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Converge3

*Integrating health, economic and equity evidence to inform policy*

# Dental Care Coverage for Older Adults in Seven Jurisdictions

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**North American Observatory on Health Systems and Policies**

**About this Report**

Converge3 commissioned the North American Observatory on Health Systems and Policies (NAO) to conduct a rapid review of literature and a jurisdictional review to understand the role that hospitals can play as lead integrators of care delivery models that span multiple sectors. The NAO gratefully acknowledges the invaluable contributions and support of Giovanni Fattore, Demetrio Lamloum, and Rebecca Ng (University of Toronto) and their local content experts, including Australia (New South Wales) - Alexander Holden (Senior Lecturer in Dental Ethics, Law and Professionalism); England - Paul Batchelor (University College London); Germany - Marie Böcker (Berlin University of Technology), Susanne Felgner (Berlin University of Technology), Cornelia Henschke (Berlin University of Technology, Duke University), Rainer Jordan (Institut der Deutschen Zahnärzte), and Dimitra Panteli (Berlin University of Technology, European Observatory on Health Systems and Policies); Italy - Dr. Daniela Carmagnola (Milan Municipality, Italy); and Sweden - Sandy Lantz, DDS, MSc. Converge3 receives funding from the Province of Ontario. The views expressed in this report are those of the authors and do not necessarily reflect those of Converge3 or the Province of Ontario.

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**About Converge3**

Converge3 is a policy research centre based in the Institute of Health Policy, Management and Evaluation at the University of Toronto that focuses on integrating health, economic and equity evidence to inform policy. The Centre is funded by the Province of Ontario and includes multiple partner organizations, including Li Ka Shing Knowledge Institute at St. Michael's Hospital, McMaster University, Ottawa Hospital Research Institute, ICES, Health Quality Ontario, Public Health Ontario, and the Ontario Ministry of Health.



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Dental Care Coverage for Older Adults in Seven Jurisdictions

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# Dental Care Coverage for Older Adults in Seven Jurisdictions

## Executive Summary

Oral health is an important component of general health and overall well-being. While Canadians enjoy financial protection against the cost of hospital and physician services, there are some notable gaps in coverage, such as for oral health care. This report reviews models of dental care coverage, with a focus on older adults (individuals 65 years and older), in seven comparable jurisdictions: Canada (Alberta), Australia (New South Wales), England, France, Italy, Germany, and Sweden.

All seven jurisdictions included in this review provide some public coverage for the cost of dental care that is available for older adults. The scope of coverage in each jurisdiction goes beyond basic services:

- The four jurisdictions we include with National Health Service (England & Sweden) or Social Health Insurance (France & Germany) have health systems that include basic dental care within their broader health system. Some provide shallow coverage (patients contribute to the cost in the form of co-payment), and others provide deep coverage (minimal cost-sharing). All four jurisdictions provide deeper coverage to a subset of the population who meet income or clinical-need criteria, and do not make any distinction to coverage or eligibility based on age (except in Sweden); thus, there is no change to coverage when an individual turns 65 years old.
- The three jurisdictions with National Health Insurance systems (Alberta, New South Wales, & Italy) cover the full cost of basic services only for a subset of the population, with eligibility usually based on income.

There is limited evidence from the scholarly literature on the performance and equity impacts of different public dental coverage models. Overall, high income earners tend to visit the dentist more frequently than low income earners across all jurisdictions. These differences appear to be greater in jurisdictions with targeted coverage compared to universal coverage; yet, cost barriers for older adults also are prevalent in all jurisdictions. Finally, there is some evidence to suggest that restricting scope and depth of coverage may impact dental care utilization among older adults.

From this review, we identify three broad models of coverage:

1. Universal and deep coverage of a comprehensive basket of services (including major fillings, such as crowns and bridges, and dentures), as found in Germany, which provides the greatest financial protection against the cost of dental care.
2. Universal and shallow coverage of a comprehensive set of services (including major fillings and dentures), as found in England, France, and Sweden, with some financial protection alongside individual user fees.
3. Targeted and deep coverage, as found in Alberta, New South Wales and Italy, which provides full financial protection for a subset of the population that are considered most vulnerable in terms

of age, clinical, and/or financial need. This model of coverage most closely resembles the proposed low income dental program for seniors in Ontario (Government of Ontario, 2019). These three programs provide deep (full) and targeted coverage for basic services, though there are some important variations: in Italy there is no coverage for higher-cost services (crowns, bridges, or fabrication of new dentures); in Alberta there is shallow coverage for dentures (and no coverage for crowns or bridges); whereas in New South Wales there is deep coverage of both of these major services.

# Introduction and Background

Oral health is an important component of general health and overall well-being. Untreated and poorly managed oral diseases, such as dental caries (tooth decay or cavities) and periodontal (gum) disease, are associated with decreased nutritional intake and increased levels of bacteria and inflammation; these factors can play a role in systemic inflammation and overall health outcomes (Hein et al., 2007). Tooth decay and gum disease can largely be prevented through population and individual health promotion and disease prevention strategies, including community water fluoridation, regular oral hygiene, and use of fluoridated toothpaste. Routine access to primary oral health care also enables early detection and management of oral diseases, and can mitigate the negative impacts of poor oral health on individuals and families, and potentially avoidable costs to the health care system and society (Canadian Academy of Health Sciences [CAHS], 2014; Canadian Dental Association, 2018; Matsuyama et al., 2019).

While Canadians enjoy financial protection against the cost of hospital and physician services, there are some notable gaps in coverage for other needed health services such as oral health care. Thus, it is not surprising that the 2016 Commonwealth Fund international health policy survey revealed that over 40% of lower-income and 17% of higher-income Canadians skipped dental care or a dental check-up because of cost.[1] Only in the United States were reported cost barriers higher than in Canada (45% of lower-income, 21% of higher income in the United States) (Commonwealth Fund, 2016).

There has been international interest in strengthening dental care coverage programs aimed to better meet the oral health needs of populations (Blomqvist & Woolley, 2018; Duckett et al., 2019; Freed et al., 2019; Moore & Davies, 2015). In Ontario, the issue of access to dental care for low-income adults and older adults has gained attention with the announcement by the Ontario Government to provide free dental care for low-income adults 65 years and older in the 2019 Ontario Budget (Government of Ontario, 2019).

We pay particular attention to older adults for two reasons. First, people are living longer while also keeping their own teeth well into old age. As such, older adults may face increased risk for tooth decay and gum disease; these conditions are associated with other existing chronic conditions (CAHS, 2014). For example, poor oral health is more prevalent in patients with diabetic complications (e.g., neuropathy) compared to those without neuropathy (D'Aiuto et al., 2017). Second, in Canada the working-age population relies heavily on private insurance to help cover the costs of dental care, with dental coverage largely tied to employment-based dental insurance. The loss of dental coverage in older adults has been associated with increased odds of stopping dental care use (Manski et al., 2015).

The objective of this report is to review the public dental care coverage models in a range of comparable jurisdictions to facilitate policy learning, with a focus on older adults (individuals 65 years and older). First,

[1] Low income is defined as household income less than 50% of the country median in the 2016 Commonwealth Fund international survey.

we provide a brief summary of dental care in Canada, followed by a summary of the methods, and then the results of this comparison of coverage along three dimensions:

i. Breadth of coverage: older adult populations (≥65 years old) eligible to receive publicly funded dental care programs and/or extended dental care coverage in each jurisdiction;
ii. Depth of coverage: the share of the total costs that is borne by the government/public payer; and
iii. Scope of coverage: the range of services covered under publicly funded dental care programs.

## Summary of dental care in Canada

In Canada, the 10 provinces and three territories (PTs) hold the primary responsibility for health care and each has a health insurance plan that operates under conditions outlined in the 1984 *Canada Health Act* (CHA) in order to receive federal transfers. The CHA's national standards (known as "criteria") apply to insured health services, which include hospital, diagnostic, medical, and in-hospital "surgical-dental" services. Due to historical custom, this inclusion of surgical-dental services in-hospital has resulted in provincial/territorial coverage of major oral and maxillofacial surgery care associated with trauma, cancer, and cleft lip and palate (Quiñonez et al., 2007).

In addition, through the Canada Social Transfer, the federal government provides funding support to the PTs for social assistance programs (e.g., income support, disability assistance, etc.). These programs include some health care, specifically financial support for individuals and families to access uninsured health services like dental care. The federal government is silent as to what services PTs should cover in these programs and for what reasons. In contrast, PT legislation and regulations concerning these programs do include specific mention of oral health care, meaning they describe, in general and specific terms, what services are provided. Yet, there is often little detail in PT legislation and regulations concerning the reasons for why such care is provided (Quiñonez et al., 2007).

Overall, a patchwork of public programs and services is the norm in Canada in terms of who is covered for dental care and for what dental services – often designed to fill in the gaps not covered through employment-based benefit plans that generally cover basic dental services. For example, in terms of who, due to historical custom and fiduciary responsibilities, the federal government finances and delivers oral health care for state-recognized Indigenous groups and the country's Armed Forces, amongst others. Provinces and territories, in addition to delivering surgical-dental services in hospital as per the CHA, provide public coverage for targeted groups such as low-income children, social assistance recipients, and individuals with developmental disabilities. In Ontario, for example, through cost-sharing agreements with the provinces, municipalities finance and deliver care for low-income children and social assistance recipients, and sometimes independently for groups such as low-income older adults (Quiñonez et al., 2007). Importantly, only surgical dental services delivered in hospital, programs for social assistance recipients, and children's dental care programs are legislated at the provincial level. Programs for community dwelling older adults, in particular, are rarely legislated at the provincial/territorial level, with Alberta, Newfoundland and Labrador, and the Yukon as the exceptions (Shaw & Farmer, 2015).

Due to this governance and jurisdictional structure, there are, in principle, 14 oral health care systems in Canada: 10 provincial, three territorial and one federal. Yet, it is more accurate to describe two systems, the public and private oral health care systems; and while the public oral health care system can vary across Canada, the private system of coverage is remarkably similar across the country. The public system is also quite small in terms of financing and delivery, with the private system ensconcing it; approximately 94% of all dental care in Canada is financed privately and only 66 full-time dentist equivalents work in clinical practices in public health settings across Canada (Shaw & Farmer, 2016). Almost all oral health care, including most publicly funded dental care, is paid for on a fee-for-service (FFS) basis and delivered in private dental clinics by dentists supported by dental assistants, dental hygienists, and dental technologists (Shaw & Farmer, 2016). Thus, oral health care in Canada is effectively one oral health care system, where the private system dominates, and the (marginal) public system functions within it (Quiñonez et al., 2007).

# Methods

## Overview of approach

We collected information on public dental care coverage models for older adults (≥65 years old) from local content experts in seven jurisdictions, publicly available resources, and peer-reviewed publications. We focus on adults 65 and older who live independently in communities and who access dental care services through fixed or mobile dental clinics; we do not include adults living in institutions (e.g., nursing homes, long-term care facilities, or aged-care homes) or older adults who receive dental services in their home (e.g., domiciliary care or home care). Eligible dental care programs included services provided in out-patient dental settings (public dental clinics and/or private dental clinics); in-patient services provided in hospital, or services provided by non-dental professionals (e.g., physicians) in emergency department settings are outside the scope of this review.

### *Data collection*

The research team developed and populated templates to describe the dental care programs for older adults in seven jurisdictions: Canada (Alberta), United Kingdom (England), France, Italy, Germany, Sweden, and Australia (New South Wales). The selection of jurisdictions was based on the following considerations:

- Canadian PTs with a legislated dental care program for older adults (Alberta, Newfoundland and Labrador, and the Yukon). Across these jurisdictions, Alberta has the longest-standing dental care program for older adults (≥65 years old) and was selected for comparison;
- High-income countries that are frequently compared with Canada; and
- A range of health system types, including National Health Service (NHS), National Health Insurance (NHI) and Social Health Insurance (SHI) (Böhm et al., 2013).

