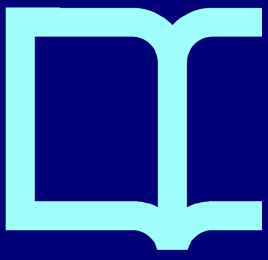

Biopolitics and speculative objects in National Chilean Health Projects.

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Abstract.

"Biopolitics" is a much-used concept in academic literature in recent decades. One of its main fields of application is in the analysis of public health projects. This article looks at Chilean public health projects from that perspective. However, we criticise this vision by positing that this exercise cannot be supported without a technoscientific operation (creation and use of objects to relate highly diverse entities with the intent to create a stable epistemic pattern of order) that establishes truths and regimens of obligation for the groups involved. This operation is possible because the projects indicated define what we call "speculative objects". These have two characteristics: (a) they relate highly diverse entities into larger wholes in which they are integrated into dimensions such as knowledge and uncertainty; (b) this integration creates regimens of obligation that operate as truths on broad collections of groups. Our research is based on the empirical analysis of the national Explicit Health Guarantees project in Chile. To do that, we have used focused ethnography on government spaces, considering also interviews with experts, professionals and the analysis of technical documents. We conclude with regard to the possibility of opening up questions about the notion of biopolitics and its relationship with uncertainty and speculation.

Keywords: Biopolitics; Public Health; Speculative Objects; Uncertainty.

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1. Introduction.

Allow us to begin this article with the following fragment extracted from an interview with an expert in health policy in Chile:

> Let us assume that you have a fixed budget that is given to you by a National Health Fund and your goal is to achieve maximum health with that (…) and with that, you produce 'X' quantity of health. We do not know how much it is, but it is a quantity of health. So tomorrow you have the next challenge: they give you more money (…), and you say: 'Well, what do I spend it on?' (…) This additional dollar that they gave me, do I

> give it to new technology or leave it here in the health system to continue doing what I know how to do today? (…) So, you compare. The cost-effectiveness analysis projects the benefits you would obtain if you pay for the new technology... (Liam [Health Economist], 17 August 2015)

The excerpt is an account of the selection and prioritisation process for medical technologies, which occurred in a scenario of limited economic resources and political regulations. The quote presents several interesting aspects. First, it illustrates the need for specific cost-effectiveness calculations to define the scope of investment. Second, it shows variability and contingency in the use of such calculations and its articulation to other entities (specialists' opinions and available evidence). Third, it refers to practices and connections to promote conditions for certainty about the population's biological processes and how to intervene. In a more general sense, we could say that it shows how propositions on the population´s health are locally defined and formulated. So, it is referring to a phenomenon that we could call biopolitics if we accept, following Foucault (2004), that this refers to political calculation and intervention over biological regularities of population; and that biopolitics, following Matthewman (2013) and (Barry, 2013), emerges inevitably from situated processes of negotiations and material relations linked to population issues. In a nutshell, biopolitics has two levels of action that must be analysed. On the one hand, obviously, focus on the management of groups and, on the other hand– and this is no less relevant–operate based on very contextualised and located practices.

Our fragment illustrates a generalised situation in Chile. This country has been distinguished in recent decades (Bascolo et al., 2018) for having established a number of public health projects with a view to improving the living conditions of a variety of groups. The sociological literature on these projects is vast (Bastías and Valdivia, 2007; Bascolo et al., 2018) and tends to focus on their historical origins, the types of governments that promote them and the socio-political and cultural conditions that have enabled them to succeed or fail (Olavarría, 2012; Olavarría, 2011; Ferrer, 2004). However, there are two aspects that tend to be neglected. The first was already mentioned. The Chilean public health projects clearly operate as biopolitical projects that seek to act on the groups by generating truths and certainties that justify any action on them. The second has to do with the production of these truths being an exercise that deploys a complex technoscientific articulation that involves many different stakeholders and practices. This second aspect is of great interest because it illustrates, in turn, two situations that have not thus far been analysed in the literature on biopolitics, nor in the literature on Science and Technology Studies [STS]. The first is the fact that any current biopolitical exercise is rooted in a technoscientific operation or activity. This refers to the creation and use of objects that make it possible to establish relationships among heterogenous entities to produce through that diversity effects of certainty and epistemic order that last through space and time. As we will explain in the next section, the analyses that turn to the Foucauldian concept of biopolitics tend to emphasise the social, historical and political conditions of that exercise and do not pay much attention to the mentioned operations. The second situation indicates that these operations are deployed in a technical scenario

of problematic, uncertain, and not entirely calculable relations (Rabinow and Samimian-Darash, 2015; Ewald and Utz, 2002).

As illustrated by a variety of studies in the area of STS, coordination between the above elements is achieved through objects (Latour, 2005). These, for example, mediate the relation between certainty and uncertainty. In our example, they enable projection of population's health, beginning with available information on what is known, to what is unknown or to what is not possible to know (Muller, 2013). Thus, it is possible to put forward that biopolitics not only entails a relationship with the production of knowledge about biologic rhythms of the population, but also an exercise of projection of such regularities on the basis of technical entities (Foucault, 2003). However, these entities must not be construed to be stable agents that operate in the same way in any context of definition. As indicated by Law and Mol (2008), they are unstable and their primary characteristic is that they are enacted in the scenarios in which they are operating.

