

## **Opening the black box of time in health: analysis of temporal sorting through objects in Chile<sup>1</sup>.**

### **Abrindo a caixa preta do tempo na saúde: análise da ordenação temporal através de objetos no Chile.**

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Version accepted in *Saúde e Sociedade*.

#### **Abstract.**

In this article, we explore social and material processes involved in the sorting of time in scenarios of policy design and clinical practice. Based on the analysis of material produced during a case study based on focused ethnographies and interviews on the health system in Chile, specifically of the Explicit Health Guarantees regime, we consider the way in which the articulation between social activities and objects composes the temporal dimension in health. We analyse this by considering specifically the role of indexes and statistics in their biopolitical dimension, as well as the local role of contingent and regular dispositions in clinical activity. We conclude on some implications of integrating a socio-material approach to the apprehension of time in health.

**Keywords:** Time, Temporal Distribution, Biopolitics, Health policy, National Health Systems.

#### **Resumo.**

Neste artigo, exploramos os processos sociais e materiais envolvidos na ordenação do tempo em cenários de desenho de políticas e de prática clínica. A partir da análise do material produzido durante um estudo de caso baseado em etnografias e entrevistas focalizadas sobre o sistema de saúde no Chile, especificamente sobre o regime de Garantias Explícitas de Saúde, consideramos o modo como a articulação entre atividades e objetos sociais compõe a dimensão temporal na saúde. Analisamos este aspeto considerando especificamente o papel dos índices e das estatísticas na sua dimensão biopolítica, bem como o papel local das disposições contingentes e regulares na atividade clínica. Concluimos com algumas implicações da integração de uma abordagem sócio-material na apreensão do tempo em saúde.

**Palavras-chave:** Tempo, Distribuição Temporal, Biopolítica, Política de Saúde, Sistemas Nacionais de Saúde.

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<sup>1</sup> The author gratefully acknowledges the support of the Agencia Nacional de Investigación y Desarrollo (ANID) of Chile, through the funding of FONDECYT project No. 1241495. Also, the Dirección de Investigación Científica y Tecnológica (DICYT) of the Universidad de Santiago de Chile, through by funding of project 032193CS..

## Introduction.

In the last decades, governments of Western countries have become under increasing pressure to promote political, economic, and technical transformations to optimise the provision of health services (PEDERSEN; ROELSGAARD, 2020; WORLD HEALTH ORGANIZATION, 2022), being speed has often been the parameter of better quality (STEPANOVICH; UHRIG, 1999). Time itself has become the canon for managing and evaluating the legitimacy of healthcare administration. In this respect, the strategies of various Latin American countries have generally been based on the prioritisation of medical services, considering epidemiological, demographic and biomedical indexes, together with the optimisation of the measurement of waiting times (GIDEON, 2006). Since 1990, the World Bank has guided such transformations to enhance population longevity by recommending direct intervention in health markets, financing "a package of public health measures and essential clinical services (...) improving incentives to expand coverage and control costs, (...) [encouraging] competition and private sector participation in the provision of services" (WORLD BANK, 1993, p. iii).

In the case of Chile, these orientations have been related to the configuration of the Explicit Health Guarantees regime (régimen de *Garantías Explícitas en Salud* or GES, as it is called in Spanish)<sup>2</sup>. Implemented since 2004, this system is fundamentally characterised by the prioritisation of disease trajectories, based on epistemic, technological and economic platforms that link public and private health services around the fulfilment of four legally enforceable guarantees related with conditions for access to care, financing, quality, but mainly with timing of treatments (MINISTERIO DE SALUD, 2004), reorganising the technological and economic infrastructure of health services for this purpose.

The connection between time and health systems such as GES is fundamental. This is expressed, also, in annual studies of its efficiency and about the differences it introduces with regard to waiting times, as well as in regulations and IT platforms that trigger alarms in the care centres when one of the parameterised care actions is not carried out when it should be (MINISTERIO DE SALUD, 2023). However, for such reports and technologies to be properly interpreted, time must be understood exclusively as a one-dimensional and homogeneous phenomenon (O'MAHONY; NEWALL; VAN ROSMALEN, 2015). In other words, the temporality of health must be practised as a "background" upon which care calculations, clinical activities, and health itself flow. Time is commonly appreciated as a "matter of fact" or a reality in itself, assuming its homogeneity for different actors, in dissimilar spaces and for diverse health care interests (LATOURE, 2004). Following the metaphor used by LATOUR (2000), time operates as a "black box" as it serves mainly as a plane of contrast for the evaluation of the efficiency of medical interventions, avoiding any consideration of its composition, possible variations or internal complexity.

