

Vaccinations of Children from Im/migrant Families in Alberta:  
Equity-Oriented Critical Policy Analysis

by

Samina Arif Sana

A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Science

in

Health Promotion and Sociobehavioural Sciences

School of Public Health  
College of Health Sciences, University of Alberta

© Samina Arif Sana, 2021

## **Abstract**

Immigrant and refugee (im/migrant) families settled in Alberta (AB) are often challenged to overcome structural barriers (i.e., accent discrimination, English as a foreign language, culture shock) in the way of navigating and actively utilizing vaccination services. Research is scarce on the impact of childhood vaccination policies on the vaccinations of children of im/migrants in Alberta. The objective of this study was to use an intersectionality-based evaluation framework, inclusive of health equity principles, to critically analyze and investigate current Alberta jurisdictional (AJ) childhood vaccination policies and policy guidance. More specifically, the focus of this research was to examine equity considerations in the policies as it relates to vaccinations of im/migrant children. This critical policy analysis inquired and sought to find out to what extent vaccination of children of im/migrants are equitably accounted for in the Alberta context. Relevant sources on Alberta childhood vaccination policies and policy guidance were retrieved from the Government of Alberta (GoA) and the Government of Canada (GoC) websites. Initial and retroactive searches, within a fifteen (15) year range, led to the content analysis of a total of twenty-five (25) eligible GoA and GoC-AJ document(s) using an intersectionality-based health equity lens (acknowledgment of impact of immigration status and race/ethnicity on health). Each of the documents were selected by systematically reviewing and assessing their content for the existence or absence of twelve (12) evidence-based policy determinants (criteria): nine (9) standard policy determinants (Mahimbo et al., 2017a) and three (3) health equity-oriented policy determinants (Douglas et al., 2019; Hankivsky et al., 2014). Drawing on the overall results of the twenty-five (25) critically analyzed policy document sources, it was found that only a few of the policies and policy guidance alluded to the existence

of children of im/migrants and only in the context of traveling and migration. All of the childhood vaccination policies and policy guidance were found to lack acknowledgement of the existence of structural factors (i.e., barriers to access) influencing access to vaccination services by children of im/migrants, with no detection of applied evidence from health equity and intersectionality scholars. Redesigned policy actions should consider the ethnocultural diversity of childhood vaccination needs in Alberta. Considering the insufficient promotion of vaccine equity, pragmatic suggestions for policy improvement may include streamlining the transition of policies from static to adaptive in design across all childhood vaccination policies. These policies need to inclusively and ongoingly adjust and transform to promote and serve the vaccination needs of new flows of children of im/migrants settling in Alberta. Further suggestions include increasing bipartisan community partnerships with im/migrant parent stakeholders, embedding contextually tailored care in the policy interventions to boost interprofessional collaborations on childhood vaccination of children of im/migrants, and weaving accountability-based anti-oppression allyship in and across policies. The findings of this study urge that this at-risk subgroup (children of im/migrants) become equitably prioritized and that their diverse cross-cultural needs be inclusively addressed in all Alberta childhood vaccination policies.

**Keywords:** childhood vaccination, vaccine-preventable diseases, vaccine equity, children of im/migrants, im/migrant parents, vaccination policy, policies, policy guidance, policy discourse, health equity, social determinants of health, policy determinants, critical policy analysis, intersectionality, evaluation, immigration status, ethnocultural diversity, population, adaptive policies, equity-oriented, evidence-based, government, jurisdiction, Alberta, Canada.

## **Preface**

This thesis is an original work completed by Samina Arif Sana. This thesis was co-supervised respectively by Dr. Bukola Salami from the University of Alberta Faculty of Nursing, and Dr. Michael Hawkes from the University of Alberta School of Public Health and the Department of Pediatrics.

I would also like to thank my thesis supervisory committee members, Dr. Stephanie Montesanti, Dr. Bukola Salami and Dr. Michael Hawkes for their careful review of drafts of my thesis.

No part of this thesis has been previously published.

## **Dedication**

This thesis research is dedicated to my mother and father who immigrated to Canada and settled in my birthplace of Edmonton, Alberta on a snowy winter day in December 1991 - 30 years ago now. This thesis is mainly dedicated to my mother, my Momma, an educated immigrant woman and homemaker who has devoted her life to her children (all eight of us), alongside working by running her own dayhome as a child caregiver for many years now. I can say without a doubt that my mother's healing, strength, friendship, sacrifices, and faith have helped develop me into the resilient, passionate, and independent Canadian woman I am today.

I also dedicate this thesis to the rest of my family, friends and loved ones, for their presence, patience, support, trust, encouragement, companionship, advice, feedback, communication, assistance, time, reliability, and understanding over the years. This all definitely took a village.

Last but not least, I dedicate this thesis to my past and present teachers, mentors, and colleagues for their care and support. Thank you for the positive affirmations and sharing of knowledge.

## **Acknowledgments**

Thank you very much to my co-supervisors, Dr. Bukola Salami and Dr. Michael Hawkes, for their respective time, extensive feedback, support, sharing of expertise, and dedicated academic guidance with this thesis research. Thank you very much, as well, to my thesis supervisory committee member, Dr. Stephanie Montesanti. Furthermore, thank you very much to my examining committee (Dr. Devidas Menon, Dr. Shannon MacDonald, and Dr. Amy Kaler), the administration in the School of Public Health Office of Educational Programs (i.e. Helen, Heather), and the Faculty of Graduate Studies and Research (i.e. Dr. Samer Adeeb, Kris) for their collective presence, coordination, time, patience, logistical support, and technical guidance.

On another note, thank you to my humble team of caring friends and family who maintained their trust in me, celebrated small victories with me, and stayed by my side through this journey.

Altogether, I am grateful that this learning journey towards completing my Master of Science in Health Promotion and Sociobehavioural Sciences has successfully reached a memorable ending.

## Table of Contents

|  |        |
|--|--------|
| <b>Abstract</b> .....  | ii-iii |
| <b>Preface</b> .....   | iv     |
| <b>Dedications</b> .....   | v      |
| <b>Acknowledgments</b> .....   | vi     |
| <b>List of Tables</b> .....  | viii   |
| <b>List of Abbreviations</b> .....                                       | ix     |
| <b>Chapter 1</b> .....   | 1-21   |
| 1.1. Contextual Background Evidence.....                                 | 1-10   |
| 1.2. Knowledge Gaps.....   | 10-14  |
| 1.3. Introduction: Alberta Vaccination Policies.....                     | 15-21  |
| <b>Chapter 2</b> .....   | 22-35  |
| 2.1. Objective and Research Question.....                                | 22     |
| 2.2. Study Design: Intersectionality-Based Policy Analysis.....          | 22-26  |
| 2.3. Study Methodology.....  | 26-27  |
| 2.4. Search Strategy.....  | 27     |
| 2.5. Eligibility Criteria, Document Selection and Data Collection.....   | 27-31  |
| 2.6. Policy Determinants: Standard and Equity-Oriented.....              | 31-34  |
| 2.7. Analytical Purpose of Equity-Oriented Policy Determinants.....      | 35     |
| <b>Chapter 3</b> .....   | 36-51  |
| 3.1. Overview of Results (Analysis of Policies AND Policy Guidance)..... | 36     |
| 3.2. Results on Standard Policy Determinants.....                        | 36-46  |
| 3.3. Results on Equity-Oriented Policy Determinants.....                 | 46-51  |
| <b>Chapter 4</b> .....   | 52-73  |
| 4.1. Discussion.....   | 52-54  |
| 4.2. Recommendations.....  | 54-66  |
| 4.3. Limitations.....  | 66-67  |
| 4.4. Implications for Future Research.....                               | 67-72  |
| 4.5. Conclusion.....   | 72-73  |
| <b>References (A-Z)</b> .....  | 74-92  |
| <b>Appendix</b> .....  | 93-102 |

## **List of Tables**

**Table 1:** Potentially-Eligible Documents (Policies AND Policy Guidance).....**Appendix A**

**Figure 1:** Finalized Eligibility Categories (Primary, Secondary, Tertiary and Null).....**Appendix B**

**Table 2:** List of Chosen Primary and Secondary Document Sources.....**Appendix C**

**Table 3:** Primary Documents (Policies AND Policy Guidance).....**Appendix D**

**Table 4:** Secondary Documents (Policies AND Policy Guidance).....**Appendix E**

**Figure 2:** Article Screening (Interconnectedness of Policies AND Policy Guidance).....**Appendix F**

**Figure 3:** Alberta vs. International Childhood Vaccination Schedules.....**Appendix G**



## List of Abbreviations

|                  |  |
|------------------|--|
| AB.....          | Alberta (Canadian Province of Alberta)                                   |
| AHCIP.....       | Alberta Health Care Insurance Program                                    |
| AHS.....         | Alberta Health Services  |
| AIP.....         | Alberta Immunization Policy  |
| ASHR.....        | Acute Age-Standardized Hospitalization Rates                             |
| AJ.....          | Alberta Jurisdiction; Alberta Jurisdictional                             |
| CATMAT.....      | Committee to Advise on Tropical Medicine and Travel                      |
| CALD.....        | Culturally and Linguistically Diverse; Cultural and Linguistic Diversity |
| CIC.....         | Canadian Immunization Committee  |
| CICR(s).....     | Childhood Immunization Coverage Rate(s)                                  |
| CIG.....         | Canadian Immunization Guide  |
| cNICS.....       | Childhood National Immunization Coverage Survey                          |
| CTC.....         | Contextually-Tailored Care   |
| D-( ).....       | Document-(Code/Label i.e., 1A); Document Number (i.e., D-1A)             |
| EOHC.....        | Equity-Oriented Health Care  |
| FNMI.....        | First Nations, Metis and Inuit; Indigenous Peoples of Canada             |
| Go( ).....       | GoA: Government of Alberta, GoC: Government of Canada                    |
| HiAP.....        | Health in All Policies   |
| IBPA.....        | Intersectionality-Based Policy Analysis                                  |
| IFHP.....        | Interim Federal Health program   |
| IHDA.....        | Interactive Health Data Application                                      |
| IIP.....         | Alberta Influenza Immunization Policy                                    |
| Im/migrant(s)... | Immigrant(s) and Migrant(s); Immigrant(s) and Refugee(s)                 |
| IRCC.....        | Immigration, Refugees and Citizenship Canada                             |
| NACI.....        | National Advisory Committee on Immunization                              |
| NCCID.....       | National Collaborating Centre (NCC) for Infectious Diseases              |
| PLST.....        | Precarious Legal Status Trajectory/Trajectories                          |
| PHAC.....        | Public Health Agency of Canada   |
| SDH.....         | Social Determinants of Health  |
| T#.....          | Table # (i.e., T3, T4)   |
| VPD.....         | Vaccine-Preventable Disease(s)   |

# Chapter 1

## 1.1 Contextual Background Evidence: Canadian Healthcare; National Vaccination Policies

### *Immigrants in Canada: Immigration Status and Health*

Ethnographically diverse immigrants and refugees settled in various provinces and territories across Canada are increasingly representing the overall Canadian population. In more recent years, upwards to 50% of the general population in some Canadian metropolitan areas consists of immigrants and refugees (Bolotin et al., 2019). By 2036, almost half of the Canadian population will likely either be first-generation or second-generation immigrants (Chan, 2020). The influx and settlement of migrants are continuously fueling the formation of a culturally plural society nationwide in Canada, leading to an ever-increasing complexity of intercultural relations and communication (Berry, 2011).

As a visibly minoritized and racialized subgroup (Bauer et al., 2020) in the Canadian population, immigrants and refugees ('im/migrants') are defined in Canada as foreign-born individuals, with some identifying as international students, undocumented migrants, and temporary foreign workers (Wilson et al., 2018; Pottie, 2011). Broadly speaking, im/migrants are distinguished further by specific generational waves: *1st generation*: people born outside of Canada who are permanently or temporarily living in Canada and individuals born outside Canada to Canadian citizens, *2nd generation*: people born in Canada with at least one parent born outside of Canada, and *3rd generation or more*: non-indigenous Canadian people born in Canada with both parents born in Canada and/or grandparents born outside Canada and/or several generations of ancestors born in Canada (Statistics Canada, 2018).

Generally, the ethnocultural traits of the Canadian population vary in accordance with the number of generations that an individual or their ancestors have lived in Canada, and the characteristics of each generation correlate with the origins of various waves of immigrants who have settled in Canada over time (Statistics Canada, 2018). It is important to note that a substantial component of the overall population of Canada (i.e., all the fully non-Indigenous

Canadian population) consists of people who are generationally colonized-im/migrant settlers or colonial-im/migrant settlers, given that the original inhabitants of this land were and are the First Nations Indigenous people of Canada whose vibrant communities and diverse presence continue to enrich Canada to this day (Troper, 2021).

Every year, an estimated 50,000+ children and youth younger than the age of 15 years old are accepted into Canada or are born in Canada to immigrant and refugee families during their first decade of settling into and living in this country (Barozzino and Hui, 2013). However, many immigrant visible minorities in Canada are still considered the least socially integrated (Na and Hample, 2016) in their surrounding Canadian society. Fortunately, ongoing efforts to promote the social integration of im/migrant visible minorities in Canada, especially whenever undertaken in a non-forceful manner, has the ability to positively affect and sustainably boost the im/migrant's health primarily through psychological functioning such as a sense of belonging, personal control and generalized trust (Na and Hample, 2016), correspondingly positively impacting the wellbeing of whole communities that the im/migrants are integrated into. Furthermore, im/migrants are key to the sustainability of Canada because they replenish the declining Canadian population, push forth the Canadian economy and contribute their hard work into the overarching Canadian labour market (Chan, 2020). Collectively, the health of im/migrants and their descendants are increasingly guiding, influencing and impacting the healthcare systems across Canada (Vang et al., 2017).

### ***'Non-Citizen' Access to Healthcare in Canada: Precarious Immigration Status***

A non-citizens' (new immigrants) access to healthcare in Canada is limited and contingent upon their immigration status, particularly if they belong to four specific classes of immigrants: refugees, asylum seekers, temporary foreign workers, and permanent residents (Naseem, 2016). Presently, Immigration, Refugees and Citizenship Canada (IRCC) does not provide non-citizens with precarious immigration status (i.e. people without Canadian citizenship or permanent residency: temporary workers unauthorized to stay, refugee claimants yet to be granted permanent residency and the undocumented) access to the same healthcare services that

are provided to Canadian citizens and permanent residents (Government of Alberta, 2021e; Government of Alberta, 2021f). One exception is that refugees and asylum seekers in Canada are eligible and have access to *limited* healthcare services without any repercussions such as deportation under the federal government's *Interim Federal Health Program* (IFHP), however, undocumented im/migrants are unfortunately not privy to such conditional access (Campbell, Klei, Hodges, Fisman, & Kitto, 2014; Naseem, 2016).

Im/migrants to Canada also include those with precarious status, who follow a *precarious legal status trajectory* (PLST) towards securing settlement here in Canada. PLSTs are periods of time [for im/migrants] when a person [foreign person i.e. landed im/migrant in Canada] is without state authorization and/or forms of temporary authorization [for the im/migrant(s) to be in Canada], and the period itself is often prolonged, directionally unpredictable (uncertain outcomes) and discontinuous with the im/migrants legal status intertwined with differential inclusion (Goldring and Landolt, 2021). Often stateless migrants in Canada apply for one or both of two humanitarian legal status adjustment mechanisms (trajectories) to obtain permanent residence and thereby become legal: late refugee claims and asylum on humanitarian and compassionate grounds (Goldring and Landolt, 2021). There is a consistent pattern of parents' im/migration status and legal residency in Canada, especially when precarious, being tied to and having a directly restrictive or precluding impact on their children's utilization of vital benefits including health services (Rahimian, 2020).

### ***Interim Federal Health Program (2021): Pre-Departure Vaccination Coverage for Refugees***

The Interim Federal Health Program (IFHP) includes 'overseas coverage' whereby if a person is chosen to resettle in Canada as a refugee, the IFHP will cover some of their 'pre-departure medical services' including vaccinations (Government of Canada, 2021b). The IFHP "*provides limited, temporary coverage of health-care benefits to people in the following groups who aren't eligible for provincial or territorial health insurance protected persons, including resettled refugees, refugee claimants, and certain other groups*" (Government of Canada, 2021b).

### ***Contextual Evidence on General Access to Healthcare for Immigrants vs. Canadian-Born***

In recent years, the factors behind the low vaccination of im/migrants settled in Canada have been well-studied (Bolotin et al., 2019; Wilson et al., 2018; Ng et al., 2016; Kowal et al., 2015). There are several barriers contributing to reluctance among im/migrants settled or settling in Canada from accessing and utilizing all vaccination services. According to Wilson et al (2018), some of the barriers to im/migrants of vaccinations include the following: 1) *cultural norm factors* (i.e. gender roles, negative influence by peers; anti-vaccine misinformation), 2) *knowledge gaps* (i.e. insufficient knowledge of vaccination and virus; lack of awareness about existence and purpose of vaccine, and 3) *insufficient access to healthcare* (i.e. language barriers, missed opportunities, trouble navigating, culturally appropriate accessibility).

On another note, immigrant individuals experience less positive health outcomes than Canadian-born individuals in Canada mainly due to access to healthcare (Salami, Mason, Salma, Yohani, Amin, Okeke-Ihejirika and Ladha, 2020). Previous research on access to healthcare for immigrants tends to mainly focus on the experience of immigrant adults and mainly specific ethnic groups: South Asians and Chinese (Salami et al., 2020; Mason, Salami, Salma, Yohani, Amin, Okeke-Ihejirika, and Ladha, 2020). Immigrants' challenges in accessing healthcare for their children in Alberta are attributed to a set of systemic barriers, specifically: 'system barriers, language and cultural barriers, connection with health professionals, and financial barriers' (Salami et al., 2020). The systemic barriers immigrants face in accessing healthcare services for their children can be addressed by policymakers and service providers by improving the diversity of the workforce, taking into account income as a social determinant of health, boosting access to language interpretation services (Salami et al., 2020), and increasing focus on supporting informal sources of acquiring accurate healthcare information among and between immigrants (Mason et al., 2021). However, barriers to im/migrants in Canada accessing and using preventative services are resolvable through policy-led strategies i.e., advocacy for an increase in knowledge-building, more implementation of peer-educator interventions, and more prominent incorporation of communication and cultural interactions in health promotion strategies aimed at im/migrant populations (Pottie et al., 2011).

### ***Vaccination Services for Im/migrants in Canada: Variations in Vaccination Coverage***

As is known, one key preventative component of the healthcare system in Canada is modern vaccination which has three distinct yet overlapping roles in serving and protecting population health: pharmaceutical products, personal healthcare intervention and a public health measure (Mah, 2009). The promotion and implementation of vaccination for the entire Canadian population are shaped by nation-wide federal decision-making structures including the *Public Health Agency of Canada* and the *Pan-Canadian Public Health Network*, as well as directive instruments including the *National Immunization Strategy* and targeted federal funding (Mah, 2009). The national vaccination strategy, in particular, promotes equitable access to vaccines and includes advocacy for the linking of national-level decisions on vaccination with financing and delivery (Mah, 2009). Unfortunately, the absence of standardized vaccination programs across Canada has led to variations in vaccination coverage across the nation, proliferating Canada-wide inequitable access to vaccines (Mahimbo et al., 2017a).

The presence of evidence-based vaccination policies in Canada requires complete and accurate vaccination data to assess vaccine coverage (Wilson et al., 2017). Methods and data sources used to assess vaccine coverage do exist in Canada but currently vary by region (Wilson et al., 2017; Wilson et al., 2016). However, some insight has been retrieved from comparing nationwide linked Canadian datasets monitoring and analyzing for acute hospitalization rates (Ng et al., 2016). These comparisons between national hospitalization datasets indicate that foreign-born immigrants and refugees settled in Canada have significantly higher patterns of acute age-standardized hospitalization rates (ASHR) due to vaccine-preventable diseases (VPD) than the Canadian-born population (Ng et al., 2016). Im/migrant's tendency to have lower immunity to VPDs in Canada may be associated with the fact that many im/migrants are from home countries where vaccine coverage is suboptimal or where there are inaccessible or non-existent vaccination programs (Ng et al., 2016). However, the higher rate of im/migrants in Canada hospitalized for vaccine-preventable diseases may be due to under vaccination, no vaccination or outdated vaccination, because the VPD-specific ASHRs seem to increase with years lived and/or settled in Canada (Ng et al., 2016). Economic class im/migrants settled in Canada seem to have significantly lower VPD-specific ASHR because they have dependents i.e.

children (Ng et al., 2016). Family and refugee class immigrants (i.e., refugees assisted by the government) tend to have significantly higher VPD-specific ASHRs (Ng et al., 2016). In any case, Canada currently does not have a centralized national database collecting and storing specific information on the long-term vaccination of im/migrants settled in Canada (Bolotin et al., 2019; Wilson et al., 2016).

### ***Canada's National Commitment to Strengthening Vaccination Policies Using Evidence***

With the ongoing influx of im/migrants into the Canadian population, there are both longstanding (i.e., historical) and newly developed or developing (i.e., contemporary) health disparities and inequities present in society. Government intervention developments have been established to help circumvent the negative impacts of health inequities to Canadian society, including the establishment of NCCs (National Collaborating Centres) across Canada which have been federally assessed to demonstrate significant contributions to evidence-informed decision-making in public health in Canada (Dubois and Lévesque, 2020). NCCs are known and identified as key to bridging the gaps between evidence, policy, and practice; to facilitate the implementation of evidence in multiple and complex settings (Dubois and Lévesque, 2020). Within the context of addressing immunization health inequities, Canada has a *National Collaborating Centre (NCC) for Infectious Diseases (NCCID)*, which is based at the University of Manitoba in Winnipeg, Manitoba (Dubois and Lévesque, 2020). From 2020 onwards, the NCCID has set three priorities: 1) *"support public health responses to infectious diseases among migrants and mobile populations"*, 2) *"address inequities in public health responses to communicable diseases in rural and remote communities"*, and 3) *"support opportunities for using big data for infectious disease surveillance, prevention, control and monitoring"* (Dubois and Lévesque, 2020). Broadly speaking, the NCCID supports relevant topic-specific networks alongside facilitating two or more national knowledge exchange gatherings every year (Dubois and Lévesque, 2020). The topics that the NCCID covers include *'locally and culturally appropriate interventions'* and *'stigma'* (Dubois and Lévesque, 2020). It is important to note that advances by the Canadian federal government in ongoingly improving Canadian immunization policies are mentioned in this background context given that such policies tend to influence or

guide corresponding provincial jurisdictions (i.e. Alberta) and policies.