The contribution of this article is in line with the above. On the one hand, we approach the Chilean public health projects as a biopolitical exercise. On the other hand, we argue that this exercise cannot be supported without a technoscientific operation (creation and use of objects to relate highly diverse entities with the intent to create a stable epistemic pattern of order) (Latour, 2005b) that establishes truths and regimens of obligation for the groups involved. This operation is possible because the projects indicated define what we call "speculative objects". These have two characteristics: (a) they relate highly diverse entities into larger wholes in which they are integrated into dimensions such as knowledge and uncertainty; (b) this integration creates regimens of obligation that operate as truths on broad collections of groups.

To illustrate all of this, we first review the relationship that up to now has been established between the notion of biopolitics and the perspective of the STS. The following shows the different public health projects in Chile and how they have been configured in the end into the regimen known as Explicit Health Guarantees in Chile[1]. We will describe the methodology used in our research and, finally, in the results, we will expose the emergence of entities that enable the articulation of biopolitics as a local and epistemic activity. We will conclude by sustaining that the use of the notion of biopolitics in any analysis should be complemented with the description of the technoscientific elements that enable their action to have global effects.

2. Biopolitics and STS

The approach to biopolitics in the work of Michel Foucault (2004; 2003) formulates a significant break in the order of politics, relocating it around new knowledge practices on regularities of life measured and aggregated on the level of populations (Foucault, 2003). In conventional terms, population represents a collective reality that is autonomous, independent from the practices to describe and

[1] Known in Spanish as AUGE (Universal Access to Explicit Guarantees) or GES (Explicit Health Guarantees) ((http://www.supersalud.gob.cl/664/w3-channel.html).

characterise it. However, as Foucault (2003) has exposed, it is only possible to achieve it as an object of intervention or as a real entity through the *devices*–like statistics and epidemiology–produced to expose its form, regularities and variations. Thus, the notion of population itself has been colonised by concrete practices of statistical measurements and estimates (Legg, 2005; Foucault, 2003). Policymakers know and represent population through numbers and figures, putting into practice statistics as a critical tool in discussions and the evaluation of government performance (Clark, 2005; Maldonado, 2018). Governance based on quantification and evidence relies on a segmentation of social processes, reshaping the relationship between government and citizens (Castillo-Sepúlveda, 2017; Castillo-Sepúlveda, 2019). Different forms of quantification, but in particular statistics, have been adopted as the right way to produce rhetorical objectivity (Porter, 1995).

Despite the literature mentioned, the acknowledgement that the notion of biopolitics depends on something more than the mere idea of a group–that is, it is based ultimately on small operations of creating statistics, graphs, tables, etc.–tends to be overlooked in most of the studies that use the notion. They prefer to emphasise the political and sociocultural effects that are broadly visible. This emphasis misses the local and performative nature of any biopolitical exercise. That may be why there are not many studies within the perspective of STS that have turned to the notion of biopolitics as an analytical or explanatory resource. Some interesting exceptions are the works of Greenhalgh (2009), Meloni (2018) and Pollock (2015). The first, for example, holds that STS have rejected the classical image of biopolitics as posed by Foucault, preferring an approach to the phenomena of life based on new forms of politics focused on genetic management of individual risk. The second, in turn, decries that the STS have not been able to establish effective working ties with the notion of biopolitics because, while the former are trapped by the fetishism of the micro, the latter are captivated by the macro simplifications of the historical and cultural perspective. The last, along a similar line, admits that his work seeks to drive STS analyses on race beyond the conventional interest in genetics, with a broader approach that is closer to biopolitics. This literature goes in both of the directions we have referred to previously: (a) the endemic disagreement between the STS and the notion of biopolitics; and (b) the analytical interest of full agreement between the two perspectives.

The analyses that have be conducted from the perspective of the STS that are very important in approaching biopolitics, such as the one suggested in this article–that is, as an exercise based on technoscientific operations–are, for example the sociological analysis of quantification and statistical rationalities of government focused on the practical uses of numbers (Desrosières, 2010), the study of ways of communication and signification of numbers on networks of practices (Espeland and Stevens, 2008), the shaping of policy in terms of probability and evidence (Hacking, 1990), and the construction of expert authority in terms of the production of “technologies of trust” through the use of numbers and quantitative models to reduce friction in controversies linked to public governance (Porter, 1995). In this regard, Jasanoff (2012) argues that governments must organise their discursive technologies to legitimise themselves, making use of different kinds of elements to regulate uncertainty; for example, through rubrics of risk assessment, cost-benefit analysis, and evidence-based policy.

Along that line, we could say that Science and Technology Studies [STS] have exposed how processes like certainty or uncertainty, or even general or global entities like population, are locally enacted as a composition of concrete entities. As Jasanoff (1999) explains, there is no universal political reason, rather it is always situation-based. Certainty and uncertainty are events that emerge in relationships between people, objects and ideas, becoming stable through connections with the same issues. Their extension to all locations may be conceived as an unstable process that always depends on situated practices (Ureta, 2014). In this line, Timmermans and Berg (1997) address the term *local universality* to emphasise "that universality always rests on real-time work, and emerges from localised processes of negotiations and pre-existing institutional, infrastructural, and material relations" (p. 275). Universality never implies "a rupture with the 'local', but transforming and emerging in and through it" (p. 275). Alternatively, Latour (2005b) uses the term *panorama* to describe the locally produced image of a totality. As a "panorama", the known processes of population are elaborated as objective through enabling entities that allow relative stabilisation of practices and judgments, such as protocols, guidelines, indicators and calculations (Davis et al., 2012; Cambrosio et al., 2006).