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<sup>2</sup> The term regime is used in the sense of the set of rules and specifications (MINISTERIO DE SALUD, 2004).

However, over a case study of the GES regime, we have encountered situations such as the following, related to Figure 1, taken in a public hospital in the city of Santiago de Chile<sup>3</sup>:



Figure 1. Photograph of stamps of the Explicit Health Guarantees regime.

The photograph shows elements that could be part of a common desk in any administrative office: telephone, stamps and reminder papers are part of the image. At the centre of the picture it is possible to appreciate three of the four "GES stamps" that exist throughout the 2.6-hectare, eight-floor hospital area, spread over three large blocks. Their importance is only understandable from the composition of the regime: With the messages "*Revisado OK GES (Número de Timbre)*" (Reviewed OK GES [stamp number]) or "*(nombre de hospital) Unidad GES*" ([hospital's name] GES Unit), these stamps speed up any kind clinical activity in the entire space. Monica, a professional in charge of its management, puts it this way:

Monica: There are only four GES stamps in all buildings.

Interviewer: Four stamps?

Monica: Four stamps that authorise to have an examination or to receive a medicine without any question. When patients arrive at a service window, it is checked on the screen [or database] the tests or prescriptions they bring with them to verify that they are covered by the basket of benefits. According to this it is determined whether they should be given of prescription or test. When it doesn't apply, nurses come to me and say: "Mrs. Monica, these patients are not covered for

<sup>3</sup> Information not linked to the analysis objectives of this paper in this and other figures or images has been blurred, in order to respect and maintain the compromised anonymity of the participating non-ministerial health units or organisations.

their diagnosis", or "... the test does not apply ". However, if we have the possibility to do it, we do it anyway, with the priority it should have. And with the stamp on, it is done.

Interviewer: Does the GES stamp mandate that?

Monica: The GES stamp rules.

Interviewer: And why are there four?

Monica: Because it is a very sensitive issue, so there are three here and one more in the Diabetes Unit which is in (...) [another building] (Professional, 30 November 2016)

Professional's account allows to appreciate how a mundane object such as a stamp, embedded in a specific epistemic and normative scenario, acquires the possibility of establishing relevant temporal differences. Each GES stamp acts as a temporal agent in this socio-technical<sup>4</sup> relations in which it is inserted, acquiring a specific meaning, and affecting the ways in which other elements are ordered to transform the speed of the course of clinical actions. The time of stamped processes is not equivalent to regular ones, producing social and material variations for their performance.

Situations such as the above illustrate that time of clinical processes seem to depend not only on natural or exclusively normative elements that organise it, but on much more mundane and subtle matters. Time in health appears to be "folded, rather than linear" (CLOATRE, 2019, p. 130), as the product of articulations between heterogeneous elements, i.e. an alliance between linguistic components, equipment, biological processes and social conventions, which participate in its elaboration (SERRES; LATOUR, 1995). Both the creation of the dimensionality of health policies –which involves temporalisation procedures– as a performative<sup>5</sup> process mediated by numeration routines, and the clinical local practices linked to the production and reproduction of life in certain standardised times (CARVAJAL; GAETE, 2016) can be understood as configured by a series of adjustments involving relationships between human and non-human elements with implications for temporal sorting (JESPERSEN; JENSEN, 2012).

Considering the above, we articulate an approach to "see inside" some mechanisms of the above-mentioned "black boxed" operation of time, attending to its composition both in the configuration of health policies and in everyday clinical routines. Referring the first, we consider implications of every-day practices into intervening on the temporal dynamics of population longevity, i.e., the temporal dimension of what the French philosopher Michel Foucault (2007) calls biopolitics, in the sense of a politics that attends to the conditions for the unfolding of life. At this respect, we focus on specific role played by technical entities in these configurations in the adjustments of habits and practices linked to the production and reproduction of life in certain

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<sup>4</sup> In this context, socio-technical refers to process in which social and technical aspects are co-defined reciprocally.