Canada is not immune to the rising growth of health inequities worldwide, despite the fact the Canadian nation has a publicly funded health care system well-known to provide good access to core medical and nursing care (Ford-Gilboe et al., 2018). On a national level, Canada is strongly contributing to the global response to health inequities; to *“the global objective of practical, evidence-informed immunization guidance”* (Ismail et al., 2020). Canada has been strengthening national capacity to develop immunization policies through improved use of evidence; *“through the expanded mandate of its national immunization technical advisory group (NITAG)”* (Ismail et al., 2020).

### ***National Advisory Committee on Immunization: Guiding the Growth of Vaccination Policies***

The NACI (National Advisory Committee on Immunization), since its establishment in 1964, is an expert advisory group under the Public Health Agency of Canada (PHAC) which *“provides medical, scientific, and public health advice on the use of vaccines”* (Ismail et al., 2020). The national immunization recommendations from NACI are informed by an analytic framework created by Erickson, De Wals and Farand (2005) and in more recent years (as of 2019 onwards), NACI has updated and improved their mandate (Ismail et al., 2020). Originally, the Canadian Immunization Committee (CIC) used to produce separate recommendations building upon NACI’s recommendations by applying the analytic framework from Erickson et al (2005), which was a two-step process in and by itself and led to extended timelines across Canada in vaccine authorization, program guidance and program implementation (Ismail et al., 2020). Moreover, the CIC was historically not often able to appropriately address factors in the analytic framework by Erickson et al (2005) that were most suitable being addressed at a local level i.e. political considerations (Ismail et al., 2020).

More recently (from 2019 onwards), NACI (National Advisory Committee on Immunization) and stakeholders have developed and implemented a critical analytical framework into their work called *EEFA: “Ethics, Equity, Feasibility, Acceptability”* (Ismail et al.,



2020). The *EEFA* framework helps provide decision-makers with evidence-informed tools ‘*in a systematic, comprehensive and transparent manner*’, ‘*to systematically assess critical programmatic issues, thereby strengthening capacity for comprehensive, evidence-informed immunization program recommendations*’ (Ismail et al., 2020). *EEFA*’s evidence-informed tools, already in use here in Canada for timely and transparent vaccine guidance and applicable to the global context as a possible gold standard of sorts, are ‘*based on five years of environmental scans, systematic reviews and surveys, and refined by expert and stakeholder consultations and feedback*’ and include ‘*Ethics Integrated Filters, Equity Matrix, Feasibility Matrix, and an Acceptability Matrix*’ (Ismail et al., 2020).

### ***National Advisory Committee on Immunization: Guiding the Growth of Vaccination Policies***

The NACI (National Advisory Committee on Immunization), since its establishment in 1964, is an expert advisory group under the Public Health Agency of Canada (PHAC) which ‘*provides medical, scientific, and public health advice on the use of vaccines*’ (Ismail et al., 2020). The national immunization recommendations from NACI are informed by an analytic framework created by Erickson, De Wals and Farand (2005) and in more recent years (as of 2019 onwards), NACI has updated and improved their mandate (Ismail et al., 2020). Originally, the Canadian Immunization Committee (CIC) used to produce separate recommendations building upon NACI’s recommendations by applying the analytic framework from Erickson et al (2005), which was a two-step process in and by itself and led to extended timelines across Canada in vaccine authorization, program guidance and program implementation (Ismail et al., 2020). Moreover, the CIC was historically not often able to appropriately address factors in the analytic framework by Erickson et al (2005) that were most suitable being addressed at a local level i.e. political considerations (Ismail et al., 2020).

More recently (from 2019 onwards), NACI (National Advisory Committee on Immunization) and stakeholders have developed and implemented a critical analytical framework into their work called *EEFA*: ‘*Ethics, Equity, Feasibility, Acceptability*’ (Ismail et al., 2020). The *EEFA* framework helps provide decision-makers with evidence-informed tools ‘*in a*

*systematic, comprehensive and transparent manner”, “to systematically assess critical programmatic issues, thereby strengthening capacity for comprehensive, evidence-informed immunization program recommendations” (Ismail et al., 2020). EEFA’s evidence-informed tools, already in use here in Canada for timely and transparent vaccine guidance and applicable to the global context as a possible gold standard of sorts, are “based on five years of environmental scans, systematic reviews and surveys, and refined by expert and stakeholder consultations and feedback” and include “Ethics Integrated Filters, Equity Matrix, Feasibility Matrix, and an Acceptability Matrix” (Ismail et al., 2020).*

### ***Purpose of Evidence-Based Health Equity Principles in Canadian Vaccination Policies***

Government vaccination policies are noted as most influential in providing clear intent and guidance, to encourage policy decisions oriented towards improving vaccination services and inadvertently, actualizing better health outcomes for all (Mahimbo et al., 2017a). Generally, health policies are known as a driving force in creating and perpetuating health disparities (preventable differences in burden of disease in the way of optimal health in disadvantaged segments of the overall population), but also play a double-sided role in eliminating health disparities (Douglas et al., 2019). Evidence-based health policies are most effective in advancing health equity (Pottie et al., 2011), fueled by research evidence and input from affected community-level stakeholders (Douglas et al., 2019).

More specifically, vaccination policies in the Canadian context are directly associated with public health decision-making and are considered optimal when scientifically evidence-based (Rosella et al., 2013). In terms of health equity associated with vaccination, evidence-based vaccination policies and programming can increase vaccination by boosting public confidence and advance health equity by promoting interventions aimed at reducing vaccine inequities (Gates et al., 2021). Within the context of future pandemic preparedness policies, incorporating evidence into vaccination policies allows for improved preparation of policies to withstand time constraints and uncertainty but there is a risk of policymakers respective ideological interpretations and perspectives on evidence shaping how information

(i.e., scientific evidence, contextual factors) is used in policy-making (Rosella et al., 2013). For example, when debate arises regarding some evidence, it is noted that some policymakers succumb to external pressures, veer on the side of caution and make policy decisions that go against prevailing evidence jeopardizing credibility and transparency (Rosella et al., 2013). As such, clarification and equitable reasoning in policies is key to maintaining or renewing public confidence in policies backed up by scientific evidence (Rosella et al., 2013).

## **1.2 Knowledge Gaps**

Despite growing research on the barriers to the vaccination of im/migrants in Canada as a whole, little is known about the vaccination among diverse im/migrants - particularly children of im/migrants - across the provinces and territories of Canada (Bolotin et al., 2019). Proper disease surveillance and serosurveillance of the vaccination coverage and status of im/migrants are yet to exist (Charania et al., 2019). Im/migrants are yet to be distinguished in Canadian vaccination coverage data or statistics (Johnson, 2014). Even though im/migrants birthplace and ancestry in relation to certain vaccinations have been pinpointed as very important information needed by vaccine providers working to reach all population subgroups (Li, Menzies, Landry, Benedetti and, Rousseau, 2014). Barriers are said to exist in distinguishing im/migrants by ethnocultural diversity in Canadian vaccination coverage data (Bolotin et al., 2019). Nation-wide federally-centralized acknowledgment of im/migrants as a diversely susceptible cohort in vaccination data is difficult because each of the 10 provinces and 3 territories in Canada have their own schedule for administering vaccinations (Bolotin et al., 2019) and assessing vaccination coverage varies by jurisdiction and age group (Wilson et al., 2017). The differing vaccination record systems across Canadian provinces and territories are also limited by age (i.e., predominantly focusing on school-aged children rather than all age groups in the corresponding jurisdictional population) (Bolotin et al., 2019). A national vaccine registry database is yet to be developed in Canada (Bolotin et al., 2019), however, a pan-Canadian mobile application tracking vaccination records (called *Immunize CA*) has been piloted on childbearing women across Canada in recent years (Atkinson et al., 2016). The pilot study on the use of the *Immunize CA* mobile application indicates that barriers are in the way of the general population collectively

adopting this app i.e. uncertainties around usability and accessibility of mobile solutions and individual technology readiness (Atkinson et al., 2016) *Immunize CA* has the potential to be integrated into a national vaccine registry database i.e. when such a database is developed and implemented nation-wide (Wilson et al., 2018). In a survey administered to newcomers in Ottawa, recent im/migrants settled in the Ottawa province of Canada indicated that they would use mobile technology to store and track their vaccination records if the application was available in their respective primary languages (Wilson et al., 2018). In short, im/migrants equitable access to vaccines across Canada currently can be viewed as a neglected topic.

Moreover, a centralized Canadian database summarizing data on childhood vaccination of im/migrants across Canada does not exist. One somewhat central source of national childhood vaccination monitoring in population (a source of data for determining vaccination rates) that does exist in Canada is sourced directly through a federal structure in the Canadian healthcare system called the Public Health Agency of Canada; PHAC (Public Health Agency of Canada, 2020b). The PHAC routinely monitors general childhood vaccination coverage in Canada through data collection from childhood national immunization coverage survey; cNICS (Public Health Agency of Canada, 2020b). cNICS has existed in Canada since 1994 and is conducted approximately every two years to estimate national uptake for publicly-funded routine childhood vaccinations recommended by the National Advisory Committee on Immunization; NACI (Public Health Agency of Canada, 2020b). However, comparisons of estimated cNICS data with varying estimated data from various provinces and territories across Canada continue to indicate uncertainty over the proportion of well-vaccinated children in Canada (Wilson et al., 2017). Additionally, it is unclear if the data present on national childhood vaccination takes into consideration the vaccination needs of children of im/migrants especially from recently settled im/migrant families.

Research gaps exist in general research conducted on the vaccination of Canadian children. The research evidence that does exist on the general childhood vaccination rates for the overall Canadian pediatric population remains suboptimal, with some Canadian children still considered under-immunized and sporadic outbreaks of vaccine-preventable diseases affecting

local children (Robinson, 2018; Gilbert et al. 2017). All children are at increased risk of transmission and complications from infectious diseases because their immune systems are not fully developed, therefore they are a very vulnerable demographic in need of vaccines scheduled on time and routinely to provide immunity to vaccine-preventable diseases as early as possible (Johnson, 2014). However, unfortunately research on the vaccination of children nationwide that takes im/migration status and/or race/ethnicity into consideration does not seem to be available on this topic at this time. Lack of childhood vaccination and incomplete childhood vaccination outcomes of children in Canada are influenced by various debilitating sociodemographic determinants (differing by region due to uncertain barriers), including low parental education, children from single-parent families, children born outside Canada, low household income (poverty), and low socioeconomic status (Gilbert et al., 2017).

Research has been particularly lacking on the vaccine-preventable disease rates and vaccination of young (i.e., school-aged) children of recent im/migrant parents in Canada (Salehi et al., 2015). Although there is remarkably universal access to publicly-funded childhood vaccines in Canada with key childhood vaccinations available nationally, provincially, territorially and locally, some regional variation and socioeconomic inequalities in vaccination rates are still noted (Wilson et al., 2017). For example, some children of im/migrants may not be fully vaccinated through the universal childhood immunization program of Canada especially if they were too young to be vaccinated or past the age of vaccination if they migrated to, arrived to, and settled in Canada along with their parents (Pottie, 2011).

### ***Limited Quantitative Data Detected on Vaccination of Im/migrants in Canada***

Furthermore, Canadian quantitative research on the interconnection between vaccination and related social ecology of culturally and linguistically diverse (CALD) subgroups in the population is also very limited. A brief literature review indicates that there are only a few quantitative studies that directly or indirectly mention and provide quantitative evidence on the vaccination of ethnoculturally diverse people (i.e., im/migrants, indigenous peoples) in Canada. One Canadian quantitative study, Quach et al (2012) directly estimated influenza vaccination

coverage rates for and across twelve (12) broad ‘ethnic groups’ in Canada using a socioeconomic status (SES) lens and searching for ethnic disparities. Quach et al (2012) pointed out that the success of influenza vaccination campaigns is likely suboptimal if subgroups of the population face unique barriers to accessing and/or utilizing vaccination.

Although the diversity and vaccination coverage disparities of twelve various ethnicities were present in the study by Quach et al (2012), health equity principles and the direct mention of children of im/migrants or im/migrants were missing. Responses were pooled from the Community Health Services Survey from 2003 to 2009 (n = 437,488), and weighted logistic regression models were used to analyze the association between ethnicity and influenza vaccination coverage while adjusting for the confounding factors of sociodemographic factors and health status (Quach et al., 2012). The Canadian Community Health Survey (CCHS) is a national initiative collecting health data on individuals 12 years of age and older, conducted every two years and in both official national languages of Canada: English and French across all ten Canadian provinces and three Canadian territories (Statistics Canada, 2020). Quach et al (2012) indicated that influenza vaccination coverage ranges from 25% to 41% across ethnic groups, and stated that both White and Black Canadians have the lowest of influenza vaccination coverage across ethnic groups which seems like a very strong over-generalization because there many different types (ethnicities, religions, social classes) of White and Black Canadians, respectively. As of the present year of 2021, this study by Quach et al (2012) is outdated so further research will be necessary to determine the real situation for ethnic people on the ground across Canada; to extract more substantial evidence from more studies with larger sample sizes and with more ethnoculturally and jurisdictionally diverse Canadian participants; for improved external validity.

Another quantitative Canadian study utilized vaccination data from Ontario, Canada to examine and determine whether there were ethnic disparities in members of the population (i.e. children) acquiring the 2009 pandemic H1N1, with the inclusion of both adult and pediatric cases (Navaranjan, Rosella, Kwong, Campitelli and Crowcroft., 2014). Ethnicity was viewed as

one of the novel risk factors and multivariate logistic regression calculations were used to distinguish the association or lack thereof between ethnicity and pH1N1 infection, adjusting for demographic, clinical and ecological covariates (Navaranjan et al., 2014). Pediatric cases with risk factors for severe influenza infection were more likely to be children who self-identified as Black. Furthermore, pediatric cases without risk factors for severe influenza infection had an increased chance of being children who were of South Asian descent, Black descent, West Asian/Arab descent, Latin American descent and/or Multi-racial groups (Navaranjan et al., 2014). This study by Navaranjan et al (2014) indicated that pH1N1 cases had an increased chance of coming from certain ethnic groups compared to test-negative controls. Furthermore, it was lamented that more insight was necessary to better determine whether these ethnic disparities were due to social and biological factors; to better understand what approaches are necessary to reduce the burden of contracting future vaccine-preventable infectious diseases (Navaranjan et al., 2014). In a more recent Canadian quantitative immunization study, the ‘race/ethnicity’ of a Manitoban subgroup of school-aged girls and women (specifically First Nations, Metis and Inuit or FNMI) was key in the study’s mathematical model of analysis as one of the significant determinants of the of HPV vaccination coverage based on evidence that this particular race/ethnicity demographic - FNMI - are known to be at increased risk of infection, disease and cancer (Obidiya, 2020). The impact of inconsistent vaccination among Manitoban school girls by ethnicity/race was quantified using a dynamic transmission model, and it was determined that if vaccination coverage is not equalized among all school girls then that will require policymakers to prepare for elevated levels of negative health outcomes - especially amongst FNMI school girls - which would’ve been successfully avoided under equal vaccination coverage (Obidiya, 2020). Through this particular quantitative study, Obidiya (2020) acknowledged that ethnicity/race does directly influence and impact vaccination and immunization disparities. Research studies, such as the ones from Obidiya (2020) and Navaranjan et al (2014), that focus on the vaccination of Canadian children from racialized identities and ethnic roots (i.e. FNMI children) in a specific local region of Canada are to date still seem quite rare to come across.

### **1.3. Introduction: Alberta Childhood Vaccination**

Alberta is considered to have one of the most comprehensive vaccination programs in Canada (Busby and Chesterley, 2015). Alberta's universal immunization coverage through the publicly-funded immunization schedule provides the Alberta population, including and especially children, immunity protection against possibly life-threatening VPDs and outbreaks (Government of Alberta, 2007). In 2005, Alberta was the only province rated highly for having an excellent immunization program by the Canadian Pediatric Society (Government of Alberta, 2007). Alberta's immunization program is promising but similar to any other province and territory in Canada, the vaccination coverage of children in Alberta can and should be optimized and advanced through improvements in corresponding policies (Busby and Chesterley, 2015).

#### ***Alberta Immunization Schedule and Target Coverage for Childhood Vaccinations***

The Alberta Ministry of Health (Alberta Health) has a well-functioning '*Analytics and Performance Reporting Branch*' which maintains an interactive health data application (IHDA) that actively monitors childhood immunization coverage rates in Alberta (Alberta Health, 2021). Data from the IHDA are actively sourced from both the '*Alberta Health Care Insurance (AHCIP) Quarterly Population Registries*' and '*Immunization and Adverse Reaction to Immunization (Imm/ARI)*' records and documents (Alberta Health, 2021). The IHDA database is based on the postal code of residence in the Alberta Health Care Insurance Program (AHCIP) Stakeholder Registry and includes 5 'Alberta Zone' areas, 35 'subzones' of Alberta, and 132 'local areas' of Alberta. The rates of childhood vaccination coverage in Alberta featured in this IHDA data set represent "*the probability a child will have received their age-appropriate immunization dose(s) by ages one, two, seven, twelve, seventeen*" (Alberta Health, 2021). For children aged 1-17 in Alberta, there are approximately 11 childhood vaccines - between 1 to 4 doses per vaccine - that are strongly recommended (Figure 3), with a target coverage for each childhood vaccine varying from 80% to 95% (Alberta Health, 2021). Childhood Immunization Coverage Rates (CICR) "*approach follows a birth cohort and applies time-to-immunization (survival analysis) methods to compute the probability of immunization over time*" (Alberta Health, 2021). Moreover, CICRs are calculated using the "*antigen proxy method where immunizations are for a particular*



*antigen are used as proxies for the vaccine", allowing for a "number of scenarios when certain vaccines are not available...but the component antigens can still be administered" (Alberta Health, 2021).*

Vaccination coverage tends to often be categorized as "*complete or incomplete*", which can pose challenges in that it may ignore "*the potentially important heterogeneity in children [in Alberta] whose vaccinations are not-complete*" (Bell, Simmonds, and MacDonald, 2015). Based on the five routinely scheduled childhood vaccines in Alberta, children's vaccination coverage can be more specifically categorized as "*complete, incomplete, selective, or non-vaccination status*" (Bell, Simmonds, and MacDonald, 2015). Moreover, amongst children aged 2 who are not '*not-completely*' vaccinated children (a common occurrence in the 2008 Alberta birth cohort), it has been determined that there are distinct differences present among these vaccination coverage category groups of children in Alberta "*that require attention when addressing vaccine coverage*" (Bell, Simmonds, and MacDonald, 2015). According to this data on partially vaccination children from the 2008 Alberta population-based birth cohort (retrieved from in administrative health databases), factors "*strongly associated with incomplete vaccination status*" were detected "*that might pose barriers to vaccination, such as single marital status..., large number of household children..., and multiple household moves*" (Bell, Simmonds, and MacDonald, 2015). However, it is important to note that determinants for immunization by age 2 in a population cohort in Alberta from 2008 (Zhang et al., 2008) and corresponding policies and programs have changed considerably fast forward a decade and more (i.e. Rafferty et al., 2019).

In any case, vaccination interventions aimed at boosting general childhood vaccination coverage in Alberta are often being reviewed, revised, evaluated, and improved by the Government of Alberta to help overcome coverage setbacks and/or maintain positive coverage outcomes. For example, in June 2015, Alberta "*instituted a [restricted] universal publicly funded rotavirus vaccination programme (Rotarix, RV1), with vaccine doses scheduled for 2 and 4 months of age*" (Rafferty et al., 2019). With this publicly funded rotavirus vaccination programme, vaccinations are "*restricted so that infants were only allowed to receive first dose between 6 and 20 weeks of age and second dose before eight calendar months of age*".

Moreover, schedule noncompliance for one-dose vs. two-dose rotavirus vaccination is noted as very minimal. Socioeconomic disparities were identified as a factor in the uptake of the vaccine (specifically due to factors such as income, location of residence and number of children in household) all of which is noted to contribute to the odds of a child being vaccinated with rotavirus, particularly likely to affect groups *“at highest risk of gastrointestinal illness [such as] low-income and rural populations...even with the “restrictive rotavirus vaccine schedule, the vaccine can be delivered on-time”* (Rafferty et al., 2019). However, it is important to note that even with Alberta’s publicly funded childhood vaccination system and high level of schedule compliance (i.e., to RV1), there are still *“some populations (eg, preterm infants, low-income rural populations) that may remain under-vaccinated”*. For example, Southern Alberta *“is home to”* many *“homogeneous cultural communities and their respective schools”* which *“do not promote immunization as a preventive public health measure”* for varying reasons, leading to heterogeneous vaccination coverage of children (Matkins, Simmonds and Suttorp, 2014).

### ***Childhood Vaccination Coverage in Alberta: General Population vs. Recent Im/migrants***

It is important to note that no studies to date have indicated that any existing or rising deficiencies in Alberta’s childhood vaccination are the sole fault of im/migrant parents settled in Alberta and their children born and/or settled in Alberta. Rather, nationally, it is recognized that Canadian im/migrants and their children are a marginalized subgroup in the overall Canadian population who have unique barriers to accessing and uptaking vaccination services that born Canadians may not or will not face and experience (Busby and Chesterley, 2015). Im/migrants have additional barriers in the way of their vaccination coverage (Wilson et al., 2018). In the general population, both im/migrants and non-immigrants collectively also experience large-scaled and societal (macro) barriers that exist in the way of childhood vaccination (a child receiving a vaccine), which includes socioeconomic status specifically the mother’s education, income level, family size, ethnocultural diversity, access or lack thereof to vaccination services (i.e., lengthy clinic waits) and location (urban or rural) of vaccination services.

