National Collaborating Centre
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The Advisors of Policy Makers: Who Are They, How Do They Handle Scientific Knowledge and What Can We Learn About How to Share Such Knowledge with Them?

Knowledge sharing and public policy series | March 2017

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National Collaborating Centre
for Healthy Public Policy

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About the National Collaborating Centre for Healthy Public Policy

The National Collaborating Centre for Healthy Public Policy (NCCHPP) seeks to increase the expertise of public health actors across Canada in healthy public policy through the development, sharing and use of knowledge. The NCCHPP is one of six Centres financed by the Public Health Agency of Canada. The six Centres form a network across Canada, each hosted by a different institution and each focusing on a specific topic linked to public health. In addition to the Centres' individual contributions, the network of Collaborating Centres provides focal points for the exchange and common production of knowledge relating to these topics.

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1 Introduction

This literature review is part of a series of documents focused on sharing knowledge in the context of public policy development. All of the documents in this series available to date may be found at www.ncchpp.ca > Projects > Knowledge Sharing.

When attempting to ensure that scientific knowledge is taken into account during the development of a public policy, one's first instinct is to try to share this knowledge directly with policy makers. But this would mean overlooking actors who play a central role in political circles: their advisors. To improve understanding of their role, this document describes the profile of such advisors, the work they do, particularly as it relates to scientific knowledge, and their influence both on how knowledge circulates in the political sphere and on public policy development.

This description is based on empirical data collected through an extensive literature review; in other words, it reflects the observations of real people involved in the interplay between science and policy: advisors, policy makers and scientists. Since this literature review is focused on public policies that have an impact on population health, this document may be of particular interest to public health researchers and professionals. To guide these actors in their own knowledge-sharing activities, we have included observations and questions at the end of each section that can help them to analyze their own contexts and determine the approach most suited to their needs.

Actors who are central, but poorly studied

As defined previously (Morestin, 2015a), the term "advisors" in this document applies to persons based *within government structures*, whose professional role is to advise policy makers (such as ministers, members of legislative bodies, mayors, or councillors) on public policy matters. This definition does *not* encompass persons based outside of government structures who occasionally give advice to policy makers.

Several authors who have studied various countries, including Canada, underscore the important role that policy makers' advisors play in public policy development and, more particularly, in determining whether and how scientific knowledge is used during this process (Bédard & Ouimet, 2012; Bogenschneider & Corbett, 2010; Howlett, 2011; Howlett & Newman, 2010; Kemper, 2003; Oliver, de Vocht, Money, & Everett, 2013; Ouimet et al., 2010; Stevens, 2011; Talbot & Talbot, 2014). Some of these authors have observed that, despite this importance, the role of policy advisors is little studied (Howlett & Newman, 2010; Oliver et al., 2013; Ouimet et al., 2010). One plausible explanation is that their work constitutes the submerged part of the iceberg of public policy; they are not themselves public figures and do not appear in formal power structures (Oliver et al, 2013). Publicly visible, on the other hand, are policy makers and the public policies that are ultimately adopted following all the preparatory work, during which a fair number of proposals are usually ruled out.

Studies on the use of scientific knowledge in political circles therefore tend to focus on policy makers although, generally, these are not the political actors who make heaviest use of such knowledge (Ouimet et al., 2010). However, data on the role of policy advisors with regards to scientific knowledge do exist, as evidenced by the extensive corpus on which this document is based; but the bulk of this data is scattered throughout studies whose central subject is not the role of advisors. Indeed, to our knowledge, this document constitutes the first literature review dedicated to the behaviour of policy advisors toward scientific knowledge.

This document begins with a few comments on the method we followed. Then it deals with the profile of policy makers' advisors, highlighting that several types of policy advisors exist, with varying professional backgrounds. The next and major part in the document is dedicated to describing these

advisors' work—in general, and specifically as it comes to using scientific knowledge. It also explores how much initiative advisors take in this regard. The last chapter deals with advisors' influence in terms of scientific knowledge circulation and in terms of public policy development—which, ultimately, is the process that one hopes to shape by sharing knowledge with political circles.

2 A few notes on the method followed

In this Chapter:

- Where and how we found the data analyzed in this document.
- The factors we paid attention to (sub-analyses).
- A few caveats to keep in mind.

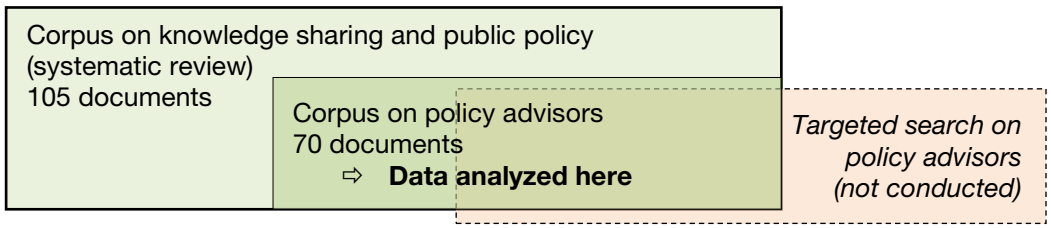
2.1 Data collection and analysis

This paper is based on a systematic review of the literature published between 2000 and 2014 that presents empirical data on the sharing of knowledge to influence public policies that have an impact on population health. We conducted an extensive documentary search for this literature review: we queried 17 bibliographic databases that cover various fields of health sciences and social sciences; we also located documents by examining the bibliographies of recent literature reviews and through our ongoing scan of the subject. We selected 105 documents that met our inclusion criteria. Details concerning the method followed are given in another paper (Morestin, 2015b).

The 105 documents selected were coded using the qualitative analysis software NVivo 10 with different codes/topics reflecting various aspects of knowledge sharing.[1] Because we found a large amount of data, we decided to carry out the analysis one topic at a time. The role that policy advisors play with regards to scientific knowledge is one such topic. It is discussed in 1417 passages found in 70 documents among the 105 that make up our main corpus (Figure 1).

This paper, which presents our analysis of these 1417 passages, was thus produced following an unusual approach: instead of conducting a documentary search focused specifically on policy makers' advisors, we examined what is said about these advisors in the literature on the sharing of scientific knowledge with political actors. In other words, in approaching this two-faceted topic–knowledge sharing and policy advisors–we prioritized the first aspect. A documentary search targeted specifically on advisors (focus on the second aspect) may have located other relevant documents. On the other hand, our approach made it possible to locate many relevant passages, even in documents whose central subject was not advisors and which a targeted documentary search would probably have missed.

Figure 1 Origin of the data analyzed in this document



[1] In qualitative analysis, coding consists of classifying the data collected under relevant topics for analysis (codes). In the case of a literature review, this involves identifying relevant passages in the selected documents and classifying each passage under one or more codes.

2.2 Sub-analyses

Context is important to knowledge sharing and to public policy development. Therefore, in each section of this document, we have sought to determine whether the data reveal situations that vary according to country[2] or according to the level, branch and sector of government in which the advisors under study work (see Box 1). We also tried to distinguish between knowledge-sharing situations related to public health policies and those related to health care policies. Additionally, where the data found were precise enough, we examined whether the type of advisor is a significant variable (we discuss the details of this aspect in Chapter 3). Finally, we attempted to verify whether the statements of advisors are confirmed by the statements of other actors studied (policy makers and scientists) or by the observations of the studies' authors.

Box 1 – Levels, branches and sectors of government

We have used the following categories:

- Levels of government:
  - National government.
  - Sub-national government (for example, Canadian provinces; Scotland within the United Kingdom).
  - Local government (for example, a municipality; a county; a First Nations band council).
- Branches of government:[3]
  - Executive branch (essentially, ministerial departments).
  - Legislative branch (assemblies composed of elected members or senators).

  The executive and legislative functions are more interwoven in local governments, so this distinction was not applied at this level of government.
- **Sectors of government:** for example, the health, education, or transportation sector. This aspect is reflected in the names of departments, of some parliamentary committees,[4] and of the internal departments of local governments.

These three distinct aspects may overlap. For example, in Manitoba, the department of Health belongs to the executive branch, at a sub-national governmental level, and obviously covers the health sector.

Some general observations follow from our sub-analyses. With regard to the level of government, the role of policy advisors at the local level seems somewhat different; on the other hand, there appear to be no differences between the national and sub-national levels, so they will no longer be distinguished in this document. Advisors working in the legislative branch differ from most of those working in the executive branch with respect to several aspects. One might expect the health sector to distinguish itself from others because of the evidence-based culture inherited from medicine, but this is true only with respect to certain aspects. The data we found were not precise enough to allow us to compare the way advisors use scientific knowledge when developing *public health* policies, as

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2 The countries considered in the context of this literature review are Canada, the United States, western European countries, Australia and New Zealand.

3 The judicial branch is the third branch of government but it is not covered in this literature review.

4 A parliamentary committee is a working group composed of a small number of legislators studying projects related to a specific sector.

compared to *health care* policies. We observed differences between countries and between the statements of the various actors studied only with respect to certain points. All of the particularities revealed by the sub-analyses are presented section by section.

What the literature does not say: The data we found are predominantly focused on departmental public servants. Data on advisors in ministerial offices, in the legislative branch, and in local governments are rare.

2.3 A few caveats

First, the comments of the advisors surveyed suggest that, often, their definition of scientific knowledge covers more than research and includes, among other things, the expertise held by certain professionals. We have adopted this openness as well: on this specific aspect, our criterion for selecting a document was whether it dealt with the sharing of knowledge that political actors *consider* to be scientific (Morestin, 2015b). However, most of the studies we found follow a more restrictive approach: they focus on how those in political circles relate to *research* data or *researchers*. That said, since many advisors have an inclusive view of scientific knowledge, it is likely that the analysis presented in this document also applies, at least to some extent, to “expertise”-type knowledge such as that held by public health professionals.

Secondly, as shown in Chapter 3, there are several types of advisors, who play different roles in different contexts, which in turn influences their behaviour toward scientific knowledge. Nevertheless, not all the studies we found detail well enough which type or types of advisors were under study, which sometimes limited our analysis.

Thirdly, it is possible that the advisors who agreed to participate in the studies are more interested by the topic of knowledge sharing than those who did not respond. Their statements may not be representative of the views of all their colleagues.

Lastly, a literature review that incorporates qualitative data, as is the case here, paints a mosaic portrait: findings on some aspects are based on extensive surveys, while others emerge from the statements of only one or two respondents. In the latter case, it is impossible to determine whether this is because their case is an exception, or because the aspect they refer to simply has not been explored in other studies. Throughout the document, we have made an effort to indicate in text boxes which aspects are insufficiently or not at all covered by the data found in the literature. Moreover, it must be understood that this type of literature review aims to shed light on a subject, rather than to produce firm conclusions. We also invite readers to exercise caution when considering the statements of advisors and other actors included in the text or in footnotes to illustrate and enliven our analysis. Because every context is unique, readers should reflect on their own context rather than assume that what emerges from the literature necessarily applies in their case. This is why, although we point to a few conclusions in this document, we mainly propose questions for reflection.

3 Advisors: who are they?[5]

In this Chapter:

- A brief typology of policy advisors.
- An overview of their professional backgrounds.

3.1 Different types of advisors

The advisors of policy makers do not form a homogeneous group: they differ in terms of their work contexts, their missions (technical or political) and their levels of specialization.

3.1.1 ADVISORS IN THE EXECUTIVE BRANCH (MINISTERIAL DEPARTMENTS)

Most of the studies selected for this literature review deal with advisors in departments. Although these studies do not say much about the profiles of these advisors, the terms used (see Table 1) point to the existence of three broad types of advisors within departments:

- Non-managerial public servants[6] *who contribute to public policy development*—which makes them policy advisors even if they do not interact directly with policy makers. As Table 1 reveals, it is not always easy to identify these advisors by their job titles, which in many jurisdictions do not differentiate them clearly from other public servants (Bernier & Howlett, 2012; Howlett & Newman, 2010). That said, 78% to 90% of these public servants in the Canadian provincial and federal governments are grouped into formal policy units[7] (Bernier & Howlett, 2012; Howlett & Newman, 2010; Wellstead, Stedman, & Lindquist, 2009).
- Managerial public servants. This category covers a broad range of ranks, from middle management up to the most senior positions.[8]
- Political policy advisors in ministerial offices.

The fact that several types of advisors coexist in ministerial departments warrants a few clarifications. Public servants make up the **administrative component** of a department. Their mission is technical, in that their policy analyses should be based solely on their expertise, not on political considerations. In order to protect their independence from political power, they are accountable to the deputy minister–a public servant like them–, and not to the minister.

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5 To allow for a better contextualization, this chapter also relies on a few documents that are not part of our corpus on knowledge sharing, but that allow to produce a more complete picture of who policy advisors are: Assemblée nationale du Québec, 2016; L. E. Benoit, 2006; Brudnik, 2016; Craft, 2016; Dickin, 2016; Grafton, 2011; Lindquist & Desveaux, 2007; Parliament of Canada, 2016; Schofield & Fershau, 2007; Stewart & Smith, 2007; Stos, 2016.

6 In this paper, the terms "public servant" apply to any employee of a public administration, whether or not holding a *permanent* position.

7 Except for federal public servants based *outside the capital*, of which only 39% belong to such units.

8 For example, the hierarchy within the Ontario Ministry of Health in 2009 (Lomas & Brown, 2009) was composed of managers in charge of teams and units, executive directors and directors general in charge of branches, seven assistant deputy ministers, each in charge of a sector, one deputy minister, and of course, the minister, the only non-public servant in this list.

Table 1 List (non exhaustive) of terms designating advisors in the executive branch

	Non-managerial public servants	Managerial public servants	Political advisors
Canada* (Bernier & Howlett, 2012; Howlett, 2011; Howlett & Newman, 2010; Howlett & Wellstead, 2011; Lavis et al., 2005; Lomas & Brown, 2009; Ouimet et al., 2010; Ouimet, Landry, Ziam, & Bédard, 2009; Souffez, 2008; Wellstead et al., 2009).	"Rank-and-file" government employees Civil servants Professionals (Policy) analysts *Professionnels* *Professionnels experts* *Conseillers experts* *Agents de planification* *Agents de recherche* *Professionnels de recherche internes*	Top rank/senior civil servants Managers Directors Executive directors Directors general *Cadres* *Directeur* *Directeur général adjoint* *Directeur général*	Political advisors
United Kingdom (Ettelt, Mays, & Nolte, 2012; Smith, 2013a, 2013b; Stevens, 2011; Talbot & Talbot, 2014).	Civil servants Policy analysts Policy advisors at middle-ranking level	Senior civil service/servants (Very) senior officials	Special advisors
Australia (Haynes, Derrick, et al., 2011; Haynes et al., 2012; Hinchcliff, Ivers, Poulos, & Senserrick, 2010; van der Arend, 2014).	Public servants Data analysts Middle-level bureaucrats Middle-ranking staff	Managers High-ranking staff Senior executives	Ministerial advisors
United States (Bogenschneider & Corbett, 2010; Judson Finch, 2001).	Public officials Core civil service	Senior level staffers	Closest advisors [of] agency heads

* The terms (in the language of origin, English or French) are classified by country, because the common vocabulary can vary from one country to another. Some terms are not official job titles, but rather terms chosen by the authors of the documents.

Public servants located within the various branches of a department are, for the most part, subject matter specialists. On the other hand, the higher we look in the hierarchy, the more generalist are the profiles that can be found; because managers, as well as public servants within the teams that serve assistant deputy ministers and the deputy minister, must have broader views on the department's action (Lavis et al., 2005; Lindquist & Desveaux, 2007). In central agencies, that is, the ones that surround the prime minister/premier or that control the governments' finances,[9] public servants tend to display more generalist profiles, consistent with the mission of coordinating the government's action (Lindquist & Desveaux, 2007).

The minister's office is the **political component** of a department. The minister hires and fires his or her staffers at-will. Some among these staffers are assigned with the mission of providing policy advice to the minister (others carry out different tasks, such as managing communications). Contrary to public servants, it is expected that analyses produced by ministerial advisors will take political considerations into account (for instance: how consistent a public policy option is with the governing party's positions; what consequences it might have in electoral terms). A common justification for the role these advisors play is that governments are elected on political platforms, and that ministers need partisan advice to complement the non-partisan advice provided by public servants (Craft, 2016).