The data template was guided by the WHO Coverage Cube framework (Table 1). Members of the research team compiled dental care system characteristics from publicly available resources on national, provincial and/or territorial government websites and from a series of oral health reports published in the *British Dental Journal* (Bindi et al., 2017; Pälvärinne et al., 2018; Pegon-Machat et al., 2016; Ziller et al., 2015).

Estimates on dental care spending in each jurisdiction were obtained from the Organisation for Economic Cooperation and Development's (OECD) 2018 Health Statistics Database (OECD, 2018).[2] Data on dental care outcomes in each jurisdiction were obtained from existing national and international surveys. For example, cost barriers to accessing dental care were obtained from the 2017 Commonwealth Fund International Health Policy Survey of Older Adults and the 2016 Commonwealth Fund International Health

[2] For Italy, this information was not reported in the OECD Health Statistics database, and was provided by local content experts.

Policy Survey (age 18 and older) (Commonwealth Fund, 2017; Commonwealth Fund, 2016). Data abstraction for all elements were verified by local content experts in each jurisdiction.

The research team also carried out a rapid literature review to identify studies that describe, compare, and/or evaluate dental care programs for adults in the seven jurisdictions. The search strategy, informed by the National Collaborating Centre for Methods and Tools Rapid Review Guidebook, is available in Appendix A (Dobbins, 2017). The search strategy included free text and controlled vocabulary (Medical Subject Headings) related to the population, intervention/program, and jurisdiction. There were no restrictions on language, and, in order to capture sources that describe current dental care coverage models in each jurisdiction, the search was limited to articles published within the past five years (January 2014-April 2019).

We included any study that describes programmatic aspects and/or assesses clinical and self-reported dental health outcomes, inequalities, dental care utilization patterns, and/or costs associated with dental care programs for non-institutionalized populations. The review also included records that describe facilitators and barriers to accessing dental care from the patient and provider perspective. Records were excluded for three main reasons: (i) restricted to adults in long-term care facilities, nursing homes, other institutionalized facilities, or adults receiving dental care at home; (ii) excluded older adults (≥65 years of age), or; (iii) published before 2014.

Two databases were used for this search strategy: Health Systems Evidence and Ovid (MEDLINE); reference lists of relevant articles were searched for additional sources and all records were imported into the Zotero reference managing system. One member screened titles and abstracts of all records and two members independently reviewed full-texts for eligibility. Appendix B summarizes the review findings.

### *Data synthesis*

To describe and compare public dental care coverage models for adults aged 65 and older across these jurisdictions, coverage models were categorized according to the three core features of the WHO Coverage Cube framework (Table 1). Appendix C provides detailed information on the dental care programs in the seven jurisdictions.

*Table 1. Dimensions of coverage for public dental care models*

| Domain | Description | Categories |
|---|---|---|
| Breadth | Description of older adult populations (≥65 years of age) eligible to receive publicly funded dental care programs and/or extended dental care coverage in each jurisdiction | • Universal (covers the majority of the population without consideration for means-testing or other eligibility criterion)<br>• Targeted (coverage available to select groups based on age, income, and/or clinical need/health status) |
| Depth | Share of the total costs that are borne by the government/public payer | • Shallow (co-pay required from patient)<br>• Deep (full cost covered for comprehensive services, no payment required from patient) |
| Scope[1] | Range of services covered under publicly-funded dental care programs | • Basic coverage (dental care services that include examinations, prevention, simple fillings, and tooth extractions)<br>• Comprehensive (Basic coverage + services that cover a range of clinical treatment needs; this root canal treatment and gum treatment root canals and gum treatment)<br>• Dentures (Procedures that replace missing teeth and/or repair fixed or partial dentures)<br>• Major (higher cost procedures including dentures, crowns, and bridges) |

Source: Adapted from the World Health Organization (WHO) Coverage Cube framework (WHO, 2008).
[1] The scope of service coverage is described according to private insurance package groupings in Canada across multiple private insurers (Canada Life and Health Insurance Association, 2019).

*Limitations*

This review drew on publicly available information and contributions by local experts. There were limited data on oral health outcomes, dental care utilization, and dental visiting behaviours. Dental care spending data were also not available for Italy and thus we relied on local sources, which may not be comparable to the OECD estimates. This report does not capture some key features of dental coverage programs that vary across the jurisdictions, such as whether there are frequency restrictions and limitations on service coverage, the duration of coverage for recipients (e.g., continuous coverage as long as an individual meets the eligibility criteria v. episodic or short-term coverage), or the delivery of dental care across public and private sectors. Finally, we did not include information on the dental service fee schedules. Many jurisdictions have private and public dental service fee schedules (e.g., in France, Sweden, & Canada) where the fees are higher in private compared to public fee guides. These aspects of dental care coverage could be topics for future research.

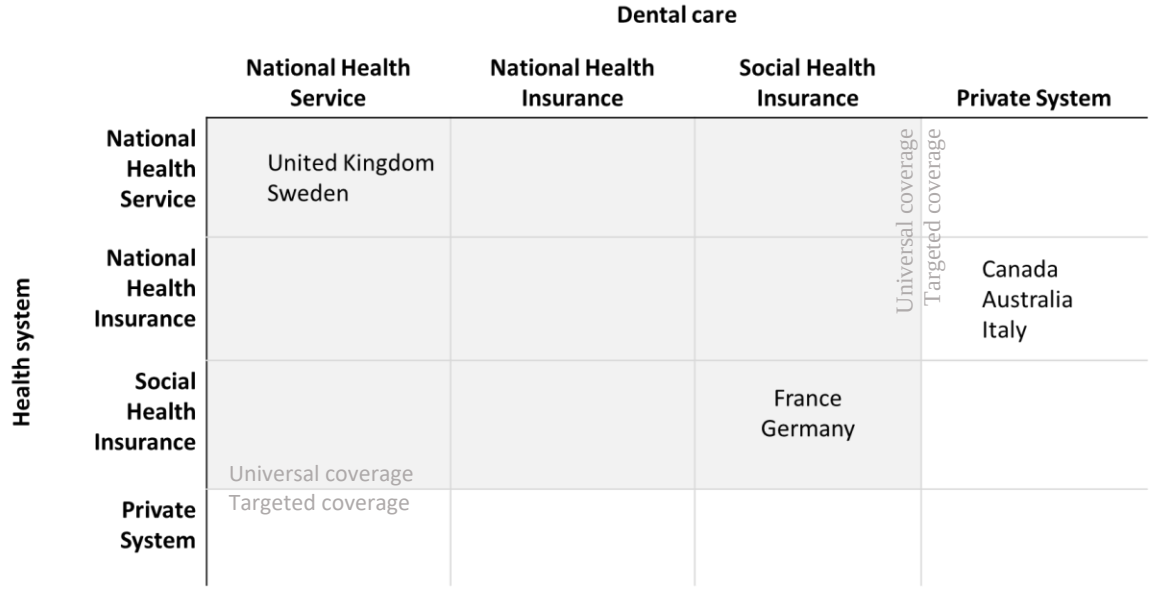
# Analytic Overview

*Breadth of coverage: Who is covered?*

Among our seven jurisdictions, we identify two broad models of breadth of dental care coverage for all adults and for adults 65 and older: universal and targeted. There appears to be a relationship between the type of health system in a jurisdiction and breadth of dental care coverage: jurisdictions with NHS- or SHI-type health systems include a basket of dental care services within their broader health system, whereas the jurisdictions in our study with NHI (Canada, Australia, & Italy) largely exclude dental care from their health systems.

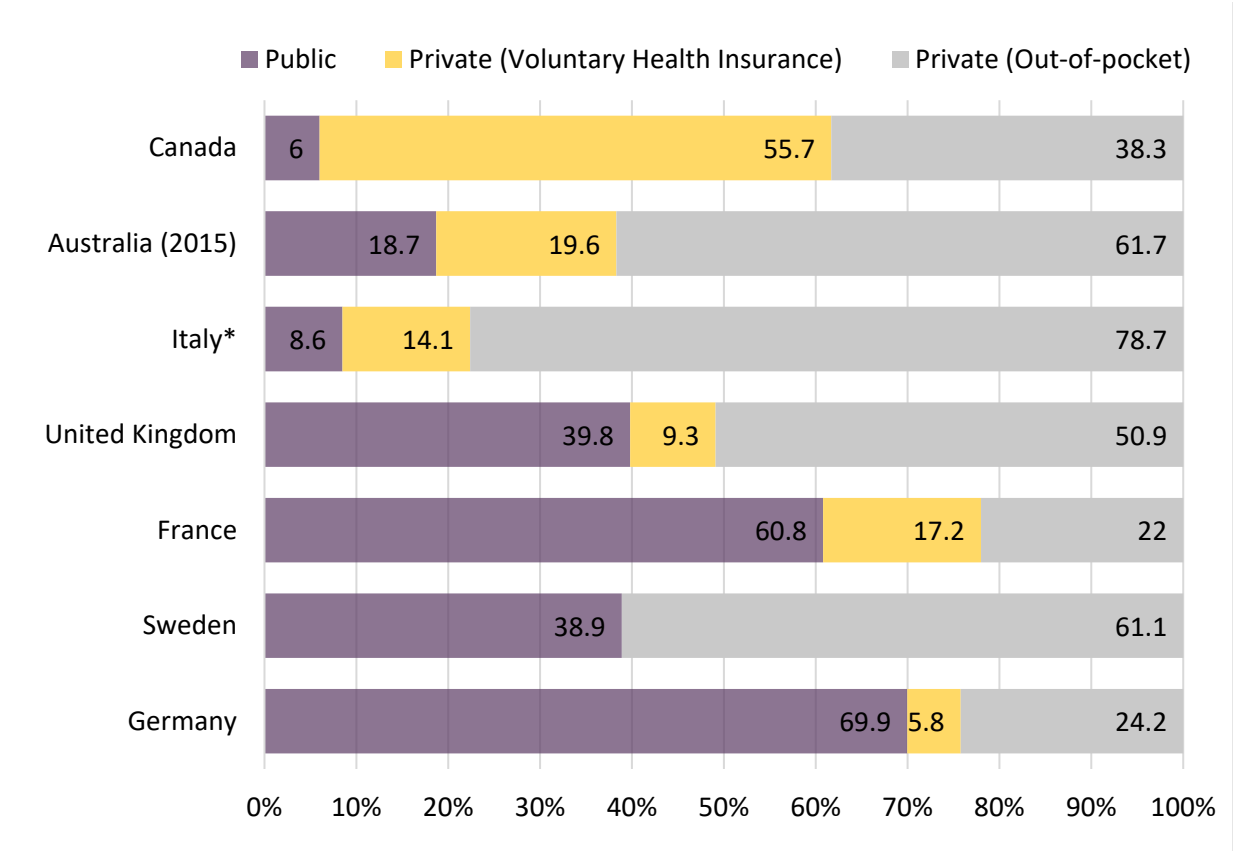
Figure 1 groups the jurisdictions by health system type separately for health care (vertical axis), and for dental care (horizontal axis). In the United Kingdom, Sweden, France, and Germany, dental care operates within the broader health system and thus the breadth of dental care coverage is universal. In contrast, in Canada, Australia, and Italy, dental care sits outside the health system and the majority of dental care services are available through private sources (voluntary health insurance or out-of-pocket payments) (Figure 2). These latter three jurisdictions would be categorized as "targeted" in their breadth of coverage given that the public funds are aimed at specific population subgroups. Further details on inter-jurisdictional comparisons are available in Appendix D.