### ***Reliable Nurse-Led Facilitation of Childhood Vaccinations in Alberta***

The public health managers who facilitate, monitor and encourage the completeness of routine childhood vaccination of children in Alberta are nurses. Alberta has a strong and well-functioning nurse-led practice of administering and recording all infant vaccinations in over 100 community health organizations across the province operated by Alberta Health Services, tracking regional childhood vaccination coverage (Busby and Chesterley, 2015). Alberta's nurse-led approach involves '*healthy beginning [registered] nurses*' timely and effective engagement with parents right after childbirth to discuss the importance of childhood vaccination and to ensure vaccinations are started early on for the newborn (Busby and Chesterley, 2015). Home visits for vaccinations for the newborn are scheduled within the first 14 days of birth and children born in Alberta hospitals have a vaccination record created for them right at birth (Busby and Chesterley, 2015). Alberta has good success with early vaccination doses (Busby and Chesterley, 2015). For childhood vaccinations, Alberta does not require written consent or refusal from parents and does not enforce vaccination on the population as mandatory (Busby and Chesterley, 2015).

The Alberta jurisdiction's systemic approach to childhood vaccination coverage (similar to other provinces) of registered nurses carrying out (implementing) routine childhood vaccinations and disseminating policies and policy guidance is said to likely be the root cause of not being able to meet national target rates for vaccination coverage (Busby and Chesterley, 2015). National childhood vaccination targets are set to sustain herd immunity against most of the common childhood vaccine-preventable diseases (Johnson, 2014), however provincial and territorial differences exist in Canadian childhood vaccination policies and programming practices (Bandara, 2019). Alberta's policy framework for childhood vaccinations focused on early interventions is said to be liberally lenient towards parents avoiding giving consent or refusing to vaccinate their children (Busby and Chesterley, 2015). However, the jurisdiction of Alberta does strongly recommend and promote that children from the age of two months onwards receive routine childhood vaccinations (Johnson, 2014).

### ***Alberta's Vaccination Data Collection: Im/migrants and their Children***

One interesting fact to consider is that Alberta's pediatric population includes many children from im/migrant families, and Alberta is well-known to have a high immigration rate (Busby and Chesterley, 2015). However, im/migrants from other provinces and from abroad are not always detected and entered into the [Alberta vaccination registry] system (Busby and Chesterley, 2015), even though Alberta has a high-quality vaccination data-collection process with an active registry preserving corresponding vaccination records. In any case, new im/migrants to Alberta are legally required to provide vaccination records prior to entering Canada after which point it is their responsibility to contact a community health center in Alberta, present their vaccination records, and participate in Alberta's vaccination schedules (Johnson, 2014). Vaccination data collection on more recent im/migrants to Alberta, specifically on their access to and use of vaccination services (i.e., needed for their children), seems limited.

### ***Im/migrant families Understanding of Childhood Vaccinations: Barriers to Equity***

Barriers to im/migrant families vaccinating their children in Alberta are said to correlate with language and cultural barriers that impact im/migrant families understanding of government-endorsed childhood vaccination campaigns or system inefficiencies in the way of im/migrant families seeking and obtaining accurate information on vaccination from healthcare professionals (Kowal et al., 2015). Limited access to prenatal and child health services for recent im/migrant parents are noted to reduce their access to vaccination information and communications, therefore, reducing the likelihood of such im/migrants participating in vaccination programs (Kowal et al., 2015).

On a similar note, im/migrants are also vulnerable to contemporary systemic barriers (e.g., socioeconomic status by neighborhood, home ownership rates, etc). Systemic barriers continue to spark inequities in childhood vaccination coverage rates in Alberta, inadvertently increasing the risk of vaccine-preventable disease (VPD) outbreaks among vulnerable populations (Bandara, 2019). While the jurisdiction of Alberta exhibits high coverage rates with fairly low inequities (except at a neighbourhood-coverage level), high-income neighbourhoods are said to receive intensive support efforts post-outbreaks compared to lower-income and

less-home-ownership neighbourhoods across Alberta (Bandara, 2019). Gaps in vaccination coverage due to health disparities (inequities) ideally should be readily detected by regional public health units and remedied with intentional evidence-based efforts to reduce the coverage inequities (Bandara, 2019).

### ***Alberta Health, Alberta Health Services, and the Provincial Promotion of Health Equity***

Generally speaking, as of the last decade, health equity has been and is identified by Alberta Health (2008-Present) as a systems-based ideal; as a *'strategic priority... to improve equity in the province's population health outcomes'* which has involved the establishment of province-wide social determinants of health and health equity approach (NCCDH, 2013). It is important to note that Alberta Health Services *"promotes wellness and provides programs and services across the continuum of care to Albertans, as well as to many residents of southwestern Saskatchewan, southeastern British Columbia, and the Northwest Territories"* (NCCDH, 2013). Promoting and implementing health equity practices and protocols in Alberta (Canada) is a work-in-progress for Alberta Health Services (NCCDH, 2013), and are associated with coalitions of intersectoral collaborations, developments, implementations and transparency in equity-oriented interventions to garner or maintain conditions conducive to health for all in and across Alberta.

However, the progress in health equity promotion by Alberta Health (in optimistically designing, systematically executing and actively mobilizing health equity interventions and metrics beyond idealization) has been hindered at times (NCCDH, 2013). Alberta Health has transparently noted in one of their equity-minded publications that their attempts to integrate health equity into the general Alberta Health Care System has been restricted by three distinct major challenges: *"1) lack of region-wide consensus over a common understanding of 'health equity', 2) unfulfilled need for evidence-based population health data at the jurisdictional level during the planning stages, and 3) trouble integrating a health equity approach across diverse Alberta Health Service programs and service delivery locations"* (NCCDH, 2013). It is unclear whether this long held promotion of health equity by Alberta Health Services is reflected openly in Alberta's present-day childhood vaccination policies and policy guidance.

***Identified Knowledge Gap: Impact of the Vaccinations Policies on Children of Im/migrants***

Contextual background information aside, this study essentially addresses a knowledge gap in the critical assessment of Alberta childhood vaccination policies in particular. A few general critical analyses and/or reviews of vaccination policies in Canada have been conducted in the past (i.e., Garst et al., 2021; Shapiro, Guichon and Kelaher, 2017; Rosella et al., 2013; Lomas and Brown, 2009). However, no known peer-reviewed and/or published studies to date have specifically conducted an intersectionality-based critical policy analysis evaluating childhood vaccination policies and policy guidance directly pertaining to the Alberta jurisdiction of Canada only or in comparison to another Canadian jurisdiction or jurisdictions. There are no Canadian national or local vaccination studies detected to date that are specifically inclusive of the vaccination needs of children from ethnoculturally diverse im/migrant families with varying immigration statuses. Therefore, this study is a critical policy analysis examining the childhood vaccination policies and policy guidance exclusively in Alberta, to determine whether or not the children of im/migrants settled in Alberta, Canada is inclusively and equitably accounted for throughout Alberta's childhood vaccination policies.

## Chapter 2

### 2.1. Objectives and Research Question

This qualitative critical policy analysis study utilized an intersectionality-based (equity-oriented) evaluative framework (Mahimbo et al., 2017a) and secondary data to examine and explore vaccination policies and policy guidance primarily at the provincial level and regionally focused on Alberta; on urban cities, rural counties, townships and other such areas in and under the jurisdiction of the Province of Alberta (Canada) only. The vaccination policies and policy guidance in this study were those under Alberta jurisdiction currently in place, with a specific focus on the vaccination of children of all ages from im/migrant families settled in Alberta. The research question for this critical policy analysis study is as follows: to what extent are the current Alberta childhood vaccination policies attentive and responsive to the vaccination needs of children from im/migrant families. This study includes a thorough evidence-informed critical analysis of childhood vaccination policy and policy guidance, with the intent to examine: a) equity considerations in the policies as it relates to vaccine uptake among immigrant/migrant children; and b) how vaccination policies in Alberta were implemented and/or how decisions were made.

### 2.2. Study Design: Introduction to Intersectionality-Based Critical Policy Analysis

This study is oriented as intersectionality-based critical policy analysis, also referred to as an equity-based critical policy analysis. Intersectionality is a theoretical framework in public health for understanding and addressing health inequities, by allowing for exploration of the dynamic, macro-level and interconnected structures of power (and differential privileges and disadvantages) that create the inequities in [learning] health systems and that then differentially affect the health of people on a micro-level (Larson, George, Morgan and Poteat, 2016). The concept of intersectionality is increasingly utilized in the arena of public health in North America and is considered as offering great potential in advancing professional stakeholder understanding, perspectives and action on health inequities (Holman, Salway, Bell, Beach, Adebajo, Ali and Butt, 2021). Intersectionality is an underrated but key element of population

health because it considers the interaction of various social stratifiers (i.e. ethnocultural diversity, migration status, socioeconomic status) and the various power structures that influence these social stratifiers at multiple levels (Larson et al., 2016). Intersectionality is defined as the interactivity of social positioning and identities such as ethnocultural diversity, social class, gender, and social disadvantages (i.e. low income, illness, immigration status) in shaping individual people's experiences in life (Corus and Saatcioglu, 2015). Intersectionality is considered an underdeveloped concept in policy discourse and application within the context of research practices, with the application and incorporation of the intersectionality framework into policy processes (development and analysis) still considered complex and in its premature stages (Hankivsky and Cormier, 2019). Overall, intersectionality in health policies works in tandem with ensuring the policies uphold key principles of health equity for improving population health (Douglas et al., 2019), regardless of how health equity is defined in a local context.

### ***Searching for the Awareness and Application of Intersectionality in the Health Policies***

An intersectionality-based policy analysis (IBPA) framework is well-studied as a simple and flexible tool for pinpointing or incorporating the prioritization of health equity in policies (Hankivsky et al., 2014). The guiding principles of intersectionality-based policy analysis (to be applied to yield appropriate policy critiques) include “*equity, diverse knowledge, time and space, reflexivity, social justice, power, multilevel analysis and intersecting categories*” (Hankivsky et al., 2014). The perspective of intersectionality originates from the work of social scientists analyzing the overlapping and interacting influences of social location, identity and historical oppression and its application in public health remains underdeveloped (Kapilshrami, Hill and Meer, 2015). The intersectional perspective allows researchers to move past but not ignore class and socioeconomic position (and focus on social dynamics rather than social categories) in analyzing structural (macro-level rather than micro-level) determinants of health, given that human experiences of privilege and disadvantage do directly impact the exercise of power (or lack thereof) across social institutions (Kapilshrami, Hill and Meer, 2015).

The descriptive overarching questions of IBPA include the following key questions for



the critique: *'what is the policy problem under consideration?'*, *'how have representations of the problem come about?'*, *'how are groups differentially affected by this representation of the problem?'*, and *'what are the current policy responses to the problem?'* (Hankivsky et al., 2014). Such IBPA questions intend to reveal critical background information and assumptions underpinning the processes and mechanisms of existing government priorities, the population(s) targeted for the policy intervention(s) and what inequities and privileges are naturally being developed under current policy responses to the 'policy problem' (Hankivsky et al., 2014). In the health services context, the intersectional framework applied to the critical analysis of health service policies works towards transforming service in ways that are more transparently inclusive of all regardless of the advantages or disadvantages of their social positioning (Corus and Saatcioglu, 2015).

The transformative overarching questions of IBPA include all of the following: *"what inequities actually exist in relation to the problem?"*, *"where and how can interventions be made to improve the problem?"*, *"what are feasible short, medium and long-term solutions?"*, *"how will proposed policy responses reduce inequities?"*, *"how will implementation and uptake be assured?"*, *"how will you know if inequities have been reduced?"*, *"how has the process of engaging in an intersectionality-based policy transformed: your thinking about relations and structures of power and inequity, the ways in which you and others engage in the work of policy development, implementation and evaluation and broader conceptualizations, relations and effects of power asymmetry in the everyday world?"* (Hankivsky et al., 2014). These transformative IBPA questions intend to assist practitioners with identifying alternative policy responses and solutions that then ideally bring about social and structural changes to reduce inequities, all of which aims to promote the meaningful uptake, measurement of impacts, and outcomes of equity-focused policy solutions (Hankivsky et al., 2014).

The process of implementing an intersectionality-based policy analysis (IBPA) approach may be resisted by policymakers who are not open to social justice-oriented change or to asking and answering difficult questions about power and structural asymmetries in policy (Hankivsky

et al., 2014). The architects of the IBPA framework envision the application of this framework of interest (i.e. for exploring equity in vaccination policies) will result in a living document (i.e. this thesis manuscript) that will then need to be modified over time to incorporate input from end-users, pilot tests and feedback on how this IBPA framework should be improved to become more usable, helpful and accurate in revamping, re-developing, re-implementing and re-evaluating critically-reformed policy (Hankivsky et al., 2014).

There are both pros and cons to the IBPA framework, but the pros tend to prevail. This innovative IBPA framework (which expands on current less-critical paradigms of policy analysis in existence) and its expected result of new ways of thinking about a policy problem or issue is not deemed a final solution (Hankivsky et al., 2014). IBPA still faces the obstacle of translating the resulting knowledge into accessible and digestible messages for policy actors to understand and then act on (Hankivsky et al., 2014). There is also no guarantee that this critical research (IBPA) will lead to direct action (work of interventions), structural change (work of actions) and/or social transformation led by policy actors aka critical players (Hankivsky et al., 2014) and professional stakeholders. However, the IBPA framework is able to successfully analyze the operation of power and processes of stigmatization in policymaking. Furthermore, intersectionality is a reliable framework for analyzing health policies (IBPA) that then provides a reliable look at the collaboratively-created nature of health services (Corus and Saatcioglu, 2015). Taking intersectionality into consideration is instrumental for designing universally tailored, fair, ethical and transparent services to improve health on both a micro-level and macro-level (Corus and Saatcioglu, 2015), and its implementation in health research to date has mainly been through qualitative research (Bauer, 2014).

Evidence-based efforts must include the prioritization of health equity in corresponding policies to ensure that the appropriate guidance is implemented early on in the midstream and downstream to advance vaccination equity (Douglas et al., 2019), such as through the use of this intersectional policy analysis framework. The comprehensive incorporation of intersectionality in health research has the ability to facilitate improved understanding of the varying needs of

targeted and/or marginalized communities and may end up leading to more effective implementation of population-level interventions like policy changes (Bauer, 2014).

### **2.3. Study Methodology**

This critical policy analysis study involved sourcing and reviewing online, publicly available and current childhood vaccination policies and policy guidance specific to the Alberta jurisdiction. All documents for consideration in this study were retrieved through purposive scanning and literature searching on the Government of Alberta and/or Government of Canada web pages and tabs. This critical policy analysis focused on policy and policy guidance relevant to im/migrants recently or long-settled in Alberta, not distinguishing between the various categories of im/migrants in Alberta and across Canada. The policy (legal-official guidance in complex government language) and policy guidance (simplified overviews of policies written in layperson language) documents were retrieved from a thorough critical screening of the initial compiled list of ‘potentially-eligible’ documents for use in this study. All detected policy and policy guidance documents were collected, extracted and listed into various spreadsheets on an online Google Sheet document. Then, the content of each ‘potentially eligible’ document was iteratively reviewed and analyzed using indicative coding to pinpoint key points (Table 1).

The eligibility criteria for this study (Chapter 3) were then applied to the data collected from each prospective document to determine eligible documents and sorted into the following initial ‘eligibility’ categories: *‘included-primary’*, *‘included-secondary’*, *‘excluded-tertiary’*, and *‘null-incompatible’* (Table 1). Selected eligible documents were then categorized into either primary (policies only) and secondary (policy guidance) document categories (Table 2) with tertiary documents removed set aside similar to the null-incompatible documents. Primary policy documents were then transferred to a table of their own and listed by year (chronologically in descending order) and cited accordingly (Table 3). Secondary policy guidance documents were then transferred to a table of their own and listed by year (chronologically in descending order) and cited accordingly (Table 4). Refer to the corresponding tables in the Appendix for collected data. The content of each final selected policy and policy guidance document were critically

reviewed and thematically coded (Table 3-4), guided by the standard and equity-oriented policy determinants (Mahimbo et al., 2017a; Douglas et al., 2019) of this study's evaluation framework.

## **2.4. Search Strategy**

Information was primarily retrieved through specific search terms entered into the search bars of the two major websites: Government of Alberta (<https://www.alberta.ca>) and Government of Canada (<https://www.canada.ca>), as well as through Google Scholar (<https://scholar.google.ca>) by entering in the same search terms (used in the search bars of the government websites) for more open-ended results. The following search terms were used: *Alberta, jurisdiction, immigrants, migrants, refugees, newcomers, childhood vaccination, childhood vaccination, policy, recommendations, legislation, policy guidance*. All initially detected .pdfs and/or webpages were also searched for the words 'immigrant', 'migrant', 'refugees' and were included as proxy documents even if those terms didn't show up, as long as the focus of the document was on childhood vaccination policies and policy guidance for the Alberta region of Canada only.

Overall, the online government document search for this study was conducted from April 2020 to March 2021, focused on relevant Government of Alberta and Government of Canada childhood vaccination policy and policy guidance documents for the Alberta jurisdiction only. During this time, regular monthly updates (new government website and google searches) were conducted to seek and ensure acknowledgment and consideration of any new versions (government updates, modifications, new productions) of the selected relevant publications. For Google searches, the search results were individually rapidly screened and reviewed from page to page until the relevancy of the results to Alberta, childhood vaccination policy and children of im/migrants collectively ceased to exist. Searches for relevant Alberta childhood vaccination policies and policy guidance (via GoA or GoC) were re-run up to no further than March 2021.

## **2.5. Eligibility Criteria, Final Selections and Data Collection**

In terms of the eligibility criteria, all prospective online government documents (aka government web pages and/or downloadable .pdfs detected through the search terms) were

singled out from the online search results and listed into an online Google Sheet table as ‘maybes’. Data extractions highlighting the content of each prospective ‘maybe’ document were reviewed. This list of ‘*maybe*’ prospective documents (Table 1) was then considered and sorted into the following *eligibility categories*: excluded entirely (*null*), excluded after extensive consideration (*tertiary*), included (*secondary*) or included fully (*primary*).

### ***Screening Documents for Eligibility (Inclusion or Exclusion)***

The initial searches for this critical policy analysis led to the identification of 45 potentially eligible “maybe” documents (Table 1), considered ‘proxy’ in nature (not directly on the vaccination of children of im/migrants settled in Alberta in particular but presumably generally applicable to this demographic). These ‘proxy’ documents were used in this review because no policy or policy guidance documents were found specifically on the childhood vaccination of children of im/migrants settled in Alberta. The eligibility criteria are below.

#### ***Eligibility Criteria: Exclusion***

Ineligible documents were excluded if they contained policies or policy guidance that did not align with the focus of this critical policy analysis. Policy and policy guidance documents were labelled as ‘*null*’ and immediately excluded if the content contained no mention of or reference to Alberta childhood vaccination policies and that had no mention of federal childhood vaccination policies of direct influence and use in the Alberta jurisdiction (Table 1).

Documents referred to as ‘*tertiary*’ and excluded after extensive consideration were split into two subcategories: e-Communication tools or research-based formal action, and were excluded due to having relevance to the childhood vaccination in Alberta but lacking the government-officiated policy or policy guidance component for use in this analysis (Table 1). Tertiary documents were deemed least relevant to this critical policy analysis i.e., non-profit communication tools, third-party non-government advocacy mandates.

### ***Eligibility Criteria: Inclusion***

Documents were selected for inclusion based on two simple conditions, only if they belong to the *'primary'* (core) or *'secondary'* (core-support) *eligibility categories* (see Table 2).

The core documents referred to as *'primary'* in this review were fully included because they contained specific content on Alberta childhood vaccination policies themselves (formal strategies, legislations) and were included based on the verifiable merit that they were credible government-ordained policies guiding childhood vaccination in Alberta (Table 1). Primary documents were recognized as those with government-official rules (guided limitations, restrictions, rules, mandates) for health professionals to follow in administering the vaccines, set childhood vaccination schedules to be distributed to parents to follow, directions vaccination stakeholders must follow in disseminating evidence-based advice on accessing vaccines.

The core-support documents referred to as *'secondary'* in this review were fully included because they contained explicit guidance on childhood vaccination policies for the Alberta Jurisdiction (Table 1). Secondary documents contained specific content focused on Alberta-jurisdictional childhood vaccination policy guidance mostly for the general public. These secondary documents either supported the credibility of correlating policies by referring to explanatory evidence-based research or were informational publications directly referring to policies from the “primary” documents and supporting these policies by explaining the policies in layperson's terms (i.e., transcribing policy papers written for health professionals into visual and easily comprehensible summaries for easy understanding).

Overall, *primary* (core) and *secondary* (core-support) documents (Table 2) were the key sources for this analysis. The selection of these documents initiated the process of data analysis and critical policy evaluation using policy determinants as the evaluation criteria.

### ***Selected Documents: Primary Policy Documents and Secondary Policy Guidance Documents***

Overall, twenty-five (25) policy framework documents were sourced and selected as most relevant for inclusion in this critical policy analysis. From the twenty-five (25) included

government document sources, eleven (11) were primary (policy) documents (Table 3) and fourteen (14) were secondary (policy guidance) documents (Table 4).