That said, the **coexistence of public servants and ministerial advisors** remains a controversial issue. As noted by Craft, ministerial advisors have their say not only about the political dimension of

[9] For instance: the Privy Council Office (within the Government of Canada), the *ministère du Conseil exécutif* (within the Government of Québec), Executive Council (within the Government of Saskatchewan), departments of Finance, Treasury Board Secretariats.

public policies, but also about their technical dimension, thus encroaching on public servants' territory; besides, they have a degree of access to the minister that most public servants do not have (Craft, 2016). Advisors in ministerial offices intervene in significant ways in the policy development process, for instance by transmitting instructions to public servants on behalf of the minister and, in the other direction, by integrating analyses produced by various actors, including public servants. Relationships between the minister's office and the department may be more or less harmonious. In the worst cases, ministerial advisors can interpose themselves between public servants and the minister, by blocking the transmission of policy advice produced by public servants, or by altering the content of that advice, or even by taking the liberty of giving direction to public servants without being asked to by the minister (L.E. Benoit, 2006; Craft, 2016). Thus, although there are few of them (in Canada, one may find between one and a few dozen such advisors in each ministerial office), these advisors can be very influential by comparison to the hundreds of public servants in a department. This situation may cause resentment among some public servants, especially as ministerial advisors are not only more influential than they are, but also often less qualified and less experienced—we will get back to this in the next section of this document (L.E. Benoit, 2006; Craft, 2016).

3.1.2 ADVISORS IN LOCAL GOVERNMENTS

At the local level (for example, within municipal administrations), there are many organizational models. But generally, there are non-managerial and managerial public servants (see, for example, Percy-Smith et al., 2002, regarding local governments in the United Kingdom). Additionally, in some jurisdictions, policy makers are entitled to hire one or more political advisors of their choice—however we found no such instance in our corpus. The existence of political advisors is not widespread in local governments, and where they do exist, usually there are not many of them. Consequently, public servants in local governments enjoy a greater monopoly over policy advice than do departmental public servants (Stewart & Smith, 2007). How specialized public servants are at the local level can vary significantly depending on the size of the government: the smaller it is, the wider the range of policy areas that each public servant has to handle.

3.1.3 ADVISORS IN THE LEGISLATIVE BRANCH

Those who assist policy makers in the legislative branch are, for the most part, **political advisors**. Like ministerial advisors, they are hired and fired discretionarily, as legislators please. In some legislative bodies, each legislator has his or her personal policy advisors; in others, this function is performed by staffers in caucus research offices; in others yet, for instance at the House of Commons in Ottawa, both types of advisors exist (Assemblée nationale du Québec, 2016; Dickin, 2016; Grafton, 2011; Parliament of Canada, 2016).

The **size of teams** of advisors can vary considerably depending on the resources a legislative body grants either to caucuses or to legislators to hire advisors. Some legislative bodies have more resources than others, and some allocate resources among legislators based on criteria (for example: size of constituency, number of members of the caucus, being the chair of a parliamentary committee or holding another special position within the legislative body) (Bogenschneider & Corbett, 2010; Dickin, 2016; Grafton, 2011; Jewell & Bero, 2008). For instance, each elected member in the United States House of Representatives may employ up to 18 full-time staffers (Brudnik, 2016). On the other hand, 80% of American state legislatures operate part-time and grant legislators few resources for staff (Jewell & Bero, 2008). As for Canadian members of Parliament, each of them typically has 6 to 8 staffers, some being part-time employees, and only one or two qualifying as policy advisors—the others manage constituents' issues and communications (Dickin, 2016).

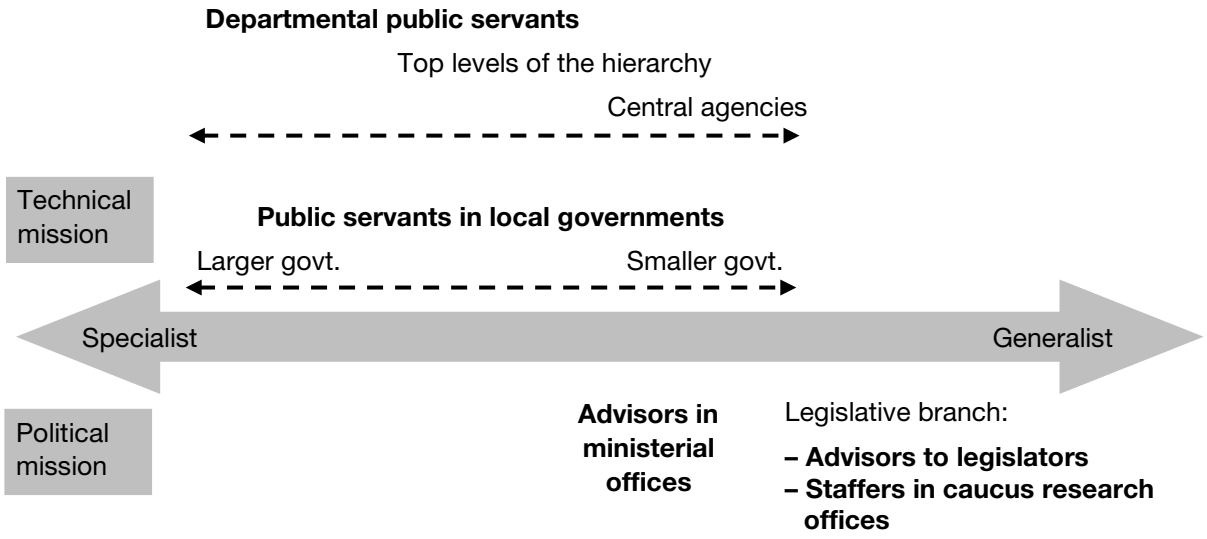
The **mission** of policy advisors of legislators is clearly of a political nature: a major part of their work is to brief legislators for question period in the House, during which opposition parties confront the government (Dickin, 2016). These advisors can also play a role that is less focused on the short term, by participating in the development of private member's bills (Dickin, 2016; Stos, 2016). However, the magnitude of this role varies depending on the political system: in parliamentary systems (like those found in Canada), public policies are developed mostly in ministerial departments, rather than through initiatives in the legislative branch; on the other hand, such initiatives carry more weight in presidential systems, like that of the United States at the federal level (Haynes, Gillespie, et al., 2011). In this regard, it should be stressed that the studies in our corpus that deal with advisors in the legislative branch are all from the United States.

The legislative branch requires generalist **profiles**, since legislators (and thus their advisors as well) have to deal with all kinds of topics, as expressed by this advisor in the United States Congress: "My boss has to go from Iraq to immigration to farming to ethanol to then doing something on nutrition for infants" (Gilson Sistrom, 2008, p. 95). At best, in larger teams, the responsibility for specific policy areas may be distributed among advisors. Even then, their work remains of a more generalist nature than that of political advisors within a ministerial office, which is at least circumscribed by the department's mandate. That said, in certain legislative bodies, there are advisors attached to parliamentary committees, who are more specialized than the others (Brownson et al., 2011). In some legislative bodies (for instance, in the United States Congress) they are partisan advisors, whereas in others they are non-partisan staff employed by the legislative body (as is the case, for instance, in the Legislative Assembly of British Columbia; Schofield & Fershau, 2007).

Certain legislative bodies also employ **non-partisan research staff** whose services may be requested by all legislators. However, compared to other types of advisors, these staffers have a less central role in the policy development process (one reason being that they simply do not exist in certain legislative bodies, and in others there are too few of them to adequately fulfill this role); thus, we do not deal with this type of advisor in this paper.

Figure 2 provides a recap of the major types of advisors. At this point, one may already perceive that their respective features influence the way they handle scientific knowledge. We strive to refine this analysis in the remainder of this paper—insofar as possible, since most of the studies we found do not provide much detail about the profiles of the advisors under study.

Figure 2 Major types of advisors, by mission and level of specialization



What this means for public health researchers and professionals:

- Regarding your current or potential contacts among advisors: do they provide policy advice of a technical and/or political nature? In the context of their work, do they dedicate themselves to exploring one policy area in detail, or do they deal with several policy areas at once? Is there a hierarchy among advisors in their work environment, and if so, where are they positioned? Were they appointed by the policy maker?
- As Table 1 shows, commonly used words and even some job titles may lack precision. When you try to locate advisors in a governmental organization, inform yourself about the mandates of the different teams, and about job titles and their associated tasks and responsibilities: they may not be identical to those that you have observed in another organization.

3.2 Advisors' professional backgrounds

Knowing the background of the person you are addressing allows you to choose an appropriate knowledge-sharing strategy. Therefore, we will examine the training and professional experience of advisors, focusing in particular on factors that may indicate a familiarity with the scientific approach and thus a better understanding of scientific knowledge. The backgrounds of advisors in the executive branch, in the legislative branch and in local governments are considered.

3.2.1 IN THE EXECUTIVE BRANCH

What are the backgrounds of departmental public servants?

Advisors who hold a master's or doctoral **degree** were familiarized with research data and methods as part of their university training. According to extensive surveys, this is the case for 41% to 56% of public servants who contribute to public policy development in Canada, and this percentage is slightly higher (60%) in the health sector (Bédard & Ouimet, 2012; Bernier & Howlett, 2012; Howlett & Newman, 2010; Ouimet et al., 2009; Wellstead et al., 2009).

The **discipline** in which one has been trained is another factor to be taken into consideration: advisors trained in a related discipline can be expected to have a better understanding of public health knowledge. However, only 3% to 4% of provincial public servants in Canada are trained in health sciences or in medicine (Bédard & Ouimet, 2012; Howlett & Newman, 2010; Ouimet et al., 2010). Although it is likely that another small percentage of public servants have been trained in other disciplines related to public health, the vast majority are unfamiliar with the field.

Another observation concerning disciplinary training in both Canada and Australia is the predominance of public servants with a generalist, process-oriented profile (with training in political science, business management, or public administration) to the detriment of subject experts (with training in health, engineering, natural sciences, etc.) (Howlett & Newman, 2010; van der Arend, 2014). Yet, Canadian public servants who participated in large surveys think that specialized expertise is required for the issues on which they work (Howlett & Wellstead, 2011; Wellstead et al., 2009). As outlined earlier, it is common to find generalists in central agencies or in a department's hierarchy; however, the studies cited here did not focus on these special cases. As expressed by a public servant in the Australian study, "most senior staff and staff who actually do the policy work are policy generalists", and other respondents said they had observed "a trend towards more generalist recruitment" in recent years (van der Arend, 2014, p. 624).

What **career path** do public servants follow? In Canada's provincial governments, nearly 40% of them have been engaged in public policy development for less than five years (Bernier & Howlett, 2012; Howlett & Newman, 2010). Thus, they have acquired other professional experience previously. Studies of Canada, Australia, the United Kingdom, Ireland, Germany and Finland indicate that some public servants, especially some of those working in health departments or on public health issues, have previously worked in academic or research environments (Ettelt & Mays, 2011; Smith, 2013a; Young et al., 2014). Among Canadian public servants (all government sectors combined) 17% to 30% possess this type of experience, as do 28% of Australian public servants in the human services sectors (Bernier & Howlett, 2012; Head, Ferguson, Cherney, & Boreham, 2014; Howlett, 2011; Howlett & Newman, 2010; Wellstead et al., 2009).

And yet, do **human resources policies** promote the recruitment and training of public servants with a scientific profile? We found anecdotal evidence indicating that such a profile is important to some policy makers (Judson Finch, 2001; Souffez, 2008). However, it can be assumed that in most cases, it is not a priority, given that public servants with that kind of profile are a minority in most departments. As a matter of fact, in the Australian study cited previously that notes a trend towards generalist recruitment, public servants also stress that research positions and units within the public service have been eliminated and that less emphasis is being given to research training (van der Arend, 2014). Half of Australian public servants in the human services sectors report having undertaken "research-skills" training (one may wonder whether "research" here refers to scientific research, or simply to researching information) (Head et al., 2014). On the other hand, a large majority of these public servants are not satisfied with the provision of training in collecting and analyzing policy-relevant information in their department, and they say that they develop their research skills through learning on the job (Head et al., 2014).

Ultimately, what are the perceptions in government spheres of public servants' **skills** in handling scientific knowledge? Some see limitations. For example, in a survey of public servants in the Québec government, 74% of respondents said they were not familiar with the concept of evidence-based public policy development, and this was one of the areas in which they would like training[10] (Bernier & Howlett, 2012). For their part, some Australian public servants lament the fact that the ability to understand and use research data has diminished among public servants involved in policy development, while linking this to the fact that more and more of these public servants are generalists: "Use of research is very superficial and instrumentalist, without an understanding of the real issues or debates in the field" (van der Arend, 2014, p. 624).

However, the vast majority of respondents in the same Australian survey claim that they and their colleagues possess the skills needed to collect and analyze policy-relevant information (Head et al., 2014). In the same spirit, interviews with senior public servants and ministerial advisors in the health sector in Canada and the United Kingdom reveal, first, that most of them believe that the public servants in their departments have the expertise required to provide informed advice; and second, that in general, they themselves do not express strong expectations for this advice to be informed by research evidence (Lavis et al., 2005). It can be inferred that they do not think that public servants need skills in processing scientific knowledge in order to effectively fulfill their duties.

What about advisors in ministerial offices?

The case of ministerial advisors is particular, since they are chosen by policy makers personally. Often, issues raised concern their qualifications in general, not to mention their skills in handling scientific knowledge. Indeed, at least in Canada, many ministerial advisors are young, inexperienced,

[10] These data should be treated with caution because 44 out of 130 respondents failed to answer all of the survey questions; in addition, some departments were over-represented among respondents.

and lack the specialized qualifications relevant to the mandate of “their” departments (L.E. Benoit, 2006; Craft, 2016). One reason is that it is difficult to attract more experienced candidates to this position with no job security (a ministerial advisor may lose his or her job at the same time as the minister, or at any time if the latter decides to fire him or her, whatever the reason) and whose demanding work schedule and pace require a lot of energy (L.E. Benoit, 2006).

In our corpus, we found indications about the profile of ministerial advisors in two cases only, and very distinct ones, although they both concerned the health sector. One respondent working for the United States federal government explained that sometimes, election campaign donors or volunteers are appointed as ministerial advisors post election, even if they have no experience in the health sector (Judson Finch, 2001). On the other hand, in Australian states, some political advisors in ministers’ offices were found to be former public servants (Haynes et al., 2012). This anecdotal evidence echoes similar observations made in Canada: on the one hand, ministerial advisor positions are often offered as a reward to political loyalty, rather than based on merit; nevertheless, some ministers do strive to recruit better qualified candidates (L.E. Benoit, 2006).

3.2.2 IN THE LEGISLATIVE BRANCH

As is the case with their counterparts in ministerial offices, political advisors in the legislative branch are often criticized for their inexperience and lack of qualifications. Indeed many of them are young, and perhaps that can be explained by the fact that the job is unstable and the long working days often unfold in an emergency mode, requiring a lot of energy (Dickin, 2016; Stos, 2016).

In our corpus, we found little data on the backgrounds of advisors to legislators, and what we did find came from one study of the American Congress focused on a particular case: nurses by training who hold positions as advisors (Judson Finch, 2001). Some had prior clinical or research experience, but their case is not representative of other advisors of legislators. However, two of the respondents commented on the profile of other advisors. Noting that even very young graduates obtain positions advising legislators, they questioned the inclination and ability of the former to use data based on research or surveys. One of these two respondents stated that prior experience working in the executive branch (such as she had) is essential, so that one can become familiar with reliable data sources before becoming a congressional advisor: "no one should work up here, on the Hill, who hasn't had experience in the executive branch [...] If you come here right out of school, if you come here 'cause it's a quickie job, what happens to you is that things move so fast that you are at the mercy of the best lobbyist that comes in. Because you don't know the stuff and you don't have the time to" (Judson Finch, 2001, p. 110).