*Figure 1. Mapping universal and targeted health and dental care coverage*




Source: Compiled by the authors and adapted from Böhm et al. (2013) and Cuadrado et al. (2019).

*Figure 2. Sources of funding dental care across included jurisdictions*




Source: OECD Health Statistics 2018; *Italian estimate provided separately (ISTAT, Italian National Institute of Statistic, 2015).

Jurisdictions with universal breadth of dental coverage have two layers of coverage: the first layer includes a basic basket of dental services and depth of coverage for everyone; the second layer provides extended coverage for a subset of the population. Table 2 describes the eligibility criteria for groups to gain any public coverage in Canada (Alberta), Australia (New South Wales), and Italy, and for extended coverage that is available for a subset of the population in England, France, Sweden, and Germany. Sweden is the only jurisdiction included in this review that provides extended dental care coverage for all older adults (≥65 years old),[3] whereas Alberta and New South Wales offer extended coverage only to older adults who meet additional income criteria.

[3] In Sweden, all adults are eligible for subsidized dental care, where the amount of coverage varies by age group. Individuals 24-29 years old and those 65 and older receive 600 SEK per year, whereas individuals 30 to 64 years old receive 300 SEK per year.

*Table 2. Eligibility criteria for targeted/extended public dental care coverage in included jurisdictions*

| | Overview of eligibility criteria |
|---|---|
| Canada (AB) | • **Age**: must be at least 65 years of age; **AND**<br>• **Income**: not earn more than established program thresholds |
| Australia (NSW) | • **Age**: must be at least 65 years of age; **AND**<br>• **Income**: eligible for the Commonwealth Seniors Health Card (e.g., not earn more than established program thresholds) |
| Italy | • **Income**: means-tested; declaration of financial hardship; **OR**<br>• **Clinical need**: certificate of systemic disease or disability |
| England[1] | • **Income**: means-tested |
| France[1] | • **Income**: means-tested; **OR**<br>• **Clinical need**: patients with chronic disease |
| Sweden[1] | • **Age**: must be 65 years of age; **OR**<br>• **Clinical need**: based on clinical assessment; require medical/dental note. |
| Germany[1] | • **Income**: means-tested |

[1] Eligibility criteria for extended dental coverage.

*Depth of coverage: How much of the costs are covered?*

Within the jurisdictions with universal coverage the depth of coverage ranges from shallow coverage (i.e., patients contribute to the costs in the form of co-payments or co-insurance) to deep coverage (minimal or no cost sharing). Table 3 compares the depth of coverage within and between jurisdictions with targeted and universal coverage, and provides some additional information relevant to the depth of coverage within each jurisdiction.

*Table 3. Payment and public dental care coverage mechanisms in included jurisdictions*

| | Public dental care coverage available for all older adults (≥65 years old)[1] [universal] | Public dental care coverage available for older adults (≥65 years old) who meet specific eligibility criteria[1] [targeted/extended coverage] |
|---|---|---|
| Canada (AB) | | Deep<br>Full costs covered for included services |
| Australia (NSW)[2] | | Deep<br>Full costs covered for included services |
| Italy | | Deep<br>Full costs covered for included services |
| England | Shallow<br>Fixed co-payment | Deep<br>Full costs covered for included services |
| France | Shallow<br>Co-pay required | Deep<br>Full costs covered for most services |
| Sweden | Shallow<br>Fixed annual subsidy that can be applied towards dental care services | Shallow+<br>Increased annual subsidy |
| Germany | Deep<br>Full costs covered for most included services | Deep<br>Full costs covered for most services |

[1] Universal: Dental coverage available for the entire adult population (individuals 20 years and older) that also covers older adults. Targeted/extended: Dental coverage available for a subset of adults (including older adults) who meet income or clinical-need criteria.

[2] Emergency dental care is available through public oral health clinics at no cost although dental pain alone is not considered an oral health emergency.

Table 3 describes the depth of coverage for older adults who do not meet financial or clinical criteria, which ranges from no coverage (patients pay the full cost of dental care) in Canada, Australia,[4] and Italy, shallow coverage (patients pay some of the costs) in England, France, and Sweden, to deep coverage (patients pay little-to-no costs) in Germany. While there is some variation across the seven jurisdictions in depth of dental coverage, there is also variation within jurisdictions. Specifically, as noted in the previous section, in most jurisdictions, there is deeper coverage for a subset of the older adult population based on meeting an income or clinical-needs threshold, than for the overall population of older adults.

There is some variation in the mechanisms used to offset the costs of dental care for eligible recipients. For example, in Canada, Italy, and Australia, there is no co-pay required from older adults who meet

[4] Australia (New South Wales) is somewhat of an outlier where emergency dental services in dental clinics (outside of hospital) are provided for all adults at no cost, but due to significant budget constraints, the number of people who can benefit from these services is very low. NSW Health define emergency treatment in the context of oral heath as patients with dental trauma or injury, and the following where the cause is suspected to be dental in origin: swelling of the face or neck; swelling in the mouth; significant bleeding from the mouth, and; difficulty opening jaw and/or swallowing.

specific eligibility criteria. In France, patients pay 30 per cent of the costs set by dentists for most dental care services, and a subgroup of the population, including but not limited to older adults who meet income or clinical-need criteria, are entitled to extended or full-cost coverage for these services. In Sweden, patients receive a fixed annual subsidy towards dental care services, with the amount depending on age and clinical need for care. For older adults who meet a clinical need for dental care, this subsidy can be increased to further offset costs to patients. In Germany, the full cost of dental care services that follow a recommended standard of treatment is covered by the SHI system.

*Scope of coverage: Which dental services are covered?*

Below we add the third dimension of coverage – scope – to the comparison of dental coverage across the seven jurisdictions. Table 4 summarizes the breadth, depth and scope of coverage available for all older adults (universal coverage), and for the targeted/extended coverage which is more generous in most jurisdictions. Table 5 provides more details on scope of coverage for different types of dental care services.

*Table 4. Dental coverage available to older adults (≥65 years old) in jurisdictions with targeted coverage*

| | Coverage available to all older adults (≥65 years old) [universal coverage] | | Coverage available to a subset of older adults (≥65 years old) who meet income or clinical-need criteria [targeted/extended coverage] | |
|---|---|---|---|---|
| | **Depth[1]** | **Scope** | Depth[1] | Scope |
| Canada (AB) | | | Deep | Basic + Denture |
| Australia (NSW) | | | Deep | Comprehensive + Major |
| Italy | | | Deep | Comprehensive |
| England | Shallow | Comprehensive + Dentures | Deep | Comprehensive + Denture |
| France | Shallow | Comprehensive + Dentures | Deep | Comprehensive |
| Sweden | Shallow | Comprehensive + Dentures | Shallow+ | Comprehensive + Dentures |
| Germany | Deep | Comprehensive + Major | Deep | Comprehensive + Major |

[1] This summary classification may not reflect the depth of coverage for all covered services (see Table 5).

With the exception of Sweden, all jurisdictions provide greater coverage (as measured in terms of depth of coverage, or scope of coverage, or both) for a subset of older adults than the general older adult population. In Germany, the distinction is only apparent when we take a closer look at the specific services

covered (Table 5), whereby the subset of the population (based on income) in Germany has deeper coverage for major services than the general population.

In general, most countries commit to a minimum scope of basic dental care services that include routine and preventive dental care, such as exams, x-rays, scaling, fillings, and tooth extractions. There are few universal programs that provide comprehensive coverage, such as root canal therapy, periodontal treatment (management of gum disease), or major fillings (crowns and bridges), which are often higher cost procedures. Importantly, major services, such as crowns, bridges, and denture services, are often accompanied with lab processing fees that are not covered by public funds. Six jurisdictions cover denture services (shallow or deep), that may include repairs to existing dentures and fabrication of new dentures. Full (deep) coverage for major services, such as crowns and denture services, are only available to a subset of individuals who meet financial or clinical criteria in Australia, England, and Germany.

*Table 5. Summary of depth and scope of coverage available to individuals ≥65 years old across seven jurisdictions*

| | | Comprehensive services | | | | | | | | Major services | | Esthetic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Basic services | | | | | Root canal | Periodontal (gum) treatment | | Major fillings | Dentures | |
| | | Routine exams | Routine x-rays | Scaling | Fillings | Tooth extractions | | | | | | |
| Canada | Universal | - | - | - | - | - | - | - | | - | - | - |
| | Targeted/ Extended | Deep | Deep | Deep | Deep | Deep | Deep | - | | - | Shallow | - |
| Australia (NSW) | Universal | - | - | - | - | - | - | - | | - | - | - |
| | Targeted/ Extended | Deep | Deep | Deep | Deep | Deep | Deep | Deep | | Deep | Deep | - |
| Italy | Universal | Shallow | - | - | - | - | - | - | | - | - | - |
| | Targeted/ Extended | Deep | Deep | Deep | Deep | Deep | Deep | Deep | | - | - | - |
| England | Universal | Shallow | Shallow | Shallow | Shallow | Shallow | Shallow | Shallow | | Shallow | Shallow | - |
| | Targeted/ Extended | Deep | Deep | Deep | Deep | Deep | Deep | Deep | | Deep | Deep | - |
| France | Universal | Shallow | Shallow | Shallow | Shallow | Shallow | Shallow | Shallow | | Shallow | Shallow | - |
| | Targeted/ External | Deep | Deep | Deep | Deep | Deep | Deep | Deep | | Shallow | Shallow | - |
| Sweden[2] | Universal | Shallow | Shallow | Shallow | Shallow | Shallow | Shallow | Shallow | | Shallow | Shallow | - |
| | Targeted/ Extended | Shallow | Shallow | Shallow | Shallow | Shallow | Shallow | Shallow | | Shallow | Shallow | - |
| Germany | Universal | Deep | Deep | Deep | Deep | Deep | Deep | Deep | | Shallow | Shallow | - |
| | Targeted/ Extended | Deep | Deep | Deep | Deep | Deep | Deep | Deep | | Deep | Deep | |

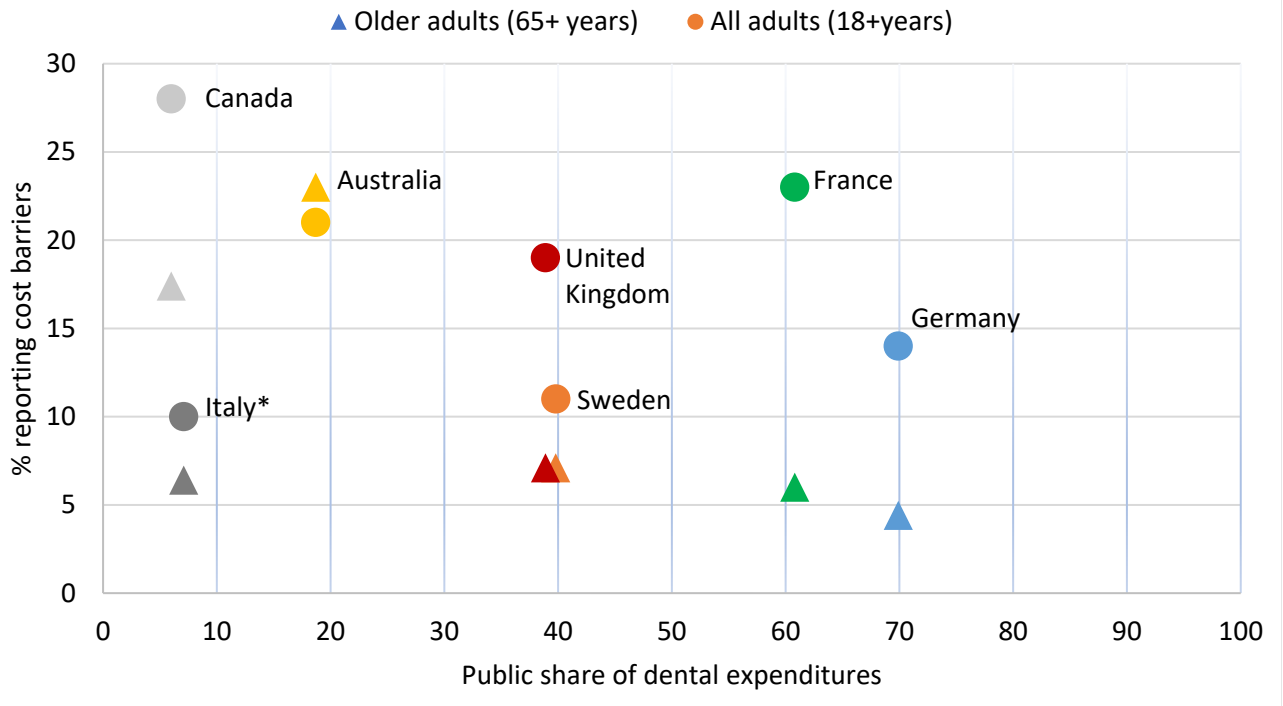
**Note**: While we focus on older adults aged 65 years and older, as noted in Table 1, *Universal* refers to coverage of the majority of the population, and *Targeted/extended* refers to coverage available to a subset of the population who meet an income or clinical-need criteria.