The eleven (11) primary documents (Table 3) consisted of the following relevant policies under review in this study: #1. *Public Health Act: Part 3 - Communicable Diseases and Public Health Emergencies* (2021), #2. *Alberta Immunization Policy; AIP* (2021), #3. *Alberta Influenza Immunization Policy; IIP* (2020), #4. *Provincial and Territorial Routine and Catch-up Vaccination Schedule for Infants and Children in Canada* (2020), #5. *Alberta Immunization Policy: Routine Immunization Schedule for Alberta* (2020), #6. *Alberta Immunization Policy: Roles and Responsibilities* (2019), #7. *Alberta Immunization Policy: Eligibility Criteria for Provincially-Funded Vaccines in Alberta* (2018), #8. *Alberta Regulation 182/2018 Public Health Act - Immunization Regulation Extract* (2018), and #9. *Alberta Immunization Policy: Background* (2018), #10. *Immunization of travellers: Canadian Immunization Guide* and #11. *Canadian Immunization Guide: Immunization of Persons New to Canada* (2015),

The fourteen (14) secondary (policy guidance) documents (Table 4) consisted of the following relevant policy guidance under review in this study: #1. *Vaccines for Children: Deciding to Vaccinate* (2021), #2. *Alberta Health Services: Immunization* (2021), #3. *Immunization Program Standards Manual*, #4. *Influenza Immunization Program Update* (2021), #5. *Immunization and Routine Immunization Schedule* (2021), #6. *Health Information and Tools: Immunizations Topic Overview* (2020), #7. *Alberta Netcare Learning Center - Immunization Regulation Information* (2020), #8. *More Information about the Immunization Regulation - For Healthcare Professionals* (2019), #9. *Parent's Guide to Vaccination* (2018), #10. *Government of Canada: "Your Children's Vaccination Schedule"*, #11. *National Immunization Strategy: Objectives 2016-2021* aka "Budget 2016", #12. *Your Child's Best Shot : A Parent's Guide to Vaccination* (2015), #13. *CATMAT Statement: Pediatric Travellers* (2010), and #14. *Alberta Immunization Strategy* (2007).

For the analysis of all twenty-five (25) selected documents containing either policies and policy guidance, a total of twelve (12) policy determinants were used, nine (9) standard policy determinants and three (3) equity-oriented policy determinants), to assess the policy implications of the content of these documents on children of im/migrants in the Alberta jurisdiction, by determining which policy determinants existed or did not exist in the each document's policies or policy guidance.

With evidence-based methodological rigor (Mahimbo et al., 2017a; Welch et al., 2019), relevant documents containing either policies and policy guidance were searched for all twelve (12) of the policy determinants through visual scanning. Specific word searches were also conducted on the documents (ctrl+f) of both policies and policy guidance, seeking the detection of any of the policy determinants. For example, with regard to equity-oriented policy determinants, all included documents in this analysis were interrogated for either the inclusionary mention or exclusionary lack of mention of key demographic-of-interest descriptive terms (i.e. *“immigrants”*, *“migrants”*, *“refugees”*, *“special population”*, *“subgroup”*, *“diversity”*, *“ethnocultural”*, *“culture”*, *“language”*, *“inclusion”*, *“identity”*, *“persons new to Canada”*) when assessing whether the equity-oriented policy determinants existed in the respective sources of policy or policy guidance. Policies and policy guidance are analyzed for any presence of equity-sensitive recommendations, explicit prompts vouching for the development of universal intervention guidelines where health inequity was stated as a concern, or guidelines on targeted or dedicated interventions seeking to protect and support the health of one or more disadvantaged populations experiencing health inequities (Welch et al., 2019). Policies and policy guidance were also analyzed for the existence of any direction or guidance raising awareness on childhood vaccination needs for children of im/migrants and/or outlining the value of equitable access to childhood vaccination needs as a public health priority. Similarly, the nine (9) standard policy determinants were searched for in the documents under review.

## **2.6. Policy Determinants: Standard and Equity-Oriented**

Policy determinants, factors influencing the existence and purpose of a policy, contribute to the development of a reliable evidence base for improving the policy, by studying the policy



content, implementation and outcomes (Douglas et al., 2019). These standard policy determinants were identified or detected as absent or present in this study's policy or policy guidance documents based on the definitions set by Mahimbo et al (2017a) for each of these high-quality yet standard policy determinants.

### ***Standard Policy Determinants***

As a major part of the analysis of all policy and policy guidance documents (Table 3 and 4), a total of nine (9) standard policy determinants (Mahimbo et al., 2017a) were retrieved, utilized as a framework and applied as criteria for evaluating the quality of the policies (i.e. legislation) and/or policy guidance (i.e. regulations) all pertaining to the Jurisdiction of Alberta:

**1) Online Navigation and Accessibility:** *“determinant or predictor of how easily [the documents] can be retrieved and be directly put into use by target audience”* (verbatim from Mahimbo et al., 2017a).

**2) Policy Background:** transparent establishment of policy priority areas by policymakers and justification of policy problem(s) based on available (crucial) evidence required for policy evidence (paraphrased from Mahimbo et al., 2017a).

**3) Goals and Aims:** essential and effective goal setting to ensure better health policy outcomes i.e. precise, succinct and concrete goals explicitly stating the objective (modified from Mahimbo et al., 2017a).

**4) Public Opportunities for Consultations [or Community Engagements]:** this determinant highlights the important role and involvement of stakeholders or interest groups (members of the community) in providing technical advice and ensuring policies are responsive to their needs i.e. having community engagement influence the policy or policy guidance development or modification process through public input from the stakeholders or interest groups (i.e. family advocates, diverse im/migrant association directors) (modified from Mahimbo et al., 2017a).

**5) Insight into Funding Sources or Access:** open transparency on the allocation or presence of adequate funding to ensure public's access to public vaccines; funding directly or indirectly aimed at reducing health inequities and showing a sign of commitment by health policy planners (inspired by and modified from Mahimbo et al., 2017a).

**6) Obligations:** allocation of sufficient resources and commitment of relevant parties in its

execution; successful implementation of a policy by explicitly stating roles and responsibilities of implementers in vaccination service delivery (modified from Mahimbo et al., 2017a).

**7) Potential for Public Health Impact:** possible impact of [the] policy in addressing risk factors, quality of life, and health disparities/inequities with special consideration of the possible extent to which the policy, policies or policy guidance(s) have the potential to address vaccination issues/gaps (modified from Mahimbo et al., 2017a).

**8) Data Collection:** the collection of data from the population for assessing individuals' health service needs, for the purpose of improving the policy planning strategies and health service delivery itself (extracted from Mahimbo et al., 2017a).

**9) Catch-Up Vaccines:** implied or clearly outlined allocation of adequate funding of catch-up vaccines for individuals who have initially missed the vaccination (inspired by Mahimbo et al., 2017a).

### ***Equity-Oriented Policy Determinants***

As a continuation of the standard policy determinants, three (3) equity-oriented policy determinants were optimized and applied as additional criteria for evaluating the policy and/or policy guidance: 10) '*Vaccination of Children of Im/migrants*', 11) '*Vaccination of Children of Precarious-Status Im/migrants*' and 12) '*Data Collection Accounting for Ethnocultural Diversity and Immigration Statuses*', all pertaining to the Jurisdiction of Alberta. As is known, there are specific individual and context-specific characteristics across which inequities in health are known to develop and proliferate, including but not limited to cultural and linguistic diversity (CALD), religion, socioeconomic status, social capital, personal capital, gender/sex (Welch et al., 2017). Health inequities are defined as differences in health amongst people in the population that are both unnecessary and unavoidable as well as unfair and unjustifiable (Welch et al., 2017; Canadian Public Health Agency of Canada, 2020). Health inequity has the ability to serve as a tool for change (Ottersen et al., 2014). Therefore, for the equity component of this critical policy analysis, the focus was on two major categories of health inequities/disparities (social determinants of health) in this study: immigration status and ethnocultural diversity. More specifically, policy determinant #10 focused on immigration status, #11 focused on precarious immigration status and #12 focused on data collection addressing ethnocultural diversity; all

three of these equity-oriented policy determinants linked back to characteristics of health disparity in relation to vaccination services. The “*Vaccination*” component of policy determinants #10 and #11 was included to explore whether the policies and/or policy guidance under review addressed and/or represented the vaccination needs of children of im/migrant (ethnoculturally diverse) families settled in Alberta. The addition of these three equity categories to the policy determinant categories created the capacity to analyze these policies for any acknowledgement of social determinants of health (i.e. racial or ethnic identity/identities or lack thereof and immigration status/statuses or lack thereof); for any descriptive factors that acknowledge the existence and varying vaccination needs of diverse im/migrants (children of im/migrants from various ethnicities and cultures) and/or awareness of health equity to boost the marginalized and diverse (CALD) population’s overall health and liberation away from institutional microaggressions causing health disparities.

Overall, the nine (9) standard policy determinants and three (3) key equity-oriented policy determinants collectively applied an evaluative framework to this critical policy analysis, allowing for the necessary acknowledgment that multiple social categories (i.e. ethnocultural diversity, socioeconomic statuses, immigration statuses) intersect at the micro-level of individual experience to contribute to the multiple interlocking systems of privilege and oppression and subsequent varying health outcomes in the community and communities at the macro (social-structural) level i.e. racism (Bowleg, 2012) and xenophobia. The intersectional nature of this study’s chosen policy determinants (standard combined with equity-oriented) had a direct focus on oppressed populations and as such, created capacity to determine whether the policies and policy guidance analyzed in this study need to be revamped to become more equitable in design and purpose (Bowleg, 2012). A total of twelve (12) interconnected policy determinants were utilized as evaluation criteria to assess the quality of both the current Alberta childhood vaccination policies and policy guidance documents critically reviewed in this study.

## **2.7. Analytical Purpose of Equity-Oriented Policy Determinants**

The equity-oriented policy determinants for this study were formed and derived from a consensus-based conceptual equity framework for how to consider health equity when rating the certainty of synthesized evidence (Welch et al., 2017; Douglas et al., 2019; Hankivsky et al., 2014). Specifically, these three equity-oriented policy determinants were used as prompts to search for any mention of health equity in the synthesized evidence (i.e. mentioned evidence informing current policies or policy guidance). The assessment of presence or absence of health equity were guided by five recommended methods for assessing health equity in synthesized evidence (Welch et al., 2019), paraphrased as follows: 1) inclusion of health equity as an outcome, 2) consideration of patient-based outcomes specific to health equity, 3) assessment of differences in relative effect between disadvantaged and more advantaged individuals or populations, 4) the assessment of differences in baseline risk and subsequently proportionally impactful effects such risks have on disadvantaged subgroups in the population.

### ***Evidence-Based Health Equity Assessments Incorporated into Equity-Oriented Determinants***

For the sake of simplicity and to remain focused on this study's research question, the five recommended methods for assessing health equity (Welch et al., 2019) were summarized into three equity-oriented policy determinants for the purpose of this study. The consideration of health equity in rating the certainty in synthesized evidence has three purposes: it necessitates an acknowledgment of existing disadvantaged sub-populations and settings of interest, it necessitates methods to assess relative and absolute effects of the disadvantaged sub-populations in relation to the greater population, and it necessitates the pinpointing of any transparent reporting of how judgments are made (Welch et al., 2017). The health equity policy determinants in this analysis initiated a further inquiry into what the implications are for each respective policy and what should change in those policies for the sake of accountability, fairness, and truly upholding universal health access for all (Welch et al., 2017).

## Chapter 3

### 3.1. Overview of Results

This study critically reviewed current, publicly available, and official government-sourced online policy and policy guidance, all focused on general Alberta-Jurisdictional childhood vaccination, using nine (9) pre-established standard policy determinants (Mahimbo et al., 2017a) and three (3) evidence-informed equity-based policy determinants as the evaluative criteria for analysis (Douglas et al., 2019). Almost all of the twenty-five (25) eligible online policies and policy guidance retrieved and reviewed for this study pertaining to childhood vaccination in Alberta were confirmed to be ‘proxy’, generally focused on the childhood vaccination of the overall Alberta population but not overtly addressing vaccine equity. Out of the twenty-five (25) sources identified as eligible for inclusion in this critical policy analysis study, eleven (11) contained relevant policies (government-official guidelines and strategies to adhere to) that were then categorized accordingly (Table 3). The other fourteen (14) sources were categorized as policy guidance serving to explain, supplement and/or inform the policies (Table 4).

This study found that only a few statements from two GoA and GoC policies and/or policy guidance documents on childhood vaccinations in the Alberta Jurisdiction contained policy implications that specifically addressed children of im/migrants’ access and im/migrant parents’ consent to Alberta childhood vaccinations. Most policies and policy guidance evidence contained indirect (or difficult to pinpoint) policy implications for im/migrant parents and the children of the im/migrants.

### 3.2. Results on Standard Policy Determinants

The following results were retrieved from utilizing and applying a pre-established set framework for evaluating vaccination policies which consisted of standard policy determinants (Mahimbo et al., 2017a). The results below indicate that most of the policy and policy guidance reviewed in this study were predominantly designed blandly as ‘one size fits all’, indicating a

reasonable likelihood of unacknowledged differential impacts on the system-wide vaccination by children of im/migrants.

### ***1. Online Navigation and Accessibility***

The accessibility of policy documents serves as a determinant and predictor of how easily the document can be retrieved and put into direct use by the targeted audience (Mahimbo et al., 2017a). In this study, eight (8) of the eleven (11) policy documents (Table 3; T3) and ten (10) of the fourteen (14) of the policy guidance documents (Table 4; T4) for Alberta jurisdictional childhood vaccinations were found to be easy to retrieve from jurisdictional government (GoA or GoC-AJ) websites implying they were easy to put into direct use by the correspondingly intended audience, fulfilling the standard policy determinant requirements of the target audience being able to easily access the policy and policy guidance when needed.

Most documents (sources) reviewed in this study were retrieved from the Government of Alberta's open-access government library/archive program (Government of Alberta, 2021d); the GoA *Open Government Program* bilaterally guided through principles by the GoA *Open Information and Information Data Policy* that is said to be applicable to all GoA ministries (Open Government Program, 2021). However, the handful of sources that were difficult to retrieve and/or public access were primarily Alberta policies and policy guidance written in government jargon by government officials (vaccination policymakers, policy analysts) and targeted towards service providers (general family practitioners, public health nurses, community health service providers; knowledge brokers).

### ***2. Policy Background***

The process of setting up policy agendas necessitates that policymakers establish clear priority areas and justify the policy problem(s) utilizing available evidence (Mahimbo et al., 2017a) forming the basis of the 'policy background' information in the content. In this study, eight (8) of the eleven (11) of the policy sources (T3) and six (6) of the fourteen (14) of the policy guidance sources (T4) clearly set a policy agenda in their introductory background information/content.

### **3. Goals and Aims**

Good health policy outcomes require effective goal setting which needs to be precise, succinct and concrete, therefore the ‘goals/aims’ policy determinant in this study sought policy and policy guidance sources that have explicitly stated its goals, objectives and strategies (Mahimbo et al., 2017a) at specifically addressing the vaccination needs of children of im/migrants. In this study, ten (10) of the eleven (11) of the Alberta childhood vaccination policy documents (T3) and all fourteen (14) of these Alberta Jurisdictional policy guidance documents (T4) clearly stated their objectives, goals and aims for the purpose of the selected policy guidance document, generally addressing the vaccination needs of children residing in and/or from Alberta. However, most of the policies and policy guidance reviewed in this critical policy analysis did not actively mention children of im/migrants or im/migrants in general in the policy discourse, aside from three policies and policy guidance (T3: D-7G, D-8H and T4: D-4D). Overall, almost all of the sources under review in this study fulfilled the goals and aims of the policy determinants aside from one, a GoA policy source (T3: D-5E).

One good example of a policy guidance source in this review that clearly outlined the policy guidance goals and aims as well as mentioned children of im/migrants was: *‘Immunization of travellers: Canadian Immunization Guide’* (T4, D-2), openly stating that this chapter is meant to be up-to-date on CATMAT statements i.e. updates on the use of booster doses of yellow fever vaccine, tips for the prevention of Japanese Encephalitis. This *‘Immunization of travellers’* chapter of the Canadian Immunization Guide (T4, D-2; Government of Canada, 2017) also indicates that this policy guidance aims to be readily available to all in real-time and with the latest evidence-based guidance, by indicating that the target audience (members of the general public) have the option to subscribe to this source’s mailing list to receive a notification when this chapter is updated (Government of Canada, 2017).

### **4. Public Opportunities for Consultations [or Community Engagement]**

Policies are enriched by stakeholders and interest groups who play a key role in not only providing technical advice but also ensuring policies are responsive to their needs, therefore the involvement of im/migrant communities during the policy-making process is assessed by

checking whether im/migrant stakeholders and interest groups are acknowledged in the policy [or policy guidance] documents (Mahimbo et al., 2017a). This critical policy analysis checked for any direct acknowledgment of im/migrant or grown children of im/migrants' stakeholders and/or interest groups in the policy and policy guidance content; any evidence supporting room for im/migrants or grown children of im/migrants in influential positions to publicly share their recommendations. This study could not determine for certain whether consultations were made, only detect where the possibility of consultation (or community engagement) was indicated in the content of the policy/policies or policy guidance.

None of the policies and policy guidance under review in this study openly expressed the contributions and involvement of im/migrant or children of im/migrant stakeholders. However, more generally speaking, eight (8) of the eleven (11) Alberta Jurisdictional childhood vaccination policy documents did transparently disclose the contributions and involvement of a wide range of stakeholders collaboratively participating in the development or maintenance of the document's policy, policies or policy guidance itself, presumably (but not always overtly) inclusive of the voice of parents (caregivers and guardians of children). For example, policies in *'Provincial and territorial routine and catch-up vaccination schedule for infants and children in Canada'* (T3: D-2B) openly expressed the following which inadvertently indicated the existence of general collaborative consultations: *"changes to the [Canada-wide routine and catch-up immunization] schedule are updated regularly in collaboration with the Canadian Nursing Coalition for Immunization (CNCI) and the Canadian Immunization Committee (CIC)"*.

On the other hand, four (4) of the fourteen (14) policy guidance documents (published by the Government of Alberta) openly acknowledged and endorsed active contributions and collaborations (bilateral/multilateral communications) or the open possibility of intersectional and multi-sectoral interactions from a wide range of stakeholders/target audience in the social ecology, presumably including parents and the general public. For example, Alberta Health Service's policy guidance document: *'Influenza Immunization Program Update - March 2021'* (T4, D-X4) identified key stakeholders: *Alberta Health Service Public Health Sites (i.e. Public Health Nurses), Community Pharmacists, Other Providers (Long Term Care sites, Community*



*Physicians, Covenant Health Occupational Health and Safety, First Nation Inuit Health Branch) and this policy guidance also includes information on 'zone contacts' (i.e. North Zone email address, Edmonton Zone Contact Person and Contact Details, South Zone Public Health Nursing Team Contact Information). Furthermore, the policy guidance document 'Alberta Health Services: Immunization Program Standards Manual (updated March 10, 2021)' (T4, D-X3) contains a 'please provide your feedback to...' section, which implied the possibility of community engagement and potential consultations. Furthermore, the interactive policy guidance document 'Alberta Health Services: Immunization' (T4, D-X2) included a section in its content which provided contact information guidance to readers (presumably parents and guardians) if they had questions [about their] child's health pertaining to immunizations, and also provided an option for parents/guardians/readers of this policy guidance site to share their thoughts through a short online survey.*

### ***5. Insight into Funding Sources***

The allocation of sustainable funding resources facilitates the implementation of strategies (i.e., guidelines aimed at reducing health inequities) from the policy and/or policy guidance and is essentially a sign of commitment by health policy planners and makers (Mahimbo et al., 2017a). Policies and policy guidance, under review in this study, were examined and assessed to determine whether funding for childhood vaccines was clearly outlined in the content. Results were contingent on statements extracted from policy and policy guidance documents mentioning funding of vaccines in relation to routine, catch-up, missed or overdue vaccines. Overall, three (3) of the 14 policy guidance documents (T4: D-X4, D-2B and D-5E) expressed open transparency on the allocation or presence of adequate funding to ensure public's access to public vaccines, and five (5) of the 11 policy documents (T3: D-1A, D-1X, D-2B, D-3C, and D-4D) expressed open transparency on the allocation or presence of adequate funding to ensure the general public's access to public vaccines. The general phrase found regarding funding in the policy and policy guidance was 'publicly-funded' with no further details. For example, "*Alberta's Influenza Immunization Program provides publicly funded influenza vaccine for all individuals 6 months and older who live, work or attend school in Alberta*" (T4, D-X4).

Overall, all of the policies and policy guidance that did notably provide insight (however briefly) into cost and/or funding sources concurrently mentioned that basic childhood vaccinations are all publicly funded here in Alberta, with the exception being travel vaccinations for children which require from-pocket payment and/or third-party family insurance.

#### **6. *Obligations:***

The successful implementation of a policy [or policy guidance] requires a commitment of relevant parties in its execution (Mahimbo et al., 2017a). This criterion (obligations) is assessed in the policies and policy guidance by determining whether the roles and responsibilities of the providers in vaccination service delivery are clearly and transparently stated or not (Mahimbo et al., 2017a). For this criterion, all eleven (11) of the policy documents (Table 3) and all fourteen (14) policy guidance documents (Table 4) directly or indirectly expressed clear details on the roles and duties of various involved stakeholders in the implementation of the policy and policy guidance, to coordinate and administer childhood vaccination Alberta's pediatric population. Facilitative stakeholders included Alberta Health Services Public Health Units (i.e., public health nurses), primary healthcare practitioners, community pharmacists, the Alberta chief medical officer, bureaucrats (policymakers, policy analysts), inter-sectoral partners (other provincial ministries), and the parents and guardians (whose consent and compliance is recommended for the timely and complete vaccination of their under-aged children). Further stakeholders at times include Alberta Health Services Non-Public Health sites, Long Term Care sites, Covenant Health, First Nation Inuit Health Branch (T4, D-X4).