Based on everything said, it can be deduced that biopolitics, as a government exercise conducted on groups, depends on the creation of objects within technoscientific frameworks. These have received diverse considerations in the STS. For example, Knorr-Cetina (2001) calls them *epistemic objects.* They differ from our everyday notion of objects, which is marked by a sense of solidity and wholeness. Epistemic objects, in contrast, are characterised by what Knorr-Cetina (2001) calls a lack of completeness of being. That is to say that these objects are in constant change and definition; they are always *in process* without ever getting to be fully themselves. In the case of the Actor-Network Theory [ANT] perspective, objects are an effect of stable arrays or networks of relations: objects hold together as those relations also hold together and do not change their shape. At the same time, objects or things are an opportunity to other entities to the relation. Etymologically, Latour (2005a) points out that the term *Thing* comes from old word *Ding*, which designates an archaic assembly. In that sense, an object or a thing is an entity sustained by and participant in relations. They can be "in the middle" or "in between", acquiring agency from their position to affect how processes are undertaken. Objects can act as *mediators*, transforming the course of action of other agents. In this sense, important scientific dimensions, such as evidence, are not a representation or proof of an external objective process that transcend any space and time (Robinson and Norris, 2006). Rather, as Rosengarten and Savransky (2018) put, evidence is the outcome of situated practices, emergent through relational processes, and it could hardly be that it emerges elsewhere. Our work follows Knorr-Cetina and Latour's approach to the conceptualisation of the notion of object and thing, and therefore considers them to be both the result and the cause of collective practices. In other words, they operate as mediators in our everyday relations.

3. Prioritising health populations: The Chilean case

Chile is a country that, in the past 15 years, has continuously designed public health policies aimed at improving the situation of certain groups. Since the early 1980s, there had been two completely separate ways of accessing healthcare: one public, organised by an entity known as FONASA (*Fondo Nacional de Salud* or National Health Fund), and one private, managed by a number of Social Health Institutions (or ISAPRE) (Vergara-Iturriaga and Martínez-Gutiérrez, 2006). However, in the mid-2000s, there was a certain realignment of the two services, as a series of intentional, sustained, and systematic processes entangled to regional structural adjustments in Latin America guided by the World Bank. In mid-1990, this organisation promoted better economic management in developing countries by reducing state investment in health. Based on that, several Latin American countries restructured their health services through the introduction of market incentives and mechanisms for competition among service providers (Bascolo et al., 2018), involving the reorganisation of assumptions relative to how public health policy must be addressed and what health problems must be prioritised.

In the case of Chile, the policy adopted is known as the "Régimen de Garantías Explícitas en Salud" or "Explicit Health Guarantees Regimen" [rEHG]. This project provides a new regulatory framework that defines a number of prioritised "health problems" that permanently affect groups; i.e., endemical health problems (Giedion et al., 2014), for which it must guarantee services, technologies, financing and waiting times (Ministry of Health of Chile, 2004; Ferrer, 2004). It creates a hybrid care scheme between public and private health care providers, focusing on the provision of care for specific biological processes. To do that, it promotes four guarantees that can be claimed by any individual. These are the guarantee of: (a) *access* (which ensures a list of interventions or differentiated medical technologies for each prioritised disease), (b) *quality* (the provision of financing to public and private entities accredited in a national registry of health providers), (c) *financial protection* (that ensures financing to each guaranteed medical benefit), and (d) *opportunity* (which establishes maximum times for each medical service, according to parameters organised by evidence and the availability of health network services). At present, there are 85 diseases covered, and, for each one, there is a collection of diagnostic, clinical and therapeutic services and technologies that are known as 'baskets of benefits.' Both diseases and baskets are prioritised by an Evidence-Based Medicine [EBM] approach, along with local studies that produce indicators relative to cost-effectiveness of interventions and patient preferences (Ministry of Health of Chile, 2004; Ferrer, 2004). The same approach, i.e. EBM, is used for the development of clinical practice guidelines for each of the diseases covered by the regime.

The case of rEHG is a benchmark for Latin American health reforms[2]. It is one of the policies that have articulated and applied evidence and explicit cost-effectiveness criteria to define or adjust contents of health services , and pioneer prioritising services that the public can access through legally enforceable guarantees (Giedion et al., 2014). The regimen has involved redefining the concept of group health, understanding it and performing it as sets of processes that occupy different positions on assessment scales based on truth technologies such as EBM and cost-effectiveness analysis. This prioritisation is

[2] Uruguay, Peru and Colombia have begun to emulate Chile's rEHG establishing similar guarantees (Giedion et al., 2014).

updated in care entanglements that differentiate the health problems that are part of the regimen from those that are not. Prioritised health problems configure a regime that articulates human and technological resources that "guarantee" maximum length of time in care and biomedical elements available, financed by a new hybrid economic framework, supported by public and private funds, insofar as what is emphasised is the resolution of a diagnosis over the care network with which the person is associated. Meanwhile, non-prioritised diagnoses are enrolled in a temporary non-rEHG waiting regime, for which there are no associated funds or control technologies.

4. Methodology

Our research has analysed, over the course of five years, for a qualitative perspective, the health projects related to the rEHG. This process has used different methodologies, such as ethnography, individual in-depth interviews and focus groups and case studies. The results presented in this particular article are derived from one of these case studies. It analysed the deployment of practices related to the production, handling and evaluation of evidence in creating and updating the rEHG. To do this, we used the analysis of material which considered the performance of focused ethnographies (Knoblauch, 2005) in departments of the Chilean Ministry of Health between late 2014 and late 2017. These include participatory observations of the routine practices of experts in their working contexts and attendance in advisory committees for updating clinical practice guidelines. Among them, interviews with nine experts in the design of policies and the analysis of technical documents, such as 80 clinical practice guidelines, laws, and ministerial work material were conducted. We also considered interviews with 31 health professionals who have participated in expert committees convened by the Ministry. In examining the material, we used abductive analysis (Tavory and Timmermans, 2014), which consists of making inferences based on observations or stories that are then signified in a theoretical scenario. The names of the experts that appear in some of the fragments are aliases established between the interviewee and the interviewer to avoid making their true identity public.

