia, J., Catalán, M., Toro, J., & Gálvez, M. (2017). Tecnologías, episteme y subjetivación en un régimen de garantías en salud. *Psicoperspectivas*, *16*(3), 6-16. https://doi.org/10.5027/psicoperspectivas-vol17-issue3-fulltext-1069

Castillo-Sepulveda, J., Tirado, F., & Galvez, A. (2023). Biopolitics and speculative objects in Chilean health projects. *Soc Stud Sci*, *53*(2), 194-212. https://doi.org/10.1177/03063127221136804

Cloatre, E. (2019). Traditional medicines, law and the (dis)ordering of temporalities. In S. Beynon-Jones & E. Grabham (Eds.), *Law and Time* (pp. 128-144). Routledge.

Craciun, M. (2017). Time, Knowledge, and Power in Psychotherapy: A Comparison of Psychodynamic and Cognitive Behavioral Practices. *Qualitative Sociology*, *40*(2), 165-190 page 165 – 190 https://doi.org/10.1007/s11133-017-9355-x

Deleuze, G., & Guattari, F. (1987). *A Thousand Plateaus. Capitalism and Schizophrenia.* University of Minnesota Press.

Ferrer, M. (2004). Plan AUGE y Reforma a la Salud: ¿Vía a la equidad en salud? *Agenda Pública*, *3*(4), 1-13.

Grabham, E. (2014). Legal form and temporal rationalities in UK work-life balance law. *Australian Feminist Studies*, *29*(79), 67-84. https://doi.org/10.1080/08164649.2014.901280

Grabham, E. (2016). *Brewing Legal Times. Things, Form, and the Enactment of Law*. University of Toronto Press.

Grønning, A., Simonsen, L. M., Lüchau, E. C., Assing Hvidt, E., & Klausen, M.. (2024). My time, your time, our time. Older patients' and GPs' time sensibilities around email consultations. *Health Sociology Review, 33*(1). https://doi.org/10.1080/14461242.2024.2316742

Gurvitch, G. (1964). *The Spectrum of Social Time*. D. Reidel.

Harrison, M., Smith, A. K. J., & Adams, S. (2024). Matters of time in health and illness. *Health Sociol Rev*, *33*(1), 1-9. https://doi.org/10.1080/14461242.2024.2319943

Hassard, J. (1990). *The Sociology of Time.* Palgrave Macmillan.

Horobin, G., & McIntosh, J. (1983). Time, risk and routine in general practice. *Sociology of Health and Illness*, *5*(3), 312-331. https://doi.org/https://doi.org/ 10.1111/1467-9566.ep10491839

Knoblauch, H. (2005). Focused Ethnography. *Forum Qualitative Sozialforschung Forum Qualitative Social Research*, *6*(3), 1-14.