Altogether, it is important to note that this specific policy determinant was not and did not need to be oriented specifically towards the vaccination needs of children from im/migrant families. Most implementers (i.e., family doctors, pediatricians, and vaccination clinic nurses) are presumably under professional oath to ensure all patients (i.e. parents) who visit them and consent to vaccinations are supportively facilitated access to the publicly-funded vaccination(s) (i.e. for children) without hesitation. Therefore, the policy implications of this criterion and policy determinant (obligations) on children of im/migrants are existent in an assumptive manner. The clear communication in the policies and policy guidance on who implements the

vaccination service delivery and how it is implemented may serve as moral reassurance and trust-building assurance for im/migrant parents. All of the policies and policy guidance under review in this study need to be amended to mention diverse im/migrants (recently landed, permanent resident) in the discourse, to acknowledge the existence of im/migrant parents and the nuanced disadvantages im/migrant parents face in utilizing services unique to their immigration status; to better support im/migrant parents vaccination needs (i.e. ethnocultural hesitations) and that of other marginalized Albertans for the sake of more actively practicing health equity throughout Alberta. All of the policies and policy guidance reviewed in this study were noted as available for public access.

### ***7. Potential for Public Health Impact:***

As part of the analysis, it was important to determine what kind of impact these policies and policy guidance have in addressing risk factors: quality of life and health disparities (Mahimbo et al., 2017a). Unfortunately, most of these policies and policy guidance did not acknowledge the children of im/migrants or im/migrants in general as an at-risk population in Alberta. However, this criterion was still important in generally assessing the extent to which these policies and policy guidance addresses vaccination issues and gaps in the general population (Mahimbo et al., 2017a). For this criterion, these policies and policy guidance were assessed to determine if they each contributed to protecting the herd immunity of the population - either directly or through proposed actions or predicted outcomes. All of the policies and policy guidance directly or indirectly indicated that the main objective for each one was to strategically and systematically work on improving Alberta's overall childhood vaccination rate and boost population herd immunity; utilize mechanisms/strategies to ensure the policies would impact and improve vaccination disparities in general.

All of the twenty-five (25) policy and policy guidance sources were designed for positive public health impact on the overall general pediatric and/or general population of Alberta. However, only two (2) of the eleven (11) policy documents directly included im/migrants in its policy discourse (T3: D-7G, D-8H) and only one (1) of the fourteen (14) policy guidance

documents directly included im/migrants in the details of its policy guidance (T4: D-4D). Overall, three (3) policy and policy guidance sources under review in this study identified im/migrants (particularly children of im/migrants who immigrated to Canada with their parents) as a target population at risk of under-vaccination, over-vaccination, or incomplete vaccination. These three sources included strategies in its content to ensure this vulnerable demographic (im/migrants and their offsprings) is protected and benefits equitably from publicly-funded vaccinations. Furthermore, two of three documents mentioning im/migrants in detail (meant for health professionals) provided transparent insight to health professionals on privately-funded but life-saving travel vaccines and vaccination services (i.e. for pediatric travellers) available at a personal cost in Alberta. The two policy documents (T3: D-7G and D-8H) identified im/migrants and travelling im/migrants (respectively) as a vulnerable target population at risk of not being fully vaccinated and provided specific advice on how im/migrants and their children can protect themselves with better vaccination coverage.

#### ***8. Data Collection:***

The collection of data on im/migrant populations is crucial for the assessment of their health service needs, planning strategies and health service delivery (Mahimbo et al., 2017a). Unfortunately, none of the twenty-five (25) policy or policy guidance documents reviewed in this study highlighted the importance of ethnoculturally diverse data collection. In other words, none of the policies and policy guidance included data collection reflective of ethnocultural diversity, to realistically portray the ongoingly structurally stratified nature of the present-day diverse society. None of the policies and policy guidance contained data collection specifically on the vaccination of im/migrant populations.

Therefore, given that most of the documents in this review were proxy in nature, this criterion was assessed in this study with regard to whether the policies or policy guidance included any general mention of data collection on the vaccination of the overall general population. Two (2) of the eleven (11) policy documents and six (6) of the fourteen (14) policy

guidance documents clearly highlighted the general importance of data collection for vaccination of children in Alberta in its guidance content.

For example, the GoA “*Alberta Influenza Immunization Policy*“ (T3: D-1X) brought up the importance of data collection as a strategy-building technique in need of being actualized so that information is more easily captured and sustainably stored. Moreover, the GoA “*Alberta Influenza Immunization Policy*” (T3: D-1X) stated that following regarding the reporting of immunizations: “*as of January 1, 2021, this Regulation will require health practitioners to ensure a report respecting immunizations and assessments is electronically submitted to the Provincial Immunization Repository (Imm/ARI) within 7 days in accordance with the Immunization Data Submission and Response Guidelines*” and “*for the 2020-2021 influenza season, reporting capabilities will vary as health practitioners are in the process of moving to electronic reporting to meet the reporting requirements outlined in the Immunization Regulation*” (T3: D-1X). Furthermore, “*all doses administered to children nine years of age and under that cannot be reported electronically to Imm/ARI must be submitted to AHS for data entry using the Influenza/Pneumococcal Immunization Record*” (T3: D-1X).

The GoA “*Health Information and Tools: Immunizations Topic Overview*” (T4: D-1X) policy guidance included access to the Alberta childhood vaccination data collection model-platform called IHDA (Interactive Health Data Application) and health analytics interactive data platform, which “*provides information in [the] data table and interactive map formats on [the] health status and determinants of health of Albertans, ...[with] many health statistics (indicators) on a variety of health-related topics such as demographics, mortality, chronic and infectious disease and children’s health... based on geographic locations across Alberta*” (T4: D-1X). To a lesser extent, the GoA “*Public Health Act: Part 3 - Communicable Diseases and Public Health Emergencies*” policy document briefly and vaguely mentioned data collection through the following clauses: “sections or Clauses 52.98: Collection, use and disclosure of traveller information” (T3, D-X) however the relevance of such ‘collection... of...information’ to the vaccination of the overall population, let alone im/migrants, is unclear.

## 9. Catch-Up Vaccines:

The redistribution and allocation of resources to meet the health needs of all is a sign of commitment by health policymakers and helps facilitate the implementation of strategies specifically designed to reduce health inequities (Mahimbo et al., 2017a). This study sought to assess whether funding for catch-up vaccines for im/migrants (i.e newly arrived; landed; settled) was clearly outlined in the policy or policy guidance documents (Mahimbo et al., 2017a). In and for this study, it is presumed that any mention of catch-up vaccines in the documents refers to the vaccination catch-up of newly arrived, newly settled and acclimatizing im/migrants.

Brief statements mentioning catch-up vaccines did crop up in some of the documents under review in this study. One (1) of the eleven (11) policy documents briefly mentioned details on specific eligibility criteria for accessing funded catch-up vaccines (T3: D-2B). Specifically, the GoC *“Provincial and territorial routine and catch-up vaccination schedule for infants and children in Canada”* policy document (T3: D-2B) stated the following in its policy content: *“A specific catch-up program is currently underway. A catch-up program is defined as a time-limited measure to implement a new vaccine program to a certain age cohort (e.g. an additional dose of a vaccine is recommended and a targeted program is put in place)”*

Two (2) of the fourteen (14) policy guidance documents contained advice on catch-up vaccines or funding of the catch-up vaccines (T4: D-2, D-4D). For example, in *“Government of Canada: Your Child’s Vaccination Schedule”* (T4: D-2), the following policy guidance statement was found once the tool in this document was used to create an individualized vaccination schedule: *“If your child has missed a vaccine, please contact your health care professional.”* Moreover, in the GoC *“CATMAT Statement: Pediatric Travellers”* policy guidance (T4, D-4D) the following statement relevant to catch-up vaccines was also found: *“given the complexities of travel medicine for a broad age spectrum across family members, it is not surprising that a centralized expert care delivery model has been shown to be more cost-effective than generalist–provided travel advice”*.

The GoA ‘*Alberta Immunization Strategy 2007-2017*’ policy guidance document (T4: D-5E) states the following with regard to catch-up vaccines (initially missed vaccines): “*a number of interventions have been shown to be effective in improving immunization rates in under-immunized populations...changing provider behaviour to address missed immunization opportunities have accounted for increases in immunization rates; reminder systems for clients are highly efficient and cost-effective mechanisms to improve immunization rates. The parents of under-immunized children are receptive to receiving overdue immunization reminders and will book and keep appointments if a system is in place*”. Moreover, ‘*Alberta Immunization Strategy 2007-2017*’ (T4: D-5E) was found to contain no direct mention of im/migrants or children of im/migrants to help guide the behaviour of healthcare professionals towards including this demographic in their target subgroups to actively follow up with and provide more nuanced information about childhood vaccinations.

Overall, none (0) of the four (4) policy or policy guidance documents mentioning catch-up vaccines for childhood vaccinations contained policy information directly incorporating children of im/migrants in the dialogue as one of the priority subgroups in the population. None of the policy and policy guidance documents reviewed in this study discussed the actual specific details on the public funding for catch-up vaccines (i.e. how public-funded vaccines works, whether parents need to advocate for their children to receive catch-up vaccines at no cost or whether catch-up vaccines are available at no cost).

### **3.3. Results on Equity-Oriented Policy Determinants**

Findings were also retrieved from an additional set of evidence-based and equity-oriented policy determinants (Douglas et al., 2019; Hankivsky et al., 2014, Pottie et al., 2011). The equity-oriented policy determinants were developed based on health equity in policy evidence and following guidance from IBPA research. These equity-oriented policy determinants enable insight into the presence or absence of equity mechanisms in the content of policies and policy guidance and furthermore pinpoints where children of im/migrants and im/migrant parents need to be mentioned in the policy discourse to better promote health equity.

## **10. Vaccination of Children of Im/migrants:**

One (1) of the fourteen (14) policy guidance documents provided transparent support on the vaccination of children of im/migrants (T4: D-4D) settled in Alberta. Two (2) of the eleven (11) policy documents transparently included vaccination of children of im/migrants (T3: D-7G; D-8H) in the policy discourse. An overwhelming amount of Alberta-Jurisdiction childhood vaccination policy and/or policy guidance documents failed to address the special vaccination needs or concerns of im/migrants.

Unfortunately, most of the policy discourse on im/migrants throughout all the documents in this study was limited to the GoC (AJ) ‘*Canadian Immunization Guide*’ policy guidance document only, specifically the ‘New Persons to Canada’ (T3: D-8H) and ‘Immunizations of Travellers’ (T3: D-7G) chapters in particular. The GoC “*Immunization of New Persons to Canada*” policy document (T3: D-8H) stated the following transparent policy statement: “*the immunization of persons new to Canada is often challenging*” because “*a high proportion of individuals newly arrived in Canada may be susceptible to vaccine-preventable diseases (VPDs) because of a lack of effective immunization programs in their country of origin*”, acknowledging that the vaccination of im/migrants newly settling in Canada is important to the Government of Canada. Factors complicating access to vaccination by new persons to Canada included but were not limited to: “*immunization records may not exist; records may be difficult to interpret because of language barriers, immunization schedules and vaccines may differ from those used in Canada, and there may be doubt about the authenticity of the records and vaccines used. Judgment should be used when assessing the reliability or authenticity of immunization records of people new to Canada*” (T3: D-8H). Also, in this “*Immunization of New Persons to Canada*” policy document (T3: D-8H), almost every mention of ‘children’ in this set of policies was directly or indirectly tied to the adoption of children, with no inclusion of the vaccination needs of children of im/migrants; no inclusion of the vaccination needs of Canadian-born or foreign-born posterity of the im/migrants settled in Alberta. While the focus of the documents mentioning persons new to Canada focused primarily on adopted children (rather than the biological children of im/migrants) it did however at one point broadly refer to children (within



the context of immunizations of persons new to Canada) in the following policy statement: “*HIV testing is performed as part of the IME only for those 15 years of age and older and some children identified as at increased risk (those who have received blood and blood products, those whose mother is known to be HIV positive and all potential adoptees)*” which is relatively self-explanatory. The other GoC policy guidance document, the ‘*Immunizations of Travellers*’ policy guidance document (T3: D-7G), that broadly mentioned im/migrants stated the following: “*adolescent and adult immigrants born in tropical countries, therefore, are more likely to be susceptible to varicella as compared to the Canadian population*” (GoC, 2017), thereby (in other words) acknowledging the existence of foreign-born children of im/migrant parents.

Three (3) of the twenty-five (25) sources of relevant GoC and GoA-AJ policies and policy guidance under review in this study acknowledged that there are differences in the types of infectious diseases im/migrants are at high risk of contracting, especially while migrating, travelling or living transnationally, ensuring im/migrants of all ages seek out appropriate vaccination (T3: D-8H, D-7G and T4: D-4D). The special vaccination needs of children of im/migrants and im/migrant parents were explicitly stated, albeit briefly, in these select three travel-oriented GoC-AJ childhood vaccination documents. However, travel vaccines for children of travelling im/migrants and/or trans-nationals were not listed as privately available-at-cost (i.e. only available at extensive cost through private travel medicine clinics) in the routine immunization schedules (i.e. T4: D-1X, D-2). Furthermore, the private costs for travel vaccines were not mentioned at all (not even as an advisory reminder) in any of the sources of childhood vaccination policy and policy guidance under review in this study. A complete absence of policies and policy guidance from Alberta (GoC) on travel vaccines for im/migrants (persons new to Canada) was noted. Furthermore, this study finds that the vaccination (immunization) schedules (i.e. T4: D-1X, D-2) showed little to no option or room in its policies and/or policy guidance for the transparent mentioning of *Japanese encephalitis, typhoid, hepatitis A, yellow fever vaccines* and specific details on these travel vaccines corresponding to out-of-pocket costs.

Two of the three policies and policy guidance on travel vaccines under review in this study (T3: D-7G and T4: D-4D) did include transparent policy statements advising ‘persons new to Canada’ and ‘travelling persons’ to take varicella (chickenpox) vaccine which is universally available in Canada. The varicella vaccine is an important one for children of im/migrants and their im/migrant parents to be caught up on because the varicella infectious disease is more common and prevalent in Canada as a childhood infection and im/migrants are at risk of being infected by varicella in Canada if they do not obtain vaccination for it beforehand. More specifically, the GoC ‘*Immunization of Travellers*’ policies stated that “*it is important that people travelling or living abroad be immune to varicella. In tropical climates, varicella tends to occur at older ages and at any time of the year. Adolescent and adult immigrants born in tropical countries, therefore, are more likely to be susceptible to varicella as compared to the Canadian population*” (T3: D-7G). The policy guidance through the GoC ‘*CATMAT Statement for Pediatric Travellers*’ also provided sound advice on better risk management for im/migrants travelling or living abroad who are considered high-risk travellers: “*presumably, the greater the risk profile of the adult traveller, the higher the risk for the child. Hence, the risk profile for children born abroad or those born in Canada to immigrant parents and who return to their country of origin to visit friends and relatives (VFR), is thought to be higher than that of children who are not from immigrant families. Reasons for this include the observations that VFR travellers tend to travel longer, go to higher risk destinations, stay in rural areas, live with local people, and are less likely to seek pre-travel advice and vaccination, or to use malaria chemoprophylaxis*”.

The GoC and GoA-AJ policies and policy guidance pertaining to travel vaccines (T3: D-8H, D-7G and T4: D-4D) did not transparently state that the travel vaccines must be obtained privately (at personal cost) by everyone including children of im/migrants and im/migrant parents in the population. Some policy and policy guidance (T4: D-2; T3: D-4D) did briefly mention basic details about the existence of travel vaccines, i.e. “*Travel vaccines are not covered as part of the provincially funded program [such as yellow fever vaccine]*” (T3, D-4D), but

further details (i.e. navigational support for marginalized citizens living under various systems of oppression) was not provided.

Overall, the Alberta-Jurisdiction (GoC) policy and policy guidance under review in this study did not transparently provide support on or for the vaccination of children of im/migrant and their im/migrant parents settled in the Alberta jurisdiction. Twenty-two (22) of the twenty-five (25) sources of relevant policies and policy guidance reviewed in this study did not include im/migrant parents in the dialogue at all; none of the GoA policies and policy guidance acknowledged the living existence of children of im/migrants and im/migrant parents in the policy discourse.

### ***11. Vaccination of Children of Im/migrants with Precarious Status:***

The GoC *'Immunization of New Persons to Canada'* policy document (T3: D-8H) briefly mentioned the existence of 'foreign nationals' prior to arrival and settlement in Canada: "*Citizenship and Immigration Canada generally conduct Immigration Medical Examinations (IME) before foreign nationals (non-Canadian citizens) arrive in Canada*", with 'foreign nationals' referring to individuals '*seeking to work.... or.... seeking temporary residence in Canada for 6 months or more*'. However, im/migrants with precarious immigration status (i.e. recently landed or long-time undocumented im/migrants or illegal im/migrants who have overstayed their temporary residence permits) were not explicitly mentioned in any of the Alberta childhood vaccination GoA or GoC-AJ policies and policy guidance. All the policies and policy guidance were largely silent on this subgroup of im/migrants; im/migrants with precarious im/migrant status.

### ***12. Data Collection accounting for Ethnocultural Diversity and Immigration Status:***

None of the Alberta-Jurisdictional childhood vaccination GoC or GoA sources of policy or policy guidance mentioned the existence and/or importance of data collection on the childhood vaccination of ethnoculturally diverse children of im/migrants. The sources of policy or policy guidance that did include static or active data collection (T4: D-X3, D-X4, D-1X,

D-1-2X, D-1-3X, D-5E; T3: D-X, D-1X) did not include any mention of CALD (culturally and linguistically diverse) persons or communities (i.e. children of im/migrants and im/migrant parents) within the population accounted for; none of the data collection that did exist made any note or mention of cultural, ethnic or linguistic markers within the population receiving or not receiving vaccinations or account for any such identity markers (vulnerable to experiencing health disparities due to oppression, biases) that could then have a hindering impact on the rates of childhood vaccinations.

With regards to immigration status, this equity-oriented critical policy analysis sought out any inclusion and/or recognition of im/migrants diversity and their diverse vaccination needs in the policy and policy guidance under review and tried to locate im/migrants in the context of systems of power, but unfortunately, any attempts to seek out any distinguishing of im/migrants from the overall population (for the purpose of equitable vaccination access) were only somewhat successful in the GoC-AJ context and not successful just yet in the GoA context.

### ***Key Findings of this Research Study***

None of the documents in this study transparently expressed acknowledgment of the highly diverse composition of im/migrant sub-group in the population or the need to monitor for structural disparities in the vaccination of children of im/migrants in the Alberta Jurisdiction (or the rest of Canada). The synthesized results of this analysis revealed a trend (pattern) of lack of recognition of diverse im/migrants and their diverse vaccination needs in most of the AB childhood vaccination policies and policy guidance documents. Of the eleven (11) primary policy documents (Table 3) and fourteen (14) secondary policy guidance documents (Table 4) on Alberta-jurisdiction childhood vaccination, only three (3) of the twenty-five (25) documents directly or indirectly mentioned children of im/migrants and/or im/migrants in the policy discourse. These policy and policy guidance sources did not bear any resemblance to acknowledging and/or transparently expressing consideration for the impact of various social determinants of health prevalent in the Canadian context (i.e., race/ethnicity, immigration status) on equitable access to and utilization of vaccination services by children of im/migrants.

## Chapter 4

### 4.1 Discussion

For Alberta, this equity-oriented critical policy analysis is a pioneering study attempting to use a health equity lens to evaluate and critically analyze an array of policy and policy guidance documents governing childhood vaccination service provision. In accordance with the developed evaluation framework (Mahimbo et al., 2017a) and extended critical analysis components (equity-based policy determinants), this study found that there are some deficiencies in the childhood vaccination policies and policy guidance. For example, there is a lack of consistent acknowledgment of children of im/migrants and their diverse vaccination needs across the policy discourse. Furthermore, most of the policies and policy guidance reviewed and critically assessed in this study have been found to consistently not incorporate children of im/migrants and their im/migrant parents as a demographic of equitable value and worthy of distinction and representation in policy discourse. However, policies and policy guidance on travel vaccinations for children did briefly hint at diversity in vaccination needs (i.e. im/migrants, children of im/migrants) but mostly in the context of living transnationally and excluding any direct mention of high-risk population subgroups.

Moreover, all of the policies and policy guidance selected and reviewed in this study were available online but not all were easily accessible by the target audience (i.e., vaccination service providers, parents/guardians). Additionally, it was noted that there were different policy determinants in existence in each set of policies and/or policy guidance, indicating different policy making approaches. None of the policies or policy guidance was specifically made for im/migrant parents and/or children of im/migrants, therefore this study focused on whether any of policies or policy guidance included discourse (i.e. guidelines and advice) for the vaccination of children of im/migrants.

Unfortunately, the policies and policy guidance on childhood vaccinations in Alberta were not often found to include discourse on the unique vaccination needs of children of

im/migrants and/or im/migrant parents; not many Alberta vaccination policies or policy guidance was found to actively include this subgroup (or any marginalized sub-group in the Alberta population) as a high-risk priority worthy of equitable consideration to other subgroups in the population. This study has identified a need for vaccination policymakers to bridge communication divides and build a much-needed healthy bilateral (reciprocated) communication bridge between government and marginalized subgroups in the population. Im/migrants were very briefly and broadly mentioned in GoC-AJ policy and policy guidance but in those cases, it was only in Government of Canada (GoC) policy and policy guidance sources that focused directly on persons new to Canada and moreover, restrictively in the travelling context only. Im/migrants were not consistently acknowledged as a high-risk subgroup throughout and across all the Alberta Jurisdictional (AJ) childhood vaccination policy and policy guidance sources reviewed in this study.

This study's analysis also shows that the input from community members on the policymaking process appeared to be minimal and lacking transparency if existent. The policies all indicated a lack of fully incorporating a variety of policy making approaches that anticipate and respect diverse values, beliefs and cultures in the community; there was a lack of prioritizing diversity and multiple perspectives to help garner maximum enhancement of the surrounding physical environment and social community planning, to boost public trust, maintain fiduciary duties and avoid conflict of interests. This study pinpoints a gap in the policymaking process, at least not transparent in the policies and policy guidance themselves, which was a lack of implied cultural safety and competency and a lack of input on policy priorities from equity-focused diverse representation and experience. Moreover, the policies and policy guidance collectively do not appear to be streamlined to serve to promote the development of evidence-based educational materials for the im/migrant community. There is a lack of transparency evident on the behind-the-scene process of policy planning and policymaking, especially regarding whether the policies are and are not taking into account the need for the corresponding policy-led practices to involve serving the im/migrant subgroup in a culturally and linguistically appropriate manner and in ensuring the policies promote equitable assurance practice.