[2] Deeper coverage (additional subsidies) is available for adults ≥65 years old.

*Evidence of the impact of public dental coverage models*

This review identified 15 peer-reviewed articles that compare outcomes or assess the performance of public dental coverage models in any of the seven included jurisdictions (Appendix B provides a brief summary of these studies). Data from the 2016 and 2017 Commonwealth Fund international surveys highlight greater cost barriers to dental care in the adult population (18+ years) compared to older adults (65+ years), with the exception of Australia (Figure 3); this suggests that older adults have some financial protection across most jurisdictions. Overall, cost barriers to dental care for adults and older adults are more pronounced in Italy, France, and Sweden compared to Germany and the United Kingdom (Tchicaya & Lorentz, 2014; Chaupain-Guillot & Guillot, 2015). Generally, there are greater differences in dental care visits between low- and high-income earning adults in Italy (targeted coverage), compared to France, Sweden, and the United Kingdom, with no significant inequality in the United Kingdom (Tchicaya & Lorentz, 2014).

*Figure 3. Cost barriers to accessing dental care for adults and older adults across jurisdictions*




Source: OECD Health Statistics, 2018; Commonwealth Fund International Health Policy Surveys (2016; 2017).
*Italian estimates provided separately (ISTAT, Italian National Institute of Statistic, 2015.)

Few studies investigate the impacts of different coverage models on dental care outcomes (Table 6). Based on Canadian data, jurisdictions with public dental coverage for older adults (≥65 years) report more favorable oral health outcomes for this age group (Dehmoobadsharifabadi, 2016). Changes to and differences in depth of coverage also appear to impact dental utilization patterns, as shown in France and Sweden (Davidson et al., 2015; Maille et al., 2017).

*Table 6. Evidence on the impacts of dental coverage characteristics (breadth, depth, and/or scope)*

| Source | Description of dental coverage characteristic or change | Reported impact |
|---|---|---|
| Dehmoobadisharifabad 2016 (Canada) | Presence of dental coverage for seniors | ↑ Proportion of older adults visiting the dentist compared to jurisdictions with no coverage for older adults program |
| Davidson 2015 (Sweden) | ↓ depth (financial subsidy) and scope (number of eligible services) of coverage for older adults | ↓ dental service utilization |
| Wastesson 2014 (Sweden) | ↓ depth (financial subsidy) and scope (number of eligible services) of coverage for older adults | No change in reported cost barriers<br>↓ Education inequalities in dental access |
| Molarius 2015 (Sweden) | ↓ depth (financial subsidy) and scope (number of eligible services) of coverage for older adults | ↑ Proportion of individuals who were not financially secure refrained from dental care due to cost |
| Maille et al 2017 (France) | Lower depth (reimbursement rates) of denture placement and maintenance compared to other services (check-ups and dental fillings) | ↑ Proportion reporting cost barriers |

↑ refers to increases (longitudinal studies) or higher rates/proportions (cross-sectional studies), whereas ↓ refers to decreases or lower rates/proportion.

The rapid literature review also revealed several considerations for the design of public dental care coverage models (Table 7 & Appendix B). First, social and cultural factors, including language, education, and health literacy may impact access to care for particular subgroups of older adults (e.g., immigrants) (Aarabi et al., 2018). Second, clinical needs and dental utilization patterns may differ between low- and high-income earning older adults (McKenzie et al., 2017), which may be considered when developing coverage models for subgroups of the population. Third, when publicly funded dental care is available in public and private dental clinic settings (Sweden & the United Kingdom), there does not appear to be any differences in perceptions of quality of care or cost barriers to care for adults and older adults (Derblom et al., 2017; Tickle et al., 2014). Finally, the method of paying dentists and delivery setting in Australia appears to impact outcomes: One study found that salaried dentists in public clinics are more cost effective and have lower overall costs than dentists in private clinics who are paid by FFS or vouchers; yet dentists in private clinics paid by vouchers were associated with higher volume of services provided than the other two payment and delivery models (Conquest et al., 2017).

*Table 7. Factors influencing dental care outcomes across included studies*

| Outcome | Factors | Impact | Reference |
|---|---|---|---|
| Self-reported cost barriers | • Clinical oral health status<br>• Immigrant status<br>• Lower socioeconomic status<br>• Treatment recommendations<br>• Type of dental treatment (e.g. check-ups, denture repair/placement, dental fillings)<br>• Dental clinic setting (public v. private) | +/-<br>+/-<br>-<br>+/-<br>+/-<br><br>nil | Aarabi 2017<br>Aarabi 2017<br>Molarius 2015<br>Aarabi 2017<br>Maille 2017<br><br>Derblom 2016 |
| Dental visiting behaviour | • ↑Age<br>• Self-reported poor oral health<br>• Immigrant status<br>• Individual behaviour or cultural factors<br>• Nervousness/fear<br>• Dental clinic setting (public v. private) | -<br>-<br>+/-<br>+/-<br>-<br>nil | McKenzie et al. 2017<br>Dehmoobadisharifabadi 2016<br>Aarabi, 2017<br>Aarabi, 2017<br>Maille 2017<br>Derblom 2016 |
| Service utilization | • Lower socioeconomic status<br>• Type of dental treatment<br>• Dental clinic setting (public v. private)<br>• Inadequate reimbursement<br>• Reduced reimbursement levels | -<br>+/-<br>nil<br>-<br>- | McKenzie 2017<br>Maille 2017<br>Derblom 2016<br>Maille 2017<br>Davidson 2015 |
| Oral health status | • Immigrant status<br>• Socioeconomic status<br>• Dental clinic setting (public v. private patient) | +/-<br>+/-<br>+/- | Aarabi 2017<br>McKenzie 2017<br>Derblom 2016 |
| Perceived quality and/or availability of care | • Public (NHS) v. private patients | nil | Tickle 2015 |
| Program costs | • Fee-for-service (FFS) dentists in private practice v. salaried dentists in public clinics or voucher payments for dentists in private practice models | + | Conquest, 2018 |
| Cost-effectiveness | • Salaried dentists in public clinics v. FFS or voucher payments for dentists in private practice | + | Conquest, 2018 |
| Volume of services provided | • Voucher payments for dentists in private practice v. FFS private practice dentists or salaried dentists in public clinics | + | Conquest, 2018 |

Impact is described as a positive relationship(+), negative relationship(-), no relationship(nil), or complex relationship (+/-).

# Conclusion

All seven jurisdictions included in this review provide some public coverage for the cost of dental care. The jurisdictions we include with NHS (England & Sweden) or SHI (France & Germany) health systems include basic dental care within their broader health system; they also provide deeper coverage to a subset of the population who meet income or clinical-need criteria. Jurisdictions with NHI systems (Canada, Australia, & Italy) cover the full cost of basic services only for a subset of the population. In all jurisdictions, the scope of coverage goes beyond basic services. As well, all jurisdictions with universal dental coverage, except Sweden, do not make any distinction to coverage or eligibility based on age; thus, there is no change to coverage when an individual turns 65.

There is limited evidence from the scholarly literature on the performance and equity impacts of different public dental coverage models. While there are greater differences in dental visiting behaviour between low- and high-income earning adults in jurisdictions with targeted coverage compared to universal coverage, cost barriers for older adults are prevalent in all jurisdictions. Finally, there is some evidence to suggest that restricting scope and depth of coverage may impact dental care utilization for older adults.

From this review, we identify three broad models of coverage:

1. Universal and deep coverage of a comprehensive basket of services (including major fillings, such as crowns and bridges, and dentures), as found in Germany, which provides the greatest financial protection against the cost of dental care.
2. Universal and shallow coverage of a comprehensive set of services (including major fillings and dentures), as found in England, France and Sweden, with some financial protection alongside individual user fees.
3. Targeted and deep coverage, as found in Alberta, New South Wales and Italy, which provides full financial protection for a subset of the population that are considered most vulnerable in terms of age, clinical and/or financial need. This model of coverage most closely resembles the proposed low-income dental program for seniors in Ontario (Government of Ontario, 2019). These three programs provide deep (full) and targeted coverage for basic services, though there are some important variations: In Italy there is no coverage for higher-cost services (crowns, bridges, or fabrication of new dentures); in Alberta there is shallow coverage for dentures (and no coverage for crowns or bridges); whereas in New South Wales there is deep coverage of both of these major services.