<sup>5</sup> Performativity is a theory derived from analytic philosophy, which states that language and social practices not only represent or shape the world, but also constitute it.

standardised –or not– times. With regard to clinical routines, we focus on forms in which temporality becomes apprehensible in the flow of everyday routines.

From this perspective, rather than analytically pre-empting temporal dichotomies (natural or social-regulatory) assigning normativity to temporal structures, we make an approach from empirical point of view to explore temporality into practice (PEDERSEN; ROELSGAARD, 2020). Following the guidelines of Science and Technology Studies (STS), instead of attending to time as a 'matter of fact', we develop an approach to time in health as a "matter of concern", considering that its articulation depends on the effort between different agents assembled so that it is unfolded in specific ways (LATOURETTE, 2004).

### **An approach to social and technical configuration of time in health.**

In a very synthetic way, the diversity of approaches to the study of time developed during most of the 20th century share some common features. Firstly, time is assumed from a dualistic perspective, that is, either time obeys a natural disposition or an exclusively social construction. Secondly, time is considered relevant insofar as it is placed in relation to other processes of a social, cultural or symbolic nature. This means that time is usually considered in terms of its consequences for collective life, but not as a relevant issue (ADAM, 2016).

However, in the field of the study of temporality in medicine, subtleties are expressed that differ from an understanding of time exclusively in physical or social terms. While for a long time medicine have relied on a shared idea of time inherited by modernity as a linear and unidirectional process (CLOATRE, 2018), various works have highlighted the active role of practices and technical components in both the production and coordination of temporal dimensions. For example, the work of ARMSTRONG (1985) reports how, in the post-war period emerged an specific economy of time in health, associated with the effort to make medical practice more efficient and the slogan of saving doctors' time. In this period, the relevance given to the temporal dimension changes the way in which illness is conceived: it is no longer an event, but a process (onset of symptoms, diagnosis, treatment, outcome) linked to continuous observation and care practices; chronic illness crystallises the union of illness and time, being linked with the evaluation of "proper progress" of the biological aspects of the body (ARMSTRONG, 1985). To this end, the incorporation of specialised technologies and objects has been fundamental.

In this regard, from STS perspective, the study of BERG e BOWKER (1997) points out the importance of mundane artifacts in the articulation of continuity of time in health scenarios. They show how medical records and databases "mediate" the constitution of a body with a specific history and geography of disease, constructing an immovable medical past, coordinating and aligning different temporalities (HINE, 2016). Thus, for MOREIRA (2007) the temporal space of health is composed by the many different temporalities that are enacted by various forms of epistemic and artefactual

participation. Hence epistemologies and ontologies of health and illness depend on temporal formations that entail experiences and practices of anticipation, preparedness, resilience, and response. In this whole process, the approach to the disease ceased to be about the event itself and became about the control of its possibilities (prevention, early intervention, all this to protect the future) (MOREIRA, 2007).

### **Time politics of health.**

Thus, the ways in which temporality is articulated takes on various political connotations. In this regard, AUYERO (2013) has exposed how time can be manipulated in the sense of distributing waiting and acceleration in a discriminatory way for certain bodies, usually in relation to clientelism and poverty. As Ost (in HARRINGTON, 2012) puts it, decisive power rests with those who are able to impose their construction of time on other social groups.

This political administration of time intrinsically imbued into what Foucault (2007) calls "biopolitics", a politics which "converts power-knowledge into an agent of transformation of human life" (p. 173). As DELEUZE (2014) has pointed out, biopolitics intervenes in rhythm and "makes certain choices and behaviours probable": "biopolitics never ceases to make probable (...) it implies a management of probabilistic phenomena: births, deaths, marriages, etc." (p. 84). The duration of symptoms, as biological and epistemic normativity, is associated with medical practices that define standards on the understanding of the body, its distribution in relation to other bodies and how these participate in social and material rhythms. Such associations, along with related calculations, allow the disease in a given situation to acquire a particular temporality, in the sense of its duration, acceleration or lethargy (MOREIRA, 2007). However, as MOREIRA (2007) has highlighted, this consideration of the effects of local and subtle negotiations in the formation of biopolitical dynamics is commonly omitted in terms of its macro and micro implications.