5. Biopolitics and speculative objects in the EHG regime

From the initial stages of our research, it was clear that the rEHG in Chile was much more than a mere public policy project related to health. Both the content and the structuring of the articles make it a biopolitical device. Clearly aimed at managing groups and putting into practice truth technologies, it has composed a complex scenario of valued biological functions articulated into a public-private hybrid health system. This has changed in Chile, for example, temporality of diseases for prioritised endemic processes, constituting differentiated trajectories to bodies which met EBM cost-effectiveness criteria. It has also composed a new epistemic scale for the body, enacting differentiated units as tissues, organs or biological functions that are guaranteed. rEHG constitutes groups by creating indicators, data, markers or “banks”.

However, from the beginning, we have seen that the action of this device was not possible without the activity of the practices presented below. These results are presented in four descriptive blocks. The

first shows how evidence and certainty in the rEHG is a precarious achievement that is derived from the relationship between many, varied local entities. The second explains how a certain type of object, called “speculative”, articulate the heterogeneity described in the first block. The third, based on very specific empirical practices, describes the characteristics of the speculative objects. Finally, we argue that the articulation of them generates a global or total effect that has a very specific direction: generating an obligation of truth that is the key characteristic of the biopolitical operation that is the rEHG.

5.1 Evidence is an entanglement of local entities

Like any other medical project (Seely, 2013), the production of certainty is the first challenge faced by the rEHG. In this regard, this has constituted a complex legal arrangement that formulates the production of evidence as an elemental process in the foundation of its disease assessment processes and prioritisation. As stated in the law that promulgates it:

> The elaboration of the Explicit Guarantees in Health proposal will consider the development of studies with the objective of determining a list of priorities in health and interventions that consider the health situation of the population, the effectiveness of the interventions, their contribution to the extension or quality of life and, when possible, their cost-effectiveness. (Ministry of Health of Chile, 2004: Art. 13)

The draft bills connect various epistemic entities, previously not linked in health policy. Indexes such as burden of disease, economic effectiveness or potential demand, among others, are included in expert practices to establish an epistemic sensitivity in the prioritisation process. This prioritisation is stabilised through Evidence-Based Medicine:

> They also need to be shown to have effective interventions, all of which is demonstrated through evidence-based medicine: that interventions are cost-effective, that they are a priority for patients and that they can be implemented in the network. (Florence [Expert], 9 April 2015).

EBM is considered a canon from which to evaluate the relationship between a disease and the series of existing medical treatments and technologies. So, only diseases with treatments that include interventions that demonstrate, through EBM, that they are cost-effective will be prioritised. However, in practical terms, this normative orientation is relative to situations and sensitivities of another nature, not exclusively scientific. As approached in the following quotation:

> There was a recommended cancer drug, which was very expensive. It started to be sold 3 or 4 years ago. And there was a movement, even with a woman who appeared quite a bit in the press who came to ask for access to this drug that delays the development of the disease. The drug was incredibly expensive, but there was no study. I mean, there was indeed a pause in the disease, but there was still no hard study. So, since the government has limited resources, if we still don't know what the effect of this treatment

> is, or if it is palliative or generates survival, but not that much, it should be defined by the technical part, by the EBM. (Pamela [Expert], 3 August 2015)

The extract shows how the existence of scientific studies is relative to questions of another nature, which stresses exclusively economic-scientific rationality. Actions of a communication and political nature are situated as criteria that affect the rationality of the EBM. Moreover, given the high cost of the drug, the same evidence is valued differently, putting into practice the different intensities that the types of study (hard studies vs other studies) acquire when conducting evaluations. Actually, the legitimacy of studies or the existence of evidence about the effectiveness of biomedical treatment is necessarily linked to the consideration of its cost or to the economic investment required to treat a given population index. Thus, the notion of "cost-effectiveness" creates a new continuum in which the distinction between "effective" and " profitable" becomes blurred. If we recall the first interview excerpt that opens the article, we will see how efficiency and cost are part of a process of argumentation in which one cannot be presented without the other. In this sense, the economic can always be considered as part of the effective, and vice versa.

The EBM establishes a grid through which to evaluate concrete actions in relation to diseases. However, while each index, data or evidence carries a value relative to such relationships, prioritisation practices involve the process of "prioritisation amongst prioritisers", formulating different layers of evidence for each case analysed. In this sense, the criteria for the prioritisation of the EBM are not put into practice as sequential operations, but as an entanglement of criteria of different kinds that can affect each other. For example, the following extract shows how criteria of different kinds operate symmetrically with evidence.