Latour, B. (1993). *We have never been Modern*. Hardvard University Press.
Latour, B. (2008). What is the Style of Matters of Concern? In N. Gaskill & A. J. Nocek (Eds.), *The Lure of Whitehead* (pp. 92-126). University of Minnesota Press.
Lynch, M. (2002). Protocols, practices, and the reproduction of technique in molecular biology. *The British Journal of Sociology*, *53*(2), 203-220. http://doi.wiley.com/10.1080/00071310220133304
Lynteris, C., & Prince, R. J. (2016). Anthropology and Medical Photography: Ethnographic, Critical and Comparative Perspectives. *Visual Anthropology*, *29*(2), 101-117. https://doi.org/http://dx.doi.org/10.1080/08949468.2016.1131104
McNeilly, K. (2021). How Time Matters in the UN Human Rights Council's Universal Periodic Review: Humans, Objects, and Time Creation. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3813061
Michael, M. (2003). Between the Mundane and the Exotic: Time for a Different Sociotechnical Stuff. *Time & Society*, *12*(1), 127–143. https://doi.org/10.1177/0961463X03012001372
Mol, A. (1999). Ontological Politics. A word and some questions. In *Actor Network Theory and After* (pp. 74-89). Blackwell.
Mol, A. (2002). *The Body Multiple: Ontology in Medical Practice*. Duke University Press Books.
Mol, A. (2008). *The Logic of Care. Health and de Problem of Patient Choice*. Routledge.
Mol, A., & Law, J. (1994). Regions, networks and fluids: Anaemia and social topology. *Soc Stud Sci*, *24*(4), 641-671. https://doi.org/10.1177/030631279402400402
Moreira, T. (2005). Diversity in clinical guidelines: the role of repertoires of evaluation. *Soc Sci Med*, *60*(9), 1975-1985. https://doi.org/10.1016/j.socscimed.2004.08.062
Moreira, T. (2007). How to investigate the temporalities of health. *Forum Qualitative Sozialforschung*, *8*(1), Article 13.
Puig de la Bellacasa, M. (2017). *Matters of Care. Speculative Ethics in More Than Human Worlds*. University of Minnesota Press.
Rance, J., Grebely, J., & Treloar, C. (2024). The time of cure: hepatitis C treatment and the matter of reinfection among people who inject drugs. *Health Sociology Review*, *33*(1). https://doi.org/10.1080/14461242.2024.2315031
Roth, J. (1963). *Timetables: Structuring the Passage of Time in Hospital Treatment and Other Careers*. Bobbs-Merrill.
Sánchez, M. (2021). *Análisis Estadístico del Sistema Isapre con Perspectiva de Género. Año 2020.* Superintendencia de Salud.
Scrimshaw, S. C., Lane, S. D., Rubinstein, R. A., & Fisher, J. (2022). *The SAGE Handbook of Social Studies in Health and Medicine* (2nd ed.). SAGE Publications.
Seear, K., & Lenton, E. (2021). Becoming posthuman: Hepatitis C, the race to elimination and the politics of remaking the subject. *Health Sociology Review*, *30*(3), 229–243. https://doi.org/10.1080/14461242.2021.1971102
Serres, M., & Latour, B. (1995). *Michel Serres with Bruno Latour. Conversations on Science, Culture, and Time* (R. Lapidus, Trans.). University of Michigan Press.
Tavory, I., & Timmermans, S. (2014). *Abductive Analysis. Theorizing Qualitative Research*. The Unviersity of Chicago Press.
Timmermans, S. (1998). Mutual Tuning of Multiple Trajectories. *Symbolic Interaction*, *21*(4), 425-440. https://doi.org/10.1525/si.1998.21.4.425
Trundle, C., & Phillips, T. (2023). Defining focused ethnography: Disciplinary boundary-work and the imagined divisions between 'focused' and 'traditional' ethnography in health research – A critical review. *Social Science & Medicine*, *332*. https://doi.org/10.1016/j.socscimed.2023.116108
Valéry, P. (1933). *L'idée fixe*. Editions Gallimard.

Valéry, P. (2004). *La idea fija.* A. Machado Libros.
van Pijkeren, N., Schuurmans, J., Wallenburg, I., & Bal, R. (2024). 'The night is for sleeping': how nurses care for conflicting temporal orders in older person care. *Health Sociology Review, 33*(1). https://doi.org/10. 1080/14461242.2024.2316737
von Arx, M. (2023). The illusion of immediacy: on the need for human synchronization in data-intensive medicine. *Front Sociol*, *8*, 1120946. https://doi.org/10.3389/fsoc.2023.1120946
World Bank. (1993). *World development report 1993. Investing in health*. World Bank.
Zerubavel, E. (1979). *Patterns of Time in Hospital Life. A sociological perspective*. University of Chicago Press.

Francisco Tirado *is Senior Lecturer in the Social Psychology Department of Universitat Autònoma de Barcelona. He is now full member of STS-b (Barcelona Science and Technology Studies Group) and was its director during the latest five years. His research interests are related with four topics: a) Science and Technology Studies, b) power relationships and political action in new sociotechnical contexts, c) citizen participation in technoscientific controversies; d) artificial intelligence and its relation with new forms of power. He is the author of several articles and books on STS and Power Relationships in new sociotechnical contexts.*

Jorge Castillo-Sepúlveda *is Assistant Professor at the School of Psychology of the Universidad de Santiago de Chile. His interests are related to epistemic and technological aspects of health politics, informed by material-semiotics approaches, being developed case studies mainly centred on Chilean health reforms. He is author of articles and book chapters addressed from STS and have responsible of different research projects, currently studying the socio-material composition of time in political, clinical and experiential health care settings.*

Fernanda Bywaters-Collado *is Psychologist by the Universidad de Santiago de Chile, currently studying for a Master's degree in Psychology, mention in Psychoanalytic Theory and Clinic at the Universidad Diego Portales. Her main research interests are linked to the social studies of medicine and health. She is currently developing a research project on temporality in psychoanalytic work with terminal cancer patients in institutional contexts.*

Mariana Gálvez-Ramírez *is Psychologist by the University of Santiago de Chile, currently student in the Master's programme in Adult Clinical Psychology at the University of Chile. She works as a Clinical Psychologist at the Women's Mental Health Unit of the San José Hospital. Member of the Inter-American Research Network on Psychoanalysis and Politics (RedIPPol), and member of the Working Group Psychoanalysis and Maternities, her main research interests are linked to the social studies of medicine and health. Her work has developed from psychoanalysis, biopolitical studies, public health, maternity and violence, and the intersections between these fields.*