In this way, in its macro and micro implications, time exceeds exclusive chronological logics and appears related to everyday routines of interchange with diverse types of organisation. At this respect, from STS approach, LATOUR (1993) introduce the metaphor of "sorting" to give account of a means of tracing the temporalities occasioned by the meetings of a wide range of elements and agencies, human and nonhuman: from these sorting, new temporalities emerge, act and have effects. As LATOUR (1993) himself states: is "the sorting that makes the times not the times that make the sorting" (p. 76). Through social and material agency time unfolds, making time(s) through action, practicing it as dynamic, complex and contingent process (BEYNON-JONES; MARTIN; BUSE; NETTLETON; ANNANDALE, 2020). From a material-semiotic approximation, a perspective which entails on relationality of entities (human or not humans), and the notion that both are produced through heterogeneous relations (LAW, 1999), it is possible:

... to pass from one temporality to the other, since a temporality, in itself,

has nothing temporal about it. It is a means of connecting entities and filing them away. If we change the classification principle, we get a different temporality on the basis of the same events. (LATOURE, 1993, p. 75)

The point about this kind of perspective is that it allows different temporalities to emerge through different sorting processes. In that sense, time is therefore a co-product of agency of different social and material elements, not a background for action.

### **Calculating health, changing time: description of case.**

As stated at the beginning, last decades have exposed significant transformations regarding administration of health –and health-time–, particularly in Latin American countries. In Chile, there are two major health systems: the public system, managed by a National Health Fund (FONASA) and the private system, managed by diverse Social Security Health Institutions (ISAPRE); together they cover 77.8% and 17.29% of the population, respectively<sup>6</sup> (SÁNCHEZ, 2021). GES is inscribed in both systems, establishing at the moment 87 prioritised health problems related to the national diagnostic caseload, for which it establishes four legally enforceable guarantees, which are: *access* (the meeting certain diagnostic criteria ensures incorporation into the scheme), *timeliness* (the maximum times between each defined point in time for diagnostic treatment), *financial protection* (a percentage of coverage with respect to the total cost of treatment), and *quality* (the review of the conditions for accreditation of health providers). Each diagnosis is selected based on complex epistemic, ethical and political tasks, guided at a general level by evidence-based medicine. Following these standards, a set of “baskets of services” for which there is evidence of efficiency is provided, along with clinical practice guidelines for local use. The same regime establish a temporality of three years to analyse the incorporation of new health problems or services (MINISTERIO DE SALUD, 2004).

In practice, GES regime has involved the articulation of differentiated temporal regimes, inducing acceleration vectors for those health problems that satisfy a series of requirements of evidence and cost-effectiveness calculations, among others. This regime can be understood as a vector of biopolitical acceleration, in the sense that it formulates a complex and dynamic epistemic network by which to prioritise certain bodies and the medical and economic activities and technologies associated with timely care. Other bodies, meanwhile, are articulated in networks that produce a different, slowed-down temporality. Together, these two scenarios make up a complex and sensitive framework in which the temporalities of health are configured in most of the country.

### **Method.**

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<sup>6</sup> The remaining percentage is associated with exclusive health services for armed and security forces.

To explore modes in which time is sorted in health scenarios in Chile, we have resorted to material produced through a case study of this regime started in 2015 until the present, that considered the development of focused ethnographies (KNOBLAUCH, 2005) and interviews in ministerial departments and public hospitals in Chile. In this work, we especially consider field notes and excerpts from interviews with experts in policy design, that have been part of the updating of the diseases and benefits included in the baskets of services, as well as providing methodological guidance on the design of care protocols (n = 13), along with 31 health professionals who have participated in expert committees to prioritise diseases or services, organised by ministerial departments, or that are part of the clinical treatment of prioritised diseases. Most of these interviews (42) were carried out in the workplaces of experts and professionals, allowing for the integration of the material components of the space into the conversation, developing in each case how they articulate the daily work carried out. Also, during the focused ethnographies, it has been possible to generate images through photographs, as well as to obtain legal documents (n = 3), protocols (n = 80) and internal dissemination bulletins (n = 2), which we also integrate in this analysis.