> Now, the issue of prioritisation does not only necessarily respond to a criterion of efficiency of resource allocation, but could also respond to other social values. So, you could say: ‘Look, for example, I am willing to finance a technology that is expensive, that offers few health benefits, but I am willing because it affects two patients in Chile and they are children and they have an ultra-rare disease’. Then you assess it in a special way, and then you do not apply the same rule to it. (Liam [Health Economist] 17 August, 2015)

Based on the above, both the social value of a disease–that is, its ethical appreciation, understood as value attribution–and aspects of a political nature, as well as the influence exercised by patient organisations and their political ties, can affect the cost-efficiency rationality that EBM permeates. Evidence, ethics and politics are enacted as criteria. In epistemic terms, the complex composition of the EBM becomes entangled with other knowledge. In this sense, a heterogeneous entanglement is created, sensitive to variations in intensity between its components:

> In Public Health, the criterion used is always magnitude–how frequent the problem is. But magnitude alone is not enough, as there are problems that are extremely frequent

> and not at all serious, such as the common cold for example (laughs) or allergies. It's okay, it's very annoying, but when you have to take public health measures, prevention alone is not enough. You must combine it with the transcendence of the disease. That transcendence has to do with severity, right? (...) And how do you measure severity in public health? It is measured with death, and with lethality, because lethality is the total number of deaths over the total number of patients with a certain disease (...) So the lethality of death is what is called transcendence. (Helen [Expert], 7 August 2015)

The quote shows how a single indicator (e.g., prevalence) cannot define the severity or value of a disease for the rEHG epistemic network. We can also see how dimensions considered for prioritisation, such as transcendence (i.e. the gravity it acquires), can be acted upon in different ways in the specific activities where the criteria need to be implemented. Epistemic entities are practiced in the relationships they establish with other criteria and the scenarios in which they are deployed. So, what counts as a resource to define certainty in a prioritisation process is enacted locally. It can operate as a “magnitude that represents a reality out there", an index of social relevance, or an ethical or political sensitivity. Materials that are not traditionally considered as evidence by EBM criteria can be enacted as truthful criteria for operating in a situation. Evidence is not a thing in itself, but a locally enacted relationship with an entity that promotes its meaning.

This first block has demonstrated how in the rEHG evidence and certainty are precarious achievements derived from the relationship between many and varied local entities. We will now explain how a certain type of object, called “speculative”, is necessary to articulate this heterogeneity.

5,2 Introducing speculative objects

Despite what it may seem at first glance, the complex network of different entities that come together in the rEHG when producing certainty and truth is not a problem. As many authors who belong to the STS tradition (Knorr-Ceina, 2001; Latour, 2005b) have shown, this is because these elements are articulated based on the activity of certain objects. The following lines show that those configured in the rEHG and play this articulating role are what we have called speculative objects.

To understand their actions, carefully read the following extract from fieldnotes in an expert committee meeting at the Ministry of Health:

> The meeting includes 13 people: 11 mental health experts, the expert coordinator from the Ministry of Health and a methodological advisor from the same ministry. On the table, there are three filing cabinets containing articles organised by colour dividers, including papers and pencils. When we enter, the expert in charge summarises the process conducted in the previous meeting. To do that, she distributes among those attending a series of sheets that show a table with the scores assigned by themselves and other consulted experts on the value of questions to guide psychotherapy in people diagnosed with depression according to the PICO format. Although 116 people were contacted, only

12 answered. According to their evaluations, only three questions guided the search for evidence. These questions are related to the recommendation on the frequency of psychotherapy (weekly or irregularly), the number of sessions (more or less than 12 sessions) and type of psychotherapy (cognitive-behavioural or interpersonal). What interests the coordinator is to define which recommendations are most effective for the remission of symptoms and a decrease in patient abandonment. (Fieldnote, Ministry of Health, 25 October 2016)

The meeting was aimed at updating of one of the guidelines that are part of rEHG. In this case, the Guide for Depression Treatment in people over the age of 15[3]. As part of the process, a series of scientific articles are made available to the experts, which have been reviewed by the coordinator, according to guidelines predefined by the EBM. In this case, it is SIGN[4]. Together with this, she presents the results of a survey conducted, which guides the work of the meeting. This is the second meeting and it should generate guidelines for the questions that have received the highest average score.

Both processes, the provision of evidence and the development of surveys to define the course of action, follow the rationality that, in order to make decisions, it is necessary to have other non-human agents to mediate objectivity. Thus, survey results and filing cabinets are enacted as objects and agents that mediate the epistemic activities developed at the meeting. In this respect:

The coordinating expert comments that the search for evidence considered only articles that presented meta-analyses, systematic reviews or reported on international trials and that were associated with the group of questions. Other papers were excluded. (Fieldnote, Ministry of Health, 25 October 2016)

SIGN establishes a series of criteria to evaluate the available evidence. Specifically, it formulates a checklist to evaluate and assign values to studies characteristics. The following image shows an example of how the available evidence is presented in relation to one of the questions asked:

Figure 1.
Example of presentation of evidence following SIGN. Adapted from Department of Evidence-Based Health and Sanitary Guarantees (2017).

More than 12 sessions of psychotherapy compared to 12 sessions or less, for patients over 18 years old with severe depression.						
Patient or population: patients over 18 years of age with severe depression. **Intervention:** more than 12 sessions of psychotherapy. **Comparison:** less than 12 sessions of psychotherapy.						
Result Nº of participants (Studies)	Relative effect (95% CI)	**Anticipated absolute effects (95% CI)**			Certainty in evidence	What's going on?
		No psychotherapy over 12 sessions	**With psychotherapy of more than 12 sessions**	**Difference**		

[3] The resulting guid
[4] The Scottish Inter
recommendations i
osition of

As shown in the image, the search for evidence for the number of psychotherapy sessions recommended in the treatment of depression in patients over 18 years old shows that each extra session reduces symptoms by 0.038 points, according to standardised scales. However, the evaluation of the quality of the study indicates that the quality is moderate. Finally, this information will end up guiding the flow of decisions to define recommendations.

