Pathways to accounting mediation: A case study on the situated use of checklists in risk management

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Abstract

While prior research has focused on how individuals modify the design of accounting tools in order to mediate multiple, sometimes competing concerns, less is known about how actors purposefully select, combine, or ignore different aspects of tools in order to successfully mediate concerns. This study examines how organizational actors mediate institutional and local concerns using risk management tools – inspection checklists – in a public health surveillance agency in Brazil. To better understand how managers used inspection checklists, risk indicators, and other accounting information to evaluate health services, we analyze 27 interviews and a selection of documents based on a practice theoretical perspective. Our findings reveal three pathways to mediation: (1) delegating decisions to a single checklist, (2) combining multiple checklists, and (3) suspending checklists from decision making. Based on these findings, we contribute to the accounting literature in three ways. First, we theorize how managers transition, or "switch", between different mediation pathways to balance institutional and local concerns. Second, we develop the idea of "sequential visibility" to show how decision-making unfolds through a stepwise evaluation process that allows actors to reflexively adjust their approach and the pathway to mediation that they will take. Third, we show how checklists do not necessarily push users to operate at the margins of accounting, but rather require them to engage with accounting and its consequences on an ongoing basis. Overall, our study offers new insights into the dynamic and situated nature of accounting mediation by showing how actors selectively apply tools to mediate different concerns.

Keywords: risk; tools; indicators; decision making; mediation; agency; checklists

1. Introduction

Organizations are known to use accounting tools to pursue multiple and potentially conflicting objectives simultaneously (Ahrens and Chapman, 2004; Carlsson-Wall et al., 2017; Chenhall et al., 2013; Kraus et al., 2024). Scorecards, budgets, rankings, and many other types of tools are commonly used to mediate such pursuits because they can create the structural conditions for different demands, interests, and concerns to coexist (Miller and Power, 2013). However, mediating diverse concerns is a precarious and contingent exercise (Kurunmäki and Miller, 2011; Palermo et al., 2017). As previous research has shown, it is not always possible to embed "distinct and possibly competing ideas into an operating ensemble (Kurunmäki and Miller, 2011, p. 222). In risk management, for example, tools developed to produce standardized information about risk can satisfy global templates and regulatory requirements (Jemaa, 2022), but can also divert attention from emergent risks and issues that local risk managers consider important (Hall and Fernando, 2016). Insights from previous literature shows that it is not always clear how specific tools can be used to mediate the interrelated but conflicting concerns of multiple stakeholders, without undermining the aspirations of organizational actors (Arena et al., 2017) or bringing accounting systems to an end (Palermo et al., 2022). This tension has raised important questions for researchers about how accounting tools can mediate different concerns, and the conditions under which this is possible.

To address these questions, previous work has focused on the design and format of accounting tools. For example, in examining an NGO context, Chenhall et al. (2013) showed how the design features of a performance measurement system led to the "concurrent visibility" (Chenhall et al., 2013, p. 281) of different attributes of performance. According to this study, concurrent visibility helped to create "compromising accounts" (Chenhall et al., 2013, p. 269) that represented temporary agreements between actors who valued standardized and comparable information about performance and actors who valued more contextual, detailed and local descriptions of performance. In a similar vein, a rich stream of literature has emphasized that the (imperfect) design of accounting tools "makes mediation possible" (Busco and Quattrone, 2015, p. 1252) by encouraging and sustaining the engagement of users with different concerns and interests (Qu and Cooper, 2011; Ronzani and Gatzweiler, 2021) and creating "productive tension" (Busco and Quattrone, 2018, p. 4) between competing viewpoints. More recently, Crvelin and Löhlein (2022) show that the format of even seemingly

simple tools, such as lists, can help actors to navigate a variety of evolving concerns by making things commensurate.

While the design features of accounting tools can help to establish connections between different stakeholders in new and profound ways, previous work has also acknowledged that such effects "exist in tandem only with how people take up [tools] and the particular conditions of the local context" (Pollock and D'Adderio, 2012, p. 568). Based on this assumption, some studies have examined how human organizational actors continuously work to adjust and repair accounting tools (Ahrens and Chapman, 2004; Andon et al., 2007; Dambrin and Robson, 2011; Habran and Mouritsen, 2022; Jordan and Messner, 2012). For example, Mehrpouya and Samiolo (2016) highlight this dynamic by analyzing how individuals use epistemic work to construct and adapt a global ranking used within the pharmaceutical industry, thereby accommodating the shifting concerns of its various stakeholders.

Thus, accounting scholars seem to agree that mediation is a contingent phenomenon, which is shaped by both the design features of tools, and the human efforts of those who work to adjust and change them. However, we know less about pathways to mediation that do not involve the repair or adjustment of a particular tool, and which do not hinge solely on a tool's design features. This is important because organizational actors may work toward mediation differently depending on the situation they face, for example, by combining, ignoring, or selectively applying information to decision making (Jarzabkowski and Kaplan, 2015; March, 1987). While accounting research has shed much-needed light on the human efforts to adjust and leverage the design features of tools, there is room to explore the situated nature of mediation, and to unpack how organizational actors use accounting tools in creative or surprising ways to address multiple concerns.

Against this background, we focus our attention on the locally situated behaviors and decisions (Carlsson-Wall et al., 2016) that help to enact accounting mediation. We argue that the "successful" mediation depends on how human actors choose when to deploy tools as part of their decision making practices. Thus, to investigate the various ways that accounting mediation is made possible, we study how and why mediation occurs in different situations, and the roles human and non-human actors play therein. With this aim in mind, we ask the following questions: How is mediation made possible in different instances of situated action? How do organizational actors mediate multiple concerns without engaging in tool repair or adjustment?

To answer these questions, we draw on a practice theoretical perspective (Ahrens and Chapman, 2007; Carlsson-Wall et al., 2016; Feldman and Orlikowski, 2011; Jarzabkowski and Kaplan, 2015; Kaptelinin and Nardi, 2006). This perspective recognizes that the meaning and impact of accounting tools are defined through interactions within specific contexts (Ahrens and Chapman, 2007). More specifically, while acknowledging that tools afford organizational action (Pollock and D'Adderio, 2012), this view proposes that, in such interactions, the dynamic relationship between human actors and tools is marked by the distinct agency of humans who intentionally adapt and use accounting tools to address evolving situations and needs (Kaptelinin and Nardi, 2006; Leonardi, 2012). This interplay reveals an asymmetrical yet interdependent relationship between human and non-human (material) agency, as actors appropriate tools to respond to particular situations (Leonardi and Barley, 2010; Orlikowski and Scott, 2008). Overall, this lens allows us to focus on both the structure and information tools generate, and the ways actors make sense of and use that information in specific situations.

To investigate the conditions of accounting mediation empirically, we conducted an in-depth case study of risk management in a public health surveillance agency in Santa Catarina, Brazil – the *Diretoria de Vigilância Sanitária* (hereafter: DIVS). While surveillance is a crucial activity for protecting public health, it also involves contentious issues related to decision making because of the diverse interests of the stakeholders in the sector. Public health officials, healthcare providers, policymakers, and the general public have potentially different perspectives on how risks should be managed, which lead to conflicting priorities and challenges that DIVS has to mediate in order to reach a consensus on appropriate interventions. This dynamic echoes other public risk management contexts, where risk is intertwined with questions of fairness (how risks are distributed among a population) and equity of access to care (Hood, 1996). In our case, much like in the wider literature on risk management, risk tools play a salient, but complex role, as they are used to address contrasting modes of risk assessment (Mikes, 2009; Mikes and Okamura, 2024; Palermo et al., 2017; Power, 2014), but can also amplify the self-undermining dynamics of risk management systems (Arena et al., 2017).

Through our case study, we found that mediation unfolded "successfully", i.e., risk tools were used to accommodate multiple concerns in a way that did not undermine local actors' aspirations, but also maintained the overall credibility of the risk management system in the eyes of external stakeholders. We found that managers could delegate the task of mediation to a checklist which, because of its structural design, could capture a systematic overview of risk

(a concern for institutional stakeholders), while also allowing for managerial discretion in the application of risk numbers in decision making (a concern for local managers). However, when this checklist was considered unsuitable for addressing these concerns, managers did not attempt to adjust, tinker or experiment with the design of the checklist itself. Rather, mediation in such cases hinged on how managers combined numerical representations of "risk acceptability" with measures of a hospital's "essentiality", or how they set aside these numbers altogether in order to negotiate compromises that would satisfy institutional and local demands. This highlights some of the ways organizational actors enact mediation, which contrast what we know from previous literature.

Drawing on 27 interviews with 17 individuals, including agency managers, inspectors, and government health officials, as well as an analysis of internal and policy documents, we examine how checklists – so-called 'inspection roadmaps' (IRs) – are used to generate numeric evaluations of health services, which managers then interpret and reflect upon when making decisions about license renewals, suspensions, maintenance requirements and, in some cases, closures. While one checklist (IR-Risk) helped to provide risk numbers and levels of "risk acceptability", another (IR-Benefit) assessed health services in terms of their "essentiality" to the healthcare system as a whole. Our case highlights how managers combined these checklists or used them individually to create three pathways to mediation that could satisfy both institutional demands for a more standardized system of risk management, and DIVS's need for tailored decisions in response to local and contingent circumstances: (1) delegating decisions to a single checklist, (2) combining results from multiple checklists, and (3) suspending checklists from decision making. Based on these findings, we contribute to the accounting literature in three ways.