3.2.3 IN LOCAL GOVERNMENTS

The scarce data found come from an extensive study of local governments in the United Kingdom and provide a contrasting portrait. In some governments, the public servants whose work involves handling research data possess the required skills, and some are even recruited specifically for this; but in others, the dominant perception is that "*anyone can do research*" and public servants who do not always have the required skills are being asked to collect and analyze research data, or even to supervise their production (Percy-Smith et al., 2002).

What this means for public health researchers and professionals:

- Do the advisors with whom you plan to make contact have professional backgrounds that make them familiar with scientific knowledge? With public health?
- Do you adapt your discourse or your writing to take into account the background of the person you are addressing? If you are unsure of their background, it is safer to proceed as though they are unfamiliar with the topic presented.

What the literature does not say: The data we found do not describe in much detail the backgrounds of advisors in ministerial offices, in the legislative branch, or in local governments.

4 Advisors: what do they do?

In this Chapter:

- An overview of the tasks performed by the advisors of policy makers.
- An exploration of their tasks that involve scientific knowledge:
  - But first: what use do they see in such knowledge?
  - Seeking scientific knowledge
  - Examining and sorting it
  - Translating it to fit the needs of political circles
  - Conveying scientific knowledge in these circles.
- The initiative taken by advisors.

4.1 Overview

Presented below is an overview of the tasks carried out by advisors working in various contexts: in the executive branch, the legislative branch, and local governments.

4.1.1 IN THE EXECUTIVE BRANCH

What public servants do

The data we found mainly concern departmental public servants who contribute to the development of public policy. Their mission (as with all other types of advisors, actually) can be summarized as follows: provide the best possible advice to policy makers, and then implement their decisions (Waddell et al., 2005). Concretely, this breaks down into multiple tasks: detect and monitor problems, perform strategic analyses (including environmental scans), network with and consult various actors, collect raw or research data, carry out research or evaluations, commission research, analyze data, develop projections or scenarios, develop public policy options, provide policy advice, prepare budgets, develop service or program plans, implement these plans, network with various actors, and represent their team in meetings, seminars, conferences or on committees (Bernier & Howlett, 2012; Haynes et al., 2012; Jewell & Bero, 2008; Kemper, 2003; Lomas & Brown, 2009; Souffez, 2008; Stevens, 2011; van der Arend, 2014; Wellstead et al., 2009).

Extensive surveys performed in Canada reveal that, generally, any given public servant does not carry out all of these tasks but instead focuses on a few (Howlett & Wellstead, 2011; Wellstead et al., 2009). In addition to this division of labour among individuals, there often exists a division of labour among various departmental units. For example, 70% of federal public servants based in Ottawa say they carry out research and analysis tasks, compared to 56% among those who work in federal offices located elsewhere in Canada. Inversely, a higher proportion of the latter devote their efforts to implementing public policy (Wellstead et al., 2009).

The category of **managerial public servants** in departments encompasses various profiles, ranging from mid-level managers to the deputy minister. The studies we found do not provide much detail about their respective tasks, but suggest that they differ. For instance, in Canada, some unit managers (mid-level managers) perform some policy development tasks similar to those of non-managerial public servants (they probably devote less time to such tasks, however, since they must

also perform administrative tasks). What distinguishes them from non-managerial staff is that they have more interactions with senior administrative levels, especially for providing briefings and policy advice (Howlett, 2011; Wellstead et al., 2009). As for directors and directors general, they undertake tasks that are very different from those of non-managerial public servants (Wellstead et al., 2009). Two Australian studies mention (without further detail, however) some tasks of senior public servants: determining policy development priorities, negotiating support from stakeholders, giving ministerial advice, solidifying leadership support for a given option, securing resources, and directing policy implementation (Lewig et al., 2010; Milat et al., 2014). Apparent through these tasks is the role senior public servants play in directing the work of their teams, then in conveying the analyses produced up to the minister and in working on getting proposals adopted and implemented.

What ministerial advisors do

The studies found for this literature review do not say anything about the tasks of advisors in ministerial offices. Here, we mention a few points drawn from documents we referred to in Chapter 3 that are not part of our corpus. These documents give an overview of the tasks these advisors perform at the federal level and in some provinces in Canada. In the policy field, ministerial advisors consult stakeholders about their preferences and reactions to options being considered; they analyze whether the options put forward by public servants are consistent with the policy positions of their ministers; they analyze the political risks and benefits of these options; based on this, they brief and advise the minister (L.E. Benoit, 2006; Craft, 2016). In certain jurisdictions and at certain times (because governments may choose different operating modes), advisors from various ministerial offices may collaborate with each other and with the Premier's or Prime Minister's office to coordinate policy development at the level of the whole government (Craft, 2016).

In addition to these tasks on the political front, ministerial advisors perform other tasks that intersect with those of public servants, which are of a technical nature. Ministerial advisors monitor the departmental policy development process, they transmit instructions to public servants on behalf of the minister, they discuss with them the policy options being considered (L.E. Benoit, 2006; Craft, 2016). In principle, ministerial advisors do all this in collaboration with senior public servants; nevertheless, these interventions of political advisors in the work of technical advisors generate debates about the demarcation of roles (L.E. Benoit, 2006). That said, the extent of the role ministerial advisors play in policy development can vary. For instance, in Canada, this role is significant at the federal level—where ministerial offices are larger—but less so in some provinces in which each minister has no more than one or two partisan advisors. For example, Craft observed that in New Brunswick there is more direct contact between ministers and public servants, without mediation by ministerial advisors (Craft, 2016).

4.1.2 IN THE LEGISLATIVE BRANCH

The data found originate from the United States. They indicate that advisors of legislators perform tasks such as gathering information, drafting statements[11] for their legislator, drafting bills, monitoring public policy implementation, and for those advisors involved in supporting the work of legislative (congressional, senatorial, etc.) committees, organizing hearings,[12] which can include participating in the selection of the persons called to testify (Brownson et al., 2011; Judson Finch, 2001). These data show that one advisor may work on many facets of public policy development. It is not surprising that in the legislative branch, where advisors are far less numerous, we do not find a division of labour like that found among public servants within a department.

[11] On sitting days, a period is open to legislators who wish to make a short statement concerning a topic of their choice.

[12] During these hearings, legislators listen to the perspective of "witnesses" (experts or stakeholders) on a topic.

4.1.3 IN LOCAL GOVERNMENTS

The data we found depict the role of mid-level managers involved in public health policy in a large city in the United Kingdom (Oliver et al., 2013; Oliver, Everett, Verma, & de Vocht, 2012). These managers organize and conduct meetings and draft their agendas and minutes; they develop networks and alliances; they search for, analyze and convey evidence; they provide public policy options to policy makers. Through these tasks, like the advisors of legislators in their own context, they personally contribute to many aspects of public policy development. Here again, the difference with a department is that the spheres within which these local public servants work comprise much fewer advisors. This is the case even within a local government that is quite large, as in the studies cited here, as long as only the internal departments that have some relation to public health are being considered.

What this means for public health researchers and professionals:

- It is to be expected that advisors are more interested in knowledge (scientific or other) that can help them perform their tasks.
- Regarding the scientific knowledge you wish to share: which task(s) of advisors listed in this section can this knowledge assist with?
- Do the advisors you are planning to approach perform these tasks? If not, it would be preferable to target other advisors.

What the literature does not say: We found limited data on the tasks of advisors in the legislative branch and in local governments: what is the situation in other countries and for other types of advisors working in these contexts?

Collecting and analyzing information is a core task for many advisors. It remains to be seen to what extent scientific knowledge is a kind of information they use, and how they use it.

4.2 Tasks involving scientific knowledge

Here we examine the reasons that advisors may be motivated to use scientific knowledge, and then describe, in logical order, the tasks involved in processing this knowledge: advisors (at least, some of them) seek, examine, and "translate" scientific knowledge, adapting it to the needs of political circles, and then convey it to other political actors.

4.2.1 SCIENTIFIC KNOWLEDGE, WHAT FOR?

This is the first question to raise, because if advisors have no idea how scientific knowledge will be useful to them, it is unlikely they will seek it. This subsection describes the circumstances under which they use such knowledge and the objectives they seek to achieve through its use: perform their work more effectively, brief or persuade others, draw on the credibility of scientific knowledge, and demonstrate their proficiency at using it. In pursuing some of these objectives, advisors instrumentalize scientific knowledge.

Firstly, **under what circumstances** do advisors use scientific knowledge – if they use it? The answers we found originate primarily from public servants in departments, and marginally from those

in local governments. Some among them are managers, and they seem to allude to their own tasks in some cases, and in others, to those of public servants within their teams. Public servants mention using scientific knowledge in the context of performing analyses, strategic planning, developing recommendations and, very broadly, policy making (Bernier & Howlett, 2012; Bickford & Kothari, 2008; Judson Finch, 2001; Lavis et al., 2002). They also report using scientific knowledge to inform the main stages of public policy development:

- Setting the agenda, i.e., determining priorities that require public intervention;
- Developing a new policy, from the inception of an idea to the development of a rationale to the formulation of a policy;
- Planning for implementation; and
- Monitoring and revising existing policies

(Bernier & Howlett, 2012; Bickford & Kothari, 2008; Haynes, Gillespie, et al., 2011; Haynes et al., 2012; Judson Finch, 2001; Lomas & Brown, 2009; Milat et al., 2014; Percy-Smith et al., 2002; Souffez, 2008).

However, it seems that scientific knowledge is most often used to inform the development of new public policies than to set the policy agenda or to evaluate policies (Campbell et al., 2009; Lomas & Brown, 2009).

One of the objectives of advisors who use scientific knowledge is simply **to perform their work more effectively**. Comments in this regard originate primarily, again, from public servants. They rely on such knowledge to:

- Identify emerging problems,
- Verify whether their reading of situations is correct,
- Expose themselves to new ideas,
- Explore a new field of activity,
- Verify and compare the effectiveness of public policies being considered,
- Avoid duplicating previously attempted approaches,
- Verify the arguments presented to them by others[13] (one study seemed to suggest that some ministerial advisors use scientific knowledge to this end, like public servants), and/or to
- Concretely plan the implementation of a policy.[14]

All of this allows advisors to back up their recommendations to policy makers and to present those recommendations with more confidence (Haynes, Gillespie, et al., 2011; Judson Finch, 2001; Lomas & Brown, 2009; Percy-Smith et al., 2002; Souffez, 2008).

Some of the public servants who care about relying on scientific knowledge in order to better perform their work express great openness, claiming to allow scientific knowledge to orient their positions (Waddell et al., 2005). Some specify that this is possible particularly in certain contexts: early in the policy-development process, when public servants are still comparing various options; or, even more

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[13] For example: “We ... asked Professor X to come in and speak to the minister and other organizations to test what the [NGO] had said to us” (departmental public servant, health sector, Australia; Haynes, Gillespie, et al., 2011, p. 574).

[14] For example: “We worked with Professor Y because he can absolutely come and tell you what every part of your intervention needs to look like. How many times a week they need to come, how long they need to perform, all those sorts of things” (departmental public servant, health sector, Australia; Haynes, Gillespie, et al., 2011, p. 574).

so, when a minister wishes to undertake a significant reform, and thus the department's agenda is being redefined and there is openness to considering brand new policy approaches (Haynes, Gillespie, et al., 2011; Haynes et al., 2012). On the other hand, other public servants point out that most of the time, public servants and ministers alike are resistant to redefining the agenda, because the government cannot act on all the matters that external actors bring before it (Lomas & Brown, 2009).

Certain advisors (mostly public servants, it appears, although not all studies are clear in this regard) use scientific knowledge not only to support their own tasks, but directly in the aim of **briefing others**: in the first instance, the policy makers for whom they work, but also other advisors, or members of working groups (Haynes, Gillespie, et al., 2011; Petersen et al., 2007; Petticrew, Whitehead, Macintyre, Graham, & Egan, 2004; Souffez, 2008). Advisors who mention this objective ascribe to themselves a neutral role: they say their purpose is to bring the knowledge to the attention of such persons (at most, to prompt them to reflect on it), to explain the subject to them, or to prepare them to speak publicly about it[15] (Gilson Sistrom, 2008; Haynes, Gillespie, et al., 2011; Petersen et al., 2007; Petticrew et al., 2004; Souffez, 2008).

In contrast, advisors indicate that in other cases they use scientific knowledge or call upon researchers so as **to persuade policy makers** to consider (or not consider) a problem, or to adopt (or not adopt) a public policy. Besides one advisor to a legislator, those who mention such use of scientific knowledge are departmental civil servants (Haynes, Gillespie, et al., 2011; Judson Finch, 2001; Stevens, 2011; Waddell et al., 2005). This kind of initiative will be discussed further in section 4.3 of this document.

Another goal of advisors is **to draw on the credibility of scientific knowledge** to give their proposals an aura of trustworthiness and objectivity (Haynes, Gillespie, et al., 2011; Jewell & Bero, 2008; Souffez, 2008; Stevens, 2011). To whom do they wish to demonstrate this? Within their own organization, to their policy maker or to other advisors; elsewhere in the government, to other agencies that have a say in the decision, such as the Treasury Board; outside the government, to stakeholders trying to influence the decision or to the population—in the latter case, this often involves trying to convey messages through the media (Bickford & Kothari, 2008; Haynes, Gillespie, et al., 2011; Haynes et al., 2012; Humphreys et al., 2010; Oliver et al., 2013; Stevens, 2011). We found this concern among various types of advisors: ministerial advisors, managerial and non-managerial public servants in departments and in local governments.

Essentially, the aim of these advisors is to demonstrate that the proposal put forward is not only being promoted by them (or their organization, or the government as a whole), but also by the scientific community[16] (Haynes, Gillespie, et al., 2011; Haynes et al., 2012; Humphreys et al., 2010; Lomas & Brown, 2009; Oliver et al., 2013). In certain cases, the aim is to counter criticism or the demands of external actors, by demonstrating that their arguments do not stand up to "what

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15 For example: "We have literally taken presentations of what TEAL [research project] has done and … summarized them to brief the Governor [and] our Executive Director so he can say the right things when going to talk to committees in the Legislature" (advisor [type not specified], executive branch, United States; Petersen et al., 2007, p. 252).

16 For example: "Having credible information from groups like Allen's [consulting group], when the credibility within your own government area is low, is important—you get greater traction in Treasury with someone external" (departmental advisor [type not specified], Australia; Humphreys et al., 2010, p. 156).

"As an adviser, often it is your role to call people and say, "Look, we're going to make an announcement tomorrow; this is what we're going to say. The premier would love if you could be interviewed. Are you supportive?"" (ministerial advisor, Australia; Haynes, Gillespie, et al., 2011, p. 579).

"One civil servant pointed to the tremendous value in having someone "with a white coat that is not the government saying, 'It's OK to drink the water' or 'this vaccine works'"" (departmental public servant, health sector, Australia; Haynes, Gillespie, et al., 2011, p. 580).

research shows"[17] (Bickford & Kothari, 2008; Haynes, Gillespie, et al., 2011; Lomas & Brown, 2009). To boost credibility, rather than present data themselves, advisors sometimes invite researchers to intervene in person, provided that these researchers know how to communicate clearly and convincingly (Haynes, Gillespie, et al., 2011).

In certain contexts, advisors (public servants, in the cases we found) feel that using scientific knowledge is an **obligatory step**. Entire governments, for example that of the United Kingdom in the 2000s, have made it a principle to base their decisions on evidence. This situation may also exist in a department, often when spearheaded by the minister or senior public servants (Lomas & Brown, 2009). In such contexts, public servants may feel they have to demonstrate their ability to handle scientific knowledge in order to consolidate their professional reputations (Stevens, 2011).

Already, some of the objectives described above imply some degree of **instrumentalization** of scientific knowledge by advisors of all types. Some advisors admit that they themselves or other advisors (in the cases cited, advisors to legislators and managers in municipal governments) sometimes push instrumentalization to the extreme, using knowledge simply to justify a pre-selected course of action[18] (Judson Finch, 2001; Percy-Smith et al., 2002). Indeed, we can expect that kind of behaviour to be quite common in political circles, although it is likely that not all concerned actors are ready to admit it.

By way of conclusion, let us stress that advisors may use scientific knowledge to pursue several goals at once.