This study discovered that what is needed is not for children of im/migrants to necessarily take over the entire conversation on childhood vaccination policy locally in Alberta and nationally but rather, for diverse children of im/migrants and their im/migrant parents to be given a safe and universally-inclusive place in the policy discourse where their distinct voice, consultation, feedback and input is requested and valued. Evidence indicates that there is an unmet need for all of the policies and policy guidance to recognize and distinguish the vaccination needs of children of im/migrants, on par with children of local Canadians whose ancestors were im/migrants many generations back, as well as on par with original inhabitants, FNMI: First Nations, Métis, Inuit; all Aboriginal Peoples of Canada (Obidiya, 2020).

#### **4.2. Recommendations**

Recommendations have been extracted from current and previous literature on this topic, and derived from the results extracted from this study's critical policy analysis. The noted actionable policy recommendations (below) are practical evidence-based suggestions (a-g):

##### ***a) Include Children of Im/migrants in Policy Discourse: Address Xenophobia***

There is an urgent need for the children of im/migrants to be included consistently throughout all of the childhood vaccination policy discourse to help dismantle and curb xenophobia (anti-im/migrant, anti-foreigner and pro-assimilation sentiments); to help ensure the culturally diverse existences, voices and vaccinations concerns of these children's im/migrant parents are valued, to ensure the equitable access to childhood vaccinations by children of im/migrants includes cultural sensitivity and cultural responsiveness. The findings of this study indicate that there is a longstanding need to develop a larger strategy (i.e. in the policies and/or policy guidance) to educate against and prevent prejudice, bias, and cultural insensitivities. Moreover, creating space for Albertan children of im/migrants in the policy guidance and policy discourse may very likely encourage space to be created in the policies for the indigenous people of Alberta as well, given that both marginalized subgroups of Alberta often experience similar intersectional systems of oppression.

In the Canadian context, issues of power and social justice have constructed immigrant health and how immigrant health is handled in Canada's health policies; the health of immigrants in Canada is seen through the racializing lens in many discourses that have studied where the immigrant body is considered both a disease breeder and irresponsible health fraudster (Reitmanova, Gustafson and Ahmed, 2015). Deracialization of immigrant health is needed (Reitmanova, Gustafson and Ahmed, 2015). For example, xenophobia is a crucial social determinant of health that should be given much more consideration from a public health perspective (Suleman, Garber and Rutkow, 2018). Xenophobia (a strong fear of, dislike of and/or prejudice against people of other countries) has a really negative impact on the health of individuals and their respective communities (Suleman, Garber and Rutkow, 2018), especially marginalized and racialized people in the population. Xenophobia surfaces in health policies (i.e., vaccination policies) in various ways. To this day, im/migrants are still portrayed as carriers of disease, as difficult healthcare users, poorly compliant and a burden to [learning] health systems and society at large (Roura, Dias, LeMaster and MacFarlane, 2021). Collectively, emphasizing the factors that lead to healthier im/migrant populations may help break down the harmful stereotypes about im/migrants and also provide clues into how to preserve the entire population as a whole in an equitable manner (Roura, Dias, LeMaster and MacFarlane, 2021).

***b) Adopt and Utilize or Maintain Adaptive Vaccination Policies: From 'Static' to 'Adaptive'***

This qualitative critical policy analysis indicates that there is a longstanding need to amend current Alberta childhood vaccination policies and policy guidance to transform from static to adopting a more adaptive approach. There is a need for these policies and policy guidance to be influenced by the bipartisan input of open-minded people of diverse backgrounds who are able to understand the policy problem(s) from multiple perspectives. The importance and use of adaptive policies in tackling the issues of inequalities in social determinants of health was developed by Carey, Crammond, Malbon and Carey (2015), through the reviewing of literature dating back to the 1980s on learning and adaptive policies related to education and poverty alleviation. Traditional policies are defined as what governments choose to do and not to



do therefore founded on government action and inaction (Carey et al., 2015). Meanwhile, adaptive policies add to the original definition of policies, incorporating strategic instruments in the policies for ongoing and sustainable monitoring and evaluation (Carey et al., 2015). The adaptive policy approach is noted as more suitable for the management of longstanding inequities in both long-known and newly emerging social determinants of health. Policies that can be altered, adjusted and updated in a faster but still appropriate manner are better positioned than traditional policy making approaches in handling future uncertainties and in progressing policy action on social determinants of health (Carey et al., 2015). The sources reviewed in this study do not contain any policies and/or policy guidance that is transparently labeled, defined or categorized as adaptive in nature.

In other words, adaptive policies for health equity are a proposed step towards reducing inequalities in the distribution of the SDH (Carey et al., 2015). The adaptive policy design structure and approach, progressing policy action on SDH through a dynamically self-adjusting feedback system over time, is better-suited than traditional policy approaches in managing inequalities in SDH (Carey et al., 2015). The adaptive policy approach generates adaptive policies that when implemented helps decision-makers handle the complexities and uncertainties involved in governing ‘wicked problems’ and unintended consequences; the uncertainties driving the creation of new expected or unexpected social inequalities and subsequently poor health inequalities in the human population (Carey et al., 2015). Adaptive policies are positively impactful to its target audience(s) and cost-efficient in the long-term by staying flexible across a range of anticipated scenarios (Carey et al., 2015). Adaptive policies have the ability to function in ‘learning’ mode and responsively shift according to the state of the system i.e. swiftly handle the inherent risk of auctioning within a complex system by quickly adapting to unanticipated changes in predicted trends of outcomes (Carey et al., 2015).

Moreover, the adaptive policy approach relies on strategic planning, administrative procedures that facilitate innovation, responsiveness, experimentation and decision-making processes that join learning with action (Carey et al., 2015). Adaptive policies perform well

under a range of anticipated conditions with little or no alteration, include monitoring processes to identify when changes in context are significant to affect the impact of the policy, have built-in triggers for adjustments (i.e. embedded deliberations for determining policy adjustments, a review process) to then either maintain the performance or terminate the policy when no longer needed and furthermore, accommodates unforeseen changes in context even if the policy was not originally designed to do so to ensure policy goals are achieved despite the serendipitous nature of sporadic policy problems (Carey et al., 2015). Whereas static policies may drift substantially from their original mandate, adaptive policies are self-adjusting once care is taken by the decision-makers to change the policies i.e. to more actively promote health equity, execute evidence-based decision-making and mobilize community engagement (Carey et al., 2015).

More recently, a study was conducted by Pageud, Deslandres, Lehoux and Hassas (2017) proposing the co-construction of adaptive public policies using an artificial intelligence program called '*SmartGov*'. The design of public policies by itself - in its non-adaptive or static state - is known to be a demanding process necessitating the allocation of time and money with no guarantee that the policies will turn out efficiently (Pageaud et al., 2017). It is predicted that in the near future, policymakers will have to react and more often adapt public policies based on incoming available data (i.e. community data from specialized databases) and feedback from both target users and professional stakeholders (Pageaud et al., 2017). Two generic agent-based architectures are proposed to be coupled together in a micromacro dynamic loop, to model and simulate public policies and to facilitate the co-design approach between policymaker and system and the assessment of the public policies in a specialized environment that is as close to real-world as possible (Pageaud et al., 2017). The goal would be to either adapt these architectures by the system using reinforcement learning and by stakeholders utilizing simulation results, with the use of generic formalism to represent public policies and experimentation through realistically envisioning and altering the target audience's behaviours and environment as necessary (Pageaud et al., 2017). Scenario-making using such a proposed adaptive policy modelling technology would then allow for such a system to learn post policy behaviours and propose adjustments in actions to then better meet the objectives of the policies stakeholders, ultimately leading to the policymaker either choose to validate the suggested policies and modify

them for additional simulations until the appropriate outcome is artificially yet realistically produced (Pageaud et al., 2017). The safe and efficient conversion of current childhood vaccination policies from static mode to adaptive mode, to account for changes in population health and growth, is not impossible.

***c) Acknowledge Im/migration as a Key Social Determinant of Health in the Policy Discourse***

Intersectoral action is needed in order to actively implement the inclusion of im/mmigrants in the written content of the policy discourse on Alberta childhood vaccinations. One key social determinant of health relevant to the context of this study, profoundly correlating with xenophobia yet not elaborated on in the policy guidance reviewed in this study, is immigration. In the past, immigration through a social determinant of health approach has rarely been applied to the public health policy work, even though immigration and im/migrant populations have become an increasingly important focus in public health research and practice (Castaneda et al., 2015). Given that immigration requires global movement and resettlement, the inequities rooted in the social structures, policies and institutions of the im/migrants country of origin (Castaneda et al., 2015) tend to follow the im/migrant to their new host country where similar inequities exist but expressed in different ways. Immigration is both socially determined and a social determinant of health (Castaneda et al., 2015). As such, health policies and policy guidance need to be monitored and evaluated ongoingly to ensure they are working to overcome social determinants of health such as xenophobia and immigration. Ultimately, what improves community health are policies that promote cultural integration and understanding (Suleman, Garber and Rutkow, 2018).

There is a need for these childhood vaccination policies to prioritize immigration as a social determinant of health (albeit global in nature) that directly affects and will always affect a growing segment of the overall Albertan population. The policies in this study lack meaningful, respectful and thorough engagement with diverse im/migrant communities in Alberta; bilateral community engagement that truly addresses the histories of harm (i.e. harm audit) and risks to health due to policies in the diverse im/migrant population by building supports into new drafts of policies that then actively uplift the diverse people the policy differentially impacts. Alberta

health policymakers need to work on building bilateral respect and trust with diverse communities from the ground up (i.e. with ethnoculturally diverse im/migrant community members) before rolling out any plans, requests or orders. It is important that these childhood vaccination policies - in their current and/or future forms - avoid confusing, restricting, stonewalling or preventing im/migrant families from accessing childhood vaccination services.

***d) Support Vaccination Needs of Children from Im/migrant Families with Precarious Status***

This study found that the childhood vaccination policies and policy guidance all lacked transparency on vaccination of children with parents who have precarious immigration status or families with mixed status. Moreover, no coalition advocacy efforts or initiatives were found in these policies and policy guidance on promoting inclusionary vaccination services for this legally vulnerable segment of the im/migrant subgroup. Particularly concerning is that none of the policies and policy guidance reviewed in this study made any mention of im/migrants with precarious immigration status or PLSTs (Goldring and Landolt, 2021). All of the childhood vaccination policies and policy guidance in this review make no mention of PLSTs, variable PLSTs and/or precarious im/migrant's children's childhood vaccination need and/or does not acknowledge how PLSTs are assembled through colonial legacies, histories of migration contributing to racialized humanitarian deservingness, state policies and humanitarian adjudication procedures and real-time encounters between migrants and the new host country's social and institutional actors all of which surely has some impact on the more complex trajectories (i.e. bureaucratically-controlled pathway) such im/migrants need to follow to ensure access to safe childhood vaccinations for their children (Goldring and Landolt, 2021). The policies in this study do not acknowledge 'multi-dimensional differential inclusion' (Goldring and Landolt, 2021) with regard to immigration status.

***e) Improve Accountability Towards Sustainably Promoting Health Equity in these Policies***

The policies and policy guidance are missing equitable accountability or in other words, accountability towards acknowledging the importance of and upholding health equity principles through action. There is a need to make a query into ensuring these policies and policy guidance

are culturally informed, culturally responsive, culturally sensitive and culturally aware; that the impact of the policies does not lead to insensitive and/or overgeneralized handling of im/migrant parents and children of im/migrants. These policies and policy guidance do not appear to be pluralistic in nature (i.e., do not acknowledge the existence of diverse children of im/migrants settling or settled in the Alberta population and their specific vaccination needs). The Alberta vaccination policies and policy guidance would become much more equitable in nature if they included guidance informed by evidence from the active monitoring and evaluation of the vaccination needs of children of im/migrants settled in and coexisting in both urban and rural areas of Alberta. The childhood vaccination policies in this study suggest a limited implementation of evidence-informed vaccination policymaking (i.e., limited applied knowledge on the ethnocultural diversity of Alberta's pediatric population, limited collected data on the corresponding trends or patterns in childhood vaccination according to race and/or ethnicity).

It is important to consider that strategic intervention development - utilizing the most current existing and incoming research evidence - is required to produce healthy policies (Douglas et al., 2019) to facilitate positive health outcomes for all. The addition of community engagement and accountability in the policies are imperatives for evaluative reporting of better outcomes and systemic impact, which will require committed health system transformation leaders looking beyond standard care delivery to the social determinants and systemic impacts of the [vaccination] industry itself on vulnerable communities in particular (Berland, 2019). It is important to note that the process of reforming policies and policy guidance, involving efforts to boost translation of evidence into the policy (i.e. knowledge translation), only works under certain circumstances (Greer et al., 2017). Moreover, it is well-known that public health is intrinsically an interdisciplinary field requiring intersectoral collaboration (Greer, Bekker, Azzopardi-Muscat and McKee, 2018). Therefore, it is important that public health policies (i.e. vaccination policies) and policy-led programming work towards achieving health equity by following evidence-based procedures and processes that ensure all members of society are valued equally (Douglas et al., 2019). Focused efforts must be made to advance policies that create healthy, empowered communities that have access to independently using immediate resources supporting health and wellness (Douglas et al., 2019).

Moreover, health equity mechanisms are needed in policy to help develop and nurture conditions necessary for people (whose lives these policies impact) to achieve and maintain their most optimal health potential (Douglas et al., 2019). As such, policymakers have the power and control to remove systemic barriers and prioritize health equity yet a disconnect arises when policy solutions fail to do the following: 1) allocate necessary resources to those at the greatest disadvantage, 2) give vulnerable communities decision-making power, and 3) hold policymakers and other decision-makers accountable for prioritizing health equity. Moreover, health equity as a concept may be well-suited as an interpretative tool to use in reviewing and analyzing drafts of both general guidelines as well as guidelines focused specifically on disadvantaged populations to assess for impact, to judge and determine where modifications are needed to better ensure the active promotion of health equity in policy-based recommendations (Pottie et al., 2017).

This study provides evidence-based reasons to call upon the Government of Alberta to recommend that they review their childhood vaccination policies to ensure these policies avoid over-generalizing and avoid promoting indifference to the vaccination needs of children from diverse im/migrant families. Alberta's childhood vaccination policies would benefit from more transparently evident adaptiveness to encourage continual learning and adjustments and more specifically, to better include and value the voice and needs of children from im/migrant parents in the policy discourse. Moreover, there is a need for top-down and grassroots health management to ethically educate stakeholders towards influencing public health policy discourse and development in a way that is grounded in and well-informed by the most recently published research evidence on social determinants of health inequities, anti-oppression allyship, intersectionality, health equity.

Health equity, in accordance with policy determinants (guided by research from Douglas et al., 2019 and Hankivsky et al., 2014) was not overtly or transparently detected in any of the policies or even in the policy guidance reviewed in this study. The results of the document analyses of childhood vaccination policies in the Alberta jurisdiction have exposed or perhaps re-exposed a systemic problem that is ongoingly pervasive throughout the health care system: the silent absence of health equity in the vaccination policy discourse. There is a need to circumvent

the absence of health disparities in these vaccination policies. The struggle to incorporate health equity in the health sector (i.e. through policies and policy guidance) is identified as a systemic problem that involves the need to further study and overcome complex challenges currently in the way of successfully implementing, actualizing and monitoring health equity in the Alberta health care system; challenges that are not only endemic to Alberta but also acknowledged as a Canada-wide issue (Martin et al., 2018).

In the specific context of the vaccination of children of im/migrants in Alberta, the lack of health equity embedded in the Alberta childhood vaccination policy framework poses an ongoing unaddressed lack of transparency in need of remediation, proactive action and pragmatic improvements. Canada does have a national commitment to health equity (Nixon, Lee, Bhutta, Blanchard, Haddad, Hoffman, and Tugwell, 2018), however these childhood vaccination policies impacting the Alberta jurisdiction are yet to directly express commitment to and promotion of health equity (i.e., the importance of equitable access to childhood vaccinations for children of im/migrants amongst other underrepresented and at-risk pediatric groups in Alberta). There is a need to translate aspirations for health equity and inclusion into concrete action (Nixon et al., 2018); concrete policy actions. Also, these Alberta vaccination policies and policy guidance should be modified to ensure im/migrants are not disabled and blocked from participating in the process of Alberta creating a tailored version of their childhood vaccination policies and/or policy guidance for this subgroup. In Australia, vaccination policies and policy guidance exist that are specifically tailored to and for the health and wellbeing of im/migrants settling in and across all regions of that country (Mahimo et al., 2017a). There is a need for Alberta's childhood vaccination policies to become more informed by the aforementioned health research (i.e. on health equity) and to become more compatible with the on-the-ground experiences of children of im/migrants in Alberta who are directly impacted by and live in compliance to these authority-wielding policies.

***f) Collaborate Interprofessionally on Updating and Re-Implementing the Long-Term Vision of Alberta's 'Provincial Immunization Strategy'***

The content from the GoA *'Alberta Immunization Strategy 2007-2017'* (T4: D-5E) policy guidance document should remain in existence but also be updated for the upcoming decade (i.e. 2022-2032) and should include an expansive strategy on health equity (aligned with national priorities). It is worth noting that the strategic directions included in this original GoA *'Alberta Immunization Strategy'* (2007-2017) document (albeit not all confirmably applied and adhered to) are very compatible with the findings from this study. The policy guidance in the GoA *'Alberta Immunization Strategy 2007-2017'* (T4: D-5E) and the GoC *"National Immunization Strategy: Objectives 2016 – 2021 - "Budget 2016"* (T4: D-2B) would benefit from being updated with the addition and incorporation of a set of strategies focused specifically on increasing health equity in the context of immunization of all in Alberta. There is plenty of room in the *"Alberta Immunization Strategy 2007-2017"* policy guidance document (T4: D-5E) to include mention of im/migrant parents and the specific needs they may have (i.e. expressed through community engagement and consultations) around having their children receive catch-up vaccinations.

The GoA *"Alberta Immunization Strategy 2007-2017"* policy guidance (T4: D-5E) on missed/catch-up/overdue vaccinations (if acted on) directly affects im/migrant parents in Alberta, including im/migrant parents who have recently landed and settled in Alberta in their first three months since arrival. Also, im/migrant parents who may be restricted by the eligibility criteria on accessing publicly-funded vaccines (i.e. may be forced to wait for three months to pass post-arrival to have their children vaccinated; see T3: D-4D), and im/migrant parents who may have missed opportunities to vaccinate their children due to possible misunderstandings or communication breakdowns with healthcare professionals and therefore may need a safe space to ask questions to appropriate professionals regarding vaccinations and to then be recognized and supported by policy and legislation to then take reign on navigating their way through the system to properly vaccinate their children.

One health policy development and management strategy that may be worth considering during the revision process of these policies and policy guidance is the *"Health in All Policies*



(HiAP)” approach to improving population health and health equity that systematically takes into consideration the health implications of policy decisions (regulations), seeks synergies, and avoids harmful health impacts (Tonelli, Tang and Forest, 2020; Guglielmin et al., 2018). HiAP implementation requires funding, shared vision, national leadership, ownership and accountability, leadership with dedicated staff, health impact assessment(s) and clearly defined evaluative indicators (Guglielmin et al., 2018).

***g) Promote Anti-Oppression Allyship by Streamlining the Application of ‘Contextually Tailored Care’ Principles Across All of the Policies and Policy guidance***

Equity-oriented health care (EOHC) caters to an increasingly common public consensus that is arising to orient [learning] health systems to address inequities, with a specific focus on targeting population health interventions and indicators to shift inequities in health outcomes for those with the greatest need (Ford-Gilboe et al., 2018). The implementation of EOHC in primary health care involves ensuring the care provided is trauma-and violence-informed, culturally safe and contextually tailored so that the care ensures improved health outcomes across time for all people living in marginalized conditions (Ford-Gilboe et al., 2018). EOHC is achieved by implementing policy focused on boosting patient’s comfort and trust in the care provided to them and also boosting the patient’s own autonomy and confidence in preventing and managing their health problems (Ford-Gilboe et al., 2018).

The policies and policy guidance in this study would benefit from modifications inspired by equity-oriented health care (EOHC). Through EOHC, the incorporation of ‘*contextually tailored care*’ (CTC) in health policies allows marginalized people in the population to thrive (Ford-Gilboe et al., 2018). CTC looks beyond the concept of individually focused patient care and instead focuses on the routine offering of healthcare service tailored specifically to a set population’s most vulnerable demographics and with full consideration of individual and wider social contexts i.e. social determinants of health (Ford-Gilboe et al., 2018). CTC requires that facilitative tools (i.e. policies) offer practical health-promoting assistance (recommendations, strategies and community-engaging programming) appropriate to the social contexts of the

specific population's diverse patients, in an affordable and feasible manner, in order to reduce all possible barriers to accessing health services (Ford-Gilboe et al., 2018). Collectively, EOHC embedded and incorporated into health policies enables and empowers individual health care providers and their affiliate organizations to work together to create safe and respectful environments (i.e. through policies) for members of the specific population, to then be able to responsibly tailor the health care provided to be flexibly adaptable; to enact various functional strategies for adapting to the varying needs, priorities, histories and contexts of individual patients at the point of care.

Without interventions such as EOHC in policies, inequalities in the social determinants of health (SDH) proliferate avoidable health disparities between different individuals and groups in society i.e. amongst and between members of the highly diverse subgroup of im/migrants and diasporas (children of im/migrants) in the human population (Carey et al., 2015). The pathways to change the inequalities pervasive in the SDH remain difficult to pinpoint, actualize and implement. The lack of transparency and accountability detected in any health policies and policy guidance is the legal premise on which a human rights call is necessary to advocate for the non-discriminatory provision of health services and the development of progressively adaptive health policies (Jackman, 2016). The policies and policy guidance in this study would benefit from equity-oriented revisions to policy guidance and adaptive policy improvements, to help the system move towards anticipating rather than reacting to new changes to population health.