For the consideration of the resources produced in this work, we have used abductive analysis. For TAVORY and TIMMERMANS (2014) it consists on the identification of elements that are novel in the phenomenon under study, their subsequent description, and the search for theoretical references that allow to think about the observed elements. In this way, we return to these elements, putting forward new hypotheses that contribute to their understanding. Unlike the inductive method, which is predicative, and the deductive method, which aims to predict an event, the abductive method focuses on the production of new plausible ideas from the material.

Specifically, our analysis strategy was based on the review of situations and accounts in which experts and professionals describe or analyse how they perform activities that can intervene in speeding up, slowing down, or taking care of their activities in general, considering field notes and interviews in similar terms, as the semiotic record of activities. At this respect, as our objective is to analyse temporal arrangements in a broad manner, although our case study emerges around the study of the GES regime, in this work we integrate situations from the health scenario in general.

The research followed the ethical guidelines of participant care and safeguarding the confidentiality of the information of interviewees and institutions. The study was reviewed and approved by an Institutional Ethics Committee.

### **Objects and time.**

After moving forward in line, the woman tells the nurse that a year ago she received an order for four medical tests that she is bringing today, but that does not remember the name of the doctor. Six months ago, she brought two results, but was told she needed all the tests for diagnosis. The nurse



searches through filing cabinets, enters information into the computer and looks quickly at the screen before asking the patient to wait. (Field note in public hospital, 17 March 2017)

The above quote shows a relatively common situation in the public health service in Chile. Although it exposes problems related, for example, to the length of time required to receive specialised care and the validity or "duration" of laboratory tests, it also states how processes usually taken for granted, such as the unity and continuity of time, only come through the articulation of specific practices and objects. If we appreciate what is necessary for the medical situation to be realised, there are more elements involved than just the time of the patient's biological body: both the trajectory of illness, and the continuity of its pathological process as a unique case, are presented as the articulation of technological equipment - such as databases -, epistemic and social processes, and the biology of the body itself. Time must be recomposed and aligned from the daily work of professionals, machines, and installed routines, to become objectifiable and intervenable by specific knowledge and practices.

### ***The production of time through indexes and evidence.***

This is in line with the work of experts in defining and developing population health policies, which are then integrated into the activities of clinical settings. Much of the work carried out in the GES regime is associated with epistemic matters, i.e., tasks linked to the definition of legitimate knowledge from which to guide other processes. To include a health problem in this arrangement, it is necessary the work of experts who establish routines to search for evidence, register and organise it, and to call other specialists to establish which diseases and which benefits will be integrated into the baskets of services. In concrete terms, expertise is put into practice based on the relationship between specialists and various epistemic entities on which judgements and definitions are based.

Such entities have diverse elaboration processes and manifestations, as the results of cost-effectiveness calculations or indicators resulting from the review and systematisation of evidence. However, they all serve the purpose of generating the conditions for the management of diseases, assessed in their epidemiological and economic terms. Some of this can be seen in the following quote from an interview to an expert on policy design:

What do the requirements say in the prioritisation logic? The pathologies have a high burden of disease and have been shown to have interventions that are effective, ¿right? And you demonstrate this through evidence-based medicine: that the interventions are cost-effective, that they are a priority for patients and that they are implementable in the network. For all this, there must be studies or calculations carried out. (Expert, 9 April 2017).

In synthesis, this logic of prioritisation implies an effort to align the biological conditions of the population (pathologies) with the value assigned to specific statistics, which, based on the local interpretation of their meaning, operate as interlocutors of the diseases and their variations at experts' entanglements for the composition of the list of services associated with them. In this way, the role of objects, far from being only circumstantial, figures as a prerequisite for the operations in the definition of the policy.