What this means for public health researchers and professionals:

- Can you determine what might motivate the advisors you wish to approach to use scientific knowledge?
- Based on your assessment of the possible consequences for you and/or your organization, do you deem it acceptable to support them in their endeavour? If so, you should indicate to these advisors how the knowledge you are presenting can help them reach their goal.

[17] For example: “The media are going to ask and the critics are going to say, well you know my restaurant profits are going to drop, so then… [we] look at the American experience, and then put together the sources for the information and it’s something we could then take to the media and say ‘Well in fact, here’s what the latest research shows about what happened in other jurisdictions when legislation was brought in to go Smoke-Free’. So that enhances our credibility significantly” (departmental public servant, Canada - Ontario; Bickford & Kothari, 2008, p. 299).

“The particular value of having researchers on committees ... is that they are the independent voice who will face down the community reps that will otherwise come at me with very naive suggestions as to what [we] should be doing” (departmental public servant, health sector, Australia; Haynes, Gillespie, et al., 2011, p. 577).

[18] For example: “I've had other groups come to me and say, "would the Senator be willing to consider a bill on X?" I'd say, yes, we'd be interested, but, before we even cross the line, I need to know that the group out there is committed enough that they're going to get in there and provide me with some data. I can get it through this office. But, once I step outside this office, I need to have some data to back me up" (advisor, legislative branch, United States; Judson Finch, 2001, p. 111).

What the literature does not say: The data found do not enable us to specify whether some objectives are more frequently observed in certain types of government.

Secondly, are there particularities associated with different types of advisors? This aspect is not always well detailed in the data we found, but merits attention. For example, Australian authors suggest that public servants tend to make more technical use of scientific knowledge, while advisors in ministerial offices tend to make more strategic use of it (Haynes, Gillespie, et al., 2011).This is not surprising, given that the latter have a political mission. That said, a range of variations in the behaviour of both types of advisors most probably exists and would deserve to be explored.

Finally, the data found almost exclusively reflect the point of view of advisors; statements from other actors could shed light on other objectives pursued by advisors when using scientific knowledge.

At least some advisors see reasons to use scientific knowledge. But do all of them seek it?

4.2.2 SEEKING SCIENTIFIC KNOWLEDGE

This subsection discusses the frequency with which advisors seek scientific knowledge, the factors that explain their behaviour, and the sources they consult.

How often?

Not all advisors consult scientific knowledge, and those who do, do not do so often. Extensive surveys covering various departments in Canada, Australia and the United Kingdom indicate that the vast majority of public servants never, or only a few times per year, have any contact with researchers or with scientific data (Bédard & Ouimet, 2012; Head et al., 2014; Howlett & Wellstead, 2011; Ouimet et al., 2010; Talbot & Talbot, 2014; Wellstead et al., 2009). However, some are more active. For example, about 20% of Canadian public servants report being in contact with academic researchers every week (Howlett, 2011). And in the health departments of Canadian provinces, half of public servants (but only half) mention interacting from "sometimes" to "very often" with academic researchers and spending more than 16% to 30% of their time locating research data (Ouimet et al., 2009). With regard to the legislative branch, data from the United States indicate that research data are only exceptionally consulted; at most, advisors to legislators read media summaries of recent studies on “hot” topics (Gilson Sistrom, 2008; Judson Finch, 2001; Rigby, 2005). However, the studies cited in this paragraph are based on a narrow definition of scientific knowledge, limited mainly to research knowledge. As our discussion (below) of the sources of “scientific knowledge” used by advisors makes evident, the latter define this more broadly.

The factors at play

According to the data found, several factors can explain the more or less frequent search for scientific knowledge: its perceived value, the professional background of advisors, the division of labour in their organizations, the amount of time available and the accessibility of knowledge.

The **value** that advisors personally assign to scientific knowledge has an impact on whether or not they consult it, regardless of the type of government in which they work (Judson Finch, 2001; Ouimet et al., 2010, 2009; Percy-Smith et al., 2002). However, their assessment of its value varies; a common complaint of advisors is that scientific studies rarely focus on the issues that are relevant from a public policy perspective (see, for example, Campbell et al., 2009; Gilson Sistrom, 2008; Talbot & Talbot, 2014).

The value assigned to scientific knowledge at the organizational level appears to be even more determinant (Judson Finch, 2001; Lomas & Brown, 2009; Percy-Smith et al., 2002; van der Arend, 2014). Within departments and local governments, some policy makers or managers play an important role in shaping a favourable organizational culture, by asking public servants for scientific data, by systematizing certain practices (for example, requesting that each public policy proposal be accompanied with a form specifying the evidence on which it is based (Lomas & Brown, 2009)), by promoting the recruitment of public servants who are familiar with research, or by providing internal training in this area (Judson Finch, 2001; Percy-Smith et al., 2002). The incidental recruitment of public servants who value scientific knowledge may prompt a small change in the practices of colleagues, but the impact is not as great as when the impetus for change comes "from the top" (Judson Finch, 2001; Lomas & Brown, 2009).

However, few policy makers or senior staff members champion the use of scientific knowledge. Such knowledge is even less likely to be put to use in the legislative branch from the outset because the dynamic is one of confrontation. As one member of the opposition in the National Assembly of Québec explains, research data are less valued than strategic information which can be used to confront the governing party, and this is reflected in the type of information search missions that legislators give their advisors (Souffez, 2008). Conversely, we found statements from managerial staff in various departments which stress the importance of research data in the context of public policy development (Bowen, Zwi, Sainsbury, & Whitehead, 2009; Petticrew, Platt, McCollam, Wilson, & Thomas, 2008; Souffez, 2008). But this discourse does not always result in action. Only two-thirds of Australian public servants in the human services sectors think their senior managers value research-based analysis (Head et al., 2014).

Even in health departments, the situation is not always up to expectations. In the health departments of Canadian provinces, managers assign less value to research than do other public servants (Ouimet et al., 2009). An Australian survey found that only 42% of managerial respondents felt that their departments seriously valued the use of research to inform policy development; and ironically, 55% of them were unaware that a departmental guideline actually required public servants to verify the evidence when developing public policies (Campbell et al., 2009). Even when it exists, an organizational culture that values scientific knowledge does not always survive the departure of the policy makers or managerial personnel who shaped it (Lomas & Brown, 2009). Thus, the value assigned to scientific knowledge within an organization can evolve over time (Judson Finch, 2001).

The **professional backgrounds** of advisors might be another factor linked to their consultation of scientific knowledge, which ties in with the point made earlier that some backgrounds result in greater familiarity with the scientific approach. In the legislative branch of the United States, the few advisors who claim to read scientific studies have a particular profile that one can assume makes them more open to research (for example: a former academic, a nurse by training) (Gilson Sistrom, 2008; Judson Finch, 2001). As regards public servants in Canadian departments (of health or other sectors), studies have established an association between these public servants' having been exposed to research through university training or professional experience and their choosing to consult scientific knowledge (Lavis et al., 2005; Ouimet et al., 2009, 2010). On the other hand, a study of Australian public servants found no significant association; but the study's question concerned the *use* of knowledge, which implies further action (van der Arend, 2014).

Certain types of **division of labour** explain why some advisors seek scientific knowledge more frequently than others. Not only do policy makers entrust this task to their advisors, but often, highly placed advisors then delegate it to other advisors; this happens both in departments and on large teams in the legislative branch (Ettelt et al., 2012; Gilson Sistrom, 2008; Hollander Feldman, Nadash, & Gursen, 2001; Souffez, 2008).

The division of labour related to seeking scientific knowledge can be more or less formalized. The most formal situation is that of organizations that have an internal research unit. In other organizations that have a library, the latter's staff may assume the task of locating scientific articles (Judson Finch, 2001). But more often, the responsibility for seeking scientific knowledge falls to advisors dispersed throughout various branches of an organization, and for them it is one task among many, as shown above in the general portrait of the work of advisors.

In any case, for certain advisors to be assigned to this time-consuming task, an organization or team must have sufficient human resources. This is often an issue in the legislative branch. For example, in many American state legislatures, legislators have small staffs (Hollander Feldman et al., 2001; Jewell & Bero, 2008). The situation is the same for members of the Swiss federal legislature (Frey & Widmer, 2011).

Finally, the other factors that influence the consultation of scientific knowledge are the amount of **time available** (see Box 2 on page 33) and the **accessibility of knowledge**, which will be discussed now in relation to the sources consulted by advisors.

Advisors' sources of scientific knowledge

Here are the key findings of the detailed analysis we conducted of advisors' sources.[19] The sources to which advisors turn are either "inert" sources or, conversely, persons.

Inert sources can be classified into three groups:

1) Classic scientific sources: It seems that advisors seldom consult such sources. They rarely mention **scientific books**. **Conferences** are mentioned mainly by public servants in health departments. The heaviest users of **scientific journals** also work in these departments or in other departments whose mandate is rooted in the natural sciences. But even in these settings, scientific journals are not systematically consulted. This is even more rarely the case among public servants in other departments and among the advisors of legislators. Many advisors (even in some health departments) face obstacles: lack of access from their work station, because many organizations have no budget for subscriptions to journals or bibliographic databases; lack of skill in exploring bibliographic databases; and/or, a language barrier for non-English speakers faced with a body of predominantly English scientific literature.

2) Sources that can be qualified as "parascientific" and that seem to be more popular among advisors: This includes newsletters, the publications of certain organizations, and the media. Advisors of all types subscribe to **newsletters** that compile links to scientific resources. These newsletters are produced by their own organization or by other governmental organizations, by research centres, by thematic networks (for example: on HIV, on reducing tobacco use), etc. Some advisors inform themselves, in a similar fashion, by following these organizations on social networks like Twitter.

   Advisors also consult **documents published by certain organizations**.[20] Indeed, many of them consider grey literature to be a form of evidence and appreciate it because it is accessible free of charge (usually) and because it includes information that is often absent from scientific articles (such as concrete "how to" details). The organizations to which they turn for such documents are governmental organizations (frequently mentioned by advisors of all types,

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[19] The detailed analysis, including all supporting references, may be published subsequently. In addition to references that are also cited in other sections of this document, that analysis draws on the following references: Kothari, MacLean, & Edwards, 2009; Lavis, Farrant, & Stoddart, 2001; McBride et al., 2008; Smith & Joyce, 2012. Note that this analysis focuses on sources of *scientific* information, and not on information sources in general.

[20] Analysis documents, expert committee reports, briefs, reports produced by researchers commissioned by the government, etc.

perhaps because they are naturally familiar with these); research organizations (but these are mentioned only by health sector advisors); and even interest groups (NGOs, professional associations, etc.), which some (though fewer) among advisors of legislators and departmental or local government public servants consider to be sources of evidence despite the risk that the data presented by these groups may be biased toward their interests. Advisors locate the publications of organizations by consulting their websites or online thematic clearinghouses, or via Google searches; or, the organizations may directly send their documents to advisors.

The **media** is often cited as a source of exposure to scientific knowledge both by advisors to legislators as well as by some ministerial advisors and departmental civil servants, including in the health sector. These advisors appreciate the way the media simplifies knowledge, but are aware that if this is poorly done, it introduces distortions.

3) **Raw data** (census data, epidemiological surveillance data, service use data, etc.): Many advisors of all types (including in the health sector) include these data in the category of scientific knowledge. They use such data frequently because this allows them to conduct analyses that precisely meet their needs.

In addition, a common way for advisors to access scientific knowledge is through talking to people:

- Numerous advisors of all types say they consult **experts** and **consultants**, but often without specifying whom they include in these categories.
- **Researchers** are a common source for departmental public servants in the health and social services sectors, but are more rarely accessed by public servants in other sectors, and even more rarely accessed by advisors in the legislative branch.
- It comes as no surprise that **other government professionals** are a major source of information (scientific or other) for most public servants. Their most common sources in this category are professionals in their own organization. Their external contacts are usually limited to other organizations within their own governments.
- **Public health professionals** are mentioned by some public servants in departments or in local governments, including managers, who work in the health sector for the most part. Often, they turn to public health professionals to see how they responded to a problem, in other words to access experiential knowledge, which is rarely published.
- Some advisors consider **representatives of interest groups** to be conveyors of scientific knowledge. In the data we found, only advisors from the United States (advisors of legislators, but also public servants) expressed this position.

Advisors prefer to consult their **pre-existing contacts**. When attempting to locate new contacts, most of the strategies they use are flawed in that they do not really allow them to reach beyond their work environments' usual networks.

Advisors see several **advantages** to consulting persons rather than inert sources: obtaining an immediate response that better fits their specific information needs, expending less effort on research, getting more elaborate interpretations of the knowledge (be presented with an overview of a whole research field, get explanations for aspects they do not understand, access expert advice that complements data when these are scarce or inconclusive).

What this means for public health researchers and professionals:

- Given the factors and sources listed in this subsection, does it seem likely to you that the advisors you are targeting will locate by themselves the scientific knowledge you want them to consider? If not, take the initiative to share this knowledge with them.
- Have you approached advisors to indicate your areas of expertise and your willingness to answer their questions? If your efforts to become a part of the network of experts that they consult are fruitless, could you convey the knowledge through another expert who is already part of this network?
- Since advisors often consult each other, could you ask an advisor you already know to recommend you to colleagues or to convey certain knowledge to them?

What the literature does not say: There is a lack of data on how ministerial advisors and public servants in local governments habitually search for scientific knowledge.

4.2.3 EXAMINING THE SCIENTIFIC KNOWLEDGE FOUND OR RECEIVED

When advisors have scientific knowledge in hand (but recall that some are rarely in this situation), they must decide what to do with it. According to the data found, the first step consists of sorting the knowledge according to two criteria: its credibility and, above all, its relevance to the advisor's needs and those of his or her organization.

The credibility of knowledge

How do advisors assess the credibility of knowledge? Usually, and this is true even for advisors in the health sector, this is limited to considering the **source**: who produced the knowledge and where was it published? Knowledge generated by institutions considered to be prestigious is de facto considered credible, and even given more attention[21]; this encompasses not only certain governmental organizations, large universities and reputable scientific journals but also, for some advisors in the legislative branch, large consulting firms (Gilson Sistrom, 2008; Jewell & Bero, 2008; Judson Finch, 2001). Researchers and universities are generally considered trustworthy sources (Ettelt et al., 2012; Reh, Taymans, & Andrews, 2002). The source of funding is also an indication of credibility, either because the fact that a project was selected for funding is in itself a guarantee of quality,[22] or because advisors are trying to determine whether funding by private interests has introduced a bias[23] (Jewell & Bero, 2008; Judson Finch, 2001). That said, reactions to the risk of bias vary: some advisors reject the knowledge concerned, but others (even public servants) find it

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21 For example: "There are some organizations that are more well respected than others, if the study's coming from the WHO [World Health Organization] or from the CDC [Centers for Disease Control and Prevention] or from Harvard Medical School there's something that just by their name... you look at that one" (advisor, legislative branch, United States; Gilson Sistrom, 2008, p. 100).

22 For example: "I look at who funded the original study, because if it's the NINR [National Institute of Nursing Research] or NIH [National Institutes of Health], I generally have a feeling for the rigor of the protocols to get the proposal approved" (advisor [type not specified], executive branch, health sector, United States; Judson Finch, 2001, p. 157).

23 For example: "Whether or not that drug company hired the best darn researchers in the entire universe and allowed them to do the research and keep their hands off it didn't matter. If it was research that was, in any way, connected to, say tobacco, or to drug companies, and was paid for by the industry that was trying to make the claim, it was meaningless" (advisor, legislative branch, United States; Judson Finch, 2001, p. 118).

acceptable, provided they know the source and its motivations and they take these into account when interpreting the knowledge[24] (Ettelt et al., 2012; Gilson Sistrom, 2008).

A few rare advisors say they assess the credibility of knowledge by examining the **methods** used to produce it, including for example the size and characteristics of the sample population studied, the rigour with which the study was conducted, the plausibility of the results, their generalizability, and consistency between the results and the conclusions drawn by the authors; thus, these advisors desire access to such details[25] (Judson Finch, 2001; Sorian & Baugh, 2002). Advisors who make such comments are distinguished by the fact that they work on health issues, whether in the executive or legislative branch. Other advisors, even in the health sector, state that they do not have the skills required to assess methods (Jewell & Bero, 2008). Advisors in both branches of government, including public servants, also say they are uncomfortable with having to arbitrate between contradictory scientific data (Gilson Sistrom, 2008; Ritter, 2009), one of the reasons being that they lack confidence in their ability to interpret the reasons for the contradiction[26] (Judson Finch, 2001).