First, we theorize that the ability of human actors to "switch" between the different pathways and tools is a crucial mechanism in explaining how accounting mediation unfolds. We argue that by transitioning between pathways and tools, actors are able to mitigate the self-undermining dynamics that may threaten the continuity of accounting, even when tools are not actively repaired, tinkered with, or adjusted (Ahrens and Chapman, 2004; Andon et al., 2007; Dambrin and Robson, 2011; Habran and Mouritsen, 2022; Jordan and Messner, 2012).

Second, we suggest that switching is facilitated by the development of a "sequential visibility" of accounting numbers. In contrast to "concurrent visibility" (Chenhall et al., 2013), which generates productive tensions among different viewpoints, our case shows that a stepwise

approach in the adoption of tools and numbers creates a temporal gap between different modes of assessment. This, in turn, generates opportunities for individuals to reflexively use accounting and in some cases "switch" between different pathways to mediation.

Third, we argue that checklists do not necessarily push users to operate at the "edge of accounting" (Crvelin and Löhlein, 2022, p. 3), nor are they only "weakly connected" (Power, 2016, p. 280) to other artefacts in risk management. In contrast, checklists provoke organizational actors to engage with accounting and its consequences on an ongoing basis. As a result, checklists are perceived to be central artefacts for systematically collecting, producing, and interpreting accounts of risk.

The remainder of the paper is structured as follows. Section 2 establishes the theoretical basis for our study by reviewing accounting research that focuses on how mediation is constructed vis-à-vis risk tools, before presenting our practice perspective on the situated uses of tools. In section 3, we describe our research context and the mediating role of checklists therein as well as the methodology of our study. Section 4 presents our case study findings, focusing on the ways in which managers and inspectors at DIVS interpret and use information collected through checklists for decision making, thus forming multiple pathways to mediating concerns. Section 5 presents our contributions to the accounting literature. We conclude by outlining some avenues for future research.

2. Theoretical development

2.1 The mediating capacity of risk tools

Previous research has shown how risk tools have a strong mediating capacity in that they engage different users "by linking (potentially multiple) global systems of thought with local aspirations" (Jordan et al., 2013, p. 159). Risk maps, for example, can provide an overview of the risks in an organization and thus help to meet the requirements of risk governance and ERM (Jemaa, 2022). At the same time, risk maps are seen by practitioners as helpful for mediating between specialized discourses, appealing to a wide range of users, and prioritizing actions that are in line with local needs (Jordan et al., 2018). They can be a means of legitimation towards external actors and at the same time, the basis for "rational decision making" in situations of local uncertainty (Jordan et al., 2018, p. 8). In this way, risk tools can serve multiple functions

(Power, 2014) and "enact the simultaneous coexistence of multiple purposes or realities of risk management" (Themsen and Skærbæk, 2018, p. 11).

Risk tools can also mediate different views about what should be the focus of organizational attention, what should be excluded, and what level of risk is considered "acceptable" for an organization. While some actors may see risk as a negative representation of potential failure, others consider risk-taking to be an essential part of innovation and profit generation (Bednarek et al., 2021; Giddens, 1999; Jarzabkowski et al., 2024; Palermo et al., 2017). These perspectives vary depending on how situated actors make sense of the evaluative principles that they define as important to the organization (Mikes, 2020). Organizations often have multiple stakeholder commitments and hold diverse values (Gehman et al., 2013; Klein Jr., 2015), some of which may conflict with each other. To reduce uncertainty about how to prioritize and mediate these concerns, tools such as the risk appetite radar are increasingly used to make visible the inherent trade-offs between the potential harms and opportunities associated with a particular decision or course of action (Kraus et al., 2024; Mikes, 2021). As previous work has shown, the risk appetite radar acts as a interlocutor that allows different concerns to be interpreted by different actors, "faced off against each other" (Kraus et al., 2024, p. 2), calculated, and "fit" into decision-making processes (Mikes and Okamura, 2024).

In examining the mediating capacity of risk tools, previous literature has taken cues from the broader debate in accounting research (Busco and Quattrone, 2018, 2015; Chenhall et al., 2013; Pollock and D'Adderio, 2012; Qu and Cooper, 2011; Ronzani and Gatzweiler, 2021) and paid special attention to the role of the structural affordances and the materiality of tools (Jordan et al., 2018, 2013; Palermo et al., 2017; Tekathen, 2019). For example, the format of a risk map can incorporate qualitatively diverse types of information into one place, making different organizational concerns related to financial objectives, technical functionality, or safety, appear commensurable with each other (Jordan et al., 2013). Multiple risks can then be calculated on a single scale and ranked according to their urgency (Jordan et al., 2018). These calculations represent risks in a coherent and simplified language (Palermo et al., 2017), which can be interpreted by a wide range of actors in ways that suit their local needs and interests. Therefore, the material structure of risk tools – their design and functionality – can "prefigure courses of action" (Tekathen, 2019, p. 999) in ways that align diverse stakeholders.

Previous research has also acknowledged the substantial role of human actors in shaping how mediation unfolds in risk management. In practice, organizational actors often work to embed

multiple and potentially conflicting concerns by making adjustments and changes to risk tools (Baud and Lallemand-Stempak, 2024; Burke and Wolf, 2021; Mikes, 2011; Palermo et al., 2022). For example, Baud and Lallemand-Stempak (2024) observed "creative combinations between tools that allow the [organization] to comply with the regulatory requirements commanding a statistical approach to risk management while, at the same time, preserving its distinctive professional feature" (Baud and Lallemand-Stempak, 2024, p. 9). Similarly, Palermo et al. (2022) argue that the mediating capacity of "early-stage" accounting devices, such as the risk culture survey, relies on how these artefacts are both structured and malleable. In their study of how accounting may (or may not) stabilize, they show that changes in the risk culture survey were made in order to create a tool that preserved concerns for continuity and comparability simultaneously (Palermo et al., 2022).[1] The studies of both Baud and Lallemand-Stempak (2024) and Palermo et al. (2022) highlight how mediation is influenced by human actors who can change or interfere in the design of risk tools in an effort to align different perceptions and objectives related to risk management.

In sum, previous research on the mediating capacity of risk tools tends to focus on the materiality of risk tools and the influence of structural affordances on whether multiple and contrasting concerns can be aligned (or not). Much emphasis has been placed on the design of tools, i.e., the form and format which shapes human cognition and guides behavior. Previous work has also acknowledged the role of human actors, focusing on their ability to adjust the design features of risk tools in order to enact mediation. While this research is valuable for the way it foregrounds the role of tools in mediation, and also follows people's work with tools, the focus seems to continuously come back to the tools themselves and how they are structured and designed.

In our case study, human actors (managers) made no attempts to adjust the risk tools that were used in everyday practice, even when they were deemed inadequate for generating information that could be used in particular instances of decision making. This did not mean, however, that tools were always used in the same way. Rather, we found that managers, when discussing decision alternatives and when faced with different situations, combined the outputs of tools with each other, brought in local knowledge of organizational contexts, or set aside tools altogether. This variation does not seem to be easily explained by the structural affordances of

[1] It is important to note that such attempts to adjust or change risk tools is not always part of what could be called "successful" mediation, i.e., changes do not always embed contrasting principles or concerns, but can also lead to the failure of risk tools, as illustrated in the case of Palermo et al. (2022).

the tools alone (as the materiality did not change from situation to situation); nor was it the result of a constant "tinkering" or adjustment (Andon et al., 2007; Dambrin and Robson, 2011; Habran and Mouritsen, 2022; Jordan and Messner, 2012). To help explain how and why actors developed these other pathways to mediation, we turn to a practice perspective on risk tools.

2.2 A practice perspective on risk tools

In adopting a practice perspective (Ahrens and Chapman, 2007; Carlsson-Wall et al., 2016; Feldman and Orlikowski, 2011; Jarzabkowski and Kaplan, 2015; Kaptelinin and Nardi, 2006), we share a general interest with previous research in examining the diversity of everyday accounting practices (Ahrens and Chapman, 2007; Burchell et al., 1980; Mouritsen et al., 2022), which are defined by both the intentions of organizational actors, and the unintended consequences that emerge as actors use and adapt tools to respond to the problems and situations they face (Jarzabkowski and Kaplan, 2015). The use of tools is always intertwined with the specific actions of organizational actors, who can use them in various ways and assign different levels of importance to them based on situationally defined problems (Jarzabkowski and Kaplan, 2015; Leonardi, 2012).

To specify our practice perspective, we focus on the relationship between human actors and tools as being inherently asymmetrical, yet interdependent (Kaptelinin and Nardi, 2006). With asymmetry, we wish to emphasize Kaptelinin and Nardi's (2006) idea that human actors have "special abilities to cognize through interactions with people and artifacts [which] are distinctive from any sort of agency we could sensibly ascribe to artifacts [tools]" (Kaptelinin and Nardi, 2006, p. 11). According to this view, humans have a distinct form of agency compared to nonhuman things because they can "develop their own intentions on the basis of their needs, and meet their needs by acting on other entities, both human and nonhuman" (Kaptelinin and Nardi, 2006, p. 242). Such intentions are rooted in specific, culturally or situationally defined needs (Kaptelinin and Nardi, 2006). In this way, the mediating capacity of checklists, or any accounting tool, depends on whether managers pay attention to or ignore the representations of risk produced by tools; how they combine pieces of (quantitative) information; and how they link this information to decision making at a particular moment in time.