# Appendix A: Rapid Review Strategy

Database(s): **Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE®** 1946-Present

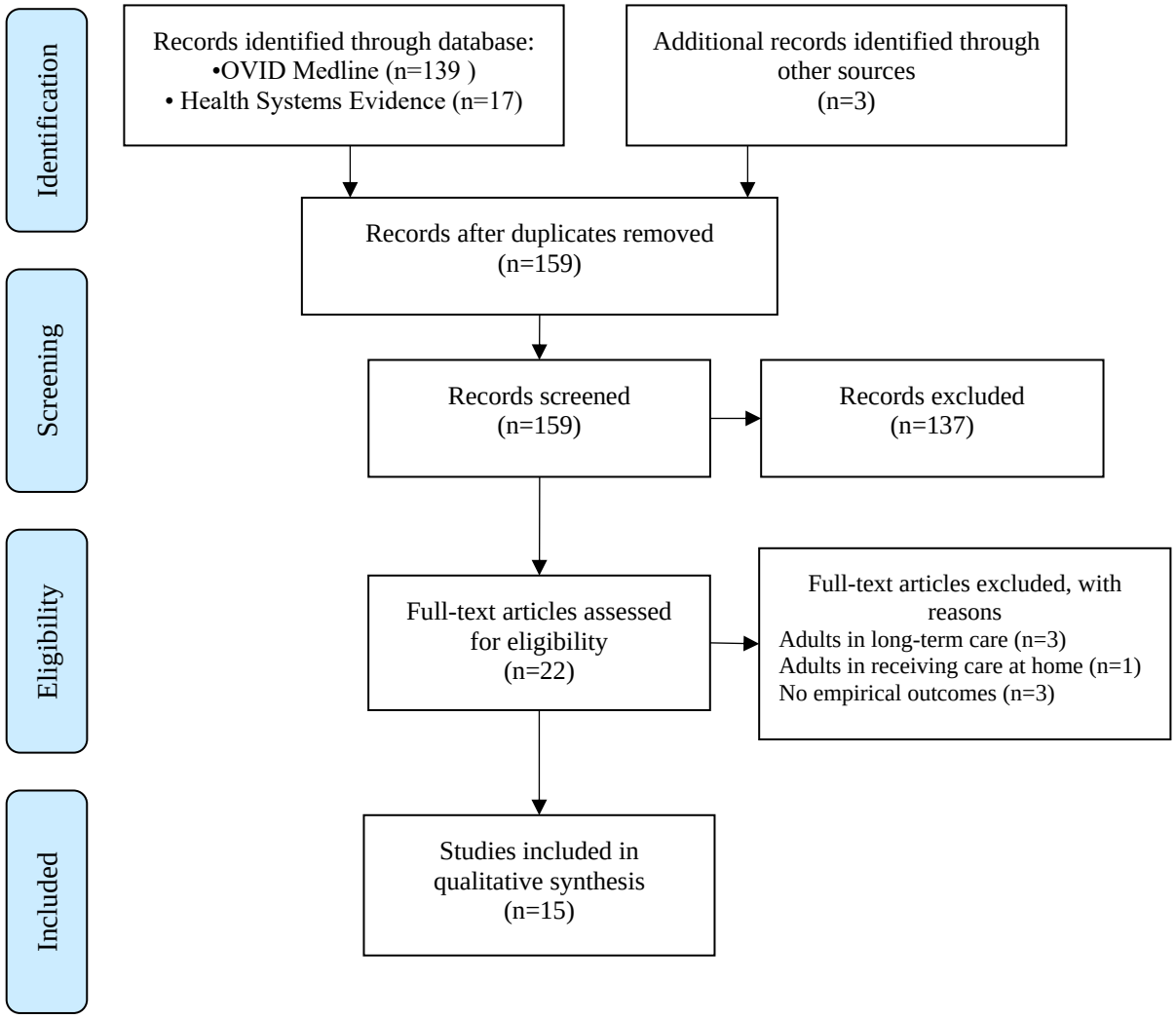
| # | Searches | Results |
|---|---|---|
| 1 | "Canada".mp. | 136582 |
| 2 | "Alberta".mp. | 11913 |
| 3 | "New South Wales".mp. | 15864 |
| 4 | "Australia".mp. | 150122 |
| 5 | "England".mp. | 112859 |
| 6 | "United Kingdom".mp. | 241188 |
| 7 | "France".mp. | 121179 |
| 8 | "Italy".mp. | 112805 |
| 9 | "Germany".mp. | 187915 |
| 10 | "Sweden".mp. | 88514 |
| 11 | "dental care".ab,kw,ti. | 11501 |
| 12 | Dental Care/ | 20357 |
| 13 | "dental health program".ab,kw,ti. | 141 |
| 14 | "dental program".ab,kw,ti. | 368 |
| 15 | "oral health care".ab,kw,ti. | 3169 |
| 16 | "dental service".ab,kw,ti. | 1987 |
| 17 | Insurance, Dental/ or "dental coverage".ab,kw,ti. | 5454 |
| 18 | "program evaluation".ti,ab,kw. or Program Evaluation/ | 62837 |
| 19 | "evaluat*".ti,ab,kw. | 3219892 |
| 20 | "older adult".ti,ab,kw. | 6586 |
| 21 | "older people".ti,ab,kw. | 26203 |
| 22 | elderly.ti,ab,kw. or Aged/ | 2969994 |
| 23 | "seniors".ti,ab,kw. | 6846 |
| 24 | "Europe".mp. | 172295 |
| 25 | "adult".mp. | 5331253 |
| 26 | "low income".mp. | 31716 |
| 27 | "favorable selection".mp. | 77 |
| 28 | "cream skimming".mp. | 67 |
| 29 | "risk selection".mp. | 304 |
| 30 | "unmet needs".mp. | 5225 |
| 31 | "wait times".mp. | 1724 |
| 32 | "access".mp. | 290407 |
| 33 | "equity".mp. or exp Health Equity/ | 13810 |
| 34 | exp Health Care Reform/ or reform.mp. or exp Health Policy/ | 121151 |
| 35 | 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 24 | 1238569 |
| 36 | 18 or 19 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 | 3609702 |
| 37 | 11 or 12 or 13 or 14 or 15 or 16 or 17 | 35673 |
| 38 | 20 or 21 or 22 or 23 or 25 or 26 | 6591685 |
| 39 | 35 and 36 and 37 | 991 |

| | | |
|---|---|---|
| 40 | 35 and 36 and 37 and 38 | 462 |
| 41 | limit 40 to (english language and yr="2014 -Current") | 139 |

Database: **Health Systems Evidence Search Strategy**

| | |
|---|---|
| **Keywords** | ("dental health program" OR "dental service program" OR "dental program" OR "dental care" OR "dental service" OR "dental delivery system" OR "dental") |
| **Filters** | Countries: Australia, Canada, France, Germany, Italy, Sweden, United Kingdom` |
| **Results** | 17 records |

*Figure A1. Rapid review search strategy results*



# Appendix B: Scoping Review Results

*Table B1. Empirical comparisons of public dental coverage models across included jurisdictions*

| Authors/ Year | Study design and population | Jurisdiction and coverage descriptor | | | Outcome | | | |
|---|---|---|---|---|---|---|---|---|
| Listl et al. 2016 | Cross-sectional survey<br><br>Older adults (51 years and older) who participated in the 2004-2005 Survey of Health, Ageing, and Retirement in Europe (SHARE) | | | | Percentage of cost-related dental non-attendance | | | |
| | | France | n/a | | 3.4 (SD 18.1) | | | |
| | | Italy | n/a | | 1.5 (SD 12.1) | | | |
| | | Germany | n/a | | 3.3 (SD 17.9) | | | |
| | | Sweden | n/a | | 4.7 (SD 21.3) | | | |
| Chaupain-Guillot et al. 2015 | Cross-sectional survey<br><br>Individuals 16 years and older who participated in the 2009 European Union Statistics on Income and Living Conditions (EU-SILC) | | | | % with unmet needs | | % with unmet needs due to cost | |
| | | France | n/a | | 5-10 | | ~50 | |
| | | Italy | n/a | | 10-15 | | >50 | |
| | | Germany | n/a | | 0-5 | | ~50 | |
| | | Sweden | n/a | | 10-15 | | ~50 | |
| | | United Kingdom | n/a | | 0-5 | | <25 | |
| Tchicaya et al. 2017 | Cross-sectional survey<br><br>Individuals 16 years and older who participated in the 2007 EU-SILC | | Density of dentists | % of public dental coverage | % reporting non use of dental care (males \| females) | % of non-use who report financial barriers (males \| females) | Inequality in non-use of dental care (RII) | |
| | | France | 6:10,000 | < 50 | 6.3 \| 6.4 | 42.0 \| 56.9 | 2.27 [1.89, 2.72] | |
| | | Italy | 6:10,000 | < 50 | 9.0 \| 10.3 | 58.8 \| 61.5 | 3.03 [2.25,4.08] | |
| | | Sweden | 8:10,000 | < 50 | 11.6 \| 11.2 | 48.4 \| 62.3 | 2.08 [1.45,2.97] | |
| | | United Kingdom | 10:10,000 | > 50 (76-99) | 4.4 \| 4.4 | 11.8 \| 12.0 | 1.14 [0.73,1.78] | |
| Elstad et al. 2017 | Cross-sectional surveys<br><br>Adults 20-74 years old who participated in the 2008/2009 and 2012/2013 EU-SILC | | % of public dental coverage | | % foregone dental care | Diff. between lowest v. highest income (2008) | Change in difference (2008/09 to 2012/13) | |
| | | France | 35 % | | 4.8 | 7.1 | + 1.4 | |
| | | Italy | 12 % | | 8.4 | 10.0 | + 4.1 | |
| | | Germany | 65 % | | 2.0 | 4.6 | - 1.2 | |
| | | Sweden | 38 % | | 6.0 | 11.3 | - 1.7 | |
| Manski et al. 2017 | Cross-sectional survey | % reporting OOP payments | | | Relationship between demographic and socioeconomic factors on reporting OOP | | | |
| | | | | | Age | Education status | Income level | Dental insurance |

| Authors/ Year | Study design and population | Jurisdiction and coverage descriptor | | Outcome | | | |
|---|---|---|---|---|---|---|---|
| | Older adults (51 years and older) who participated in the 2006/2007 Survey of Health, Ageing, and Retirement in Europe (SHARE) and visited the dentist in the last 2 years | France | 13.42 (1.55 S.E.) | No association | Increase OOP with increased education level | Increase OOP with increased income | Higher OOP with dental insurance coverage |
| | | Italy | 46.2 (3.19 S.E.) | Decreased OOP with increased age | Increase OOP with increased education | Increase OOP with increased income | Lower OOP with dental insurance coverage |
| | | Germany | 62.0 (2.76 S.E.) | Decrease in OOP with increased age | Increase OOP with increased education level | Increase OOP with increased income | Lower OOP with dental insurance coverage |
| | | Sweden | 87.94 (0.84 S.E.) | Increased OOP with increased age | Decreased OOP with increased education level | Increase OOP with increased income level | Higher OOP with dental insurance coverage |

**Table B2**. Studies that explore public dental coverage models across included jurisdictions.

| Author/Year/Country | Study design and population | Public dental coverage model | Summary of findings |
|---|---|---|---|
| Davidson et al. 2015<br><br>Sweden | Retrospective cohort<br>(07/2007-06/2009)<br><br>Adult patients 19 years or older with tooth loss<br><br>National Dental Health Insurance (Swedish Social Insurance Agency) | Changes to depth and to scope for older adults (more restricted)<br>• 2003: higher level of subsidy available for dental care in patients 65 years and above.<br>• June 30, 2008: Reduced financial subsidy for individuals >65 years old for specific services: tooth and implant supported construction, and other expensive prosthodontic services.<br>• July 1, 2008: Reduced number of services eligible for coverage; only treatment approved and listed by the Swedish Dental and Pharmaceutical Agency (list not provided) | • Decrease in the proportion of reimbursement for prosthodontic treatment in patients aged 65 and above in relation to those aged under 65 years after 2008 (change in depth of coverage).<br>• The proportion of elderly patients who received fixed dental prostheses and tooth supported single crowns decreased after July 1, 2008 (reduced subsidy and scope of services). |
| Molarius et al. 2015<br><br>Sweden | Cross-sectional survey<br>(04/2012-06/2012)<br><br>Adults 16-84 years old (survey released to County of Västmanland) | • After 2008 Swedish dental care reform<br><br>• Reform with the goal to maintain good OH for those with little to no dental treatment needs; and to provide dental treatment for those with extensive needs at reasonable, subsidized cost. | • 73% of 65 to 84 year old adults reported good oral health and 90% reported regular dental attendance;<br>• A higher proportion of individuals who reported being financially secure (measured by cash margin) reported good oral health (75%) compared to individuals without cash margin (55%).<br>• Higher proportion of individuals without a cash margin refrained from dental care in the past 3 months due to cost (26%) compared to those with a cash margin (4%).<br>• Difference between cash margins increased with age (up to retirement age) and had a greater difference than between age groups |
| Derblom et al. 2016<br><br>Sweden | Retrospective cohort<br>(2010 – 2014)<br><br>Adult patients 75 years or older who paid for dental care in accordance to Swedish Social Insurance Agency | • Comparison of dental attendance and utilization of dental services in older adults who access care in public dental clinics (Public Dental Service) to those in private dental clinics (Private Dental Service) | • Higher proportion of individuals receiving Private Dental Service with implants (26.2%) and edentulous individuals with both jaws/no natural teeth (5.1%) compared to those receiving care in Public Dental Service (implants: 13.2%, both jaws: 1.7%);<br>• No difference in proportion of adults who discontinued care after baseline examination (~10% of patients)<br>• Financial reasons were only noted in ~2% of cases when examinations had not taken place (unexpected finding) |