The relevance of knowledge

The data we found indicate that even more than its credibility, advisors consider the relevance of scientific knowledge to their own needs and those of their organization (Hollander Feldman et al., 2001; Jennings & Hall, 2012; Judson Finch, 2001; Lomas & Brown, 2009; Percy-Smith et al., 2002; Talbot & Talbot, 2014). With regard to this aspect, knowledge that has been spontaneously shared by external groups (vs. sought by advisors) is sorted even more selectively, especially when these groups are seeking to place a new problem on the government's agenda (Lomas & Brown, 2009).

Many advisors of all types state that they retain knowledge they can immediately put to use in **support of the work they are currently doing** (Judson Finch, 2001; Lavis et al., 2005; Lomas & Brown, 2009; Percy-Smith et al., 2002; Talbot & Talbot, 2014). As for knowledge received or found at an inopportune time, if it is not outright ignored, in the best of cases advisors file it away and may think of using it in the future if its subject matter becomes topical[27] (Gilson Sistrom, 2008; Ritter, 2009).

Beyond assessing the relevance of scientific knowledge to their own tasks, advisors assess its relevance to the **activities of their team or organization**, and to the latter's mandate or to the direction it may take (Judson Finch, 2001). This type of assessment may disadvantage knowledge that points toward cross-cutting action involving several teams or organizations. Interviews conducted by Katherine Smith in the United Kingdom indicate that public servants in health departments tend to pay more attention to knowledge that supports policy approaches that fall within the scope of their team's mandate (in other words, over which they have some control). According to Smith, this may be why, so far as the issue of health inequalities is concerned, knowledge about risk

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[24] For example: "When you are operating within your own country and you know who is saying things, you can interpret that appropriately, but when you are dealing with international individuals or organisations, it is a bit harder" (public servant, health department, United Kingdom; Ettelt, Mays, & Nolte, 2013, p. 498).

[25] For example: "I need a short summary so that I can understand the gist of the report and explain it to my boss. I need the long version so that I can fully understand the research and verify its accuracy based on my own knowledge" (advisor, legislative branch, United States; Sorian & Baugh, 2002, p. 267).

[26] For example: "Some of the studies that come out like the guy that did this really thoughtful, it appeared, analysis of the way gender and race affect your access to coronary procedures. And then it turns out that two to three months later, all the medical journals are all over him because they decided that some of his methodology was incredibly flawed. Well, if you're not a really intensive health services researcher, which of those things do you believe? Was someone offended and they looked for something to discredit him or was his study flawed at the beginning? I think that's a really difficult decision for those of us who need to use research" (advisor [type not specified], executive branch, health sector, United States; Judson Finch, 2001, p. 159).

[27] For example: "I get these great forest science research papers that are distilled with pretty pictures, but I put them in the file, I can't use them they don't mean anything to me right now" (advisor, legislative branch, United States; Gilson Sistrom, 2008, p. 101).

factors (for example, tobacco), knowledge about certain populations (for example, young children) or knowledge about medical approaches (for example, offering more healthcare services in disadvantaged areas) is more likely to be retained: such knowledge is aligned with the mandates of teams within health departments – which is not the case for knowledge that suggests cross-cutting actions targeting more structural determinants of health (Smith, 2013a, 2013b).

Sometimes, relevance is assessed on a more personalized criterion: advisors sort knowledge based on their **perception of what their policy maker "boss" wants**. It is not surprising to find this behaviour among political advisors who work closely with their policy maker, for example in the legislative branch (Judson Finch, 2001). However, studies in the United Kingdom and Australia have found that even public servants, including in the health sector, discard knowledge that does not conform to their perception of what their minister wants[28] (Hinchcliff et al., 2010; Qureshi, 2013; Smith, 2013a, 2013b, 2014).

Knowledge sorting can resemble **self-censorship** when, despite being convinced by scientific knowledge, public servants see that it runs contrary to the political context and, in particular, to existing public policies. As put by one British public servant: "I think if you always use the evidence [when it conflicts with current policy] then you're always going to be the awkward person that's saying, 'the Emperor has no clothes'" (Stevens, 2011, p. 247). In such situations, public servants, including managers, may simply discard knowledge that suggests existing policies should be changed, that runs contrary to the government's program or to the dominant way of thinking in their sector, or that demonstrates the need for new public policies that do not enjoy widespread support among the public[29] (Qureshi, 2013; Smith, 2013a, 2013b, 2014; Stevens, 2011).

Advisors are often alone in assessing the relevance of knowledge, and we will see further on in this document that they can derive some influence from this autonomy. Sometimes, however, they try to have their interpretations validated by others: by their immediate colleagues; by ministerial advisors, used as proxies by public servants for lack of being able to access to the minister;[30] or, in local governments where public servants work more closely with elected officials, directly by the latter (Judson Finch, 2001; Percy-Smith et al., 2002; Smith, 2013b; Stevens, 2011).

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[28] For example: "[Public servants] are very persuadable to different positions and they are always very, very mindful of what they perceive the Minister will like" (external policy advisor, health sector, United Kingdom; Smith, 2014, p. 570).

"If you've got a problem, [...] the first thing you do is to work back in the files and see what you said last time and then to ask one another what you think we should do and then to make a judgement about what ministers really want" (departmental public servant, health sector, United Kingdom; Smith, 2013a, p. 190).

"[Senior officials] see themselves, very often, as just there to help ministers do what they want to do" (departmental public servant, health sector, United Kingdom; Smith, 2013a, p. 186).

[29] For example: "We're not going to suggest redistribution. I know there's Richard Wilkinson's work, the examples of Cuba, the monkeys and all that. But this government is not about that. The tax and benefits system is out of our scope" (senior public servant, executive branch, United Kingdom; Qureshi, 2013, p. 6).

[30] For example: "If you can develop relationships with [ministerial advisors], it may give you insights [...] It may well be a useful way of understanding what the minister's thinking, through them" (departmental public servant, health sector, United Kingdom; Smith, 2013b, p. 93).

What this means for public health researchers and professionals:

- What is your credibility rating in the eyes of the advisors you want to reach? If it is not optimal, can you convey your knowledge through other persons or organizations that are viewed more favourably?
- What level of methodological detail do the advisors you want to reach prefer to have? Minimally, if the knowledge you are presenting seems to be in contradiction with other knowledge that circulates on the same topic, provide background information to help the advisors interpret this divergence.
- Have you analyzed whether the knowledge you are presenting ties in with the mandate or program of the governmental organization you are targeting? If this knowledge suggests cross-cutting actions (that may involve several teams within an organization, or several organizations), think of your strategy: should you approach advisors in the various teams concerned? Should you also (or rather) approach advisors with a more generalist profile, for instance public servants working in teams higher in the hierarchy that coordinate a department's action?
- Do you emphasize (to the extent possible) the connections between the knowledge you are presenting and the mandate or program of the governmental organization you are targeting?
- Do you keep abreast of what is on the current agenda of the advisors you are addressing, in order to seize the right moment to introduce knowledge?
- Although public servants may not make immediate use of the knowledge you are presenting to them because they deem the context unfavourable, they may circulate it later on, for example when other policy makers take office.
- You may also share knowledge with the advisors of legislators of opposition parties in the hopes of inserting this knowledge into the political debate and raising the awareness of those who may come to power in the future. However, it is likely that this knowledge will be used in political confrontations; have you analyzed what consequences this may entail for you and your organization, and do these consequences seem acceptable to you?

4.2.4 TRANSLATING SCIENTIFIC KNOWLEDGE

If, after reviewing scientific knowledge, advisors think it can be useful, they rarely use it in its current form. In the words of advisors of all types, the knowledge must be "translated" (Gilson Sistrom, 2008; Head et al., 2014; Judson Finch, 2001; Souffez, 2008), put in a "usable form" (Judson Finch, 2001), or "distilled into policy" (Smith, 2013a). This subsection describes what translating knowledge involves, how far it goes, and which actors are involved.

What does translating knowledge involve?

One aspect of this process literally consists of translating scientific vocabulary into **everyday language** that policy makers and other advisors can understand.[31] The advisors who bring up this aspect do not work in the health sector, which is often associated with a culture of using evidence; this raises the question of whether the need for this kind of translation is as great in that sector.

[31] For example: "I have to portray it more straightforwardly to colleagues" (senior public servant, executive branch, United Kingdom; Talbot & Talbot, 2014, p. 17).

Furthermore, these advisors express feeling a certain annoyance with scientists, whose writing obliges them to perform this translation work by their not having made a great enough effort to avoid jargon[32] (Gilson Sistrom, 2008; Talbot & Talbot, 2014).

Advisors working in all types of contexts (including in the health sector) state that a central aspect of translating scientific knowledge consists of **summarizing** it (Bogenschneider & Corbett, 2010; Bowen et al., 2009; Gilson Sistrom, 2008; Judson Finch, 2001; Percy-Smith et al., 2002; Petersen et al., 2007; Smith, 2013a; Sorian & Baugh, 2002; Souffez, 2008; Toomey, Tramel, Erickson, & Lenk, 2009). This can consist of summarizing the contents of a single study or of producing a synthesis of several documents, or (more rarely) of an entire field of study (Barreras & Torruella, 2013; Bowen et al., 2009; Haynes et al., 2012; Judson Finch, 2001; Petersen et al., 2007; Souffez, 2008). In the studies we found, the advisors who mention producing syntheses are, for the most part, public servants working in the health sector. These syntheses are not necessarily methodologically rigorous syntheses: sometimes, they are produced by simply collating data collected here and there.

Advisors and policy makers provide examples of the preferred final format, written or verbal, intended for the policy maker (this final format is often based on more detailed analyses produced by advisors for other, more senior, advisors): half a page or a page, a bullet list, a simple graphic, three sentences, or a five-minute briefing (Bogenschneider & Corbett, 2010; Gilson Sistrom, 2008; Judson Finch, 2001; Sorian & Baugh, 2002; Stevens, 2011). The idea is to keep what is essential, what the policy maker "really needs to know," because he or she does not have time to review the details of the knowledge[33] (Bogenschneider & Corbett, 2010; Gilson Sistrom, 2008; Judson Finch, 2001; Smith, 2013a; Souffez, 2008).

In terms of content, translating scientific knowledge means, for advisors, **reframing** it in two ways: highlighting what is useful (from their point of view) for clarifying issues that their organization faces or for determining how to act on these issues; and weighing the knowledge against other factors that are important to decision making – factors to which we will return, and which in principle should vary depending on whether the analysis being produced is of a partisan or non-partisan nature (Gilson Sistrom, 2008; Judson Finch, 2001; Percy-Smith et al., 2002; Souffez, 2008). The scope of this process may vary, ranging from a simple analysis of how the results of a study apply to the context of the jurisdiction in which the advisor is working (Percy-Smith et al., 2002), to the production of recommendations, sometimes specifically in the form of public policy options that advisors submit to their policy maker (Milat et al., 2014; Oliver et al., 2013).

What are the concrete **outputs of this translation process**? We found the following examples of products that were developed by advisors and that either integrated scientific knowledge or were inspired by it: reports synthesizing existing research, briefing notes, in-person briefing sessions (sometimes assisted by PowerPoint presentations), recommendation papers, fact sheets for question period in a legislative body, speeches, legislators' statements, consultation documents, bills, policy statements, and government action plans (Barreras & Torruella, 2013; Bowen et al., 2009; Gilson Sistrom, 2008; Haynes, Derrick, et al., 2011; Judson Finch, 2001; Milat et al., 2014; Percy-Smith et al., 2002; Souffez, 2008; Stevens, 2011). These outputs of the process of translating scientific knowledge take a more or less formal shape, are intended for either internal or public use, and are associated with different stages of public policy development.

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[32] For example: "Scientists could be better at communicating their findings [...] We [staffers] end up being the ones who have to translate a very scientific formulation into something we can talk to our constituents about. If somebody who knew the material could explain it that would be more helpful" (advisor, legislative branch, United States; Gilson Sistrom, 2008, p. 92).

[33] For example: "[about the Human Genome Project:] I think that is going to be a huge challenge on how we maintain that the policymakers have the breadth of knowledge to make a good decision. And yet not inundate them with the specialty information" (advisor [type not specified], executive branch, health sector, United States; Judson Finch, 2001, p. 144).

How far does translation go?

What **weight is given to scientific knowledge** in the proposals that advisors submit to policy makers? We found comments from public servants, and even from an advisor in a ministerial office, that assert the centrality of scientific knowledge, and equate this with "telling the truth" to policy makers (Bowen et al., 2009; Petticrew et al., 2008; Stevens, 2011). These advisors worked in governments that had committed to base their decisions on evidence (in the United Kingdom and Australia in the 2000s). One might therefore question whether these advisors' comments are sincere, or simply conformed to the dominant discourse.

Most of the time, scientific knowledge is, at best, only one of the factors considered, and many advisors (even in the health sector) admit this. Advisors are also concerned with the practical feasibility of what they propose to policy makers, with existing public policies, with the public's preferences, with relations between government sectors, and even with the effect on a policy maker's public image and on his or her personal feelings of accomplishment (Allender et al., 2009; Hinchcliff et al., 2010; Judson Finch, 2001; Milat et al., 2014; Oliver et al., 2013; Qureshi, 2013; Ritter, 2009; Smith, 2014). It should be noted that some of these factors are not far from political considerations, and yet they were mentioned by public servants (managers and others) in departments or in local governments. Some of these public servants would not even present to policy makers the policy options that did not match satisfactorily these quasi-partisan criteria. In theory, political advisors –not public servants—should be the ones producing this type of analysis—although in practice, drawing the line between what is partisan and what is not can be challenging.

Of course, scientific knowledge cannot be the sole basis of policy decisions, and it must inevitably be balanced against other factors. However, advisors sometimes lean so far toward compromise that they enter into the manipulation of knowledge. As mentioned earlier, advisor—even public servants—sometimes exercise self-censorship by discarding scientific knowledge that they find convincing, but that does not fit the political context. Another form of **self-censorship** practised by advisors is the deliberate reinterpretation of knowledge so as to draw conclusions which they think will be better received by their superiors. Studies from the UK on the subject of health inequalities have documented this phenomenon (Qureshi, 2013; Smith, 2013a, 2013b, 2014). For example, a senior public servant had put forward research data showing that social capital has an impact on health inequalities, while brushing aside the fact that according to these same data, the determinant factor lies elsewhere, because social capital reflects underlying social inequalities – an area into which he was less keen to venture[34] (Smith, 2007, 2013b).

Advisors also sometimes manipulate scientific knowledge for purposes of **persuasion**. Several studies point out that some advisors make a deliberate effort to "sell" their proposals to policy makers (we will return to this in section 3.3, which explores initiative taken by advisors). Thus, some advisors use scientific knowledge to justify their proposals, at times by manipulating it. While on a six-month contract as a policy advisor in the United Kingdom's public service, one researcher witnessed several forms of manipulation performed by his public servant colleagues:

- Obscuring the existence of uncertainties that current scientific knowledge cannot dispel;
- Using a study lacking methodological rigour if it demonstrates the results desired;
- Inserting references to lend an appearance of scientific credibility to a proposal, while in reality the cited documents do not contain data that support this proposal;

[34] "The idea that there is an issue of social capital, as well as financial capital, I find intriguing, to the extent that I've actually flagged it up in [a report] this year, and I've said to the First Minister that we have to be aware of this idea" (senior public servant, Executive Council, United Kingdom; Smith, 2007, p. 1443).

- Presenting an estimate that is not based on data, but which has been published previously in a government document; and
- Presenting data in such a way that they appear to support a preferred narrative (Stevens, 2011).