While this line of thinking foregrounds the importance of human agency, it does not conceptualize tools as merely passive objects to be used and manipulated by organizational

actors. To the contrary, and in line with a rich stream of accounting literature (Briers and Chua, 2001; Busco and Quattrone, 2015; Pollock and D'Adderio, 2012), a practice perspective recognizes the ability of tools to "act" in the sense that they constrain actors' courses of action and prefigure how they think about their immediate environment (Chiapello and Gilbert, 2019; Tekathen, 2019; Tekathen and Dechow, 2020). Tools enact a kind of "delegated agency" (Kaptelinin & Nardi, 2006, p. 248) in the sense that they have effects on the world, but are always "acting on somebody else's behalf" (Kaptelinin and Nardi, 2006, p. 248). Indeed, in our case, managers deployed risk tools that helped them define which hospital activities were considered "risky" and which were "essential" to the provision of the healthcare across the state; yet, whether such notions of "acceptability" or "essentiality" affected mediation depended on how human actors embedded (or not) numbers in decision making processes.

In sum, by drawing on a practice perspective, we hope to disentangle the conditions under which multiple concerns within risk management are mediated in situated practice. We specify our practice perspective by assuming, along with Kaptelinin and Nardi (2006), an asymmetrical interplay between human and non-human agency. While the agency delegated to tools can influence people's actions and ways of thinking, it is the needs and intentions of human actors that motivate and shape the actual use of tools in specific situations. Drawing on this perspective, we aim to examine how people act according to needs that are defined by a local social and organizational context, and the extent to which they delegate actions to tools, such as checklists, to act on their behalf, or perhaps follow other courses of action in order to mediate multiple concerns. In the following section, we outline our research context and the role of checklists as mediating tools therein as well as our methodology.

3. Research design and methods

3.1 Research context: risk management in public health surveillance

The Diretoria de Vigilância Sanitária (DIVS) is a public health surveillance agency in Santa Catarina, Brazil, which is responsible for the enforcement of health and safety standards across the state. The agency seeks to "promote and protect the health of the population" and "eliminate, reduce or prevent health risks" by coordinating inspections, setting standards, and "intervening in health problems arising from the environment, products for use and

consumption, provision of health services and in the interest of health, and workers' health".[2] To enact its mission, DIVS performs annual or biannual inspections to ensure that health procedures and establishments meet legal standards in terms of staffing, equipment quality, and the condition of medical facilities. To carry out its duties, DIVS counts on 2,500 inspectors spread across 17 regional units within the state. If these inspections reveal risks to the patient population, DIVS has the legal authority to levy fines, seize products and equipment, and suspend or prohibit the activities of healthcare providers. Managers at DIVS meet each other weekly to discuss the data collected by inspectors, and the possible courses of action they should take based on this data.

Inspecting and licensing health services across the state has been a challenge for DIVS managers, who have to mediate multiple and sometimes conflicting interests. Some of the agency's strongest measures of enforcement, such as suspension or closure of services, can be particularly contentious among the polity and public because of how they affect the provision of care. Decisions to use harsher penalties are influenced by difficult questions of whether these will cause more harm than good (for example, by depriving residents of health care), as well as whether the agency's actions will be politically or legally contested. Indeed, DIVS has had a history of lawsuits against its decisions. Furthermore, ongoing accusations of inspector partiality have weakened the regulatory power of the agency. A popular and long-standing belief among those working in healthcare has been that ten visits from DIVS inspectors would result in ten different evaluations.

To address questions about partiality, DIVS managers started to discuss a system of risk management in 2010. Central to this system was the development of a checklist to be used in inspections – so called inspection roadmap (IR).[3] Up until this point, inspections were based on checklists which only allowed for "yes" or "no" responses by inspectors, leaving little room for nuanced discussions about risk. These old checklists were also at the center of contestations of DIVS actions, as they caused inspections and inspection results to vary widely. With the implementation of the IR checklist, the aim of DIVS managers was to implement a new set of practices that would make inspections more uniform, and at the same time, support enforcement decisions. In 2011, managers started to develop a tool that could be the foundation of a new approach to risk management, namely an inspection checklist called the Inspection Roadmap

[2] https://www.vigilanciasanitaria.sc.gov.br/index.php/institucional.html (last accessed 24.02.2025)
[3] In Portugese, "Roteiro Objetivo de Inspeção"

for Risk (IR-Risk). In 2013, DIVS managers developed another checklist – the Inspection Roadmap for Benefit (IR-Benefit). As of today, both checklists are centrally important tools for collecting information about health providers, and are used as a basis for decision making and enforcement actions.

3.2 Checklists as tools of mediation

At DIVS, IR checklists were valued for how they helped enact consistent ways of doing things: ensuring inspections were done the same way each time, making sure managers, inspectors, and health services see what needs to be done, and establishing a set procedure everyone follows. Like many other lists, the IR checklists worked as early-stage data collecting devices with which actors could produce numbers and historical records of performance (Crvelin and Löhlein, 2022; Power, 2021). With this documentary capacity, checklists became integral to the activities performed by individual actors: they were used as records for managers who sought to assess health services; they produced numbers that could be embedded into decision making; and they constituted notions of "risk" and also "essentiality" that spanned time and space. We thus analyzed the checklist not as a neutral tool that merely describes a particular event, procedure, or situation. Rather, we assumed that the checklist played a constitutive role at DIVS by foregrounding which organizational concerns "count" (Mikes, 2011).

As technologies of representation, checklists have similarities with other diagrammatic tools, such as risk maps (Jordan et al., 2018, 2013), in that their design helps to structure a synoptic view of things and events. The IR-checklists in our case, with their boxes and spaces for arranging information, allow the inspectors and managers in our study to access easily overlooked aspects of health services or criteria that may be important for making decisions (Boritz and Timoshenko, 2014; Gawande, 2010; Haynes et al., 2009; Turner, 2001). Besides being a visual aid, IR checklists also helped organize information into standardized categories, which could be rearranged and combined across time and space (Crvelin and Löhlein, 2022). The format of IR checklists thus helps to reduce the complexity of the world (Crvelin and Löhlein, 2022) into pre-arranged items and facilitates the production of "visual markers" (Strathern, 2006, p. 183) – marks on a list – which guide attention and action toward critical issues at health services across Santa Catarina.

At the same time, IR checklists act "as platforms for negotiating concerns between" multiple actors (Jordan et al., 2013, p. 171). In our case, checklists are similar to other risk tools in the

sense that they are valued for their ability to "structure talk, enact directives, establish records, provide task-oriented frames, as well as regularize procedures, perceptions, and manipulations" (Cooren, 2004, p. 375) related to risk. Managers rely on the IR checklists to discuss about the best course of action and to reflect on the things being checked. In this process, checklists become "elements of conversation" (Heimer, 2006, p. 103) at DVIS by making the complexity of the different situations more visible.

In sum, our research focuses on how checklists are used in practice by organizational actors who aimed to reflect, talk, and make risk-based decisions. By enabling the description of things and events in ways that can be easily accessed, retrieved, contrasted, and extrapolated into numbers, IR checklists allowed things to be commensurable (Crvelin and Löhlein, 2022) and therefore constituted the basis upon which actors "make specific choices" (Chiapello and Gilbert, 2019, p. 217) about how to intervene in the world. At the same time, IR checklists encouraged managers to engage with the lists (the items listed) and their outputs (risk indicators, risk acceptability levels, essentiality scores) during the course of their everyday decision making.

3.3 Data collection and analysis

Our fieldwork draws on three sources of data: interviews, internal documents (including copies of checklists), and policy documents. Between 2018 and 2022, we conducted a total of 27 interviews with 17 different actors (see Table 1), focusing primarily on DIVS managers, but also government officials and inspectors. To follow the use of risk tools at DIVS, we adopted a serial interviewing technique in which we interviewed key-actors multiple times (Read, 2018). Serial interviewing allowed us to build trust with interviewees and gradually immerse ourselves in the experiences of actors in the field. Also, to observe the way individuals shared or contested each other's interpretations of past and current events, most of these interviews were conducted with the presence of two or three interviewees.

Table 1: Chronological overview of the interviews

Nr.	Date	Role / position	Pseudonym
In01	31.01.2018	Director 1 Manager 1 HSIM	Bianca Giovanna
In02	13.04.2018	Consultant	Lucas
In03	18.05.2018	Consultant Manager 1 HSIM	Lucas Giovanna
In04	29.08.2018	Consultant Manager OHS	Lucas Brenda
In05	18.10.2018	Consultant Director 1	Lucas Bianca
In06	08.11.2018	Manager OHS OHS Area Coordinator	Brenda Cauã
In07	27.11.2018	Consultant	Lucas
In08	17.12.2018	Director 1	Bianca
In09	19.02.2019	Manager OHS	Brenda
In10	08.03.2019	Manager of Health Service 1	Luis
In11	08.05.2019	Director of Quality Certification Company	Davi
In12	08.05.2019	Consultant	Lucas
In13	08.08.2019	Consultant Manager OHS OHS Area Coordinator	Lucas Brenda Cauã
In14	05.09.2019	Manager of Health Service 2	Nicole
In15	06.12.219	Consultant	Lucas
In16	09.07.2020	Consultant	Lucas
In17	29.04.2021	Consultant	Lucas
In18	22.09.2021	Director 2 Manager OHS Superintendent of Health Surveillance	Joana Brenda Júlia
In19	29.09.2021	Consultant	Lucas
In20	06.10.2021	Director 2 Manager 2 HSIM OHS Area Coordinator	Joana Lavinia Cauã
In21	20.10.2021	Manager of Federal Health Surveillance Agency	Isabelle
In22	29.10.2021	Manager 2 HSIM	Lavinia
In23	30.03.2022	Consultant	Lucas
In24	30.05.2022	Manager 3 HSIM HSIM Area Coordinator	Beatriz Erick
In25	13.07.2022	Director 2 Consultant Manager 3 HSIM	Joana Lucas Beatriz
In26	01.08.2022	Manager 1 NDVISA (decentralization unit) Manager 2 NDVISA	Luana Tiago
In 27	08.08.2022	Inspector Regional Office UDVISA Xanxerê	Eduarda

Each interview lasted an average of 60 minutes and was transcribed into its original language

(Portuguese). Aware that nuances in the meanings and interpretations of interviewees may get lost in translation (Temple and Edwards, 2002), we opted to transcribe portions of these transcripts into English and back into Portuguese, in an iterative process between the two authors. This was meant not to build equivalence of translations (Chidlow et al., 2014), but to produce intercultural understanding through a gradual appropriation of ideas and concepts emerging from interviews (Schröer, 2009). This approach helped us produce an account of the experiences of our actors that is both accurate and theoretically relevant (Geertz, 1973; Golden-Biddle and Locke, 2007).