| Author/Year/Country | Study design and population | Public dental coverage model | Summary of findings |
|---|---|---|---|
| Wastesson et al. 2014<br><br>Sweden | Three cross-sectional surveys (1992-2011)<br><br>Adults 76 years and older, including institutionalized (only constituted 10% of sample) and community-dwelling persons who participated in the Swedish Panel Study of the Living Conditions of the Oldest Old | • Data from before (1992, 2002) and after (2011) 2008 Swedish dental care reform (see Davidson 2015 above for description) | • Between 2002 and 2011 the proportion of older adults (77 years and older) who refrained from dental care dropped from 7.5 to 4.9%; the proportion who refrained due to financial reasons did not change (0.99 to 1.1%)<br>• The number of patients who accessed dental services increased from 40% to 70% between 1992 and 2011<br>• Inequalities in accessing dental care services (measured by education level) decreased between 1992, 2002, and 2011. |
| Aarabi et al. 2018<br><br>Germany | Cross-sectional survey (11/2012-03/2014)<br><br>Adults 60 years and older, German residents with mix of immigrant/ non-immigrant background who participated in an in-person interview. | Comparison of barriers to dental care services between migrants and non-migrant older adults in Germany | • Identified differential utilization of dental care services and oral hygiene behaviours between older adults with and without immigration backgrounds (migrants v. non-migrants)<br>• >60% of migrants had difficulties in receiving dental treatment, with main reasons cited as cost concerns and language barriers<br>• Non-migrants (21.6%) reported difficulties in receiving dental care; cost concerns less frequently reported<br>• Differences in clinical oral health status and oral hygiene, cost of care and treatment recommendations may influence cost barriers to care and utilization of services. |
| Maille et al. 2017<br><br>France | Retrospective cohort study (2008-2009)<br><br>Adults aged 60 years and older, French residents. Approximately 70% of respondents were home-dwellers (remaining were institutionalized patients) | Universal public dental care system that provides shallow coverage for comprehensive dental services and deep coverage for a subset of individuals with clinical or financial need. | • Most respondents had visited a general physician in the past 12 months (94.26%), but fewer had visited a dentist (46.24%)<br>• Those who forgone care tended to forego dental care (71.08%).<br>• Reasons to forego dental care: cost (66.3%), nervousness/fear (6.68%), and postponement (4.12%); type of care forgone most commonly was the placement and/or maintenance of dental appliances (72.48%), followed by checkup visits (14.59%), and treatment of caries (~12%)<br>• Forgoing of placement/maintenance of dentures corresponds to cost barriers and inadequate reimbursement of this type of care by health coverage system |

| Author/Year/Country | Study design and population | Public dental coverage model | Summary of findings |
|---|---|---|---|
| Dehmoobadisharifabadi et al. 2016<br><br>Canada | Cross-sectional survey (2007-2008)<br><br>Individuals 12 years and older who participated in the 2007/2008 Canadian Community Health Survey. | Comparison of dental visits in the past 12 months and self-reported oral health status across Canadian jurisdictions | •Among all three age groups, those with poor oral health had higher odds of not visiting dentists in comparison to those with excellent oral health, but when stratified by age group, this finding was lowest among seniors (adjusted IOR: 1.40) in Alberta compared to other jurisdictions |
| McKenzie et al. 2017<br><br>United Kingdom | Retrospective cohort study (04/2014-06/2015)<br><br>Adults 65 years and older who interacted with the NHS dental care system. | Access to dental care for older adults eligible for National Health Insurance | • Lower dental attendance rate with increasing age<br>• Rates of extraction and upper dentures were higher for individuals with higher deprivation (IMD=1,2,3) than lower deprivation (IMD=8,9,10); 1.5 times greater rate of extractions in lowest decile compared to highest decile (Fig 2); and 3.4 greater rate of upper dentures.<br>• Rates of permanent fillings were higher for individuals who were less deprived in all older age groups |
| Tickle et al. 2015<br><br>United Kingdom | Cross-sectional survey (2014)<br><br>Adults 18 years and older who participated in a survey. | Comparison between patients who access dental care through NHS vs. private vs. mixed (NHS and private). | • 57% of participants use NHS services only, 20% use private sector care only<br>• Both NHS and private dentist patients perceived the care they received was of good quality (81.1, 88.2, respectively), and were able to get an appointment if needed (80.4,84.4, respectively)<br>• A lower proportion of private patients felt the service that they get from their dentist was good value for money (54.9) compared to NHS dentists (68.6) |
| Conquest et al. 2018<br><br>Australia | Case study with economic modelling (2011-2015)<br><br>Adults 65 years and older who used public dental services in New South Wales Australia | Comparison of payment models: Capped Payment formula, fee-for-service model, and NSW Government services payment model.<br>• Capped-fee model - provides a voucher for patients to access timely care by private dentists. Offered full course of care, excluding dentures.<br>• NSW Government - general dentistry by salaried paid providers - exams, restorations, extractions, and dentures; limited specialist services.<br>• Fee for service - offered through private dentist services providing emergency, general treatment, and dentures. | • Government Services provided relatively consistent trend of diagnostic care<br>•Fee-for-service: most commonly diagnostic and restorative<br>•Capped-fee model provided the most dental care between 2012 and 2014<br>•Government model was considered most cost-effective<br>•Fee-for-service model generally more costly |

# Appendix C: Overview of Dental Care System Characteristics Across Jurisdictions

| Domain/ Description | Canada (Alberta) | England | France | Sweden | Germany | Italy | Australia (NSW) |
|---|---|---|---|---|---|---|---|
| **A. Coverage** | | | | | | | |
| **A1. Breadth** Description of coverage for general population of older adults | No universal dental coverage | Universal dental coverage<br><br>All residents in the UK are covered by the National Health Service (NHS) and oral health care is part of this coverage; there are no special programs or arrangement for senior people. Coverage is universal but substantial co-payment apply. | Universal dental coverage<br><br>All residents in France are covered by the national health system (Santé Publique), which includes oral health care services. | Universal dental coverage<br><br>All residents in Sweden can receive health care from public service and special rules are applied to asylum seekers and undocumented immigrants | Universal dental coverage<br><br>All individuals under social health insurance are eligible for dental services defined in the Social Code Book V. | No universal dental coverage | Universal dental coverage only for emergency or episodic treatment |
| **A1.2 Breadth** Description of population for eligible for targeted/extended coverage | Targeted (financial need)<br><br>The Dental Assistance for Seniors program is meant for those who are greater than 65 years of age who meet certain income thresholds. | Targeted/Extended (financial need)<br><br>There is full coverage (no co-payment) for individuals covered un specific social programs.<br><br>The NHS Low Income Scheme (LIS) may provide partial help with the cost of dental care to those who do not qualify for full help but still have a low income. | Targeted/Extended (financial or clinical)<br><br>Adults are eligible for extended coverage if they are recipients under any of the following publicly-funded programs:<br>• Couverture Maladie Universelle-Complémentaire (CMUc)<br>• Aide au paiemont d'une Complémentaire Santé (ACS)<br>• Aide Médicale d'Etat (AME) | Targeted/Extended (clinical need)<br><br>Adults are eligible for additional subsidies if they have medical conditions that affect their oral health, or oral health impairments due to disease or trauma.<br><br>Act regarding Support and Service for Persons with Certain Functional Impairments (LSS). | Targeted/Extended (financial need)<br><br>If patients are burdened unreasonably by costs they had to bear for defined standard treatment in the context of dentures, they are eligible for a double fixed subsidy, i.e. standard treatment for dentures is fully paid by sickness funds. | Targeted (financial or clinical need)<br><br>Older adults, like the general adult population, can have access to LEAS above those for all citizens due to socio-economic or health reasons. These reasons should be certified to NHS. | Targeted (financial need)<br><br>Publicly funded oral health care services are available to children and adult populations at higher risk of dental disease who cannot afford dental care through private providers. Adults who meet specific criteria are eligible to receive non-admitted oral health care services; this includes older adults. |
| **A1.3 Breadth** Criteria for targeted coverage | • Be 65 years of age or older, and<br>• have lived in Alberta for at least three months immediately | Individuals eligible for:<br>• Income support<br>• Income-based Jobseeker's Allowance | • Patients with chronic disease<br><br>• **Couverture Maladie Universelle-** | **N-tandvård ("necessary" dental care):** | **Unreasonable burdens** defined as:<br>• A gross income per month that | **Health vulnerability:**<br>• "**ascending" criteria:** take into consideration the diseases and the | Eligibility for publicly funded oral health care services in NSW:<br>• Normally reside within the boundary |

| Domain/ Description | Canada (Alberta) | England | France | Sweden | Germany | Italy | Australia (NSW) |
|---|---|---|---|---|---|---|---|
| | before applying be a Canadian citizen, or<br>• have been admitted into Canada for permanent residence have an annual income within established program thresholds | • Income-related Employment and Support Allowance<br>• Pension Credit Guarantee Credit<br>• In the Universal Credit Scheme - if the earnings during the last complete assessment period were £435 or less, or £935 or less with a child or with limited capability for work<br><br>In 2019 the threshold to have access to the scheme was £ 23,250 for people who live permanently in a care home and £ 16,000 for everybody else. This scheme allows to get fully refunded of expenditures for dental care. War Pension and Armed Forces Compensation Schemes also provide exemptions | **Complémentaire (CMUc**) - available to residents who are under a set income threshold (based on family size).<br><br>• **Aide au paiemont d'une Complémentaire Santé (ACS)** - available for residents who are ineligible for CMUc coverage, but whose income is less than 35 per cent above the CMUc threshold.<br><br>• **Aide Médicale d'Etat (AME)** - available to illegal immigrants that have been residents in France for at least three months. | • Express major difficulty taking care of oral hygiene, or<br>• Conditions that can affect oral health.<br>Require individual clinical assessment defined by clinical reasons from the Natioanl Board of Health and Welfare: https://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/18910/2012-12-11.pdf<br><br>**S-tandvård**<br>• Require dental care as part of treatments of specific systemic diseases; or<br>• when oral health is affected by a general disease or impairments due to disease/trauma.<br><br>the Act regarding Support and Service for Persons with Certain Functional Impairments (LSS) - chronic illness or permanent | underlines 60% of the of the average statutory pension two years ago (rounded up to the next highest amount divisible by 420),<br>• Being a recipient of welfare benefits (e.g. social welfare benefits according to SGB XII or welfare benefits for war victims according to the Federal Law on war pensions); or<br>• Recipients living in nursing homes or similar facilities paid by bodies of welfare benefits.<br><br>Recipients need to apply (via an application form available at their sickness fund or dentist). In the application, they declare their income (proof of income required), any welfare benefits they receive and number of people in their household. The sickness fund | conditions to which complications of a dental nature are frequently or always associated (e.g. congenital malformations, some rare diseases)<br>• **"descending" criteria:** take into consideration the diseases and conditions in which health conditions could be aggravated or affected by concomitant dental conditions<br><br>**Social vulnerability (means-tested access)**. A number of socio-economic criteria allow to identify additional potential targets of the extended dental care benefits. | of the Local Health District providing the care, and;<br>• Be eligible for Medicare, and;<br>• Be 18 years of age or older; and<br>• Must hold a Commonwealth Seniors Health Card3<br><br>The eligibility for Commonwealth Seniors Health Card are as follows:<br>• Over pension age (age 65);<br>• Do not qualify for payment from Australian government or Department of Veterans' Affairs;<br>• Meet an income test;<br>• Australian resident living in Australia. |