This same researcher observed that many of these forms of manipulation were used in combination in PowerPoint presentations and graphics prepared by these public servants: “Many policy documents transmitted between policy-making civil servants were in the form of PowerPoint ‘packs’, stuffed with bullet points, diagrams, short text boxes and simple graphs. None of these permitted lengthy discussion of the uncertain or imprecise nature of the knowledge they presented. The use of graphs was particularly interesting. In an induction session early in my field work, they were referred to as ‘killer charts’. We were taught to construct these instruments of persuasion by choosing data carefully and by restricting the number of cases and categories that were shown. The policy implications of the data should be immediately apparent from the graph alone” (Stevens, 2011, p. 243).

Ultimately, the translation of scientific knowledge often involves **eclipsing part or all of the source knowledge**. Advisors tend to eliminate details and nuances, sometimes to make the knowledge more persuasive, but often because of the need to summarize and simplify the information (Percy-Smith et al., 2002; Stevens, 2011). And often (including in the health sector), even when advisors have relied on scientific knowledge to produce their recommendations, they not include it in their presentations: thus the knowledge itself does not reach policy makers[35] (Milat et al., 2014; Percy-Smith et al., 2002; Smith, 2013a).

Who has to and who should translate scientific knowledge?

Again, it must be recalled that advisors do not all use, and therefore do not all translate, scientific knowledge. As for those that do, their remarks seem to indicate that in general, they carry out this work **alone**. Nevertheless, afterwards, their initial proposal may be shared with other advisors within their team or in other teams to be discussed, revised and validated before being presented to the policy maker (Stevens, 2011). This is part of the usual functioning of large organizations like ministerial departments. We will return to this when exploring the role of hierarchy in the way policy analyses are conveyed up to the policy maker.

To properly translate scientific knowledge, one requires both the **skills** needed to process such knowledge and a good reading of the political context (Oliver et al., 2013; Souffez, 2008). However, as was indicated in the section on the professional background of advisors, the capacity to process scientific knowledge varies from one organization to another, and even over time, depending on the importance assigned to such skills in recruitment policies and ongoing training for advisors (Judson Finch, 2001; Percy-Smith et al., 2002; van der Arend, 2014). For example, according to a survey of Australian public servants in the human services sectors, one third of those surveyed thought their department did not provide enough support for the translation of scientific knowledge (Head et al., 2014).

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[35] For example: “Most submissions to ministers are extremely short 'cause they've got a lot to do, so you wouldn't go into it [research], so it would be distilled into policy, if you like, before it actually gets to the Minister” (departmental public servant, health sector, United Kingdom; Smith, 2013a, p. 186).

"It may be that some of the civil servants get this research and then draw their own conclusions from it and then give their advice but it's not, in that sense, explicit" (minister, United Kingdom; Smith, 2013a, p. 76).

“The Minister is actually making a decision to fund a program. It’s not a conscious decision that they are scaling up… from research evidence into a state-wide program… The decision is about what advice policy makers give to the Minister and based on this advice the Minister makes a decision about whether to fund the program” (departmental advisor [type not specified] , health sector, Australia; Milat et al., 2014, p. 4).

Some advisors would like **help from scientists**. In the legislative branch, some advisors find it difficult to translate scientific knowledge and ask that it be presented to them in short, simple, "easy-to-digest" forms that they can assimilate more quickly, or even submit without change to their policy maker[36] (Gilson Sistrom, 2008; Sorian & Baugh, 2002). Some even believe it is incumbent on researchers, not themselves, to translate their research findings into recommendations for public policy action (Gilson Sistrom, 2008). The legislative context is characterized by the variety of topics that are dealt with there; the advisors of legislators cannot become specialists in all these areas, a fact which may heighten their uneasiness about processing related scientific knowledge. In addition, even more than is the case for other types of advisors, they lack time to translate such knowledge (see Box 2 on page 33).

This said, according to an Australian study, advisors in health departments also expect researchers to submit policy recommendations[37] (Haynes, Gillespie, et al., 2011). It should be noted, however, that this is a case in which advisors are *requesting* such recommendations. In a study conducted by the same authors, several interviewed researchers reported that they help public servants prepare briefing notes. This collaboration ensures that scientific knowledge is correctly interpreted, while also resulting in proposals that are relevant from a political perspective (Haynes, Derrick, et al., 2011). But in other cases, advisors have other expectations. For example, a study of a research team funded by the department of health in England stresses that the role expected of researchers is to describe and synthesize scientific knowledge, not to make policy recommendations, because this role is reserved for public servants (Ettelt, Mays, & Nolte, 2013). In interviews, senior public servants and ministerial advisors in departments of health in Canada and the United Kingdom expressed various expectations (and there was no pattern by type of advisor): some of them did not deem it relevant for researchers to provide recommendations; others wanted joint production of recommendations; and some were open to researchers making recommendations, provided that they explicitly state their personal biases (suspicion over such biases was clear in the comments made by certain advisors). What all these advisors agreed upon is that they appreciate when researchers communicate without using jargon (Lavis et al., 2005).

What this means for public health researchers and professionals:

- Do the advisors you are approaching expect you to submit recommendations? Even if this is not the case, try to facilitate their task (and to avoid involuntary errors of interpretation) by presenting knowledge in simple language, with no more detail than desired, and by highlighting connections to the issues that concern them.
- Do you see an opportunity for dialogue with advisors when they are engaged in translating scientific knowledge you have sent them? By making it known that you are available, you might be able to prevent certain reinterpretations of that knowledge.

What the literature does not say: The data we found on the manipulation of scientific knowledge originate from three studies on departmental public servants in the United Kingdom. The situation for other types of advisors and in other countries should be verified.

[36] For example: "If you give me bullets and a chart, I can 'get it' quickly and pass it on to my boss without rewriting it" (advisor, legislative branch, United States; Sorian & Baugh, 2002, p. 267).

[37] For example: "I'm saying, 'We need you to assist with the policy process.' So ... it's also to be able to stand up and say clearly, 'Do this. These are the benefits'" (departmental advisor [type not specified], health sector, Australia; Haynes, Gillespie, et al., 2011, p. 575).

Box 2 – The time issue

Advisors must comply with the **political timetable** which requires, among other things, responding immediately when a crisis occurs, taking advantage of windows of opportunity, and showing achievements in time for electoral deadlines (Davies & Rowe, 2014; Lewig et al., 2010; Souffez, 2008). As a result, the pace of their work often accelerates.

The issue of time may concern **all types of advisors**. For example, the majority of Canadian departmental public servants say they work on urgent issues weekly, or even daily (Bernier & Howlett, 2012; Howlett & Newman, 2010; Wellstead et al., 2009). Advisory positions within the public service exist precisely to ensure that ministers have immediate access to informed advice (Howlett & Newman, 2010). That said, the pace of work of advisors in the legislative branch is even faster and more unpredictable. Not only are they on the frontline to respond to their legislator's requests; in addition, there are fewer of them to do so, since they are part of smaller teams (ministerial advisors are also part of small teams, but on the other hand they can turn to departmental public servants for help with some requests). In addition, the work of advisors of legislators is more oriented toward the short term because legislative work involves dealing with a multitude of topics and moving quickly between them (Gilson Sistrom, 2008; Jewell & Bero, 2008; Judson Finch, 2001). The only ones that are somehow shielded from this functioning are the advisors attached to legislative committees, who dedicate themselves to just one, or a few, topics for an entire legislative session (Brownson et al., 2011).

Their lack of time and focus on the short term **affect how advisors behave toward scientific knowledge**. Advisors of all types comment that often, they do not have time to seek, examine or translate scientific knowledge to meet their needs, either because they are too absorbed by other tasks, or because the situation does not permit this (Campbell et al., 2009; Harris, Allen, Jacob, Elliott, & Brownson, 2014; Head et al., 2014; Judson Finch, 2001; Lewig et al., 2010; Ouimet et al., 2010; Percy-Smith et al., 2002). Departmental public servants explain that in less urgent situations, they may seek and analyze scientific knowledge more assiduously; however, many situations require a policy decision to be made within a few hours or a few days (Ritter, 2009; Young et al., 2014). In such cases, advisors need immediate access to knowledge in a form they can process quickly, and this results in disproportionate weight being given to knowledge that fulfils these conditions, as compared with other knowledge (Gilson Sistrom, 2008; Lewig et al., 2010; Souffez, 2008; van der Arend, 2014). Often, advisors (including public servants) barely skim the scientific knowledge found (Gilson Sistrom, 2008; Judson Finch, 2001; Lavis et al., 2005; Ritter, 2009) or, even when they understand the complexity of a situation and of the related data, they deliberately simplify things to favour quick solutions, because the policy makers for whom they work must demonstrate their responsiveness (Davies & Rowe, 2014).

What this means for public health researchers and professionals:

To what extent can you facilitate the task of advisors when they are working on an urgent matter? For example, by making yourself readily available to answer their questions (even if this means sharing preliminary results, because the policy decision will not wait until your project is completed), or by disseminating knowledge in an accessible format and through sources without barriers to access.

4.2.5 CONVEYING SCIENTIFIC KNOWLEDGE

Examples of outputs of the process of translating scientific knowledge, in written or verbal form, were given above. For whom are these intended? We tend to think of policy makers, but often, the persons advisors interact with are other more senior advisors. Within **departments**, the hierarchical structure plays an important role, in particular for practical reasons: a minister cannot be in contact with all staff members. Ministers only have regular contact with their political advisors and with the most senior public servants[38] (Howlett, 2011; Smith, 2013a, 2013b). The latter therefore act as intermediaries in the conveyance of analyses derived from the translation of scientific knowledge, and can choose to filter or modify these. Modifications may concern content and/or style: content, in that senior public servants add their "technical-generalist" perspective to the "technical-specialist" perspective of the public servants who produced the initial analysis (for instance, they explore how consistent the proposed option would be with the remainder of the department's actions), and advisors in the minister's office add their political perspective (for instance, they analyze what impact that option would have on the government's approval ratings); and style, in that senior advisors sometimes summarize even more the proposal that will eventually be submitted to the minister. The public servants who process scientific knowledge must therefore convince more senior advisors that the ideas they retain from it are worth being presented to the minister[39] (Smith, 2013a, 2013b).

Although the teams that **legislators** have at their disposal are not comparable in size to those in departments, a hierarchy can exist among their advisors, at least in legislative bodies that provide funding for large enough teams (Bogenschneider & Corbett, 2010; Gilson Sistrom, 2008). It can be assumed that the weight hierarchy carries also varies according to the size of **local governments**. For example, interactions between a mayor and the municipal public servants who produce policy analyses cannot be as direct in a 1500-employee municipality as in a 50-employee one.

Sometimes advisors do not themselves convey scientific knowledge, but instead call upon a scientist to do so. In the examples we found, public servants in the health or social services sectors organized meetings between researchers and ministers (Haynes, Gillespie, et al., 2011; Souffez, 2008; Waddell et al., 2005). The advantage they perceive in doing so is that researchers are the ones best able to talk about their research and to answer the questions of policy makers. However, these public servants would not invite just anyone: they take care to choose researchers that are well-respected in the ministerial office and that have good communication skills (Haynes, Gillespie, et al., 2011).

What this means for public health researchers and professionals:

- Do your contacts have direct access to the policy maker for whom they work? Would it be relevant or feasible to try to target more highly-placed advisors?
- Have you informed the advisors you are in contact with that you are available to meet their policy maker? Do you think you have the requisite profile and, if not, would another expert be in a better position to convey the knowledge for you?

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[38] For example: "It's hard to get access to [ministerial advisors] 'cause they're busy people but you probably can get better access to them than to the minister" (departmental public servant, health sector, United Kingdom; Smith, 2013b, p. 93).

[39] For example: "If you're trying to say to the minister, 'Look at this important evidence,' you wouldn't want the [ministerial] adviser going, 'What a load of old rubbish!' So it's important, from our perspective, for the adviser to say: 'It's credible and good.' So [...] we've got to think about how they'll respond" (departmental public servant, health sector, United Kingdom; Smith, 2013b, p. 93).

Advisors are sometimes driven by strategic aims to invite an expert to promote certain ideas. We therefore turn our attention now to the initiative that is taken by advisors.

4.3 Initiative taken by advisors

By definition, the mandate of advisors is to assist their policy makers. That said, how much initiative do they take? The data found indicate that behaviour varies among advisors, and one possible explanation might be their perception of how it affects their careers.

Even when carrying out the tasks that policy makers assign them and that we have described above, advisors, as any qualified professional, have a **degree of latitude**. With regard to scientific knowledge, they exercise initiative in deciding whether to seek knowledge, in choosing what sources to consult, and in establishing their networks of contacts. They are also the ones who decide which knowledge is worth retaining, and the recommendations they make to policy makers are based, among other things, on their interpretation of this knowledge (de Goede, Putters, & van Oers, 2012; Haynes, Gillespie, et al., 2011; Judson Finch, 2001; Lomas & Brown, 2009; Oliver et al., 2013; Percy-Smith et al., 2002; Smith, 2007, 2013a).

Moreover, some advisors deliberately act as **policy entrepreneurs**. We found several studies on advisors working in all types of contexts, in which these advisors or their observers describe their actions using the verbs 'sell,' 'market,' 'persuade,' 'push,' or 'influence' (Davies & Rowe, 2014; Judson Finch, 2001; Smith, 2014; Stevens, 2011). These advisors seek to place issues on the agenda, to get certain public policies adopted or even to reshape options their policy makers are considering, but that the advisors consider to be irrelevant (Haynes, Gillespie, et al., 2011; Judson Finch, 2001; Waddell et al., 2005). In pursuit of these aims, they engage in various strategies:

- Shaping the agenda of meetings;
- Presenting selected scientific knowledge at the right time, or even manipulating its meaning to a greater or lesser extent (as described previously);
- Refining their arguments so as to "[lead] the reader to the conclusion that the suggested policy [is] the only alternative that [makes] sense" (Stevens, 2011, p. 242);
- Organizing meetings between their policy maker and researchers who endorse an idea that they wish to promote;[40]
- Exploiting the media's interest or the interest of some constituents in a subject;[41] and/or
- Forming strategic alliances before submitting a proposal to ensure that other actors will support it[42]

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[40] For example: "We will often say [to researchers], "You wouldn't believe what they want us to do, but can you help in some way? [...]" ... We've had things where X [a premier] has a particular vent on a public health issue and will constantly be saying, "The Department of Health needs to ban X." ... No we don't! Millions of reasons why we don't need to... We have to drag good public health researchers into the minister's office to try to make the case" (public servant, health department, Australia; Haynes, Gillespie, et al., 2011, p. 576).

[41] For example: "You know, I could bring in a JAMA article and I could say, I think this is a real problem that might be a nice match with constituent X. We have seen this problem over the last few years, why don't we go ahead and draft a bill that does the following. You know, that would help and oftentimes persuade him [legislator]" (advisor, legislative branch, United States; Judson Finch, 2001, p. 105).

[42] For example: "If I present proposals ... I'll sound people out first [...] Make sure a few key people are cited on it and are happy with it and then you know you'll have somebody to back you up should there be any major challenge in the room" (mid-level manager, local government, United Kingdom; Oliver, de Vocht, Money, & Everett, 2013, p. 457).

(de Goede, Steenkamer, Treurniet, Putters, & van Oers, 2011; Haynes, Gillespie, et al., 2011; Judson Finch, 2001; Oliver et al., 2013; Waddell et al., 2005).

What is the **profile** of advisors who take such initiatives? Many work in the legislative branch or in local governments: contexts with—usually—smaller teams of advisors, where each person is likely to be given more responsibility. Canadian authors have also stressed that many elected officials at the municipal level do not have political advisors to provide them with analyses that may counterbalance those produced by public servants, which leaves a lot of leeway to the latter (Stewart & Smith, 2007). Within departments, the examples we found involve public servants, including non-managers. One may wonder whether there is a link with the fact that public servants have to convince more senior advisors to consider their proposals. Government sector and national culture do not seem to be determining factors. On another note, it is possible that the advisors who agreed to participate in the studies we found are more daring than average.