In this respect:

> The coordinator points out that the meta-search engines PubMed, Epistemonikos and Google Scholar were consulted. One of the experts asks why more specific databases for the type of question, such as PsycINFO, were not used. He himself went to the trouble of searching for information there and found many more articles that could have been analysed. The coordinator indicates that the Ministry of Health has restricted access to certain databases. This is a "structural limitation". (Fieldnote, Ministry of Health, 25 October 2016)

For this process, evidence is the outcome presented by indexed scientific publications, available on the Internet. As expressed in the extract, even applying SIGN criteria not all evidence is considered. Whether or not indexed scientific articles are registered may pose variations to the course that defines the epistemic activities of EBM. While contingent processes operate (of feasibility of access to databases), so do temporary criteria (regarding the validity of the evidence). The epistemic operation is an event that is defined in the interaction of current activities in a specific situation.

In this sense, it is shocking to observe that mathematical models are regarded as incomplete, negotiable, modifiable and conventionalised objects. Both the models and the objects they produce–such as statistical indexes–are produced by means of conventions or regulations. These regulations specify the population dimensions that are considered in the processes of biopolitical definition. For example, the following is an expression of how the factor "burden of disease" is considered, which participates in the definition of the prioritised lists of diseases:

> We must agree on how we measure it. In cost-effectiveness analyses, we usually measure it as Quality-Adjusted Life Years: QALY, but there are other options, such as years of life and Disability-Adjusted Life Years (DALY), which the WHO has suggested to use. Now, the use of Quality-Adjusted Life Years has to do with the fact that health economists have been feeding in the subject of psychology and the QALY measurement has been constructed through communication between several social scientists and fundamentally by the work of health psychologists; and at some point, that joined with the whole welfare theory of economists. (Liam [Health Economist], 17 August 2015)

These objects are relative to the body of knowledge and regulations that give legitimacy to an epistemic entanglement (i.e. to an intimate connection in terms of causes and consequences). In other words, objects connect epistemic perspectives through which they are supported and acquire existence. Beyond transmitting knowledge about a reality "out there", their objectivity lies in being highly articulated around these epistemic networks, forming part of what Cambrosio et al. (2006) has defined as "regulatory objectivity". However, beyond the regulations, once these objects are put into circulation they participate as entities that define the epistemic course of the prioritisation processes. In this vein, it is no longer necessary to know the methods that generate the object, but the object itself is already considered as a bearer of knowledge regarding a biopolitical process. From this perspective, biopolitical process and objects prove to be inseparable in practice. In the following quotation, the expert gives an account of the consequences of the methods of calculating the burden of disease. However, the need for such an object is not questioned:

> I have doubts regarding how it is measured... I would have to review the method that is used because I have doubts about whether they measure it according to years of work lost or also according to life expectancy. That is not clear to me. (Florence [Expert], 9 April 2015)

Objects that display information related to population processes largely guide the activity of experts. According to this, dynamics are established to operationalise the biopolitical dimensions in these terms. In this sense, the objects are mediators between eventual biopolitical dynamics and the operation centres in which this political design is generated.

It is possible to appreciate that the objectification of biopolitical processes; that is, to constitute locally a biopolitical question as a locally recognisable entity through an object, is related at the same time to the possibilities, the uncertainty and the risks that they comprise. Biopolitical design is speculative

insofar as it relates to the past, present and future of the group, projected based on the existence of partial data, relating to the epistemic networks that constitute it or the absence of information. Speculation consists, then, of generating a projection from the information we have regarding what is known to us, towards the unknown, thus opening the way to the emergence of reflection and conjectures around different perspectives to think about possible futures (Muller, 2013). Biopolitical design is, in an analogical sense, a handcrafted work. As noted by the expert coordinator of the group of experts meeting, at a later meeting:

> The group suggests to you a list of, let's say, eighty actions or health technologies, ranging from a drug to a test. So, you go and take that to the office and start looking, 'Is there evidence for all these things?' Because they can tell you that there is, but actually there is not. And you are going to check the weight that each intervention recommended to you can have (…) But even at the moment we were working in a very handcrafted way researching how the panorama was around the world, and whether or not there was evidence for each item on the list. (Nicole [Expert], 25 July 2016)

In this sense, we consider that the objects operating in the biopolitical action could be considered speculative objects. In the next block we will describe the characteristics of this kind of objects, paying attention to very specific empirical practices related to rEHG.

5.3 Defining speculative objects

The notion of speculation has been arguably addressed from three different approaches. The first is philosophical, related to the inquiry into a reality and ontology that could be independent of language and thought, a metaphysical realism, against absolutism, close to consideration of an agential realism (Bryant et al., 2011: 3). The second, draws from the work of A.N. Whitehead, Gilles Deleuze and Isabelle Stengers (Wilkie, 2018). In this line, speculative becomes the construction of conceptual devices that actively engage with questions. A third line adopts speculation as a mode to propose objects that challenge presumptions of common objects in everyday life (Auger, 2013; Dunne and Raby, 2013; Muller, 2013),. In all approaches, to speculate is to refer to something that could be there but it is just supposed, or it must be brought about by certain practices or interventions to be there as it can create subtle variations or critical transformations in a given situation or status quo. Speculation is enacted in local practices and is a relation to knowledge in which it is assumed and inscribed in its whole uncertainty and risk.