All of our interviewees have backgrounds in health-related fields such as nursing, pharmacology, biochemistry, and epidemiology. We followed the work of different directors of the agency and managers from the Health Services Inspection and Monitoring (HSIM) and Occupational Health and Safety (OHS) divisions. They formed a small group of managers at DIVS with over 10 years of experience, who shared similar understanding for how to navigate the challenges of balancing external pressures toward health service licensing with the need to provide quality and safety assurance for statewide healthcare.

While assembling the checklists for decision-making was a collaborative effort within the agency, one actor outside of the organizational chart who was central to understanding the role and various uses of checklists was a consultant – a physicist working in the field of medical radiation protection. We interviewed this person multiple times because of their key role in institutionalizing and developing the IR checklists. DIVS changed its director in 2019, so during our fieldwork we interviewed both directors. We also interviewed other actors, internal and external to the agency, who helped us understand how DIVS's practices affected the field and the different concerns they had to handle. During interviews, we asked questions about how health risks were defined and evaluated before 2010, what tools they have at their disposal; what challenges were involved in monitoring health risks and making decisions over them; how and why they started to use risk indicators to monitor and control health risks; and how this shaped decisions within the agency; and, more generally, we asked about their practices and understandings of health surveillance.

Internal documents at DIVS were also crucial for understanding how checklists were part of a broader system of risk management. For example, beyond checklists, DIVS' monthly reports, power-point presentations, and excel spreadsheets helped to disseminate ideas and (calculative) practices within and outside the agency. Also, both IR-Risk and IR-Benefit later became

integrated into an online system that served as a platform for monitoring health procedures and services across the state. Finally, we analyzed rules and policy documents to make sense of how checklists were part of larger institutional developments that supported and legitimated risk management at DIVS. For an overview of the documents used, see Table 2 below.

Table 2: summary of documents collected

Internal documents
Inspection checklists (comply; non-comply) before 2008
IR-Risk and IR-Benefit checklists
Power-point presentations used in training (diffusion of ideas and practices)
Excel spreadsheets used to count, control and aggregate health risks
Exemplars of risk tools extracted from online platforms
Monthly reports provided by health services (reg. occupational health risks)
Photographs of irregularities found in inspections

Rules and Policy documents	**Organization**	**Level**	**Year**
Portaria 453/1998	MH/ANVISA	Federal	1998
IN 002	DIVS	State	2008
IN 004	DIVS	State	2010
IN 006	DIVS	State	2012
IN 001	DIVS	State	2013
IN 001	DIVS	State	2014
RN 002 (creates the SIERI system; medical radiation)	SES/DIVS	State	2015
PL 0253 (New Sanitary Code)	SES/DIVS	State	2018
State Hospital Policy	SES	State	2019
RDC 330 (standards developed by DIVS)	ANVISA	Federal	2019
RN 005 (creates the SIERBP system, Hospitals)	SES/DIVS	State	2020

In line with a qualitative research tradition (Patton, 2014), our analysis started with a very broad interest in understanding how DIVS developed and used tools to assess and manage risk. Reading the transcripts of our interviews, we first tried to parse out parts of the testimonials according to established themes within the literature. The goal of this first step was to understand, through inductive analysis, how DIVS managers assessed the risks of health procedures and the importance they conferred to the checklists in this process. Like other studies, we assumed that the adoption of checklists was not straightforward, but had "to be actively mobilised, as they are pushed and pulled by interested actors through persuasion, calculation or rhetoric" (Arnaboldi and Palermo, 2011, p. 7). As the tools being implemented were constantly negotiated (Busco et al., 2007), we paid special attention not just to the structural design of checklists, but the situations in which they were used and talked about. In

doing so, we found that the checklists did not merely operate at the edge of accounting (Crvelin and Löhlein, 2022) but constituted the backbone of DIVS's risk management system.

In a second-order analysis, we worked to understand how DIVS managers used both checklists to navigate the self-undermining pressures of risk management (Arena et al., 2017). More specifically, we looked for specific episodes in which checklists were used to mediate concerns stemming from different stakeholders. Within these episodes we examined the espoused needs and intentions (Kaptelinin and Nardi, 2006) of DIVS managers related to how and why they used IR-Risk and/or IR-Benefit to resolve specific issues. Our data showed that DIVS managers spent time interpreting the data collected and aggregated by checklists, and that they were selective in applying this information in decision making. Thus, checklists did not necessarily determine particular decisions, but were still central to how institutional and local concerns were addressed by DIVS. Furthermore, we found that IR-Benefit was not considered to be a tool that repaired any perceived shortcomings of IR-Risk, but rather was viewed as a complement to IR-Risk. So, while IR-Risk responded to pressures from health services and other stakeholders for increased transparency and predictability of inspections – based on risk indicators – IR-Benefit added another layer of control to DIVS's risk management approach. This new layer aimed to help managers to reflect on the application of risk indicators in different contexts, the distribution of risks within health service territories, and the equity of DIVS interventions and measures.

As the checklists enabled different courses of action and modes of assessing risks – based on the use of risk acceptability and/or essentiality criteria – we adopted an abductive approach (Lukka and Modell, 2010; Mantere and Ketokivi, 2013), going back and forth between our empirical data and the literature, to theorize the conditions of mediation in DIVS case. We identified three pathways through which DIVS managers addressed potentially contrasting concerns stemming from stakeholders: (1) delegating the task of mediation to a single checklist; (2) combining the results of multiple checklists; and (3) suspending the outcomes of a checklist from decision-making. We now turn to the main findings to describe each of these pathways in more detail.

4. Findings: multiple pathways to mediation

4.1 Delegating the mediation of concerns to a single checklist

A central building block of risk management at DIVS is the "Inspection Roadmap: Risk" (IR-Risk), a checklist used by health inspectors to systematically assess and measure risks to staff and patients in the sector. IR-Risk records inspection results and makes risk assessments visible to inspectors, managers, and healthcare providers statewide. According to Eduarda, a health inspector, the use of this checklist allows for "more or less uniform inspections, regardless of whether they are done on the coast or in the west of Santa Catarina" (Eduarda, Health Inspector, Int. 27). According to Lavina, a manager of health services inspection and monitoring, this creates a "very transparent process" (Lavinia, Manager of HSIM, Int. 20) that helps to make inspections more predictable, which is in the interest of health services that have to prepare for inspections. At the same time, DIVS managers rely on IR risk to demonstrate to external stakeholders, such as the state health secretary, that "the system is really robust" (Lavinia, Manager of HSIM, Int 20). This approach helped DIVS to address criticism from providers, who felt that inspections varied widely and left them with little ability to anticipate which criteria their establishments would be expected to meet (Luis, Manager of Health Service 1, Int 10; Nicole, Manager of Health Service 2, Int 14). In this way, the IR-Risk tool helps to address the concerns of health providers and regulators about the partiality of inspections.

IR-Risk is structured in a heat map style and is used to aggregate multiple ratable items into a single risk indicator (see Figure 1). For example, the item "sanitary license" (first item in the left column in gray) has a number of choices, including "doesn't have [license]" (red), "expired license without renewal request" (orange), "expired license with renewal request" (yellow), "valid license" (light green), "valid with renewal request" (green), and "same as previous condition in the last two years" (dark green). The responses of inspectors are then translated into a numerical value on a scale from 1 (red) to 5 (dark green). This allows the agency to calculate a risk indicator to each healthcare provider (see top of Figure 1 in blue), which in turn becomes the basis for the level of "risk acceptability" assigned to that particular provider. In the case depicted in Figure 1, the risk indicator result could vary from unacceptable (greater than 0.449) to tolerable (between 0.368 and 0.449) to acceptable (less than 0.368). According to Lavina, risk acceptability is considered useful because it "provides certainty in decision-making by showing very clearly with what numerical value I will be able to issue the health permit or not" (Lavinia, Manager of HSIM, Int 20).

[INSERT FIGURE 1 AROUND HERE]

According to Erick, the area coordinator for the monitoring and inspection department at DIVS, the three levels of risk acceptability (acceptable; tolerable; unacceptable) give a clearer indication for inspectors and managers which services require intervention:

> "The inspection will show an acceptable, tolerable and unacceptable risk… we know that an unacceptable risk is a situation where I have to decide what to do to eliminate that risk right away …I give an indication to the inspector that he has to take a precautionary measure, an interdiction, a suspension, on the basis of that indicator (MIHS Area Coordinator, Erick, Int 24)

This view was shared by Brenda, a manager working in DIVS' occupational health and safety department, who argued that the level of acceptability generated by IR-Risk helps to resolve questions about how or when to intervene in the activities of health services:

> the acceptability [...] we establish the indicators for us to have a parameter and be able to act, also determine the levels of suspension […] And then you start to have this question in several situations where it is possible to quantify the levels of suspension (Brenda, Manager of OHS, Int. 6).