That said, some advisors (public servants, in the cases we found) can be proactive, but without deviating from the course of action advocated by their policy maker or government; we refer to this as **bounded initiative**. For example, during his contract as an advisor in the United Kingdom's public service, Alex Stevens observed that his public servant colleagues were very determined to promote their suggestions, but that these were aligned with the general orientation of their department. These public servants had internalized the boundaries that were not to be crossed, as this anecdote illustrates: "After I gave my views on the failures of current policies in a team meeting (views which none of my colleagues had disagreed with), Phillip [another advisor] said 'I'd love to see you say that to a minister. You'd blow their mind!' This jocular remark and the laughter which ensued reveal an implicit understanding which goes against my interviewee's comment on telling 'truth to power'. The joke implies that to tell people in power that their current narrative is fundamentally mistaken is (a) never done and (b) impossible to imagine doing" (Stevens, 2011, p. 247). A UK researcher interviewed in another study observed that the same boundaries were respected by the public servants with whom he was in contact: "they rightly say, you know, their job is to implement the government's programme, not to change society" (Smith, 2013a, p. 155). These two cases involved politicized subjects: criminal justice and health inequalities, respectively. As suggested by one of the authors, it is possible that public servants behave differently in relation to less sensitive issues (Stevens, 2011). This said, some of them believe that their role is simply to inform policy makers, not to try to influence them (Oliver et al., 2013).

Two UK studies suggest that one factor that explains initiative taking, its boundaries or its absence is the perception advisors have of its **impact on their careers**. Departmental public servants, in particular, seem concerned by this (Smith, 2014). Based on what Alex Stevens observed, to be recognized as worthy of promotion and to secure the support of their superiors in advancing their careers, these public servants must demonstrate the usefulness of their work. One of those he interviewed said that their goal is, therefore, to have their proposals, rather than those of other teams, accepted and made into public policy – hence their efforts to have these proposals stand out (Stevens, 2011). However, they discover through experience that to be accepted, these proposals must be aligned with the government's way of thinking; conversely, they feel they can face some form of punishment if their proposals meet with disapproval[43] (Stevens, 2011).

One may expect to find such career concerns to be held by the political advisor who owes his or her position to the policy maker. The fact that such concerns also exist among public servants upsets the

[43] For example: "Another civil servant [...] had been working on a policy area that had [...] been a high profile part of the government's 'agenda'. But evidence that it was not working was emerging. He reported that his boss had: "kind of jokingly said, 'Well you're young. Why don't you suggest we look again at [policy area] and see how far that takes you in your career?'"" (departmental public servant, United Kingdom; Stevens, 2011, p. 245).

notion that they act with complete independence in producing their recommendations. An Australian researcher who worked for a government came to this conclusion: “There is a tendency for the bureaucratic policymakers to apply a perspective based on their interpretation of what their minister or even their boss within the department will think... We unfortunately have politicized the public service” (Hinchcliff et al., 2010, p. 2055).

What this means for public health researchers and professionals:

Do the advisors that you plan to contact limit themselves to pursuing their policy maker’s agenda, or do they take initiative to try to reshape it?

If the latter is the case, you should analyze not only how the knowledge you wish to share fits in with the policy maker’s positions, but also how it fits in with those of the advisors, to identify which ones might become allies.

What the literature does not say: The data found raise two questions to which they fail to provide answers:

- Do advisors take more or less daring initiatives depending on whether the subject or policy in question is more or less controversial?
- In countries other than the United Kingdom, how concerned are public servants with the impacts that the initiatives they take could have on their careers?

Even when advisors do take initiatives, policy makers have the option of ignoring their recommendations. This raises the question of how much influence advisors have in political circles.

5 To what extent do advisors influence the circulation of scientific knowledge and the development of public policies?

In this Chapter:

- How advisors control the circulation of knowledge in political circles.
- Their influence in comparison with policy makers' other information sources.
- Their influence at the various stages of public policy development.

A public health expert (a researcher, a professional) who is considering what person to approach in political circles with the intent of sharing knowledge may wish to know whether—or *which*—advisors to policy makers are well placed to convey this knowledge. The data we found highlight three aspects: advisors play the role of gatekeepers with respect to the circulation of knowledge in political circles; however, the extent of their influence as gatekeepers depends on their weight relative to other sources consulted by policy makers; and finally, some data help assess the influence of advisors on policy development, which, ultimately, is the process that actors who share scientific knowledge hope to shape.

5.1 Advisors as gatekeepers of knowledge

Advisors are mandated to process information so that policy makers do not have to, and this gives them a certain amount of **control over the knowledge** that reaches policy makers. This has led some researchers to call advisors gatekeepers or information filters (Hinchcliff et al., 2010; Oliver et al., 2013; Talbot & Talbot, 2014). As was shown in the previous chapter, advisors' role as gatekeepers is evidenced by the fact that they choose to block certain scientific knowledge and to circulate other knowledge in a more or less proactive way, often after they have reframed it.

Advisors can also act as **gatekeepers to the persons who hold scientific knowledge**, facilitating (or not facilitating) their access to policy makers. For instance, according to an Australian study, when ministers of health wish to locate an expert working in a certain subject area, one of their first reflexes is to turn to their ministerial advisors and to public servants in their department for recommendations (Haynes et al., 2012). We have also seen that some public servants take the initiative to organize meetings between researchers and policy makers. Moreover, for an expert, attempting to directly approach a policy maker may not be the best strategy: there is a good chance that the policy maker will query a political advisor and/or a public servant for information about the expert anyway, and even ask their opinion of the latter. Thus, it would be wiser for experts to contact the policy maker's advisors to prepare for a meeting, rather than run the risk of annoying them by attempting to bypass them[44] (Bogenschneider & Corbett, 2010; Haynes et al., 2012).

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[44] For example: "Quite often you'll find people think that ''Well if I've got in the Minister's ear I'm fine…''. It's actually more irritating to have a public health researcher who's gone straight to the Minister rather than via an advisor [...] Because what happens is if they're lucky enough to have got an appointment with the Minister we will have had to brief the Minister about what we think this person's going to talk about... It's much better to strategise with the department about how you use that opportunity" (departmental public servant, health sector, Australia; Haynes et al., 2012, p. 4).

"The one thing that I think people don't understand... is how important staffers are [...] You know, you may think you want to talk to the congressperson or the governor, but talking to their staffers and getting their interest in your problem and getting their confidence... that's what you really need to do. And if you overlook those people, or treat them as if they're

Advisors can act as gatekeepers in the reverse direction, that is, by **sharing internal information** with productors or conveyors of scientific knowledge to enable the latter to act more effectively. Advisors may share information about the political context, about issues their policy maker is concerned with at a given time, or about opportunities that arise to act on any particular subject. Advisors can also assist experts in identifying policy makers who are inclined to take action on their subject of interest (Bogenschneider & Corbett, 2010; Friese & Bogenschneider, 2009; Haynes, Derrick, et al., 2011; Lomas & Brown, 2009; van der Arend, 2014).

Naturally, this sharing of information is especially likely to take place when relationships of **trust** have been established. In one Australian study, public servants were shown to be more open to being approached by researchers they did not know than were ministerial advisors and ministers (Haynes et al., 2012). This does not mean that they would share internal information with complete strangers, but at least, they are more open to establishing a relationship that may later lead to knowledge sharing if trust builds. Capitalizing on the openness of public servants can thus be a way to benefit from their expertise and create internal allies. A further advantage is that public servants tend to keep their positions longer than policy makers and their political advisors, which makes it possible to maintain relationships beyond changes in government[45] (Haynes, Derrick, et al., 2011; Hinchcliff et al., 2010).

It appears that **all types of advisors** act as gatekeepers of knowledge. This is confirmed by the statements not only of advisors, but also of other actors, including researchers. The gatekeeping role is observed among advisors at all levels of government, but it seems to be particularly strong among public servants in local governments (de Goede et al., 2012; Oliver et al., 2012). This might be because teams there are smaller, so each public servant is “the” in-house specialist on a given topic and the sole responsible for handling related information.

What this means for public health researchers and professionals:

When either you or an executive from you organization wishes to approach a policy maker, do you first contact one of that person’s advisors to prepare the ground?

Naturally, the role of knowledge gatekeeper is effective insofar as advisors are a preferred source of information for their respective policy makers. Thus, it is important to assess where advisors rank among the sources that policy makers consult.

5.2 The position of advisors relative to other sources of information for policy makers

To whom do policy makers turn for information? Their advisors are one of their main sources, but not the only one. Thus, some advisors count on other sources to defend ideas when they themselves cannot.

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not important, then you're never going to get the access that you want to have" (researcher, United States; Bogenschneider & Corbett, 2010, p. 202).

[45] For example: “There’s a change in government or a change in minister or whatever... there is an opportunity and that’s why it’s good [that] I have a great relationship with the manager of X so we constantly catch up for coffee, talk about what I’m doing, what opportunities there might be” (researcher, Australia; Haynes, Derrick, et al., 2011, p. 1052).

5.2.1 ADVISORS, ONE OF THE MAIN SOURCES OF INFORMATION...

Not only advisors (who may tend to overestimate their own role), but also policy makers and observers, indicate that advisors are one of the main, if not the main, source of information for policy makers (Greyson, Cunningham, & Morgan, 2012; Jennings & Hall, 2012; Kemper, 2003; Oliver et al., 2012; Reh et al., 2002; Sorian & Baugh, 2002; Souffez, 2008; Talbot & Talbot, 2014; Toomey et al., 2009). Several of the comments recorded concern the legislative branch or local governments, but some concern departmental advisors (with the same distinction made earlier regarding knowledge conveyed in departments, namely that public servants are often an *indirect* source of information, whose proposals are conveyed by more senior advisors, who are the ones with whom ministers are in regular contact).

The central place held by advisors of all types is not a surprise, given that they are official parts of the system. There are various other reasons why they are a preferred source of information for many policy makers: they consider their advisors to be trustworthy, to be experts in their field as well as good authorities on existing policies (two important aspects for policy makers, who cannot perfectly master everything their mandate covers), and to be close at hand when they need a quick response (Greyson et al., 2012; Haynes, Gillespie, et al., 2011; Jennings & Hall, 2012; Lavis et al., 2005; Reh et al., 2002).

5.2.2 ... BUT NOT AN EXCLUSIVE SOURCE

Regardless of whether or not advisors occupy a privileged position, policy makers usually consult **other sources** as well[46]:

- American legislators include among these sources their fellow legislators, interest groups, departments, professional organizations, community organizations and their constituents (Bogenschneider & Corbett, 2010; Hird, 2005; Reh et al., 2002). Some of these legislators nevertheless place their advisors at the top of the list of sources they consult (Reh et al., 2002).
- In the executive branch, according to the data we found,[47] ministers get information not only from their advisors, but also from other policy makers, from external experts (including researchers and consultants) and, moreover, although it is an indistinctly defined "source", they pay attention to public opinion (Greyson et al., 2012; Haynes, Gillespie, et al., 2011; Humphreys et al., 2010; Jennings & Hall, 2012; Smith, 2013a, 2013b, 2014; Souffez, 2008; Stevens, 2011; Waddell et al., 2005).
- The remarks of some advisors, policy makers, researchers and observers even suggest that departmental public servants are (or feel they are) placed in competition with other sources: with researchers,[48] with external experts,[49] or even with public opinion[50] (Smith, 2013b, 2014;

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46 Reported here are the data we found that compare advisors with other sources; however, we do not claim to provide an exhaustive list of the sources consulted by policy makers.

47 Which, again, are not necessarily exhaustive.

48 For example: "There was resistance within the department because there were public servants working on it... They saw it as a competition" (researcher commissioned by a department, Canada - Québec; translation, Souffez, 2008, p. 100).
"It's actually seen as, if we gain the ear of the policymaker, we're actually competing for territory with research groups [within government]" (researcher, United Kingdom; Smith, 2014, p. 570).

49 For example: "I tended to operate with two sets of advice, which no doubt didn't always play to the civil service, because I had the civil service advice but I also had my advice outwith that" (minister, United Kingdom; Smith, 2013b, p. 92).

50 For example: "The politicians told us, 'You will develop this.' We know it's not the right thing to do for correctional services. But it sounds great in public, and for the most part, the public's fairly ignorant about what works and what doesn't work" (public servant, Canada; Waddell et al., 2005, p. 1655).

Souffez, 2008; Waddell et al., 2005). Some actors familiar with political circles in the United Kingdom consider public servants to be in a poor position to pass ideas on to ministers, even suggesting that the persons who wish to share scientific knowledge should contact ministers directly instead (Smith, 2013b). Some public servants go so far as to say that policy makers do not take their expertise into account, but these are a minority (Bernier & Howlett, 2012), and other studies indicate that although other sources of information are consulted, public servants remain a common source (Greyson et al., 2012; Jennings & Hall, 2012).

For what **reasons** do policy makers consult sources of information other than their advisors? The comments found on this subject concern the executive branch. Ministers do not always fully trust the recommendations of public servants (Humphreys et al., 2010; Smith, 2013a, 2013b, 2014; Souffez, 2008; Waddell et al., 2005). This may be for various reasons:

- Some consider public servants to be qualified, but *less* so than certain external advisors, rightly or wrongly[51] (Greyson et al., 2012; Humphreys et al., 2010; Souffez, 2008).
- Some ministers say they have the impression that public servants present them with biased proposals with the aim of influencing their decision[52] (Smith, 2013b; Souffez, 2008). This is, in fact, sometimes the case, as was shown in the section on when initiative is taken by advisors.
- Some public servants believe that it takes time to gain the trust of a new government because the new ministers are wary of public servants who used to work under the authority of their political opponents (Smith, 2013a; Waddell et al., 2005). This suggests that the public service is not always seen as politically neutral, as it should be. In our corpus, we did not find any statements from ministers confirming this perception. However, such wariness has been documented and is one reason for the gradual institutionalization of ministerial offices over the twentieth century, to meet ministers' need to surround themselves with "loyal" advisors so as to not be alone facing the public service.
- Katherine Smith concludes, on the basis of a great number of interviews with actors familiar with political circles in the United Kingdom, that the lack of trust on the part of ministers is largely due to their lack of familiarity with the work of public servants. This ignorance is itself due to the lack of interaction between ministers and public servants that was referred to previously (Smith, 2013a, 2013b). Conversely, the external experts to whom ministers turn are people known to them personally, whom they have met through their professional or social networks (Smith, 2014). The same can be said about the advisors they choose for their ministerial offices.

Finally, a few remarks from public servants and ministers in the health sector suggest other reasons, unrelated to a lack of trust, that policy makers draw on multiple information sources. Some ministers

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[51] For example: "Politicians often start off with preconceived notions about the work of public servants [...] They hire specialists, but often these researchers do not know more than the public servants" (departmental public servant, Canada - Québec; translation, Souffez, 2008, p. 98).

"Some of the analysis was out-sourced to Allen's [The Allen Consulting Group]—they had a more sophisticated capacity to look at the data and pull it all together" (advisor or minister [unspecified], Australia; Humphreys et al., 2010, p. 156).

[52] For example: "If the civil servants have looked at all this evidence, they don't present it to you in terms of: "this is what they do here and this is what they do there but we think this is best for Scotland"[...] It's almost presented as ... the final stage: 'this is what we recommend'. So there's almost a kind of mystery for ministers about how civil servants arrive at those particular conclusions" (minister, United Kingdom; Smith, 2013b, p. 92).

"The government machinery includes persons who are highly qualified and very professional. But they are sometimes so well-prepared that they want to push things through. I had no doubts about the reliability of the governmental machinery or about the quality of the work provided, but I did not always trust their political analysis" (minister, Canada - Québec; translation, Souffez, 2008, p. 98).

say this is a way for them to learn as much as possible when they are assigned a new mandate (Haynes, Gillespie, et al., 2011). Others turn to external sources when developing proposals so as to enhance the latter's legitimacy[53] (Lomas & Brown, 2009; Milat et al., 2014).

5.2.3 Banking on the complementarity of sources

Realizing that policy makers have other sources of information, some advisors rely on some of these sources to echo their own ideas. The comments found on this subject come from public servants. Some of them hope that public health professionals or researchers will speak out publicly when they themselves have less leeway to demand action on an issue or to criticize the direction taken by the government[54] (Buchar, 2011; Waddell et al., 2005). Some public servants go further, helping set up meetings between policy makers and experts who endorse ideas that they themselves want to defend (Haynes, Gillespie, et al., 2011; Waddell et al., 2005). Thus, these public servants interested in working conjointly provide a gateway for experts who wish to share scientific knowledge.