#### **4.3. Limitations**

This critical policy analysis study does have certain limitations worth noting. The searching of documents for this study was independently conducted using the same online search engine and search results accessible to any Alberta im/migrant parent or healthcare professional navigating online information on childhood vaccinations. During the very late stages of revising this manuscript, the *Alberta Hansards* were suggested as a potential source to have explored for more evidence but was not used as a data source due to a lack of time and familiarity. Moreover, this review was restricted to childhood vaccination policies and policy guidance in the Alberta

jurisdiction only, and focused solely on documents publicly available at the time of this thesis publication. One very key limitation that this study has is that it only analyzed policies/policy guidance and as such, does not include interview insight from policy stakeholders to uncover information that may have been fulfilled but is missing in written document (i.e., stakeholder consultation(s) may have occurred but not acknowledged in written document).

On the same note, the results of this study may not be easily applicable to other Canadian provinces and territories due to assumed differences in childhood vaccination systems. Furthermore, the most current and publicly available Alberta childhood vaccination policies (high-level; government-language) and policy guidance (layperson-level; simplified-language) were thoroughly reviewed. However, there was no public access detected or obtained to internal government documents on the Alberta childhood vaccination policies and policy guidance that may currently be in a draft format or preliminary revision stages and yet to be published online which if accessible would have further influenced and potentially altered the results of this study.

Furthermore, the policies and/or policy guidance were all mostly general vaccination strategy documents, with none overtly or even vaguely im/migrant-specific or im/migrant inclusive aside from one policy guidance source on ‘persons new to Canada’ and travellers. In other words, general vaccination strategy documents were used as necessary proxies in lieu of im/migrant specific vaccination strategy documents which limited the results of this study. Similarly, the policy and policy guidance sources analyzed in this study were generally assessed to determine if their contents satisfied the criteria in this study's evaluative framework by determining if the criteria (policy determinants) were stated in the content, which may have led to potentially over-generalizing and over-simplifying the overall policymaking process. Variations were noted in the date of publication for each relevant policy data and policy guidance data reviewed in this study, with some documents (sources) recently updated and others less current. Although retroactive searches were conducted throughout the duration of analysis and results of this study to ensure that more recently updated policies and policy guidance were not overlooked, there is still a chance that some of the policies and policy guidance were more

recently updated but were not yet publicly available at the time that this review was conducted and the corresponding results were finalized.

#### **4.4. Implications for Future Research**

##### ***General Reflections on Study Findings***

This critical policy analysis provides evidence-based recommendations for childhood vaccination policymakers to take children of im/migrants, im/migrant families, health equity and equitable access to vaccination services into more consideration when drafting, revising and/or implementing policies. This research may also help policy makers take initiative to delve deeper into exploring the links between immigration policies and health policies (i.e., childhood vaccination policies) when improving their policies, given that there are often silos in policymaking.

On another note, the findings from this study may inspire other jurisdictions in Canada (i.e. other provinces and territories) and perhaps even other pluralist-society countries to ensure that the im/migrants in their population(s) are well represented in their policies and systemically granted the right to equitably access and use childhood vaccination services amongst other healthcare available for the entire population. The findings of this study may also provide reliable evidence for community-based advocacy on health service access for children of im/migrants or im/migrants in Alberta and/or across Canada. Alongside providing practical policy-based steps towards advancing the equitability of childhood vaccination in Alberta, this research also references evidence-based equity-oriented metrics (policy determinants) to refer to as examples when assessing the effectiveness of revised and/or newer Alberta childhood vaccination policies. Last but not least, the findings of this study focused on children of im/migrants may also help spark advocacy for the overt inclusion of Alberta's indigenous children in the policies as well, given that both marginalized subgroups of children in Alberta are known to experience similar intersectional systems of oppression in society.

### ***Contextualizing Study Findings Within Recent Discussions on COVID 19***

This critical policy analysis on childhood vaccination of im/migrants in Alberta was completed during the time of COVID-19 during which research discussions arose through other studies about immunizing children in Canada for COVID-19 (i.e., Humble et al., 2021; Goldman et al., 2021). The results of this concurrent study may be very useful in providing well-informed evidence on the necessity for future pandemic preparedness policies to have vaccine equity (acknowledging the heterogeneity of races/ethnicities and im/migration statuses) thoroughly built throughout its framework.

The COVID-19 pandemic, deemed '*arguably the most devastating infectious illness*' (Allen, 2020), has revealed the potential impact of factors (i.e., lower income) that may be enhancing disparities in health outcomes due to COVID-19 in '*presumably at risk*' racialized population groups in Canada (Allen, 2020). Racialized communities in Toronto, for example, are found to be more likely overrepresented among COVID-19 cases in relation to their share of the population (Allen, 2020). The results of this critical policy analysis study may help pinpoint where, in traditional Alberta childhood vaccination policies, revisions are needed to ensure racialized communities are proactively accounted for and provided ample information and careful messaging to avoid misconceptions and/or stigmatization (Allen, 2020), especially during a pandemic.

There is a need for new knowledge translation strategies (post-COVID) geared towards generating information that is of value to the community and that is shared in appropriate ways (Allen, 2020), which the findings of this critical policy analysis may also help inform.

The findings of this critical policy analysis study may also help inform the creation, development and/or advancement of what Eissa et al (2021) refers to as tailored (i.e., afrocentric) health promotion and counselling approaches... centered on respecting patient values and perspectives to improve COVID-19 vaccination (i.e., in Black populations in Canada). Moreover, the findings of this critical policy analysis study (particularly the findings on where the childhood vaccination policies are lacking inclusion of health equity principles) may help, within the context of black racialized people in Canada but also relevant to all racialized groups, spark "*black-led*

*partnerships between healthcare professionals and stakeholders with existing trusted relationships in the community... [to] confront anti-Black racism and improve outreach to increase confidence in... [COVID-19] vaccination in Black communities”* (Eissa et al., 2021).

Furthermore, this critical policy analysis in and by itself may serve as an evidence-based example of the need to embed “equity-centered planning, decision-making and [health-promoting] action” throughout all childhood vaccination policies (as well as in future pandemic preparedness policies). Moreover, this study may help shift and redirect the attention of vaccination policymakers from not only meeting the minimum basic requirements of standard childhood vaccination policies but also learning when and where to incorporate health equity components to the policies that will then hold account and directly address “*attentiveness to power and the relationship between political economy and health...central to identifying and examining issues of equity*” (Plamondon, 2021).

This critical policy analysis may contribute to emphasizing the importance of taking social inequalities (race/ethnicity, income level, etc) into full consideration when drafting and/or implementing vaccination policies that promote and establish more equity in vaccination. For example, marked social inequalities in COVID-19 vaccine acceptance by children and adolescents have been noted, with racialized parents reporting greater unwillingness to vaccinate compared to White parents (McKinnon et al., 2021). This critical policy analysis may help contribute to the rising call amid the COVID-19 pandemic for vaccine campaign efforts, towards what McKinnon et al (2021) refers to as a need “*to reach disadvantaged and marginalized populations with tailored strategies that promote informed decision making and facilitate access to vaccination*”. This critical policy analysis goes a step further in promoting the need to distinguish and specify immigration status as one of the social inequalities; as a social determinant of health in im/migrant children’s access to childhood vaccinations.

The findings of this critical policy analysis indicates that the promotion of health equity principles (to tackle health inequities) are missing throughout most (if not all) of the policies and policy guidance, suggesting a need for equity in vaccine access to be taken more seriously for the

sake of improving the vaccination rates of the overall population. In the COVID context, recent research has found that “*differences in rates of vaccination between groups [have] been driven by inequities in access*” and encourage vaccination through equitable strategies (Rosenberg, Cheff and Amberber, 2021). More specifically, it is known that areas in Ontario with higher rates of COVID-19 have more limited access to vaccines and sufficient resources (i.e., easy and fast use of online booking system) to actively override systemic barriers (i.e., limited languages - only english and french, internet access, digital literacy, health card number) and ensure equitable access (Rosenberg et al., 2021). Furthermore, delivery of COVID vaccines have been noted to occur mostly in large hospitals and mass immunization clinics with only a minority of vaccine deliveries occurring in more local and trusted settings for members of the public (Rosenberg et al., 2021).

On another note, public health officials and researchers believe that vaccine equity is key to the end of the COVID-19 pandemic (Choi, Denice and Ramaj, 2021). The findings of this critical policy analysis rely on and promote the correlation between equity and vaccination rates (vaccine equity), as well as the fact that there are lower vaccination rates in immigrant and refugee groups. This intersectional (equity-oriented) critical policy analysis furthermore promotes the need for more active measuring of health inequities among vulnerable populations in Alberta to strengthen jurisdictional childhood vaccination policies; to ensure our current childhood vaccination policies are modified to become better equipped to handle future pandemics. A recently-published study by Antequera et al (2021), referred to as “*improving social justice in COVID-19 health research: interim guidelines for reporting health equity in observational studies*”, recently reviewed a checklist called *STROBE* (*Strengthening the Reporting of Observational Studies in Epidemiology*) for deficient areas where additional details and guidance are needed to encourage transparent analysis and reporting of health equity (using various social determinants of health) in COVID-19 observational studies. Such observational studies are deemed a valuable source of evidence and are able to critically analyze the impact of implementing COVID-19 policies on the redistribution of inequities (Antequera et al., 2021).

The findings of this study may serve as an excellent template for guidelines/guidance on ways to improve transparent reporting of health equity measures in Alberta childhood vaccination policies. Antequera et al (2021) engaged with various stakeholders experiencing health inequities (i.e. indigenous people) to co-produce guidance using an intersectional lens (taking into consideration both health equity and social determinants of health), to then apply to policies and future research to further efforts towards closing in on inequitable gaps in health outcomes.

One last implication is that this study's finding on the lack of race-based vaccination data is a good step forward in promoting the need for race-based data in Alberta, to feature in policy guidance and used in informing policy; to pave the way to improved equity in vaccination service access for racialized people (i.e., im/migrants, indigenous peoples). Within the context of COVID-19, there is growing evidence that the risk and burden of COVID-19 infections across population subgroups and racialized communities in Canada (Ontario) are well-known to be disproportionately higher in terms of morbidity and mortality rates (Etowa et al., 2021). Yet, there is presently a strong absence of large-scale race-based data on COVID-19 infections and vaccination rates throughout Canada, making it difficult to measure the extent to which racialized communities (i.e. im/migrants) are experiencing COVID-19 and the impact(s) of the measure(s) and lack of measures taken to mitigate these impacts at a local level (Etowa et al., 2021). This study may help inspire policymakers to create sustainable long-term capacity for race-based data, to then be very well-informed of various race-based patterns in vaccination when drafting policies on future pandemic preparedness policies or even when revising basic childhood vaccination policies to ensure all needs are accounted for. Policies promoting data collection strategies would require the incorporation of community engagement to the process of collecting disaggregated data on immigrants and racialized groups (Etowa et al., 2021).

Overall, further research is recommended including research incorporating the perspectives of policymakers in addressing issues related to health equity (i.e., vaccine equity). Additionally, it may be worthwhile to initiate and conduct comparative research on evidence-based knowledge gaps in vaccination policies across all jurisdictions of Canada.



## 4.5. Conclusion

The findings from this study indicate a lack of active equity-oriented mechanisms and adaptiveness in place in the childhood vaccination policies and policy guidance to help reduce structural inequities (i.e. ethnocultural diversity and status disparities) impacting children of im/migrants and more directly on their behalf, impacting their im/migrant parents. Through the use of the evaluation framework, it is clear that most of the sources of policies and policy guidance are missing the presence of equity-oriented policy determinants suggesting the policies and policy guidance have plenty of room for improvement and growth. The predominant absence of health equity as a policy determinant across all reviewed sources suggests that advancing these policies and policy guidance may very well require the adaptive incorporation and adaptation of health equity mechanisms in and across all of the policies. Since the childhood vaccination policies directly impact the nature of the childhood policy guidance, the upgrading of the policies by incorporating adaptive strategies for achieving policy objectives (i.e. through the advent or use of adaptive policy technology) may create substantial improvements in the necessity, promotion and application of health equity principles in strengthening vaccination coverage across the jurisdiction. Acknowledging the importance of health equity (i.e., vaccine equity) in the policies and policy guidance is a practical and implementable system-wide action indicating the government is holding itself accountable to ensure fair access of childhood vaccination services for the entire population with full consideration of the nuances present in vaccination access by im/migration status or race/ethnicity. Ensuring updated childhood vaccination policies and policy guidance are all equity-oriented will ensure the promotion of vaccine equity is viewed as one of the major keys to improving childhood vaccination coverage, as opposed to an assumption or unattainable ideal to deprioritize, devalue or disbelieve in. There is a need for children of racialized im/migrants to be openly acknowledged and advocated for in the policies and policy guidance that do impact them.

More specifically, there is an identified need for government to work towards developing and advancing the promotion of equity-oriented race-based vaccination coverage data collection,

to ensure that these policies are better informed on the vaccination needs of the most vulnerable of the target audiences, of culturally and linguistically diverse (CALD) children of im/migrants and their im/migrant parents. The findings from this study suggest the need for the advancement of generalized but accurate race-based vaccination coverage data to then actively and adaptively inform the development and updating of policies and policy guidance in a manner that ensures all categories of im/migrants across the population of Albertans are being included, represented, and equitably served with intersectional, foreign-language-friendly, and culturally-responsive vaccination services. Future or updated childhood vaccination policies would benefit from incorporating the standard and equity-oriented policy determinants and approaches explored in this study. To reiterate, the application of intersectionality in analyzing vaccination policies may prove to be very helpful in advancing health equity so that educational communication on vaccines and vaccination services are accessed, explored and tapped into by all, fully inclusive of the most vulnerable groups in society (i.e., im/migrants) and regardless of social positioning and status (i.e. personal or parental immigration status, ethnocultural diversity, ethnicity, class).

In conclusion, this study emphasizes the need for vaccination policymakers to incorporate equity-oriented policy determinants in the policies and policy guidance they create, to help ensure various interacting structural determinants (i.e. ethnocultural diversity and immigration status) are accounted for in population-wide access to childhood vaccinations. The findings of this study may also provide reliable evidence for community-based advocacy on improving the quality of support provided (i.e. cultural responsiveness) to im/migrant parents regarding the sustainable and trustworthy access to public health services available for their children. Overall, conclusively, the findings of this study urge that this at-risk subgroup (children of im/migrants) become equitably prioritized and that their diverse cross-cultural needs be inclusively addressed in all Alberta childhood vaccination policies.

## References (A-Z)

Alberta Health Services (2021a). *Information for Influenza Immunization*. Retrieved from:  
<https://www.albertahealthservices.ca/influenza/influenza.aspx/>

Alberta Health Services (2021b). *Immunization Program Standards Manual*. Retrieved from:  
<https://www.albertahealthservices.ca/info/page10802.aspx>

Alberta Health Services (2021c). *Influenza Immunization Program Update - March 2021*.  
albertahealthservices.ca. Retrieved from:  
<https://www.albertahealthservices.ca/assets/healthinfo/hi-flu-update-2021-03.pdf>

Alberta Health Services (2021d). *Routine Immunization Schedule*. ImmunizeAlberta.ca. Retrieved  
from:  
<https://www.albertahealthservices.ca/assets/info/hp/cdc/if-hp-cdc-ipism-routine-imm-schedule.pdf>

Alberta Health (2020). *Alberta Influenza Immunization Policy*. open.alberta.ca. Retrieved from:  
<https://open.alberta.ca/publications/alberta-influenza-immunization-policy#detailed>

Alberta Health (2021). *Interactive Health Data Application: Childhood Immunization Coverage  
Rates - May 2021*. IHDA Retrieval. Alberta Health, Analytics and Performance Reporting  
Branch. Retrieved from:  
[http://www.ahw.gov.ab.ca/IHDA\\_Retrieval/ShowMetaDataNotesServlet?3312](http://www.ahw.gov.ab.ca/IHDA_Retrieval/ShowMetaDataNotesServlet?3312)

Allen, U. (2020). COVID-19 Among Racialized Communities: Unravelling the Factors  
Predictive of Infection and Adverse Outcomes. *Royal Society of Canada*. Available:  
<https://rsc-src.ca/en/covid-19/impact-covid-19-in-racialized-communities/covid-19-among-racialized-communities-unravelling>

Antequera, A., Lawson, D. O., Noorduyn, S. G., Dewidar, O., Avey, M., Bhutta, Z. A., ... & Welch, V. (2021). Improving Social Justice in COVID-19 Health Research: Interim guidelines for reporting health equity in observational studies. *International journal of environmental research and public health*, 18(17), 9357. <https://doi.org/10.3390/ijerph18179357>

Antonipillai, V., Abelson, J., Wahoush, O., Baumann, A., & Schwartz, L. (2020). Policy Agenda-Setting and Causal Stories: Examining How Organized Interests Redefined the Problem of Refugee Health Policy in Canada. *Healthcare policy = Politiques de santé*, 15(3), 116-131. <https://doi.org/10.12927/hcpol.2020.26126>

Atkinson, K. M., Westeinde, J., Ducharme, R., Wilson, S. E., Deeks, S. L., Crowcroft, N., ... & Wilson, K. (2016). Can mobile technologies improve on-time vaccination? A study piloting maternal use of Immunize CA, a Pan-Canadian immunization app. *Human vaccines & immunotherapeutics*, 12(10), 2654-2661. <https://doi.org/10.1080/21645515.2016.1194146>

Bandara, T. (2019). Equity-based childhood immunization policy-making in urban public health units across the Canadian prairies: a comparative study (*Doctoral dissertation, University of Saskatchewan*). Retrieved from: <http://hdl.handle.net/10388/12051>

Barozzino, T., & Hui, C. P. (2013). Caring for kids new to Canada: Part II. *Paediatrics & child health*, 18(7), 349-350. <https://doi.org/10.1093/pch/18.7.349>

Bauer, G. R., Mahendran, M., Braimoh, J., Alam, S., & Churchill, S. (2020). Identifying visible minorities or racialized persons on surveys: can we just ask? *Canadian Journal of Public Health*, 111, 371-382. <https://doi.org/10.17269/s41997-020-00325-2>

Bauer, G. R. (2014). Incorporating intersectionality theory into population health research methodology: challenges and the potential to advance health equity. *Social science & medicine*, 110, 10-17. <https://doi.org/10.1016/j.socscimed.2014.03.022>

Bell, C. A., Simmonds, K. A., & MacDonald, S. E. (2015). Exploring the heterogeneity among partially vaccinated children in a population-based cohort. *Vaccine*, 33(36), 4572-4578.

<https://doi.org/10.1016/j.vaccine.2015.07.004>

Berland, A. (2019). Lessons from the field for community engagement and accountability.

*International Journal of Health Governance*. <https://doi.org/10.1108/IJHG-05-2019-0030>

Berry, J.W. (2011). Intercultural Relations in Plural Societies: Research Derived from Canadian Multiculturalism Policy. *Canadian Ethnic Studies*, 43(3), 5-18.

<https://www.doi.org/10.1353/ces.2011.0033>

Busby, C., & Chesterley, N. (2015). A shot in the arm: how to improve vaccination policy in

Canada. *CD Howe Institute Commentary*, (421). <http://dx.doi.org/10.2139/ssrn.2578035>

Bolotin, S., Severini, A., Hatchette, T., McLachlan, E., Savage, R., Hughes, S. L., ... & Crowcroft, N. (2019). Assessment of population immunity to measles in Ontario, Canada: a Canadian Immunization Research Network (CIRN) study. *Human vaccines &*

*immunotherapeutics*, 15(12), 2856-2864. <https://doi.org/10.1080/21645515.2019.1619402>

Bowleg, L. (2012). The problem with the phrase women and minorities: intersectionality—an

Important theoretical framework for public health. *American Journal of Public Health*,

102(7),1267-1273. <https://doi.org/10.2105/AJPH.2012.300750>

Campbell, R. M., Klei, A. G., Hodges, B. D., Fisman, D., & Kitto, S. (2014). A comparison of health access between permanent residents, undocumented immigrants and refugee claimants in Toronto, Canada. *Journal of Immigrant and Minority Health*, 16(1), 165-176.