As the quotes above suggest, the material features of IR-Risk, such as acceptability levels based on risk indicators, shifted agency from inspectors to checklists, thereby protecting DIVS against potential contestations regarding partiality in licensing procedures. By using this checklist to assess risk, DIVS was able to address the concerns of healthcare providers, determining the criticality of establishments with the help of clearer criticality criteria. In delegating agency to IR risk, DIVS managers aimed to respond to complaints of health services representatives (who wanted clear inspection criteria to anticipate what they should prioritize in their establishments) and stakeholders who could potentially contest DIVS interventions, such as judges and medical associations.

While previous research has emphasized the self-undermining nature of risk management (Arena et al., 2017) that emerges when organizational actors attempt to address multiple concerns, in our case, managers found ways to meet local demands without compromising their ability to use checklists to generate systematic overviews of acceptability. For example, to use discretion when acting on levels of (un)acceptability, managers drew on the historical records of health services' risk levels. According to the Director of DIVS, drawing on graphical representations of risk acceptability over time (see Figure 2) helped them avoid a "myopic reading" of risk (Bianca, DIVS Director, Int01). Figure 2 illustrates an example of how historical risk figures were applied to a risk acceptability assessment of interventional radiology providers.

[INSERT FIGURE 2 AROUND HERE]

In some cases, a historical view of risk indicators (and acceptability levels) allowed managers to keep services open or not issue fines, even though a service was rated as "unacceptable". For example, Beatriz, a manager in the monitoring and inspection department, recalled a case where a hospital was granted a license despite having an "unacceptable" risk level:

> Hospital Santa Regina … we had seen their risk value already dropped to [unacceptable] [….] then we came back, but then there is an evolution there that is already bordering on acceptable. Could they go back [to unacceptable]? Yes, but we want it to continue to rise so I'm going to issue a license for a service that is "unacceptable"; now it's still unacceptable, but look, we have to give them encouragement that things are progressing and we're getting closer to "acceptable". So, it's a demonstration of the evolution of work processes and improvement of the service (Beatriz, Manager of HSIM, int 24)

In this way, an unacceptable service may not face consequences if DIVS managers see improvement over time and want to encourage further progress. This was an important part of addressing managers' local concerns with an over-reliance on IR-Risk to make decisions. Several interviewees argued that closing or suspending services based solely on risk scores could jeopardize DIVS's overall goal of "guaranteeing health" in Santa Catarina. For example,

closing a service with an unacceptable risk score could also eliminate the care-related benefits that the service provides to patients undergoing treatment.

In summary, IR-Risk and DIVS managers transferred agency in decision-making – previously held by inspectors – to a single checklist, aiming to create a more predictable and robust system for evaluating healthcare providers. Through calculative techniques, the checklist helped to shape what constituted a "risk" to patients and staff, and provided an overview of "risk acceptability" in the sector. In this way, the design and format of IR-Risk helped to generate numbers that allowed DIVS to meet the institutional demand for a more standardized, transparent, and predictable form of inspection practice. However, the delegation of agency to IR-Risk did not mean that the checklist was used to determine licensing decisions automatically. Rather, by adding a temporal dimension to the assessment of risk acceptability in the form of a historical overview, managers could exercise discretion when interpreting the results of the IR-Risk checklists and enforcing operational standards. This helped to address local concerns about flexibility in decision making and "guaranteeing health", without discrediting the system that was in place for standardizing the assessment of health services and providing a systematic overview of risk for institutional actors.

4.2 Combining checklists to mediate emerging concerns

While the historical overview discussed in the previous section (see Figure 2) helped to enact discretion among managers who sought to be less myopic in applying risk to decision-making, there were also situations where decisions were contested by third parties, such as hospital or medical associations. When suspensions or closures were challenged, DIVS managers sought to justify their decisions towards external stakeholders. According to our interviewees, this happened frequently and was an important way for DIVS to legitimize their enforcement actions. In such cases, however, IR-Risk was no longer considered the most important tool. According to Giovanna, a manager in the Monitoring and Inspection Department, "if we only look at risk, we won't get anywhere" (Giovanna, Manager of HSIM, Int01). Lucas, the consultant who worked closely with DIVS to develop risk management tools, echoed this sentiment, arguing that DIVS "cannot make decisions based on risk alone" (Lucas, Consultant, Int. 25). Thus, to develop additional information that could be used to justify enforcement decisions, managers combined the results of IR-Risk (risk indicators and levels of acceptability) with numbers derived from another checklist – the Inspection Roadmap Benefit (IR-Benefit).

Similar to IR-Risk, the IR-Benefit checklist is constructed in a heat map style and allows users (DIVS managers) to rate services based on multiple criteria. IR-Benefit includes ten items (see Figure 3): "importance of procedure"; "percentage of population assisted"; "percentage of population assisted by public health"; "level of reference of the health service"; "percentage of public health assistance in the service"; "capacity of other services to absorb demand"; "distance to other services"; "specificity of the assistance"; "percentage of specific population assisted"; "support to other procedures". By marking the greener areas on the heat map, managers can indicate how "essential" a service is as part of the overall healthcare system. For example, for the item "distance to other services", the dark green on the far right is selected when the service was highly essential (i.e., when another, similar service is more than 500 kilometers away). In contrast, the red area for this item is selected when the service is less essential (i.e., when a similar service is less than 5 kilometers away). Similar to IR-Risk, the scores for each of these criteria are aggregated into a single number – a measure of a service's "essentiality". This score indicates how essential the service is – or how much benefit could be "lost" – in the event of a closure or suspension.

[INSERT FIGURE 3 AROUND HERE]

The results of IR-Risk and IR-Benefit were combined in situations where inspectors identified a health service as having an "unacceptable" level of risk (using IR-Risk), and when DIVS needed to justify a potential course of action based on this assessment (like suspension) towards external stakeholders (such as a hospital association or court of law). When managers used IR-Benefit,[4] they scanned all of the parameters of the checklist to see if there was justification for interventions. According to Lavinia, the benefit checklist offers not only "a mathematical result […]" but makes "you reflect through standardized parameters" (Lavinia, Manager of HSIM, Int 20). Risk acceptability levels and the "essentiality" of services were not considered separately, but as two sides of the same coin – "parallel roads" (Lucas, Consultant, Int. 25) to assessing a particular service. This suggests that IR-Risk and IR-Benefit were not necessarily

[4] IR-Benefit was designed exclusively for use by top-managers after IR-Risk assessments were completed.

competing, but rather complementing each other in a way that allowed managers to generate what they considered to be a more comprehensive view of health services.

For example, an emergency room was flagged for suspension based on its "unacceptable" risk level. DIVS Director Joana recalled, "We have a municipality called Itacori, and we closed the emergency room because there was no professional there. So, I have an open emergency room and there is no doctor. We closed it" (Joana, Director, Int. 20). However, the prospect of closing an emergency room quickly raised concerns from the hospital association that governed the hospital where the emergency room was located. The hospital association tried to keep the service open by appealing the decision in a local court. One of the judges in that court eventually issued a ruling, which would require the emergency room to remain open and thus reverse DIVS' original decision.

In response, DIVS conducted a further assessment of the emergency room using IR-Benefit. In this case, DIVS was able to challenge the judge's ruling by demonstrating that the service in question was not highly essential and therefore could be closed without causing any additional harm to patients:

> So, we saw the court decision and said: you are claiming responsibility for the lack of professionals in that service to provide emergency care. But our benefit assessment shows that in less than 30 minutes, a person can receive care at the São Luis hospital, which has a licensed health permit, which has professionals (Joana, director, Int. 20).

According to Lavina, the judge then "acknowledged in a document: 'I will not continue the process'" [to reopen the service] (Lavinia, Manager of HSIM, Int 20). The above example illustrates how DIVS managers could use IR-Benefit to justify decisions and pursue courses of action that were based on IR-Risk acceptability levels. While IR-Risk recommended closure, IR-Benefit helped convince the judge that patients could easily receive care in a neighboring town.

In summary, in situations where additional justification for decisions was necessary – i.e. where decisions based on risk acceptability levels were (legally) challenged – managers could turn to the information produced by IR-Benefit to argue for why a particular course of action was appropriate. While the two checklists helped to produce distinct measures of "essentiality" (IR-Benefit) and "risk acceptability" (IR-Risk), they were seen as complementary. Together, IR-

Risk and IR-Benefit helped DIVS address emerging concerns related to enforcement actions for "unacceptable" health services. While IR-Risk provided a systematic overview of risk and created a robust basis for suspending or closing services, IR-Benefit helped to take into account the wider context of health services that local managers found important for justifying their decisions (such as the number of licensed professionals in nearby services). By drawing on the outputs of both checklists, managers were able to appeal to broader institutional concerns for a calculated and standardized assessment of risk, while also satisfying local concerns for maintaining discretion over enforcement decisions.