| Domain/ Description | Canada (Alberta) | England | France | Sweden | Germany | Italy | Australia (NSW) |
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| | | | | disability included in Försäkringskassan list - dental care if is part of the disease treatment, medical rehabilitation or in patient allergic to dental materials who have to replace fillings or crowns. | needs to approve the application. Note: Individuals slightly above the income threshold can also receive an increased subsidy – its extent is determined based on income on a case-by-case basis. | | |
| **A2. Depth** How do patients pay for treatment? | Fee-for-service | Payments are based on "course of treatment" not individual service. | Fee-for-service | Fee-for-service | Fee-for-service | Fee-for-service | Fee-for-service |
| **A2.1 Depth** Extent of costs covered in the universal system (patient perspective) | • None, no universal dental care | • Shallow<br><br>Prevention/diagnostic ("Band 1 course of treatment")- £21.60<br><br>Restorative/Curative ("Band 2 course of treatment") -£59.10<br><br>Periodontal, oral surgery, extractions ("Band 3 course of treatment") – £256.50<br><br>Emergency– £21.60<br><br>Other: Travel costs may be covered for Low Income Scheme patients if referred by a dentist | • Shallow<br><br>Most diagnostic, preventive, and restorative services (examinations, cleanings, fillings, extractions) are covered at 70 percent of the service fee - a fixed fee that cannot be changed by a dentist.<br><br>Major dental treatment services, such as crowns, bridges, and dentures, are partially regulated and covered at 70 per cent of the fixed fee, but dentists can charge higher than the fixed fee. Patients without private insurance are responsible for paying | • Shallow<br><br>Note: public dental program provides subsidies to recipients, this may cover all or some treatment)<br><br>Patients can use the allowance for preventive dental health measures, such as check-ups and tooth cleaning or as partial payment for subscription dental care as check-ups and assessments, preventive procedures, treatment of pain and disease, restorative care. | • Deep<br><br>Note: The level and percentages of co-payments differ between conservative dental treatments, provision with crowns and dentures and orthodontic treatments.<br>• Dental services are fully covered if benefits are suitable and sufficient to prevent, early detect, and treat disease ((§ 28 SGB V)<br>• If patients choose fillings going beyond defined suitable and sufficient treatments (standard care treatments) they have to bear the cost differences. | • None, no universal dental care | • None, no universal dental care for services outside of hospital settings |

| Domain/ Description | Canada (Alberta) | England | France | Sweden | Germany | Italy | Australia (NSW) |
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| | | | the remaining amount. | | | | |
| **A2.2 Depth** Extent of costs covered for targeted/extended services for older adults (patient perspective) | • Deep coverage<br><br>Full costs covered for most services<br>• Balance billing is allowed.<br>• Maximum coverage: $5,000 every 5 years. | • Deep<br><br>Full costs covered for most services | • Deep | • Shallow+<br><br>Total amount covered: expenses for 3,000 SEK over one year according to the national reference charges or the dentist's/dental hygienist's prices can allow to 50 per cent of costs exceeding 3,000 SEK or 85 per cent of costs exceeding 15,000 SEK.<br><br>Dental treatments covered by high cost protection are included in a referral list, otherwise they are entirely paid by patients, available on https://tlv.se/tandvard/referensprislista.html# | • Deep<br><br>The level and percentages of co-payments differ depends on the type of treatment. Dental services are fully covered if benefits are suitable and sufficient to prevent, early detect, and treat disease ((§ 28 SGB V)<br>• If patients choose fillings beyond the defined suitable and sufficient treatments (standard care treatments) they have to bear the cost differences.<br>• Usually 50% of standard treatment for tooth replacement is covered by Statutory Health Insurance<br>• There is no flat fee or sliding scale for co-payments. SHI will cover 50% of standard care costs; this may | • Shallow<br><br>• Depending on the Regions of residency patients co-pay for the services offered by the NHS, even if socially vulnerable or at high health risk.<br><br>The National Health Services issued in 2013 a list of services with their relative tariffs (Nomenclatore Tariffario); these tariffs are expected to be the basis for the payment of providers of care.<br><br>Usually flat: economic and health eligibility implies that citizens can turn to public dentistry, but further criteria determine whether the citizen pays for the treatment a flat fair (ticket payment) or if he/she gets it for free (ticket exemption). Prosthetic devices always have to be paid out of pocket, even when ticket exemption applies. The National Health | • Deep<br><br>Private practitioners are paid using the NSW Health Oral Health Fee for Service Scheme, through which the LHD can issue vouchers for private practitioners to provide treatment to public patients at a set price.5,6<br><br>Maximums for vouchers:<br>• Episodic care ($377.05 AUD)<br>• General care ($750.00 AUD)<br>• Full (upper and lower) denture voucher ($1,587.70) |

| Domain/ Description | Canada (Alberta) | England | France | Sweden | Germany | Italy | Australia (NSW) |
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| | | | | | increase to 60% (or even 65%) for individuals who have kept regular preventive appointments with their dentist over a period of five to nine years (or more than ten years). If patients choose treatments beyond standard care (e.g. more expensive materials, such as gold), co-pays will increase. Co-payments do not depend on income. However, for "unreasonably burdened" individuals the double fixed subsidy as described above applies.<br>• Annual cost-sharing should not exceed 2 % of a person's annual gross income for standard care expenses. | | |
| **A3. Scope** Extent and type of dental services covered in universal and/or targeted programs | • Basic + Denture<br><br>• Examinations<br>• X-rays<br>• Scaling<br>• Caries/trauma/ pain control<br>• Amalgam fillings | • Comprehensive<br><br>Band 1:<br>• Examination, diagnosis (including X-rays), advice on how to prevent future problems, | • Comprehensive<br><br>Fully regulated services (70% coverage)<br>• Examination<br>• X-rays<br>• Scaling<br>• Fillings | • Comprehensive<br><br>High-cost protection program<br>• All treatments are covered except for cosmetic treatments | • Comprehensive<br><br>• Services that are considered sufficient, necessary, and efficient/good value for money for a clinical condition are covered. | • Basic<br><br>**Health vulnerability group:**<br>• May have access to a wide set of services as identified by the plan of treatment prescribed by | • Comprehensive<br><br>• Examinations<br>• X-rays<br>• Scaling<br>• Topical remineralizing agents<br>• OH instruction<br>• Fillings (amalgam |

| Domain/ Description | Canada (Alberta) | England | France | Sweden | Germany | Italy | Australia (NSW) |
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| | • Tooth-coloured fillings<br>• Tooth extractions<br>• Root canal therapy<br>• Root planning<br>• Dentures<br>• Sedation | • A scale and polish if clinically needed, and preventative care such as the application of fluoride varnish or fissure sealant if appropriate<br><br>Band 2: services listed in Band 1, plus any further treatment<br>•Fillings<br>• Root canal therapy<br>• Tooth extraction<br><br>Band 3 includes services listed in Bands 1 and 2, plus<br>• Crowns,<br>• Bridges<br>• Dentures and other laboratory work<br><br>Any treatment that the dentist believes is clinically necessary to achieve and maintain good oral health should be available on the NHS. Aesthetics treatments are excluded (and possibly also implants).<br>Emergency covers emergency care in a primary care NHS dental practice such as pain relief or a temporary filling. | • Root canal therapy<br>• Tooth extractions<br><br>Partially regulated services (maximum 70% coverage; dentists can charge above fee):<br>• Crowns<br>• Bridges<br>• Dentures<br><br>The public health insurance system does not cover non-regulated services, such as implants, sedation, or periodontal treatment. | | • Conservative and surgical treatments and x-rays,<br>• Jaw fractures and dental splints,<br>• Orthodontic services (restrictions),<br>• Periodontal treatments,<br>• Dentures and crowns (50-65% of the costs of standard care) | professionals. However, any aesthetic intervention is excluded.<br><br>**Socially vulnerable group**:<br>• Examinations;<br>• Oral hygiene/ scaling<br>• Fillings<br>• Tooth extractions<br>• Root canal therapies<br>• Surgical removal of odontogenic lesions;<br>• Provision of prosthetic appliances (but not including the laboratory costs of the prosthetic appliances);<br>•Provision of orthodontic treatments and other dental services to persons with an IOTN index 4 or 5 (but not including the laboratory costs of the appliances). | and composite restorations),<br>• Crowns<br>• Periodontal services (root planing, acute periodontal infection)<br>• Oral surgery (simple and complex tooth extractions)<br>• Root canal treatments<br>• Denture services |
| **B. Delivery and financing** | | | | | | | |
| **B1. Delivery of care** | Predominantly private practice dentists | Public or private dental clinics | Public or private dental clinics | Public or private dental clinics | Public or private dental clinics | Public or private dental clinics | Public or private dental clinics |

| Domain/ Description | Canada (Alberta) | England | France | Sweden | Germany | Italy | Australia (NSW) |
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| • Where are dental services provided (in general and for public programs, where applicable)?<br>• What type of professionals deliver dental care? | • Dentists, dental hygienists, dental assistants, and dental technologists, are involved in the delivery of care. | • Dentists, dental hygienists, dental nurses, dental assistants, dental technologists, dental therapists, clinical dental technicians and orthodontic therapists are involved in the delivery of care. | • Dentists, dental assistants and dental technicians are involved in the delivery of care. Dental hygienists are not recognized in France. | • Dentists, dental hygienists, dental technicians, dental nurses, and orthodontic auxiliaries are involved in the delivery of care.<br><br>Approximately 55% of all practising dentists and 80% of specialists are employed in public clinics (EU Manual of Dental Practice of the European Council of dentists)<br><br>In 2010, very few dentists (less than 1%) accepted only private fee-paying patients (not any subsidy from the social insurance system) | (mostly in private clinics)<br><br>• Dentists and orthodontists primarily deliver dental care.<br><br>Based on 2012 estimates, approximately 96% of all dentists worked in private practice.<br><br>The majority of dentists participate in the public program. Less than 2% of all dentists do not hold a contract with the statutory sick funds. (Kravtiz et al. 2015) | • Dentists, dental hygienists, dental nurses, dental assistants, and dental technologists are involved in the delivery of care.<br><br>61,085 dentists in Italy. Based on 2011 estimates, approximately 91% of all dentists work in private practice.<br><br>In some regions, private providers have arrangements with the National Health Service. However, the number of private practices with this arrangement is limited. | • Dentists, dental hygienists, oral health therapists, dental therapists, dental assistants, and dental technologists are involved in the delivery of care.<br><br>Most dentists only practice in the private sector (78.1%), 13.3% only practice in the public sector, and 8.6% practice in both sectors. (COAG Health Council. 2015) |
| **B2. Reimbursement of dental services**<br>• How do patients pay for dental services?<br>• How are providers reimbursed for services? | • Fee-for-service<br><br>• In private practice, dentists are reimbursed through fee-for-service. Note: The fee reimbursement levels dentists receive from these government programs are significantly lower than the normal and customary fees of dentists for these procedures. | • Co-payment for course of treatment<br><br>• In the private sector, prices (charges to patients) are set by dentists,<br>• Under the NHS dentists are paid according to Units of Dental Activities (UDAs) that are essentially the value given to a course of treatment, irrespective of how | • Fee for service<br><br>• Providers that work for dental public service have regular paid contracts with the hospital in which they work. When physicians work for a public hospital their honorary is defined by national contract of medical category.<br>• When providers work for clinics or private hospitals their | • Fee for service/item<br><br>• The majority of dentists in private practice are self-employed and are remunerated mainly by charging fees for treatments, supplemented by social insurance subsidies. The most common way of remunerating a dentist is to pay a fee for each treatment | • Fee for service<br><br>• Patients pay their proportion per invoice<br><br>• Dentists are reimbursed through fixed subsidies from the SHI on a quarterly basis. | • In private practice prices (charges to patients) under the public program are free.<br><br>• Professionals who work for third parties have regular contracts with their Local Health Authorities, NHS Hospitals or private entities. Contracts can be either permanent or temporary and, for | • Fee-for-service<br><br>• Providers in public dental clinics are salary-based.<br>• Private practice dentists are paid through a fee for service scheme, where program recipients receive a voucher for services (described above). |