We have observed in our analysis of rEHG that this type of speculative activity is involved in the common practices that enact the action as a biopolitical design. Returning to the narration of the expert panel and in turn to the update of clinical guideline:

> One of the attendees asks about the existence of information on waiting lists for depression care. Another expert attendee replies that database records are only generated for specialist care and not for psychologists. Therefore, there is no database record or information about it. In this regard, another expert asked about the availability

> of information on the number of cases and associated care times. Another attendee mentioned that the REM system [Monthly Statistical Summaries], which records national care, only shows open cases once, without indicating information on the associated specialist or follow-up. Therefore, costs are unknown and only international information is available to make estimates. However, REM makes it possible to determine the target group for care on an annual basis, based on those already carried out, to distribute professionals and resources. The group and estimated care are defined by these statistics. However, there is a lack of knowledge about the total amount of care. Other studies and international information make it possible to focus instruments. (Fieldnote, Ministry of Health, 25 October 2016)

The quote shows that the creation of population and its processes is a problematic practice. As shown, numbering devices operate in different ways, providing only some possible conclusions for each mode: the lack of information on the relationship with specialists limits direct conclusions, but should be composed of estimates. To this end, local modes are composed involving national information and estimates generated from international information. And, likewise, the future estimate of the population that can be served, considering how it has behaved in the past. Statistical calculations enable the establishment of a monitoring system on the various population processes. However, this monitoring is always conducted based on the consideration of divisive factors and variables isolated from their connections, which makes it impossible to grasp the complexity of the object of study and monitoring. In addition to this, there are the complex and dynamic characteristics of the population processes. Statistics are unable to give an account of social time, being "inherently determined by the impossibility of being able to follow the flow and circulation" (Blanco, 2009: 40).

In this sense, this technical tool of governmentality (we understand this notion as Foucault defined it, that is, as a way of conducting our behavior) does not enable giving a finished account of the current state of the processes to which it gives form, nor of a concrete future state of the same ones, rather it constitutes as base for the estimation "of all the other possible social times" (Blanco, 2009: 38). The objects that participate in this process are very important components to justify biopolitical decision-making. In public health, much of the work consists of producing certainties or truths about the life of the population. The existence of technical objects enable dialogues and negotiations on the qualities that make up this biological policy. In this respect, Muller (2013) and Domecq (1996) have raised the notion of speculative object to refer to the existence of elements that enable opening conjectures, regardless of the existence of exact information or the totality of the "facts" that make up a situation. They refer to a present or future intervention or future temporality, considering that the future itself is uncertain. For the authors, to speculate implies a relationship with the unknown, but at the same time a proposal that organises an existence. All of the above indicates that speculative objects operate as a middle ground between local and global practices. They bridge these two levels of analysis and allow us to understand how local objects and actions contribute to generate global effects such as those implied by the biopolitical dispositif.

Allow us to provide an example. As Liam, an interviewed health economist, indicated above, the WHO frequently recommends the use of DALY as a guideline for "burden of disease". Thus, the prioritisation exercise considers the quantification of losses in terms of years of health due to disease, disability and death, expressed in a unit of measure common to the three states: time (measured in years). This makes it possible to generate "a synthetic indicator used to identify priority health problems" (Ministry of Health of Chile, 2008: 10). This leads to tables like the one shown in the following figure, used in discussions, conversations and technical meetings to define which diseases must be included in the health regimen:

Figure 2.
Example of speculative object. Extract from table: DALYs ordered by magnitude of specific cause and sex. All ages. Chile, 2004 (Ministry of Health of Chile, 2008).

Both Sexes	DALY	Men	DALY	Women	DALY
Hypertensive Heart Disease	**257.814**	Hypertensive Heart Disease	**134.808**	Hypertensive Heart Disease	**123.006**
Unipolar depressive disorders	**169.769**	Alcohol dependence	**106.739**	Biliary tract and gallbladder disorders	**114.981**
Biliary tract and gallbladder disorders	**157.087**	Liver Cirrhosis	**92.393**	Unipolar depressive disorders	**114.400**

These are the types of objects that appear in our research, organising the local practices in which the biopolitical exercise that is the rEHG is rooted. They, firstly, are locally enacted entities that acquire agency in expert networks to bring about a certain order. Secondly, they generate the impression of access to a whole; they enable local conjectures on whole population processes as if they were inscribed in them and serve as entities to organise local reflections in narratives about biopolitical composition, while carrying uncertainty, ambiguity and truth in their epistemic composition as a continuum. Finally, they emerge and contribute to establish scenarios in which truth is an articulator of practices. In other words, they emerge in a regimen of obligation for the truth. Finally, we will show how the articulation of the relations among speculative objects generates a global effect that has a specific direction: an obligation of truth that is the main characteristic of the biopolitical operation that is the rEHG.

5.4 The obligation for truth.

As we have seen, In the process of prioritisation, truth is irreducible from the relationship established with a single epistemic entity. The production of certainty that makes it possible to define a list of diseases and benefits is a heterogeneous composition, sensitive to its agents. In this scenario, prioritisation comprises a pragmatic mesh for achieving certainty. However, this epistemic network establishes such certainty as a relative entity; that is, sensitive to contingencies.

> So, from the point of view of effectiveness it was obvious to finance them, but the costs were very high. So, in the end, that was taken out of the basket. It might not have been wrong to take them out, but there was no prioritisation criteria to justify why this one should, and why this other one shouldn't, and if I compare it with this one... It was tried, it was tried a lot, but I think the machine (laughs) overflowed all this. The urgency of having a decree made it impossible to do and install something like this in the Ministry today. And I say in the Ministry because it does not have to do with the government of the moment, but with the Ministry as an entity. (Florence [Expert], 23 June 2015)

There are two aspects that draw attention to the situation described by the expert. The first of these refers to the temporal canon in which the process of biopolitical definition is situated. There is an urgency regarding how prioritisation connects with other processes and obligations of a legal nature. This perhaps contrasts with the notion that truth should emerge from a process of evaluation according to predefined criteria. The scenario in which prioritisation occurs accelerates the emergence of a truth. The second aspect refers to the fact that regular conditions are indicated that vindicate this acceleration: it is the Ministry as an entity in its own time that indicates a need for the truth to appear.