4.3 Suspending risk tools to enact mediation

In situations where healthcare providers were rated as highly essential, but also unacceptably risky, managers made efforts to keep services open by setting deadlines for services to implement changes or finding ways to reduce activity (e.g., placing limits on the number of procedures). To accomplish this, after using IR-Risk to assess health services, managers temporarily suspended the use of risk indicators (derived from IR-Risk) from decision-making, allowing healthcare providers to continue operating despite evidence of unacceptable risk. In situations where IR-Risk indicators were temporarily removed from the decision-making calculus, managers turned to the IR-Benefit tool's assessment criteria and knowledge of the local contexts in which healthcare providers operate. This approach was described by DIVS director, Bianca, who argued that "you can't just take it [risk indicators] at face value, looking at the service in isolation, it [the provider] has an address, it has a territorial place, it has a connection with that society, this is complex" (Bianca, DIVS Director, Int 01).

Faced with impasses in using checklists to justify actions, DIVS managers were further pushed to adopt a rationale of "reflection through standardized parameters" (Lavinia, Manager of HSIM, Int 20). IR-Benefit checklist items such as "capacity of other services to absorb demand" and "distance to other services" helped to highlight the importance of the physical space in which care takes place and the interconnectedness of different health services. By discussing these criteria, managers could temporarily set aside checklists and focus their attention on how specific decisions, such as closing a service, might affect care. Giovanna described a case where an emergency room should have been closed based on its risk level, but was instead kept open:

> If you don't know the territory, because sometimes we meet the inspector and he doesn't know it, you should acquire knowledge because […] theoretically looking only at IR-Risk, should be closed, but there is no service in the municipality, it is about 60 km to the nearest municipality, but it passes through a highway that has huge traffic jams in the summer or vacation periods, and how do you close an emergency room in that hospital? You can't, and through a checklist like this [IR-Benefit], you can show, it is open for this, this, this, for this reason, these benefits, and these are the risks we will monitor in that establishment" (Giovanna, Manager of HSIM, Int 01)

Here we can see how the location of a service and its distance from other services can change a manager's decision-making. In this particular case, Giovanna was faced with the alternative of pursuing closure (which would have been fully supported by the risk indicators derived from IR-Risk) or finding another course of action that would allow the care to continue. IR-Benefit allowed her to set aside risk indicators and demonstrate – through essentiality criteria – why the emergency room should remain open.

Similarly, Lavina recalled a case in which a healthcare provider marked for closure was found to be isolated from other services:

> we even put it on Google Maps to see how far it is. We even check the condition of the road: oh, no, it's an hour's drive, but the road is very bad, when it's inland like this, it's very bad. The inspector says: "look, Lavina, the road to take a pregnant woman from here to there, because the access is very bad, it's a short distance, but the journey ends up being longer because of the condition of the road". So, we plan all of this, before making the decision there is a conversation. (Lavinia, Manager of HSIM, Int 20).

The case recalled by Lavinia highlights how managers can act beyond the material features of tools in order to mediate emerging concerns. In DIVS case, such acting beyond the tools was connected with the experiences of DIVS managers regarding the "territory" of health services, an experience that could not be easily translated into risk indicators. This shows how managers' understanding of contingencies and how they applied the checklists to solve critical problems of healthcare provision was determined by the needs (Kaptelinin and Nardi, 2006) they identified within unfolding situations. So when justifying the suspension of risk indicators from decision-making, DIVS managers referred to the consequences of leaving patients without care. IR-Benefit criteria, such as "importance of procedure"; "percentage of population assisted", or "capacity of other services to absorb demand" were used to weigh the risks of poor operating conditions against the possibility of patients dying as a result of not having access to highly

essential care. In short, the possibility of death, whether directly caused by DIVS actions or resulting from premature interruption of care, was a common justification among DIVS managers for overriding risk assessments based on IR risk.

The suspension of IR risk as a viable tool for mediation and the adoption of partial interventions can be viewed reflected in another episode described by Lucas. Lucas described the problem of closing a hemodynamic clinic that was rated "unacceptable" because of outdated equipment:

> […] if the service was closed, the entire [public health system] population would be left without care, and if someone had a heart attack, they would die…we talked to the service to see how long they would need to change the equipment. And we talked to the Secretary of Health, and the Secretary of Health would take about two months to contract a service to take over. […] So, we keep it working only for emergency procedures, selective procedures are stopped, only for heart attacks, serious cases. (Lucas, consultant, Int 23)

This provider remained open for several months, performing only emergency services until the state entered into a new contract for the purchase of updated equipment. According to Brenda, an operational health and safety manager at DIVS, banning specific equipment would end life-supporting care: "How would I ban these products without stopping the service? Because it's life support" (Brenda, Manager of OHS, Int 09).

Following a similar line of reasoning, Lavina discussed how a decision was made to stop elective surgery in a clinic with an unacceptable level of risk:

> It is better to treat the patient there and ensure life support and take the necessary measures "on site" than to lose the patient. […] So, in this case, for example, only elective surgeries will be stopped." (Lavinia, Manager of HSIM, Int 20).

Lucas described another case in which a service was marked for closure on the basis of IR-Risk indicators:

> But there were 40 patients undergoing treatment. […] No service in Santa Catarina had the capacity to treat these patients. The State of Santa Catarina contacted neighboring states to transport these patients to neighboring states. The neighboring states did not have the capacity to treat them. So, radiotherapy procedures cannot be interrupted. If they are interrupted, they cannot be resumed. So, if we interrupted the treatment, we would be condemning 40 patients to death (Lucas, consultant, Int 23).

In summary, the examples above show how the criteria in the IR-Benefit checklist, as well as other information about the local context of care, were used by managers to justify the continued operation of health services, which had previously been rated as "unacceptable" using the IR-Risk checklist. In this way, managers were able to overcome what they perceived to be the limits of risk indicators and risk acceptability levels and focus on the essentiality of a service and an essentiality score – represented by quantified measures of "importance of procedure" or "capacity of other services to absorb demand". In doing so, managers (temporarily) de-emphasize the importance of risk indicators and risk acceptability levels in the decision-making process. By temporarily setting aside these outputs of the IR-Risk checklist, managers were able to make decisions that addressed local concerns about DIVS' ability to "guarantee health" and to focus on mitigating risk to patients. At the same time, managers were still able to meet broader institutional demands for conducting a systematic approach to inspections, because whatever course of action DIVS managers ultimately took, IR-Risk was still used to assess all healthcare providers, thereby creating transparency and predictability in the inspection process.

5. Discussion

Our analysis speaks to previous literature on the mediating capacity of accounting (Ahrens and Chapman, 2004; Carlsson-Wall et al., 2017; Chenhall et al., 2013; Kurunmäki and Miller, 2011; Miller and O'Leary, 2007; Miller and Power, 2013) and risk tools (Jordan et al., 2018, 2013; Kraus et al., 2024; Miller et al., 2008) by unpacking the pathways to mediating institutional and local concerns in a public surveillance agency. DIVS was able to maintain a robust and credible system of risk management that produced comparative views of risk for external stakeholders as well as information that managers found useful for local decision-making. In this way, our study highlights a case where mediation was relatively "successful", i.e., where risk management does not succumb to self-undermining pressures (Arena et al., 2017) and where the use of accounting tools continues, rather than ends (Palermo et al., 2022).

Drawing on a practice perspective and previous research in accounting, we show how such mediation is shaped by both the design features of tools and the intentions and efforts of human actors. While checklists guided action and helped define what is "risky" or "essential", organizational actors (managers) played a prominent role in balancing potentially contrasting concerns. To do so, managers did not seek to adjust, "tinker", or experiment with the form and

format of the checklists themselves (Ahrens and Chapman, 2004; Andon et al., 2007; Baud and Lallemand-Stempak, 2024; Burke and Wolf, 2021; Dambrin and Robson, 2011; Habran and Mouritsen, 2022; Jordan and Messner, 2012; Mikes, 2011; Palermo et al., 2022), but instead found ways to adapt the use of one or more checklists to the situations they faced. Our analysis shows how managers used checklists to forge three pathways to mediation – (1) *delegating* the task of mediation to a single checklist; (2) *combining* the results of multiple checklists; and (3) *suspending* the application of checklists from decision-making.

For all DIVS inspections, managers first sought to *delegate* the task of risk assessment to a single (IR Risk) checklist. This helped to define whether a health service was "unacceptable", "tolerable", or "acceptable" in terms of its risk to staff, patients, and the public, and thus whether a situation required intervention from DIVS. The IR-Risk format allowed for the quantification and aggregation of inspector responses into a single risk indicator and a corresponding level of risk acceptability. Similar to other tools studied in accounting research, such as risk maps (Jordan et al., 2013), balanced scorecards (Busco and Quattrone, 2015), and rankings (Pollock and D'Adderio, 2012), the IR-Risk checklist in our case simplified the complex reality of organizations in a way that was amenable to quantification and decision making. At the same time, the checklist produced information that managers could recontextualize according to their own local needs. Managers made IR-Risk locally relevant by extending the time horizon of risk assessments and reflecting on the relationships between the risk numbers generated by IR-Risk in different time periods. In this way, managers relied on the IR-Risk checklist to satisfy institutional pressures to operate a robust risk management system and to support decision-making in a locally meaningful way.

Our analysis also showed how managers *combined* the risk indicators produced by IR Risk with numbers generated by IR-Benefit. This occurred primarily when health services were already rated "unacceptable" by IR-Risk and thus identified as candidates for suspension or closure, and when decisions to close were contested by external actors. In such cases, DIVS managers used IR-Benefit to quantify the local context of health services into a representation of the "essentiality" of that service. Managers could then combine risk indicators (derived from IR-Risk) with essentiality numbers to appeal to third parties (such as a judge) and mitigate potential controversies stemming from their enforcement decisions. By combining the results of both IR-Risk and IR-Benefit, managers were able to support their decisions with numerical representations and thus meet institutional requirements for enacting a systematic approach to

risk management; at the same time, the combined use of IR-Risk and IR-Benefit allowed them to bring into decision making the various elements of their local context, which they considered crucial for "guaranteeing health" across the state.