| Domain/ Description | Canada (Alberta) | England | France | Sweden | Germany | Italy | Australia (NSW) |
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| | | many items are provided within it. There is some correlation between Band and UDA; for example, Band 1 is equal to 1 UDA; band three is equal to 3 UDAs and band 3 is equal to 12 UDA. However, UDAs can also be claimed for treatments that do not have patients' charge. Each year dentists agree targets in terms of DUAs with the Local Area teams (LATS). | honorary is decided on contracts made between the parts. Dentist contracts usually are paid per hour or performance percentage, it depends on the stakeholders agreement. The following contracts are listed by National Council of Dentist Order: replacement contracts, collaboration contracts, management contracts, group exercise contracts and dental agreement. | (item of service). In 2010, very few dentists (less than 1%) accepted only private fee-paying patients, i.e. not any subsidy from the social insurance system<br><br>Subsidies are given directly to the private practitioner or public dental care practice from the State. (Dr Anthony S Kravitz et al. 2015) | | the public sector, the compensation is strictly defined by national rules.<br>• When providers work for private organizations accredited with the NHS their compensation is decided on contracts made between the parts (although national rules provide some constraints) | |
| **C. Relevant Laws & Regulations** | • Canada Health Act<br>• Alberta Health Care Insurance Act | • National Health Services Act 1997<br>• the 1990 act<br>• General Dental Services Contracts | • the "Convention" (Mazevat, 2018) | • National Dental Service Act (Tandvårdslagen) (1985:125)<br>• The Dental and Pharmaceutical Benefits Agency, TLV | • Social Code Book V (SGB V) | • Legislative Decree n. 502 of 1992<br>• Law No. 405 of 2001 | • Commonwealth of Australia Constitution Act 1900 |

# Appendix D: Jurisdictional Comparisons

*Universal and deep: Germany*

Dental care in Germany sits squarely within the broader social health insurance system: all individuals covered by social health insurance (SHI) are eligible for dental services. The Social Code Book V (SGB V) is legitimized by the German parliament and provides a framework of rules for providing and financing social services within the statutory health insurance scheme at the country level including dental care. Details of the benefit package are determined in relevant directives by the Federal Joint Committee (Gemeinsamer Bundesausschuss, G-BA), the highest decision-making body in the self-governance of insurers, hospitals, physicians and dentists. Dental care is defined as the measures to prevent, detect and treat diseases of teeth, mouth and jaw (§ 28 SGB V).

Individuals covered under SHI are eligible to receive a comprehensive set of dental care services that are deemed sufficient, necessary, and efficient to address a clinical condition; this referred to as standard care. Approximately 50-60% of major services, such as crowns, bridges, and dentures are paid for by the SHI and the remaining amount are paid either out of pocket or through supplementary voluntary health insurance. Dental services that are not recommended by the treating dentist (not standard care), or if patients choose to go beyond the standard care they have to pay for the cost difference (Holm-Pedersen 2005; Ziller, Eaton & Widström, 2015). Targeted coverage is available to individuals who demonstrate financial hardship in covering the co-pays associated with major dental services. Overall, public spending on dental care is higher in Germany than the other jurisdictions (as shown in Table D1), and it has the largest public share of dental care spending (70%; shown in Figure 2). Older adults in Germany also report the lowest level of cost barriers to care (Figure 3).

***Universal and shallow: England, France, and Sweden***

**England**

All residents are covered by the National Health Service (NHS), and oral health care is included. The responsibility for health legislation and general policy in England rests with Parliament, the Secretary of State for Health, and the Department of Health. General Dental Services Contracts regulates dental practitioners like dentists or dental care providers, taking this from the “Dentist Act” written in 1984. Coverage of dental care is universal, but substantial co-payments apply, and have increased steadily since they were introduced shortly after the introduction of the NHS.

Over the past 30 years there has been a significant shift toward increased private finance in dental care (Robinson, Patel & Pennycate, 2004), and in 2016 private sources accounted for about 60% of the total dental market (see Figure 2). The costs to patients in the NHS are fixed and based on courses of treatment. For example, preventive/diagnostic services fall in “Band 1” and costs £21.60 for patients in total, covering all examination, diagnosis, scale and polish, etc. In practice, patients often receive both NHS funded and privately funded care by the same dentist; this may be attributed to the need for dental services outside the scope of publicly available services, such as cosmetic treatment and implants. Eligible groups, based on measures of health and social vulnerability, are fully or partially exempted from these costs, thus many

have full coverage for the cost of NHS dental services. Cost barriers to access are low among older adults in England, with 7% reporting to have foregone dental care due to costs, compared to 19% for the general population (Figure 3).

**France**

All residents in France are covered by the universal, compulsory social health insurance system, which includes dental care. Dental care, like other health services, are financed through a mix of public and private sources (Figure 2). The provision and delivery of dental care in France is arranged through a national dental contract, known as the "Convention", which is negotiated by the National Health Insurance (NHI), private insurers, and elected dental trade unions (Mazevet et al., 2018).

Many dental care services are covered at 70% of the total service fee (fixed for all dentists), with patients paying the remaining 30% either out-of-pocket or through complementary health insurance. Major dental services, such as crowns, bridges, and dentures are covered at 70% of the total service fee, but dentists can charge beyond the set fee for these services. Some targeted groups, based on low income, have full coverage of the costs of dental care. Few older adults in France report cost barriers to dental care (6%, as shown in Figure 3), but for the general population aged 18 years and older these estimates are much higher, at 23%.

**Sweden**

In Sweden, all residents are eligible to receive coverage for dental care services through the public dental service (PDS) known as Folktandvården'. The dental care system is guided by a "high cost protection" principle, where the country aims to provide equally accessible and affordable oral healthcare services to all. The Dental and Pharmaceutical Benefits Agency "Tandvård" is responsible for determining dental care services eligible for coverage under the PDS. Fixed subsidies for dental care are provided through General Dental Grants "'*Allmänna Tandvårdsbidraget*', where the amount of subsidy is determined by patient age and clinical need. All individuals over 65 years old receive 600 SEK per year for dental care. Dental care costs exceeding 3,000 are eligible for partial coverage by the PDS. The General Dental Grants cover basic dental care provided in public or private clinics. Individuals who have a disease or disability that affects their teeth are eligible for a special dental care allowance that covers a higher amount of the co-payment associated with dental care services. (Sveriges Folktandvård, 2014; Pälvärinne et al 2018).

***Targeted and deep: Canada (Alberta), Australia (New South Wales), and Italy***

**Canada (Alberta)**

There is no universal coverage for dental care services for adults in Canada or Alberta. The majority of dental care services are privately financed through private insurance or out of pocket payments (Table D1). In Alberta, dental care coverage is available to low-income older adults. In Alberta, the *Alberta Health Care Insurance Act* defines "basic" and "extended" health services. "Basic" health services include "services provided by a dentist in the field of oral and maxillofacial surgery" for the entire population,

specific to a Schedule of Oral and Maxillofacial Surgery Benefits as identified in the associated regulation. "Extended health services" are targeted to "residents who are 65 years of age or older or who are receiving a widow's pension," although they are not linked to dental services specifically in the legislation. These dental services are described in the associated regulation, wherein a "list of dentist goods and services" as provided in a service schedule is mentioned. This legislation/regulation comes into programmatic form as the Dental Assistance for Seniors program, which is administered by Alberta Health, one of two provincial-level health agencies.

The Dental Assistance for Seniors program provides coverage for basic dental services and dentures up to a maximum of $5,000 every five years. This includes full coverage for the cost of services, however dentists in Alberta may request the patient to pay the difference between the public fee price and dentist fee. There are set limits to the frequency, predeterminations, and scope of coverage. (Alberta, 2015).

**Australia (New South Wales)**

Like Canada, Australia is a federation comprised of eight self-governing states and territories, with differing responsibilities placed on the federal government (the Commonwealth) and the states with regard to oral health care. While the Commonwealth government funds the provision of dental services to eligible children and teenagers through the Child Dental Benefits Scheme, for the working age population, and older adults, there are few publicly funded coverage programs and these vary across the states. Like in Canada, the national public health insurance scheme, also known as Medicare, does not include dental care. New South Wales (NSW) - the most populous of Australia's states and territories- has a strategic plan for oral health which states that older adults are a priority population (COAG Health Council, 2015). However, the current system is a patchwork of programs that provide public coverage for older adults living in institutions (called aged care facilities) but heavy reliance on private dental care for community-dwelling seniors.

While coverage is universal by design, where all older adults are eligible to receive specific and clinically urgent publicly funded dental care in the community in public clinics of which there are few, there are significant access barriers in the form of wait lists thus those who can afford to purchase these services in the private sector (New South Wales, 2017). In NSW, seniors who meet financial need criteria (described in Appendix C, row A1.3), are eligible to receive comprehensive dental care services in public or private practice dental settings. For these targeted groups dental care services are provided at no cost to the patient. Australia is the only jurisdiction where reported cost barriers for dental care are higher for older adults compared to the general adult population (Figure 3).

**Italy**

There are few dental care services available to seniors through Italy's national health service (Servizio Sanitario Nazionale - SSN*).* Under the SSN, the Essential Levels of Services (Livelli Esenziali di Assistenza - LEA) are available to all residents, but include few dental services; this includes treatment for emergencies, acute dental infections and acute pain for the general population. The scope of dental care services under the LEA are determined nationally, where regional authorities are responsible for

delivering services in their catchment area. In general, all children are eligible for comprehensive coverage through the LEAs and adults with existing medical conditions or of low income are eligible for basic dental care coverage. While older adults who meet specific clinical or financial eligibility criteria can receive basic dental care services at no cost (deep coverage), as shown in Table D1 and Figure 2 nearly all dental care services are financed through out of pocket or private insurance payments in Italy (Bindi 2017).

*Table D1. Spending on health and dental care across jurisdictions (US dollars, current prices, current purchasing power parity 2016) A1*

| | Per capita spending on dental care (public) | Per capita spending on dental care (private) | % of total spending on health |
|---|---|---|---|
| Canada | 19.4 | 302.7 | 6.8 |
| Italy* | 15.2 | 140.3 | 9.7 |
| Australia | 49.3 | 215.0 | 6.0 |
| United Kingdom | 63.0 | 95.2 | 3.8 |
| France | 121.4 | 78.2 | 4.2 |
| Germany | 286.9 | 123.4 | 7.5 |
| Sweden | 114.0 | 179.2 | 5.5 |

Source: OECD Health Statistics 2018; *Italian estimate based on 2015 Euros.

Note: total spending is a function of both utilization and prices and it is not possible to separate these two measures.

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