In this respect, Foucault (2014) establishes truth as a normative act; that is, put in relation to other acts that define what will be considered as truth in each scenario. He has defined a *regime of truth* as what forces a series of acts of truth, determines the form of those acts and establishes the conditions of realisation and the specific effects of truth. In a nutshell, truth is enacted before becoming the production of justifications in the knowledge/expertise discourse. At the same time, he points out that such regimes, with their procedures, operators, witnesses and objects, are not confined to the scientific and mundane dichotomy, but rather imply taking into account the multiplicity of truth regimes and each truth regime, whether scientific or not, implies specific ways of connecting the subject that carries it out and the manifestation of what is true. Different regimes can operate to define a truth. As shown below.

> An initial meeting oriented toward defining the list of diseases was attended by the head of the division of that period and my boss. Before that we knew that [the Ministry of Finance] was not going to let one of the diseases pass because it was costly. So, my boss said: “No, it is necessary to prioritise”. We did not have all the evidence, it wasn’t well done, but I tried to argue: “No, this is not because…”, and gave any argument to: “No, look at this; not this because everything is bad, so if we put it…”. All with criteria not presented before, with judgements of the moment. And there it was defined. (Florence [Expert], 9 April 2015)

As shown in the extract, truth is enacted locally with available resources, entities and repertoires. The truth is an entity that makes it possible to distribute acts of certainty about the definitions of priorities of care in the health network. It is locally produced, enabled by socio-material arrangements. In that sense, there is no difference between “local” certainty and “transcendent” truth, but an assemblage in which both are enacted. Certainty and truth are a product. Therefore, its need is relative to the composition of

the complex interweaving that will establish how diseases are ordered in the biopolitical regime. Truth must emerge.

The certainty-truth continuum is the product of speculative objects, mediations that bring together regulations, activities, temporalities and objects. It can be enacted in multiple ways, however, acting in each situation also as a truth. In this sense, truth is not the common element that connects the various actors. To put it another way, truth is an empty space that is shaped by the activities that are constituted around it, forced to make it appear.

6. Discussion and conclusions: Speculative biopolitics?

rEHG is a public health project that can be conceptualized as a biopolitical mechanism. However, we have argued that this is not possible without paying attention to the technoscientific operactions (creation and use of objects to relate highly diverse entities with the attempt to create a stable epistemic pattern of order) that establish truths and regimes of obligation for the groups involved. rEHG works as a biopolitical dispositif because its contents define what we have called “speculative objects”. These have two characteristics: (a) they relate highly diverse entities into larger wholes in which they are integrated into dimensions such as knowledge and uncertainty; (b) this integration creates regimes of obligation that operate as truths on broad collections of groups. We have presented how these objects work, analysing them in four descriptive blocks. The first showed how in the rEHG evidence and certainty are precarious achievements derived from the relationship between local entities. The second explained how “speculative objects” articulated the heterogeneity described in the first block. The third described the characteristics of these objects. Finally, we argued that their articulation generates a global or total effect that has a very specific direction: generating an obligation of truth that is the key characteristic of the biopolitical operation that is the rEHG.

These four sections indicate a process that ranges from very local activities to global reactions. In it, we contemplate how the production of certainty depends on the relationship established between extremely heterogeneous entities, their articulation thanks to the definition and action of speculative objects and the configuration of a whole in the form of an imperative of truth that constitutes the force and basis for justifying the implementation of the rEHG. Thus, our paper enriches the literature about biopolitics outlining that this concept refers to a process limited in two ways: on the one hand, there are local technoscientific practices and, on the other, the global image known as biopolitics. They are both inseparable. They need each other to define themselves in their local and global actions. The technoscientific practices articulate many different areas (economic, ethical, technological, etc.) through the intervention of specific objects: speculative objects. They are locally enacted and establish a pattern of order. The give the impression of constituting a whole that makes sense, that takes the shape of a regime of obligation of truth. All of the above leads to our first conclusion: it is not currently possible to speak of biopolitical exercises without considering the local technoscientific operations and the objects

that make up the substrate of that exercise. The specific and truly descriptive analysis of the former resides in clarifying the latter. In this vein, our work also improves the STS literature explaining how little practices, objects and actions configure totalities with political effects. In the case of Health Projects, these can be defined as biopolitics.

It is possible to find a second conclusion in our analisys. This refers to the close ties established between biopolitical management and ambiguity and uncertainty. Biopolitics implies the formulation of a relationship with the population that makes it a manipulable object; nevertheless, it is relative to very concrete political and epistemic assumptions. As we have tried to illustrate, it involves the establishment of a relationship with ambiguity and uncertainty mediated by “speculative objects”. Their existence seems to indicate, contrary to popular belief, that biopolitical action is based on the deployment of truths that emerge from the provisional and local articulation of a variety of ranges of ambiguity and certainty. This opens up new lines of research both for analyses centered on the notion of biopolitics and for STS studies. Here the question that becomes crucial is what kind of objects we construct systematically in our everyday practices, including those that characterize scientific activity, to cope with and avoid uncertainty and ambiguity.

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