Finally, our analysis showed that managers (temporarily*) suspended* the use of IR-Risk numbers from decision-making. This occurred in situations where both IR-Risk and IR-Benefit were used, and when the numbers that they each produced conflicted with each other, i.e., when healthcare providers were marked as being both "unacceptable" and also highly essential. In such cases, managers seemed to focus their attention primarily on the essentiality criteria related to the physical territory of healthcare – for example, the distance of a service from other similar services. By temporarily setting aside the risk indicators generated by IR-Risk, managers were able to focus their attention on making decisions that would address local concerns about patient's access to care. At the same time, the suspension of IR-Risk from decision-making occurred *after* IR-Risk had already been used to assess healthcare providers. As a result, managers were still able to meet broader institutional demands for conducting systematic form of assessments and inspections.

Now that we have outlined the three pathways to mediation in our case, we will discuss the implications of these findings for accounting research.

5.1 Human agency and "switching" between pathways to mediation

While our study acknowledges the important role of accounting in mediating multiple concerns (Busco and Quattrone, 2018, 2015; Chenhall et al., 2013; Qu and Cooper, 2011; Ronzani and Gatzweiler, 2021), it also draws attention to the importance of human agency involved in processes of accounting mediation. As our case analysis shows, it was not only the format of the checklist that enabled mediation (Busco and Quattrone, 2018, 2015; Jordan et al., 2018, 2013; Qu and Cooper, 2011; Tekathen, 2019), but also how and when DIVS managers related checklists to each other to address institutionally and locally defined concerns. In DIVS case, managers were able to choose which tools should be deployed, and which aspects of a tool are relevant or useful in particular situations. Furthermore, as highlighted by the "suspension" pathway to mediation, managers could also act outside of the constraints that tools provide, incorporating knowledge from their local organizational context when making decisions. Thus, while checklists helped make concerns calculable and actionable, managers did not just blindly base their decisions on the numbers they produced. Rather, opening up pathways to mediation

was dependent on managers' abilities to juxtapose or combine insights gathered from checklists, or emphasize numbers they considered useful for addressing a particular set of (decision making) circumstances. Therefore, drawing on insights from practice studies, our findings highlight the importance of the intentions and needs of human actors in accounting mediation, and the ways in which these can change from situation to situation.

To conceptualize the role of human actors in accounting mediation, we propose that organizational actors have ability to "switch" between different pathways. With "switching", we wish to capture the ways in which managers transition between different modes of assessment –viewing health services in terms of "acceptability" and/or "essentiality" with designated tools – to enact the mediation of institutional and local concerns. We suggest that managers can "switch" between different pathways to mediation because of how they enact different forms of agency at different moments in time (Kaptelinin and Nardi, 2006). In the DIVS case we have shown that managers can respond to institutional pressures to enact transparency and predictability in inspections by delegating an agentic capacity to the IR-Risk checklist (delegation pathway). However, at other times, managers perceived a need to take action and use the checklist in different ways. For example, if the closure of a healthcare provider (as recommended by IR-Risk) was contested, managers did not continue down the path of delegating the task of mediation to the single checklist, but rather combined IR-Risk outputs (risk numbers) with IR-Benefit outputs (essentiality numbers) in ways that complemented each other. This switch to "combination" was temporary, as managers quickly returned to "delegation" once the potential concerns of external actors were resolved. In another example, managers felt the need to switch from "delegation" to "suspension" when healthcare providers were rated as both "unacceptable" and "highly essential".

We argue that switching can be a crucial mechanism for understanding how mediation is made possible. Previous work has argued that the design features of accounting and risk tools are centrally important in shaping mediation. Researchers who have focused on the work of human actors often bring the analytical focus back to tool design, arguing that mediation can be explained by the ways in which actors adjust and change the tools that they use (Ahrens and Chapman, 2004; Andon et al., 2007; Baud and Lallemand-Stempak, 2024; Burke and Wolf, 2021; Dambrin and Robson, 2011; Mikes, 2011; Palermo et al., 2022). We show how accounting mediation is not only a matter of tool (re)design, but also intentional actors' reflection, attention to situated contexts, and their ability to switch between different pathways

that have been carved out by accounting tools. Thus, to produce accountings and mitigate self-undermining dynamics that may threaten the continuity of accounting (Arena et al., 2017; Palermo et al., 2022), human actors may not always need to adjust and change the accounting tools themselves, but create and select from a set of viable options for the different situations they face.

5.2 Sequential visibility and reflexive risk management

IR-Risk was used to assess all health services on a regular basis. In contrast, IR-Benefit was used only in special circumstances, such as when IR-Risk numbers indicated that a service was a candidate for closure. Therefore, if and when both checklists were used, they were used in a sequential order. Healthcare providers were first assessed in terms of their "acceptability" (IR-Risk) before being assessed in terms of their "essentiality" (IR-Benefit). DIVS never used IR-Benefit in isolation, but always as a follow-up to an IR-Risk assessment. It was this sequencing of assessments provided by the two checklists that allowed managers to first focus their attention on IR-Risk and its potential implications for a particular health service (e.g., whether it should be closed), and then turn their attention to IR-Benefit as a way to better understand the implications of the potential decision recommended by IR-Risk (e.g. the impact of a closure on patients who are receiving life-saving treatment). This illustrates how organizational actors' interpretations of a situation, and of the data collected and aggregated by IR-Risk, can trigger the use of a second checklist (IR-Benefit) to consider the risks of pre-defined decision recommendations (closures) derived from a risk management tool (IR-Risk checklist).

This approach, which was embedded in the organizational routines and protocols for when and how to use checklists, established what we call *sequential visibility*. With the notion of sequential visibility, we want to emphasize how the temporal distance between potentially contrasting numbers (first risk numbers, then essentiality numbers) creates opportunities for organizational actors to reflect on their own use of risk tools, and change the course of their numbers-based decision making. This adds to previous research, which explores how the material features of accounting tools enable the coexistence of different modes of evaluation in the adjudication of potentially conflicting concerns (Baud and Lallemand-Stempak, 2024; Jordan et al., 2013). In contrast to previous work, our case shows that decision-making is facilitated not by two simultaneously visible modes of evaluation (Chenhall et al., 2013), but by actors' efforts to find the tools and numbers that best fit a given set of circumstances. In this sense, risk and benefit numbers were not concurrent in the sense that they coexisted or

converged to compromises – though they were used to negotiate solutions to critical problems. Instead, risk and benefit were assessed in a step-wise approach, which enabled DIVS to respond to emerging concerns while avoiding self-undermining pressures that could jeopardize their risk management system. For example, each time managers considered "delegation" inappropriate, or when external actors challenged it, DIVS turned to IR-Benefit to generate an alternative assessment – based on essentiality rather than acceptability criteria – that could support (as in combination), or override (as in suspension) the assessments that were previously considered in managerial decision making.

Our analysis shows how the ways in which accounts are incorporated into decision making is made possible by the fact that contrasting accounts become visible at different points in time and relate to different objects of concern. This gap between the use of IR-Risk and the use of IR-Benefit allowed managers to bring in knowledge from outside the use of the tools that could help them make decisions. For example, after using IR-Risk and generating a recommendation for closure, managers had time to discuss internally (within top management) and externally (with different stakeholders) the situated context of a particular health service and mobilize their knowledge of the physical territory in which that service was embedded. This reflection on the local context was supported by the use of the second (IR-Benefit) checklist, which helped to quantify various aspects of the territory that managers considered important in order to make a decision that could satisfy both institutional and local concerns. The sequential use of checklists prevents decisions from being made on the basis of risk numbers alone, which could potentially create second-order risks, i.e., cutting off access to vulnerable patients. In this way, the ability of managers to switch between different pathways to mediation (e.g., from delegation to combination or suspension) is based not only on their ability to interpret and respond to different situations with different tools, but is also shaped by the layers of control that they have implemented in their risk management system.

5.3 The relationship between (check)lists and risk management

While our analysis highlights the role of human agency in mediation processes, it also illustrates how accounting tools, such as the checklist, can influence the actions of individuals, set priorities, and guide decision making. In our case, checklists shaped DIVS' broader approach to risk management, particularly by delineating which healthcare providers were considered "acceptable" and which were more or less "essential" to the functioning of the healthcare system. In this way, checklists are similar to other risk tools, such as risk maps (Jordan et al.,

2018), risk registers (Klein Jr. and Reilley, 2024), and risk appetite radars (Kraus et al., 2024; Mikes, 2021), in how they make abstract and elusive topics – such as risk – more tangible and measurable, and how they facilitate the incorporation of risk-related information into decision making processes. In alignment with previous work, we show that the ability of checklists to not only produce accounting numbers, but also shape wider institutionalized (risk management) practices, stems from their use by individuals who mark, interpret, and reflect on the lists and the numbers that they produce (Crvelin and Löhlein, 2022; Mehrpouya and Samiolo, 2016). Thus, like other risk tools, the effectiveness of checklists as mediating tools (Jordan et al., 2013; Miller and O'Leary, 2007) arguably depends on how they are connected to a wider assemblage of instruments, numbers, and processes.