What this means for public health researchers and professionals:

Should you try to approach policy makers directly? The relevance of this probably depends on the context. In the setting you wish to target, to what extent do advisors (or certain types of advisors) have the ear of the policy maker? Even if they are rarely heard, could they help you gain access to the policy maker or provide useful internal information? Do they appear to you to be seeking external allies because their freedom of speech is limited?

What the literature does not say: To share scientific knowledge, should one directly contact ministers, or should they go through ministerial advisors, or through departmental public servants? We found conflicting data derived from studies on the United Kingdom and Australia. It would be helpful to verify whether this is due to differences in administrative culture, and what the situation is in other countries.

5.3 Impact on public policy development

Ultimately, it is by observing their impact on public policy development that one can measure the influence of advisors. Do they succeed in placing issues on their policy makers' agendas, that is, in having them acknowledge that these issues require public intervention? Once a problem has been acknowledged, to what extent do advisors influence reflection on how to address it and which public policies to consider? Do they succeed in guiding the decision toward their preferred option? Finally, do they influence the way the policy chosen is implemented? And what are the sources of their influence? Advisors may or may not use scientific knowledge in the context of the actions they take at each of the above stages. Although some of the data we found do not specifically focus on this aspect, they are nonetheless helpful in that they shed light on the extent to which policy makers listen to advisors. Moreover, these data represent a range of views: not only those of advisors (who may

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[53] For example: "It was also important for our minister to be able to say we had that consultation and we had that credibility with the public health community" (departmental advisor [type not specified], health sector, Australia; Milat et al., 2014, p. 4).

[54] For example: "When government is getting tough on crime, academics need to take responsibility, to get out front and say, 'There are other ways of doing business here.' Because it's very hard for us to do that" (public servant, Canada; Waddell et al., 2005, p. 1654).

tend to overestimate their own influence), but also those of researchers, policy makers and political observers.

5.3.1 INFLUENCE ON AGENDA SETTING

Some data indicate that, in the **executive branch**, senior civil servants (including deputy ministers) play an important role in determining priorities for action; in doing so, they rely on many elements, among which scientific knowledge is sometimes included (Humphreys et al., 2010; Milat et al., 2014; Waddell et al., 2005). Other public servants do not have as direct an impact, but they contribute to shaping their departments' agendas when senior advisors and ministers espouse ideas brought forward by public servants, which in some cases would have been overlooked without their initiative (Souffez, 2008; Stevens, 2011).

A study on the **legislative branch** in the United States notes that advisors exercise considerable influence on the priorities of the legislator for whom they work (Brownson et al., 2011). Advisors to members of the United States Congress describe a two-step process (Judson Finch, 2001). First, during more or less formal discussions, they try to convince their legislator boss to intervene in a certain area. They sometimes rely on scientific knowledge, but it rarely provides their only rationale: they combine such knowledge, for example, with the fact that constituents or interest groups are also demanding intervention. This is an illustration of the fact that, when advisors translate scientific knowledge, they weigh it against other factors and combine it with other arguments. It should also be noted that the advisors who participated in the study cited above have a particular profile (nurses by training) and it is likely that they use scientific knowledge more heavily than the average legislative assistant. In any case, their remarks suggest that they quite often succeed in placing topics on their legislators' agendas (Judson Finch, 2001). Once legislators are convinced, their advisors work with them to place the topic on the legislative body's agenda by drafting bills, or, in the context of legislative committees, by helping legislators organize hearings (Brownson et al., 2011; Judson Finch, 2001). Advisors play a supporting role here, and the success of this second agenda-setting step is more dependent on the legislator.

In **local governments**, according to studies conducted in the United Kingdom and the Netherlands, public servants in charge of health issues are well placed to control the agenda: they are highly autonomous in choosing whom to invite to important meetings, and in drafting the agenda and minutes of those meetings, so they can control which topics are discussed, which voices are heard and what information is retained (de Goede et al., 2012; Oliver et al., 2012, 2013). Indeed, local public servants who fully assume this role (some do not, though) come to be recognized as influential by other actors within their local political circle (Oliver et al., 2013).

5.3.2 INFLUENCE ON PUBLIC POLICIES CONSIDERED

When political will exists to tackle a problem but the "how" has not been determined yet, examining the options for addressing this problem is a core task of advisors. Fulfilling this task gives them the opportunity to pre-select which options will be presented to policy makers and to focus more attention on some than on others (see, for example, de Goede et al., 2012; Oliver et al., 2013; and the section of this document on advisors taking initiative). There is some evidence that discussion documents or recommendations produced by public servants have been influential in framing the development of public policy within departments (Bowen et al., 2009; Hinchcliff et al., 2010; Souffez, 2008). Advisors of legislators (in the United States, at least) and public servants at the local level (according to studies conducted in the United Kingdom and the Netherlands) have the important role of drafting private member's bills or local public policies (Brownson et al., 2011; de Goede et al.,

2012; Judson Finch, 2001; Oliver et al., 2013). Even if these drafts must then be endorsed by policy makers, these advisors are in a position to shape their content.

On the other hand, policy makers are sometimes already leaning so far toward a particular option that their advisors have little room to manoeuvre[55] (Haynes, Gillespie, et al., 2011; Waddell et al., 2005). The data found on this subject apply to departmental public servants, but it is likely that other types of advisors experience such situations. Furthermore, as mentioned above, some policy makers view with some suspicion the recommendations made by public servants—advisors they have not chosen themselves. This is a factor that can limit the impact of these recommendations.

5.3.3 Influence on decision making

It is up to policy makers to choose, from among the options considered, which public policy to adopt. We did not find data specifically on the role of advisors during this stage, since they are not the main actors: if advisors manage to make their preferred option stand out, it is essentially due to their work upstream and downstream of the decision.

5.3.4 Influence on the implementation of the public policy adopted

A policy, even when formally adopted, only exists if provisions are made for its concrete application. Since it is usually public servants who plan the implementation of public policies, they can take advantage of this role to adjust certain aspects of a policy (Bogenschneider & Corbett, 2010; Milat et al., 2014; Waddell et al., 2005).

5.3.5 What are the sources of advisors' influence?

In addition to the influence they can derive from their role in processing information, advisors have other strengths that can enhance their influence on public policy development: their insider knowledge of political circles, their involvement throughout the public policy development process, and for public servants, their length of time on the job.

First, advisors have **insider knowledge** of political circles. This allows them to recognize windows of opportunity (for example, a crisis situation, or the election of a more open policy maker) and to take advantage of these to get issues on the agenda or to promote certain public policy options (Humphreys et al., 2010; Waddell et al., 2005). Advisors also rely on their knowledge of the policy maker for whom they work: knowing that he or she is already interested in a topic or that his/her constituents are concerned about it increases the likelihood of persuading that policy maker to act; knowing that this policy maker takes an interest in research in general, or that his/her vision is consistent with scientific knowledge about a given subject, indicates that such knowledge would strengthen an argument in his or her eyes (Davies & Rowe, 2014; Judson Finch, 2001; Waddell et al., 2005). Conversely, when advisors (including some public servants) do not think conditions are favourable, they often abstain from even trying to place an issue on the agenda, as was indicated in the discussion on how advisors sort scientific knowledge.

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[55] For example: "The politicians told us, 'You will develop this.' We know it's not the right thing to do for correctional services. But it sounds great in public [...] So our job is to take what we know to be effective services, and to try to influence the politicians in such a way that they can still say they're being tough on crime" (public servant, Canada; Waddell et al., 2005, p. 1655).

"You'll sometimes get politicians going, "Oh, we really should pour lots of resources into X" and you go, "Oh no, not again!" ... The research on X has shown again and again that whole strategy doesn't work very well. ... [But] it can be hard to argue against because instinctually it sounds like it makes sense, but in practice it doesn't" (departmental public servant, health sector, Australia; Haynes, Gillespie, et al., 2011, p. 576).

Several authors note that another element that strengthens the influence of advisors as a group is that they are **involved throughout the public policy development process** and in the detail of the preparatory work– whereas policy makers tend to intervene only at specific points in the process, when making a decision to tackle an issue or to adopt a public policy (Bogenschneider & Corbett, 2010; Haynes et al., 2012; Howlett, 2011; Oliver et al., 2013). Moreover, advisors who *personally* engage in an array of tasks throughout the process, i.e., those working in smaller teams in local governments or in the legislative branch, may potentially have more personal influence than public servants in departments, where the tasks are divided up among different persons and teams (Bédard & Ouimet, 2012; Brownson et al., 2011; Oliver et al., 2013; Ouimet et al., 2010).

Length of time on the job is another source of influence for public servants. Since they can remain in position despite changes of government, they are the keepers of institutional memory and have knowledge about existing public policies. In addition, they are aware that they will remain in position longer than policy makers (Bogenschneider & Corbett, 2010; Hinchcliff et al., 2010; Howlett, 2011). Consequently, as one Canadian policy maker commented, maybe with a bit of exaggeration but still reflecting a certain reality, "if they want to stop something, if they want to slow something down, eventually they'll win, because they'll be there forever'' (Waddell et al., 2005, p. 1652). Also, public servants can continue to propose a policy option that was not taken up at a particular time, and sometimes manage to get it adopted by a subsequent government (Souffez, 2008).

However, even among public servants, professional stability is variable. Extensive surveys indicate that 60% of Canadian departmental public servants have worked within their organizations for less than five years – and this does not necessarily mean they have held the same *position*. In addition, the same proportion among this group consider it unlikely that they will remain in their current positions for more than five or six years (Bernier & Howlett, 2012; Howlett & Newman, 2010; Wellstead et al., 2009). UK studies also highlight staff turnover in departments; for example, one piece of advice circulated among public servants is that they should remain in the same position "never less than two years, never more than three" (Smith, 2013a, 2014; Stevens, 2011, p. 244).

A lack of seniority weakens the basis for the influence of public servants. The memory of past initiatives and of previously examined knowledge is eroded when public servants leave their positions; the result is that the same data and the same ideas can be examined over and over again, because the replacement staff are unaware that this process of reflection has already taken place (Smith, 2013a, 2014). Moreover, it takes time for public servants new to a position to become thoroughly familiar with their new professional setting. In addition, public servants who regularly change subject areas, or even government sectors, do not have time to specialize in or develop thorough knowledge of the scientific data relevant to a field (especially considering that, as we have seen, many have a generalist, rather than a subject specific background). This phenomenon has been studied in the United Kingdom; although many public servants are very knowledgeable about their field of work, some feel that the organizational culture, which promotes periodical reshuffling of professionals from one team to another, discourages them from specializing[56] (Stevens, 2011). Some authors hypothesize that staff movements are deliberately encouraged in departments to limit the influence of public servants on public policy development. They suggest that, if public servants remain generalists, they do not have sufficient expertise to oppose the orientations chosen by policy makers; thus a conflict between expertise and hierarchy is avoided. As summed up by one British public servant, "Put yourself in the position of a senior administrator in a government department; you don't want some research officer telling you how to run the place, you've already got the minister telling you how to run the place" (Stevens, 2011, p. 253).

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[56] For example: "Another colleague explained to me that the last two projects he had worked on had been on the same topic, so it was time to move on" (observation of a researcher while on a contract as a policy advisor in the public service, United Kingdom; Stevens, 2011, p. 244).

What this means for public health researchers and professionals:

- With regard to the knowledge you wish to share: what stage(s) in the development of a public policy can it inform?[57]
- Who are the advisors involved at that stage, and do they seem influential in determining the outcome (in general, and in this particular case given the policy maker's stance)? (Reminder: in ministerial departments, several types of advisors may be involved at a given stage).
- Do not neglect the influence of public servants, which may be more subtle, but may potentially be rooted in the long term.
- Do you regularly touch base with your contacts among advisors to find out about staff movements? You may sometimes need to rebuild a relationship with a new advisor, but you may manage to get introduced by his or her predecessor in the position, i.e., the advisor with whom you were in contact before. Take advantage of the fact that those new to a position will need briefing time, and you can be proactive in offering your assistance. Do not assume they are up-to-date on the knowledge you shared with their predecessors.

What the literature does not say:

With regard to the impact on public policy development, it would be useful to have more data on certain types of advisors: ministerial advisors, local public servants, and advisors to legislators in countries other than the United States.

In addition, to complete the picture, data are needed from different countries on the movement of staff in departments and on how this impacts public servants' contribution to public policy development.

[57] For insight into these stages and the type of knowledge that may be useful at each stage, see F. Benoit (2013).

6 Conclusion

In this review of the literature on the role of policy makers' advisors, we have established that there are several types of advisors, who differ from each other in terms of their missions, of their levels of specialization, and in terms of the governmental settings in which they work. Only a minority of policy advisors have a professional background that has made them familiar with scientific knowledge (this minority, however, can be larger among public servants). Familiarity with public health knowledge is even rarer. Some advisors nevertheless use scientific knowledge in their work, but are constrained in their ability to do so by the little time left by their other tasks and by situations requiring an urgent policy response. Advisors have a broad view of scientific knowledge, which includes grey literature and raw data, and their sources include persons they consider experts, documents produced by certain organizations, newsletters, the media, and databases of raw data – they rarely use scientific journals.

In any case, when scientific knowledge is used in political circles, advisors (and not policy makers) are the heaviest users: they are the ones who search for it, sort it and translate it to fit the needs of political circles. Policy makers see the *outcome* of this translation in the recommendations submitted to them by advisors – but they rarely see the source knowledge. Moreover, in this translation process, scientific knowledge is weighed against other factors, or even sometimes manipulated to serve certain objectives. Some advisors exercise initiative in an effort to redirect their policy maker's program, sometimes using scientific knowledge or requesting the help of experts in this endeavour. Others, however, including public servants, self-censor for fear of negative repercussions on their careers.

It should be noted that, although the health sector is often associated with a culture of evidence use, advisors in that sector do not particularly distinguish themselves from those in other sectors. Admittedly, their backgrounds tend to make them more familiar with scientific knowledge and, in general, they consult it more often in their work, but this is not universally the case, even in this setting. Moreover, self-censorship and the manipulation of knowledge have been observed in the health sector, as elsewhere.

Overall, advisors of legislators and public servants in local governments seem to exercise greater influence than do departmental public servants. However, their use of scientific knowledge appears to be rare (legislative branch) or remains little studied (local governments). Furthermore, actors who wish to share scientific knowledge should take into account the political system when deciding how much effort to invest in sharing knowledge with actors in the legislative branch. For example, in parliamentary systems like those found in Canada, where ministers are chosen from the parliamentary majority, it is mainly the executive branch that decides on public policies – unlike in presidential systems like that of the United States at the federal level, where legislators are much more influential (Haynes, Gillespie, et al., 2011). This does not mean that the legislative branch should be ignored: it can be an interesting avenue, in particular, when the scientific knowledge presented is not being favourably received by the government in power. However, one should weigh up the pros and cons of seeing this knowledge being used, possibly, in political confrontations.

The data we found suggest that senior advisors in the executive branch, especially advisors in ministerial offices, play an important role; however, this role was not studied thoroughly in the literature and remains to be explored.

A few UK studies highlight some less positive aspects relating to the role of departmental public servants: fear of negative career impacts may inhibit the independence of their analyses, frequent staff movements may prevent specialization, manipulation of data occurs, and influence on public policy development can be lacking. It would be useful to pursue study of these aspects, extending it

to other countries as well, especially those where the public service is facing staff reductions or other major reorganizations.

In the end, our literature review reveals a nuanced picture of the behaviour of policy advisors toward scientific knowledge. This is inevitable, if only because the mission of political circles in a democratic system is not to follow scientific prescriptions to the letter. Moreover, it is possible that it was the advisors most interested by science who expressed their thoughts in the studies we found, and that the situation is less favourable among their colleagues. That said, advisors undeniably carry weight in political circles because of their information processing mission, their knowledge of the system, and their presence throughout the public policy development process and indeed, even beyond policy makers' terms. They can be valuable allies inside political circles for actors who convey scientific knowledge, and sometimes seek the help of the latter. Therefore, we invite readers to use the observations and questions for reflection included in this document to analyze the position of policy advisors in the government settings they wish to approach, in order to develop a relevant knowledge-sharing strategy.

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