The product of these relationships not only implies the composition of a complex interweaving of funding and provision of medical resources, but also differences in terms of time: the prioritised diseases are made up of distinctive practices, which define their trajectory. In addition to the integration of the biological, technical, and social aspects that define a pathology, prioritisation affects the duration of certain processes, as well as the tempos of activity and waiting; in other words, how it progressively defines the way in which the linguistic, social, practical and material elements that establish the time course of the illness are combined. As can be seen below:

For example, the GES covers the first episode of schizophrenia, but chronic schizophrenia is not covered. The same is true for all anxious and behavioural disorders in people who are not depressed, which is the majority. (Expert, 8 October 2015)

I would say that the problems we have are not to do with orthopaedics, but with timing (...) i.e., the timing for treating fractures. For example, a patient who has an exposed forearm fracture can have a two-day wait; that cannot be, but that is not protected by the GES, and I think it is impossible to integrate it, because the amount of money and resources involved is too high. (...) The advantage of the GES is that it protects your time, it's super good, especially when you put yourself in the patients' shoes. (Professional, 6 September 2015)

Thus, the concrete effect of the relationships established between specialists and objects -such as indexes, statistics, or evidence, as well as techniques provided by the same guarantees- consists in the way in which the technical elements and activities are *sorted*, and how these are distributed at the population level. In effect, it is possible to establish that such importance of temporality is in the very configuration of the epistemic objects that are part of these processes. If we return to the notion of "burden of disease" put forward by the expert quoted above, it is not sufficient to point out that it refers to the relationship established between a pathology and an indicator produced by statistical procedures related to previously established epidemiological assumptions. The following extract of another interview with expert explains it briefly:

The burden of disease is a variable that measures the years of life lost due to disability and premature death (...) "He died at the age of forty, but he had a life expectancy of eighty, seventy", I don't know, whatever life

expectancy it is (...) Therefore he lost forty years because he died prematurely. (Expert, 12 July 2017)

The above quotation graphs two associated elements that seem fundamental to the way in which epistemic objects such as indexes or statistics and time are related. The first refers to the way in which the disease is understood. To be dimensioned, this is inscribed in a time scale. According to the specialist definition, the calculation of the burden or intensity of a disease relates to the affection of a time continuum, estimated in statistical and epidemiological terms. The second refers to the inscription of time as a dimension intrinsic to the estimation of vital processes: the missing of life time, probable life time and life time lived are linked in this quote to the understanding of the estimable relationship of the effect of a diagnosis on the vitality of a population. Put in other terms, this index is only comprehensible when it is in relation to a time continuum that is contrasted against various estimates of other assumed or calculated temporalities around the disease. In this way, it is apprehensible that biopolitics necessarily passes through, relates to and produces temporal conditions to establish a relationship with vital processes in relation to very specific and concrete epistemic entities: different "estimated" times (e.g. years of life lost, years of life possible to live) make it possible to assess the potency of a disease on the total life span of a population, assignable both in population and individual terms. Integrated and sorted, these entities make possible the local production of a general temporality of diseases and their local sorting.

Therefore, the mode in which the matter of time is practised in the processes of political design around health is configured by at least two expressions: the first of these, as a process from which to estimate health in itself, the intensity or impact of a disease in terms of its affection on a population scale, or the relationships of transformation between health and disease; the second, insofar as the very temporality of these processes is in some way produced in such relationships: the indexes and statistics stabilise definitions and assessments of the times that are given as valid for the design of population health, establishing them as vectors that act in a relatively homogeneous way in the mass of diversities that comprise the biological processes of the population.

The indexes, statistics and evidence used are inscribed in the temporality of expert routines, but at the same time they participate in the very elaboration of these practices, as well as in the construction of the very itinerary of the policies by inserting them in broader programmes of action that give them consistency:

And she [the reference person from another ministry] said to me: "Look, what if we convert this indicator into a rate, and generate a sustained rate of increase over time?" It is not the same as talking about benefit coverage, but the rate seems to be more attractive to the who give the economic resources to policy, and yes, it is interesting. So, they help to give more technical criteria to the formulation, and I can measure it at the

beginning, in the middle, at the end, every three months. (Expert, 1 September 2022)

As objects, the indexes or statistics participate in this temporal ordering of both the biological elements to which they refer and the policy that organises them in the health care network. Notwithstanding their importance, they do this through specific ways. These statistical entities are not directly linked to embodied biological processes, but to their regularities, in the sense of manifestations that can be registered, to compose frequencies and be linked to other scales or numbering processes. In the same way, as they are composed of regularities, they make it possible for these regularities to dialogue in the expert domains, inserting themselves in the processes of argumentation regarding which policies to define and which interventions are in turn measurable in terms of their impact or cost-effectiveness relationship. Statistical entities are both the effect of regularities and their condition of possibility. Similarly, these objects do not in themselves produce the temporality of health but operate as a condition of possibility for establishing certain relations with experts and the elaboration of processes of argumentation that have an impact on this production. Ultimately, from the moment they are made available, these objects are interpreted and articulated to other normative processes within which their valuation takes shape. However, something relatively present is the necessity of these objects for the possibility of giving continuity to processes. As can be seen below:

There is one thing I had to learn when I came here, and that is that the perfect is the enemy of the good: that here when they ask you for a document for now, it must be for now, because otherwise we lose 2 billion pesos that they offer for an action at the moment. So that of "Oh, I'm going to check another study... I don't know what, what's missing", no, it doesn't matter. I am going to use the 2016 one. It's not standard, but it holds the data and serves to the opportunity that needs it. (Expert, 1 September 2022)

### ***Clinical treatment of time: contingency and reiteration.***

Something alike to the previous can be seen in clinical practice settings. In these, temporality seems not to be homogeneously given, but created into practice, both in terms of its performance and of the registers that allows decisions to be sustained. As can be seen in the following quote:

We followed up on the situation [in the hospital] and realised that the device that is most efficient for surgery was not being used, because it was left on a high shelf and the nurses were rather of short stature. (Facility manager, 18 November 2020)

The quotation exposes a situation that might have gone unnoticed, but with important implications for the temporality of clinical practice. It serves to expose how material arrangements (such as a spatial layout or the height of shelves) that might seem subtle and contingent participate in the arrangement of practices that shape the rhythm of

clinical activity, influencing its temporal sorting. In this case, the arrangement that emerges from the relationship between a space and bodies with specific qualities, figures specific ways in which a clinical activity is then ordered by the provision (or not) of elements that facilitate specialised activities. Temporal sorting is the co-product of the relations of continuity between all contingent and reiterative elements that elaborate the mode by which the concrete action is deployed, both in terms of its uniqueness and the conditions that promote its reiteration.

The temporality of clinical spaces acquires different modalities or flows, as it depends on the material arrangements that support and sort it. As we have seen above, the GES regime has been established with the aim of reducing these variations and relatively stabilising such temporal flows. To this end, it provides regulations and technical elements that enable the construction of relatively stable disease trajectories in terms of time. However, the day-to-day operations of hospitals involve events concerning a lack of technical or spatial resources which imply the need for detours to achieve compliance with the guarantees. Both the achievement of stability of certain processes and these temporal variations shape heterogeneous co-existing sorting.

But contingency must be organised in clinical entanglements so that temporality can be apprehended. To some extent, clinical centres define which events, out of the accumulation of heterogeneous situations involving a wide space of care, are considered relevant and legitimate to guide their administration. For time to become relevant in terms of its planning, it must be treated as reiterations. This is the case, for example, in the areas in which the regularity of procedures is evaluated to determine the present and possible future state of hospitals. In these specific scenarios, time is organised as more or less sensitive lines related to daily contingencies. At this respect, temporality inhabits clinical networks in different modes: these lines do not resemble concrete material sorting that inhabit hospital activity but are only apprehensible in relation with them; they transform that materiality to make some aspects of it locally visible; yet they are a way in which temporality is appreciated. In this way, practitioners and clinical decision-makers do not access time itself, but its memory. As a doctor in charge of hospital data analysis with the support of statistical software points out:

I want not to lose as much information as possible. When I am telling the software to give me a moving average with seven days backwards, I am trying to make the data have a lot of memory, of course a slow data because it is not going to go up so abruptly, it is going to go up slowly because it has the tail of the six previous days, but the six previous days are relevant information for me today; they are not wasted information. In that sense, it is not that the hospital is restarted every day; on the contrary, I want to see how this process is moving. It's not a process, because it's quite chaotic, but to see what course it follows. (Director of Epidemiology Department, 2 November 2022,)

These analyses result in the elaboration of "timelines", which express fluctuations of events considered relevant for reporting and planning systems. These time memories are then invested in activities aimed at transforming their condition, which are then integrated into the very configuration of these variable lines. As an example of these temporal sorting, Figure 2 shows timelines of patients to be put to bed, cumulative days of hospital stay, patients who wake up in hospital, consultations and waiting days of surgical patients, in decreasing order of their chromatic expression on the right.