Our analysis also shows how organizational actors engage with lists and their outputs on an ongoing basis. IR checklists prompted managers to interact with the listed items and their outputs (such as risk indicators, risk acceptability levels, and essentiality scores) and reflect on their relationships to a complex and constantly changing social and organizational context, i.e., healthcare. Depending on the situation, managers could link checklist outputs to other artefacts and work processes to facilitate decision making that would appease multiple concerns, or downplay the role of accounting numbers in decision making altogether. Regardless of which pathway to mediation ultimately taken, however, managers interested in accounting numbers were constantly engaged with checklists, relying on the list and its various functions and outputs to formulate what they considered viable courses of action.

This contrasts what we know from previous work, which argues that lists push users to operate at the "edge of accounting" (Crvelin and Löhlein, 2022, p. 3) and that checklists may be only "weakly connected" (Power, 2016, p. 280) to other artefacts in risk management. In contrast to Power (2016), the checklists in our case are not weakly connected to other elements of risk management, but are central artefacts used in the systematic collection and production of accounts. Moreover, the IR checklists in our study did not necessarily push users away from accounting (Crvelin and Löhlein, 2022), but were a central part of bringing users closer to the list and its various features. Checklists demanded ongoing engagement and reflection on accounting and its consequences. In discussions about possible courses of action, managers discussed not only risk numbers or acceptability levels, but also the lists themselves, and their appropriateness to solve particular situations. That is, checklists offer more than a set of numbers and structured way of acting (Crvelin and Löhlein, 2022). They can also help

organizational actors reflect on standardized parameters (see also Baud and Lallemand-Stempak, 2024). In this way, checklists provided a means for managers to reflect on their practices, helping to bridge the gap between the aspirations embedded in their risk tools and their situated uses. In this regard, our study add to recent interest on the role of lists within accounting by showing how checklists can take on a more prominent role in assemblages of accounting and management when they exercise "structuring powers" (Crvelin and Löhlein, 2022, p. 13).

6. Concluding remarks

This paper has examined how and when accounting tools play a role in mediating multiple concerns. As our case shows, the capacity to switch is particularly important in risk management, where managers must balance the risks of specific events against the consequences of corresponding interventions. However, the relevance of switching might extend to other domains where the reflexive use of numbers and accounts is required to balance multiple concerns. For example, in other contexts with multiple and diverse stakeholders, such as higher education, public utilities, or non-profit social services, switching may allow managers or other actors to navigate "self-undermining pressures" (Arena et al., 2017) that emerge when they use accounting tools to assess highly complex social phenomena. It is unclear, however, what switching would look like in these other contexts, or whether organizational actors can leverage this practice to successfully mediate the many demands placed on them, as was the case in our study. Thus, while prior research has acknowledged that accounting tools can be relevant to diverse forms of valuing and assessment, our understanding of how and why actors transition between these modes remains to be fully realized. We urge for further research on how, or whether, organizational actors in other contexts transition between different pathways to mediation.

The situated and practice-based approach advanced in this paper allowed us to delve into the dynamic interplay between people and things, exploring how they shape each other within specific circumstances and contexts. This approach suggests that mediating tools – such as the checklists investigated here – can only be understood by examining how they are related to and interpreted by human actors. With good reason, accounting research has focused much of its attention in recent years on the power of accounting technologies to shape human cognition and

action in organizations (Briers and Chua, 2001; Busco and Quattrone, 2015; Pollock and D'Adderio, 2012). We agree that accounting tools can have profound effects on the ways in which we think and act. At the same time, we hope that more light can be shed on the role of human actors in the trajectory of accounting practice, focusing on their ability to use accounting tools in creative or surprising ways. Ultimately, understanding the interplay between human actors and accounting technologies requires us to not only recognize the influence of tools on people, but also to explore the agency of individuals that use tools in organizational contexts.

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Figure 1

A partial view of IR-Risk used for inspecting interventional radiology procedures (the full list includes 30 items, while only 6 are shown here), which in this case are rated as “acceptable”.

Service: Interventional Radiology | **Provider:** ? | **Date of inspection:** 16/07/2018 | **Inspection number:** 516 | **Result:** Acceptable: 0.02635

Inspection Roadmap for Interventional Radiology

Item								
Sanitary License	Dosen't have	Expired without renewal request	Expired with a renewal request	Valid license	Valid with a renewal request	Same previous condition in the last two years	NA	NR
CNES Registration	Dosen't have	Registered with inconsistent information	Registered with incomplete data	Registered with information of equipment	Complete information	Complete and updated information	NA	NR
Technical Responsibility	Dosen't have	Non-specialist doctor	Doctor with residency in radiology	Doctor with specialist certification	Doctor with specialist qualifications in each specific area	Same previous condition and a substitute with an equivalent degree	NA	NR
Hired Technician	Dosen't have	Technician/ technologist with completed without CRTR registration	Technician/ technologist with completed course and application for registration with the CRTR	Registered technician	Registered technologist	Technologist with a postgraduate degree	NA	NR
Radiometric Survey	Dosen't have or >1 mSv/yr (free area) or >10 mSv/yr (controlled area)	Performed indicating non-compliance	Performed more than 5 years ago	Updated and without non-compliance	Same condition as before + leakage evaluation	Periodic checks, in addition to the five-yearly tests	NA	NR
Quality Control tests	Doesn't have or presents any of the tests in suspension-level	Tests performed indicating non-compliance	Performs only a few tests or does not comply with the periodicity	Performs all the tests, with the periodicity established in Res 002/DIVS/SES/15	Same condition as before, based on acceptance tests	Same condition as before, plus additional tests	NA	NR

Figure 2

The historical evolution of risk acceptability ratings (arrow 1) at multiple interventional radiology providers (arrow 2).

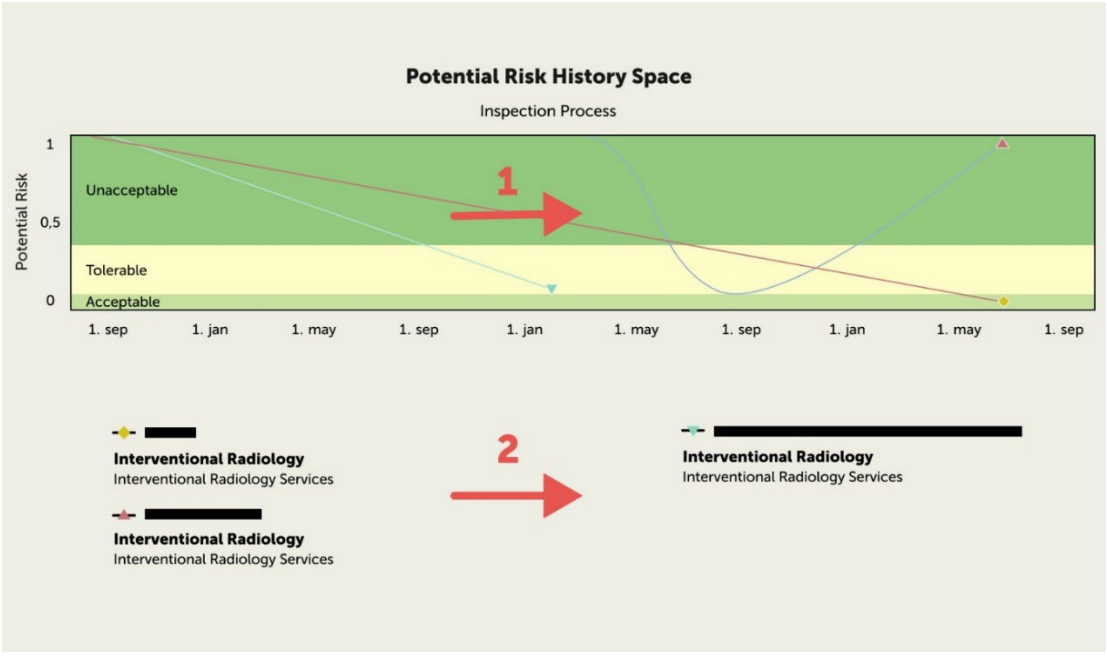

Figure 3

The IR benefit tool used by DIVS managers.

Indicator						
Importance of procedure	complementary	elective	ambulatory	emergency	urgency	Life Support
Percentage of population assisted	< 5%	5% < Assistance ≤ 20%	20% < Assistance ≤ 60%	60% < Assistance ≤ 80%	60% < Assistance ≤ 80%	100%
Percentage of population assisted by public health	< 5%	5% < Assistance ≤ 20%	20% < Assistance ≤ 60%	60% < Assistance ≤ 80%	60% < Assistance ≤ 80%	100%
Level of reference of the health service	Not a reference	Municipal	Regional	State	Multiple states	National
Percentage of public health assistance in the service	< 5%	5% < Assistance ≤ 20%	20% < Assistance ≤ 60%	60% < Assistance ≤ 80%	60% <Assistance ≤ 80%	100%
Capacity of other services to absorb demand	100%	80% < Assistance < 100%	60% < Assistance ≤ 80%	40% < Assistance ≤ 60%	20% < Assistance ≤ 40%	< 20%
Distance to other services	< 5 Km	5 < distance (km) ≤ 20	20 <distance (km) ≤ 50	50 < distance (km) ≤ 150	150. < distance (km) ≤ 500	>500
Specificity of the assistance	Adults	General	Elderly	Pregnancies	Pediatric	Neonates or infectious
Percentage of specific population assisted	< 20%	20% < Assistance ≤ 40%	40% < Assistance ≤ 60%	60% < Assistance ≤ 80%	80% < Assistance < 100%	100%
Support to other procedures	Independent	Elective	Ambulatory	Emergency	Urgency	Life Support