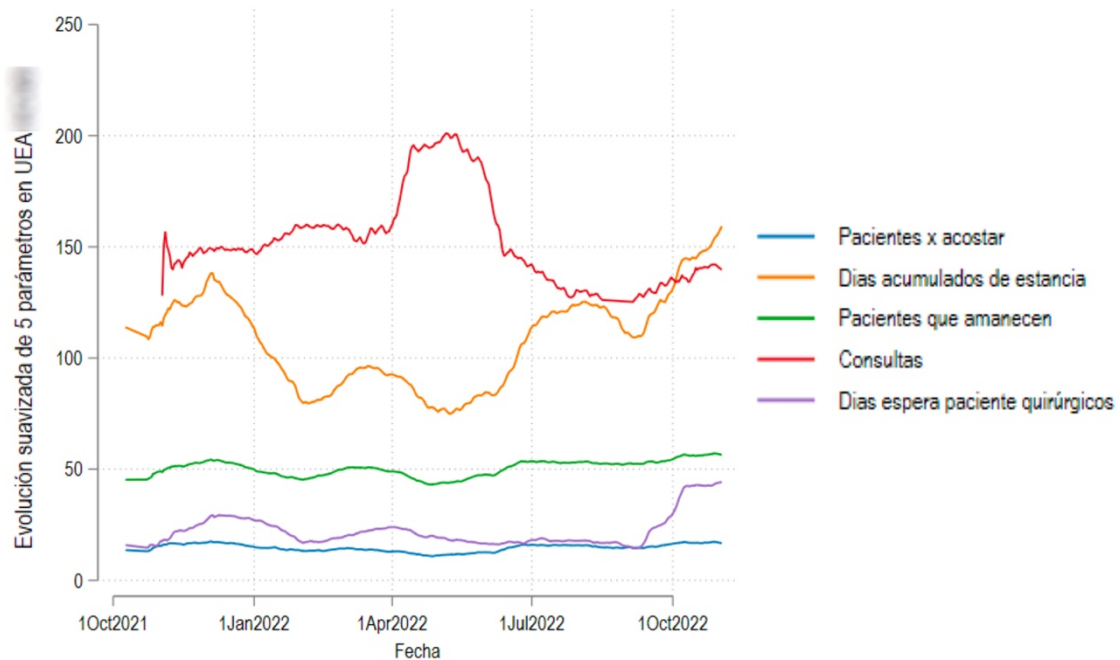


Figure 2. Timelines of events relevant to the hospital.

In this way, no single body is treated as a unit or a single temporality, but as multiple events ordered in their own linearity, which may present heterogeneous flows (a single patient may contribute dissimilarly to each line of temporality). So different temporalities co-exist (contingently, regularly, as memory) through the articulations between diverse elements that produce it, associated with heterogeneous strategic and practical purposes.

### Conclusion.

In this paper, we have explored the relationship between objects and temporal orderings, considering that, beyond a given dimension, time is a product of articulations between heterogeneous elements. This has at least two implications for understanding the deployment of health care processes. Firstly, the consideration of that any approach to the relationship between health and illness at general or particular level is based on and shaped by temporal socio-material sorting. In biopolitical terms, temporality allows biological processes to be inscribed in the overall design and reflection on population processes. Biopolitics itself is composed -among others- of technical objects (such as indexes, statistics, or evidence) that acquire meaning

through their relation to time, as they elaborate it in a specific way.

Secondly, although this study is presented as an approximation, we consider it important to address temporality in health as a matter of concern. This is not only in terms of the need to accelerate and optimise processes to provide health services, but also because its very configuration in its multiple expressions is defined by the participation of different agents that, in a subtle way, enact it in health scenarios. The sorting of time is an effort of human and non-human entities in relation, configuring multiple flows that co-exist and reciprocally affect each other. Meanwhile, the biological temporality depends on socio-material articulations, time is affected by local agencies; this implies that there are multiple ways in which time can be practiced and valued, for different agents or collectives, putting it into operation in different ways. The manners in which variable and common expressions of time are organised will depend on the sensitivity to such heterogeneity of the epistemic operations involved in their configuration.

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