<https://doi.org/10.1007/s10903-012-9740-1>

Carey, G., Crammond, B., Malbon, E., & Carey, N. (2015). Adaptive policies for reducing inequalities in the social determinants of health. *International journal of health policy and management*, 4(11), 763. <https://doi.org/10.15171/ijhpm.2015.170>

Castañeda, H., Holmes, S. M., Madrigal, D. S., Young, M. E. D., Beyeler, N., & Quesada, J. (2015). Immigration as a social determinant of health. *Annual review of public health*, 36, 375-392. <https://doi.org/10.1146/annurev-publhealth-032013-182419>

Chan, P. K. T. (2020). How to increase migrant resilience in Canada: what the legal system can do to help. (*Theses-Dissertations-Major-Paper, University of Windsor*). Available: <https://scholar.uwindsor.ca/major-papers/138/>

Charania, N. A., Gaze, N., Kung, J. Y., & Brooks, S. (2019). Vaccine-preventable diseases and immunisation coverage among migrants and non-migrants worldwide: A scoping review of published literature, 2006 to 2016. *Vaccine*, 37(20), 2661-2669. <https://doi.org/10.1016/j.vaccine.2019.04.001>

Choi, K. H., Denice, P. A., & Ramaj, S. (2021). Vaccine and COVID-19 Trajectories: Equal vaccine rates do not reduce inequality in COVID-19 rates. *Cornell University: SocArXivPapers (Pre-Print)*. <https://doi.org/10.31235/osf.io/27dvz>

Corus, C., & Saatcioglu, B. (2015). An intersectionality framework for transformative services research. *The Service Industries Journal*, 35(7-8), 415-429. <https://doi.org/10.1080/02642069.2015.1015522>

Douglas, M. D., Josiah Willock, R., Respress, E., Rollins, L., Tabor, D., Heiman, H. J., Hopkins, J., Dawes, D. E., & Holden, K. B. (2019). Applying a Health Equity Lens to Evaluate and Inform Policy. *Ethnicity & disease*, 29(Suppl 2), 329–342. <https://doi.org/10.18865/ed.29.S2.329>

Dubois, A., & Lévesque, M. (2020). Public Health Network: Canada's National Collaborating Centres: Facilitating evidence-informed decision-making in public health. *Canada Communicable Disease Report*, 46(2-3), 31. <https://doi.org/10.14745/ccdr.v46i23a02>

Eissa, A., Lofters, A., Akor, N., Prescod, C., & Nnorom, O. (2021). Increasing SARS-CoV-2 vaccination rates among Black people in Canada. *Canadian Medical Association Journal*, 193(31), E1220-E1221. <https://doi.org/10.1503/cmaj.210949>

Erickson, L. J., De Wals, P., & Farand, L. (2005). An analytical framework for immunization programs in Canada. *Vaccine*, 23(19), 2470-2476. <https://doi.org/10.1016/j.vaccine.2004.10.029>

Etowa, J., Hyman, I., Dabone, C., Mbagwu, I., Ghose, B., Sano, Y., ... & Mohamoud, H. (2021). Strengthening the collection and use of disaggregated data to understand and monitor the risk and burden of COVID-19 among racialized populations. *Canadian Studies in Population*, 1-16. <https://doi.org/10.1007/s42650-021-00050-2>

Garst, B., Dubin, A., Bunke, C., Schellpfeffer, N., Gaslin, T., Ambrose, M., & Hashikawa, A. (2021). Barriers impacting organizational immunization policy implementation in US and Canadian summer camps. *Children's Health Care*, 50(2), 207-219. <https://doi.org/10.1080/02739615.2020.1870118>

Gates, A., Rahman, S., Sim, S., Pillay, J., Ismail, S. J., Tunis, M. C., ... & Hartling, L. (2021). Health inequities related to vaccination: an evidence map of potentially influential factors and systematic review of interventions. *Vaccine*. <https://doi.org/10.1016/j.vaccine.2021.05.054>

Gilbert, N. L., Gilmour, H., Wilson, S. E., & Cantin, L. (2017). Determinants of non-vaccination and incomplete vaccination in Canadian toddlers. *Human vaccines & immunotherapeutics*, 13(6), 1447-1453. <https://doi.org/10.1080/21645515.2016.1277847>

Gkiouleka, A., Huijts, T., Beckfield, J., & Bambra, C. (2018). Understanding the micro and macro politics of health: Inequalities, intersectionality & institutions - A research agenda. *Social Science & Medicine*, 200, 92-98. <https://doi.org/10.1016/j.socscimed.2018.01.025>

Goldman, R. D., McGregor, S., Marneni, S. R., Katsuta, T., Griffiths, M. A., Hall, J. E., ... & Yue, E. L. (2021). Willingness to vaccinate children against influenza after the Coronavirus disease 2019 pandemic. *The Journal of pediatrics*, 228, 87-93. <https://doi.org/10.1016/j.jpeds.2020.08.005>

Goldring, L., & Landolt, P. (2021). From illegalised migrant toward permanent resident: assembling precarious legal status trajectories and differential inclusion in Canada. *Journal of Ethnic and Migration Studies*, 1-20. <https://doi.org/10.1080/1369183X.2020.1866978>

Government of Alberta (2021a). *Alberta Immunization Policy (AIP)*. open.alberta.ca. Retrieved from: <https://open.alberta.ca/dataset/aip>

Government of Alberta (2021b). *Immunization and Routine Immunization Schedule*. Retrieved from: <https://www.alberta.ca/immunization-routine-schedule.aspx>

Government of Alberta (2021c). *Public Health Act: Part 3 - Communicable Diseases and Public Health Emergencies*. Queen's Printer. Retrieved from: [https://www.qp.alberta.ca/1266.cfm?page=P37.cfm&leg\\_type=Acts&isbncln=9780779818426&display=html](https://www.qp.alberta.ca/1266.cfm?page=P37.cfm&leg_type=Acts&isbncln=9780779818426&display=html)

Government of Alberta (2021d). *Open Government Program*. alberta.ca. Retrieved from: <https://www.alberta.ca/open-government-program.aspx>

Government of Alberta (2020a). *Alberta Immunization Policy: Routine Childhood Immunization Schedule*. open.alberta.ca. Retrieved from:



<https://open.alberta.ca/dataset/58d31634-61d9-469d-b95f-f714719b923e/resource/8a7e1078-5d4e-4e47-a6c2-e7261f73feb1/download/aip-routine-childhood-schedule.pdf>

Government of Alberta (2020b). *Alberta Influenza Immunization Policy (IIP)*. open.alberta.ca.

Retrieved from:

<https://open.alberta.ca/publications/alberta-influenza-immunization-policy#detailed>

Government of Alberta (2020c). *Health Information and Tools: Childhood Immunization*.

Retrieved from:

<https://myhealth.alberta.ca/health/Pages/conditions.aspx?hwid=immun&#hw254923>

Government of Alberta (2020d). *Alberta Netcare Learning Center - Immunization Regulation Information*. Retrieved from:

<https://www.albertanetcare.ca/learningcentre/ImmRegulationInfo.htm>

Government of Alberta (2019). *Alberta Immunization Policy Introduction: Roles and Responsibilities*. Retrieved from:

<https://open.alberta.ca/dataset/58d31634-61d9-469d-b95f-f714719b923e/resource/b86d92b2-a775-46ce-86a1-6744455a7c34/download/aip-responsibilities-vaccine-providers.pdf>

Government of Alberta (2018a). *Alberta Immunization Policy Introduction: Eligibility*. Retrieved from:

<https://open.alberta.ca/dataset/58d31634-61d9-469d-b95f-f714719b923e/resource/e14decb1-0aaf-484c-bd38-c41fbebead61/download/aip-introduction-eligibility.pdf>

Government of Alberta (2018b). *Alberta Regulation 182/2018 Public Health Act - Immunization Regulation Extract*. Retrieved from:

[https://www.qp.alberta.ca/1266.cfm?page=2018\\_182.cfm&leg\\_type=Regs&isbncln=9780779806669](https://www.qp.alberta.ca/1266.cfm?page=2018_182.cfm&leg_type=Regs&isbncln=9780779806669)

Government of Alberta (2018c). *Alberta Immunization Policy Introduction: Background*. *open.alberta.ca*. Retrieved from:  
<https://open.alberta.ca/dataset/aip/resource/44a251d1-56de-43a5-925a-be5c9729d732/download/AIP-Introduction-Background.pdf>

Government of Canada (2021a). *Vaccines for Children: Deciding to Vaccinate*. Retrieved from:  
<https://www.canada.ca/en/public-health/services/vaccination-children.html>

Government of Canada (2021b). *Interim Federal Health Program: About the program*. Retrieved from:  
<https://www.canada.ca/en/immigration-refugees-citizenship/services/refugees/help-within-canada/health-care/interim-federal-health-program/coverage-summary.html>

Government of Canada (2017). *Immunization of travellers: Canadian Immunizations Guide. Part 3: Vaccine of Special Populations*. Canada.ca . Retrieved from:  
<https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-3-vaccination-specific-populations/page-9-immunization-travellers.html>

Government of Canada (2015). *Immunization of persons new to Canada: Canadian Immunization Guide*. Canada.ca. Retrieved from  
<https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-3-vaccination-specific-populations/page-10-immunization-persons-new-canada.html>

Government of Alberta (2007). *Alberta Immunization Strategy 2007-2017*. Retrieved from:  
<https://open.alberta.ca/publications/0778535029>

Greer, S. L., Bekker, M., De Leeuw, E., Wismar, M., Helderma, J. K., Ribeiro, S., & Stuckler, D. (2017). Policy, politics and public health. *European Journal of Public Health*, 27(suppl\_4), 40-43. <https://doi.org/10.1093/eurpub/ckx152>

Greer, S. L., Bekker, M. P., Azzopardi-Muscat, N., & McKee, M. (2018). Political analysis in public health: middle-range concepts to make sense of the politics of health. *European Journal of Public Health*, 28(suppl\_3), 3-6. <https://doi.org/10.1093/eurpub/cky159>

Guglielmin, M., Muntaner, C., O'Campo, P., & Shankardass, K. (2018). A scoping review of the implementation of health in all policies at the local level. *Health Policy*, 122(3), 284-292. <https://doi.org/10.1016/j.healthpol.2017.12.005>

Hancock, T. (2011). The Ottawa charter at 25. *Canadian Journal of Public Health*, 102(6), 404-406. <https://doi.org/10.1007/BF03404186>

Hankivsky, O., & Cormier, R. (2019). *Intersectionality and Public Policy: Some Lessons from Existing Models*. In *The Palgrave Handbook of Intersectionality in Public Policy* (pp. 69-93). Palgrave Macmillan, Cham. Available: [https://link.springer.com/chapter/10.1007/978-3-319-98473-5\\_4](https://link.springer.com/chapter/10.1007/978-3-319-98473-5_4)

Hankivsky, O., Grace, D., Hunting, G., Giesbrecht, M., Fridkin, A., Rudrum, S., ... & Clark, N. (2014). An intersectionality-based policy analysis framework: critical reflections on a methodology for advancing equity. *International journal for equity in health*, 13(1), 119. <https://doi.org/10.1186/s12939-014-0119-x>

Holman, D., Salway, S., Bell, A., Beach, B., Adebajo, A., Ali, N., & Butt, J. (2021). Can intersectionality help with understanding and tackling health inequalities? Perspectives of professional stakeholders. *Health research policy and systems*, 19(1), 1-15. <https://doi.org/10.1186/s12961-021-00742-w>

Humble, R. M., Sell, H., Dubé, E., MacDonald, N. E., Robinson, J., Driedger, S. M., ... & MacDonald, S. E. (2021). Canadian parents' perceptions of COVID-19 vaccination and intention to vaccinate their children: results from a cross-sectional national survey. *Vaccine*. <https://doi.org/10.1016/j.vaccine.2021.10.002>

Ismail, S. J., Hardy, K., Tunis, M. C., Young, K., Sicard, N., & Quach, C. (2020). A framework for the systematic consideration of ethics, equity, feasibility, and acceptability in vaccine program recommendations. *Vaccine*, 38(36), 5861-5876. <https://doi.org/10.1016/j.vaccine.2020.05.051>

Jackman, M. (2016). The future of health care accountability: a human rights approach. *Ottawa Law Review*, 47(2). <http://dx.doi.org/10.2139/ssrn.2746855>

Jackson, S. (2018). Politicizing the white coat: Physician activism and asylum seeker healthcare in Canada, Germany and England (*Doctoral dissertation, McMaster University*). Retrieved from: <http://hdl.handle.net/11375/23448>

Johnson, A. G. (2014). A Geospatial Analysis: Low Childhood Immunization Rates in Alberta. (*Doctoral dissertation, University of Calgary Faculty of Graduate Studies*). Retrieved from: <http://dx.doi.org/10.11575/PRISM/30099>

Kapilashrami, A., Hill, S., & Meer, N. (2015). What can health inequalities researchers learn from an intersectionality perspective? Understanding social dynamics with an inter-categorical approach? *Social Theory & Health*, 13(3), 288-307. <https://doi.org/10.1057/sth.2015.16>

Kowal, S. P., Jardine, C. G., & Bubela, M. T. (2015). "If they tell me to get it, I'll get it. If they don't...": Immunization decision-making processes of immigrant mothers. *Canadian Journal of Public Health (CJPH)*, 106(4), E230-E235. <https://doi.org/10.17269/cjph.106.4803>

Larson, E., George, A., Morgan, R., & Poteat, T. (2016). 10 Best resources on... intersectionality with an emphasis on low-and middle-income countries. *Health policy and planning*, 31(8), 964-969. <https://doi.org/10.1093/heapol/czw020>

Li, J., Menzies, D., Landry, J. S., Benedetti, A., & Rousseau, M. C. (2014). Determinants of Bacillus Calmette–Guérin (BCG) vaccination among Québec children. *Preventive medicine*, 66, 87-94. <https://doi.org/10.1016/j.ypmed.2014.06.012>

Lomas, J., & Brown, A. D. (2009). Research and advice giving: a functional view of evidence-informed policy advice in a Canadian ministry of health. *The Milbank Quarterly*, 87(4), 903-926. <https://doi.org/10.1111/j.1468-0009.2009.00583.x>

Mah, C. L. (2009). Governing Immunization in Canada (Doctoral dissertation). Retrieved from: <http://hdl.handle.net/1807/19058>

Mahimbo, A., Seale, H., & Heywood, A. E. (2017a). Immunisation for refugees in Australia: a policy review and analysis across all States and Territories. *Australian and New Zealand journal of public health*, 41(6), 635-640. <https://doi.org/10.1111/1753-6405.12710>

Mahimbo, A., Seale, H., Smith, M., & Heywood, A. (2017b). Challenges in immunisation service delivery for refugees in Australia: a health system perspective. *Vaccine*, 35(38), 5148-5155. <https://doi.org/10.1016/j.vaccine.2017.08.002>

Martin, D., Miller, A. P., Quesnel-Vallée, A., Caron, N. R., Vissandjée, B., & Marchildon, G. P. (2018). Canada's universal health-care system: achieving its potential. *The Lancet*, 391(10131), 1718-1735. [https://doi.org/10.1016/S0140-6736\(18\)30181-8](https://doi.org/10.1016/S0140-6736(18)30181-8)

Mason, A., Salami, B., Salma, J., Yohani, S., Amin, M., Okeke-Ihejirika, P., & Ladha, T. (2021). Health information seeking among immigrant families in Western Canada. *Journal of Pediatric Nursing*, 58, 9-14. <https://doi.org/10.1016/j.pedn.2020.11.009>

Matkin, A., Simmonds, K., & Suttorp, V. (2014). Measles in Canada: Measles-containing vaccination rates in southern Alberta. *Canada Communicable Disease Report*, 40(12), 236. Available: <https://www.canada.ca/en/public-health/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2014-40/ccdr-volume-40-12-june-12-2014/ccdr-volume-40-12-june-12-2014-4.html>

McKinnon, B., Quach, C., Dubé, È., Nguyen, C. T., & Zinszer, K. (2021). Social inequalities in COVID-19 vaccine acceptance and uptake for children and adolescents in Montreal, Canada: a cross-sectional study. *Medrxiv*, 2021-05. <https://doi.org/10.1101/2021.05.08.21256831>

Na, L., & Hample, D. (2016). Psychological pathways from social integration to health: An examination of different demographic groups in Canada. *Social Science & Medicine*, 151, 196-205. <https://doi.org/10.1016/j.socscimed.2016.01.007>

Naseem, Tehmina. (2016). Access To Health Care For Precarious Immigration Status Persons: Human First, Status Later. (*Digital Depository: Theses, Ryerson University*). Retrieved from: <https://digital.library.ryerson.ca/islandora/object/RULA%3A5606>

National Collaborating Centre for Determinants of Health; NCCDH (2013). *Alberta Health Services: Establishing a province-wide social determinants of health and health equity* | National Collaborating Centre for Determinants of Health. Resource Library. Retrieved from: <https://nccdh.ca/resources/entry/alberta-health-services>

Navaranjan, D., Rosella, L. C., Kwong, J. C., Campitelli, M., & Crowcroft, N. (2014). Ethnic disparities in acquiring 2009 pandemic H1N1 influenza: a case-control study. *BMC public health*, 14, 214. <https://doi.org/10.1186/1471-2458-14-214>

Ng, E., Sanmartin, C., Elie-Massenat, D., & Manuel, D. G. (2016). Vaccine-preventable disease-related hospitalization among immigrants and refugees to Canada: study of linked population-based databases. *Vaccine*, 34(37), 4437-4442. <https://doi.org/10.1016/j.vaccine.2016.06.079>

Nixon, S. A., Lee, K., Bhutta, Z. A., Blanchard, J., Haddad, S., Hoffman, S. J., & Tugwell, P. (2018). Canada's global health role: supporting equity and global citizenship as a middle power. *The Lancet*, 391(10131), 1736-1748. [https://doi.org/10.1016/S0140-6736\(18\)30322-2](https://doi.org/10.1016/S0140-6736(18)30322-2)

Obidiya, O. S. (2020). HPV Vaccination Uptake: Identifying Gaps, Barriers and Disparities in Canadian Population (Doctoral dissertation, University of Saskatchewan). <http://hdl.handle.net/10388/12945>.

Open Government Program (2021). *Government of Alberta Open Information and Open Data Policy*. [open.alberta.ca](https://open.alberta.ca/policy). Retrieved from: <https://open.alberta.ca/policy>

Ottersen, O. P., Dasgupta, J., Blouin, C., Buss, P., Chongsuvivatwong, V., Frenk, J., ... & Scheel, I. B. (2014). The political origins of health inequity: prospects for change. *The Lancet*, 383(9917), 630-667. [https://doi.org/10.1016/S0140-6736\(13\)62407-1](https://doi.org/10.1016/S0140-6736(13)62407-1)

Pageaud, S., Deslandres, V., Lehoux, V., & Hassas, S. (2017, November). Co-construction of adaptive public policies using SmartGov. In *2017 IEEE 29th International Conference on Tools with Artificial Intelligence (ICTAI)* (pp. 1328-1335). IEEE. <https://doi.org/10.1109/ICTAI.2017.00199>

Plamondon K. M. (2021). Equity at a time of pandemic. *Health promotion international*, daab034. Advance online publication. <https://doi.org/10.1093/heapro/daab034>

Pottie, K., Greenaway, C., Feightner, J., Welch, V., Swinkels, H., Rashid, M., ... & Hassan, G. (2011). Evidence-based clinical guidelines for immigrants and refugees. *Canadian Medical Association Journal (CMAJ)*, 183(12), E824-E925. <https://doi.org/10.1503/cmaj.090313>

Pottie, K., Welch, V., Morton, R., Akl, E. A., Eslava-Schmalbach, J. H., Katikireddi, V., ... & Alonso-Coello, P. (2017). GRADE equity guidelines 4: considering health equity in GRADE guideline development: evidence to decision process. *Journal of clinical epidemiology*, 90, 84-91. <https://doi.org/10.1016/j.jclinepi.2017.08.001>

Public Health Agency of Canada (2020a). *Provincial and territorial routine and catch-up vaccination schedule for infants and children in Canada*. Canada.ca. Retrieved from: <https://www.canada.ca/en/public-health/services/provincial-territorial-immunization-information/Provincial-territorial-routine-vaccination-programs-infants-children.html>

Public Health Agency of Canada (2020b). *Social determinants of health and health inequalities*. Retrieved from: <https://www.canada.ca/en/public-health/services/health-promotion/population-health/what-determines-health.html>

Public Health Agency of Canada (2020c). *Vaccine Coverage in Canadian Children: Results from the 2017 Childhood National Immunization Coverage Survey (cNICS)*. Retrieved from: <https://www.canada.ca/en/public-health/services/publications/healthy-living/2017-vaccine-uptake-canadian-children-survey.html>

Public Health Agency of Canada (2018). *A Parent's Guide to Vaccination*. Canada.ca. Retrieved



from:

<https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/healthy-living/parent-guide-vaccination/pgi-gpv-eng.pdf>

Public Health Agency of Canada (2017). *National Immunization Strategy*. Canada.ca. Retrieved from:

[https://www.canada.ca/en/public-health/services/immunization-vaccine-priorities/national-immunization-strategy.html#\\_Status\\_of\\_National](https://www.canada.ca/en/public-health/services/immunization-vaccine-priorities/national-immunization-strategy.html#_Status_of_National)

Quach, S., Hamid, J. S., Pereira, J. A., Heidebrecht, C. L., Deeks, S. L., Crowcroft, N. S., ... & Kwong, J. C. (2012). Influenza vaccination coverage across ethnic groups in Canada. *Canadian Medical Association Journal (CMAJ)*, 184(15), 1673-1681. <https://doi.org/10.1503/cmaj.111628>

Rafferty, E., Guo, X., McDonald, B., Svenson, L. W., & MacDonald, S. E. (2019). Measurement of coverage, compliance and determinants of uptake in a publicly funded rotavirus vaccination programme: a retrospective cohort study. *BMJ open*, 9(11), e031718.

<https://10.1136/bmjopen-2019-031718>

Rahimian, T. (2020). Parental Undocumented Status as an Analogous Ground of Discrimination. *JL & Equal.*, 16, 93. Available: <https://jps.library.utoronto.ca/index.php/utjle/article/view/32932>

Reitmanova, S., Gustafson, D. L., & Ahmed, R. (2015). "Immigrants can be deadly": Critical discourse analysis of racialization of immigrant health in the Canadian press and public health policies. *Canadian Journal of Communication*, 40(3), 471.

<https://doi.org/10.22230/cjc.2015v40n3a2831>

Robinson, J. L. (2018). Potential strategies to improve childhood immunization rates in Canada. *Paediatrics & child health*, 23(5), 353-356. <https://doi.org/10.1093/pch/pxy052>

Rosella, L. C., Wilson, K., Crowcroft, N. S., Chu, A., Upshur, R., Willison, D., ... & Goel, V. (2013). Pandemic H1N1 in Canada and the use of evidence in developing public health policies—a policy analysis. *Social Science & Medicine*, 83, 1-9.

<https://doi.org/10.1016/j.socscimed.2013.02.009>

Rosenberg, J., Cheff, R., & Amberber, N. (2021). Encouraging vaccinations through equitable strategies. Available:

<https://www.wellesleyinstitute.com/wp-content/uploads/2021/07/Encouraging-vaccinations-through-equitable-strategies-full.pdf>

Roura, M., Dias, S., LeMaster, J. W., & MacFarlane, A. (2021). Participatory health research with migrants: Opportunities, challenges, and way forwards. *Health Expectations*, 24(2), 188-197. <https://doi.org/10.1111/hex.13201>

Saini, V., MacDonald, S. E., McNeil, D. A., McDonald, S. W., Kellner, J. D., Edwards, S. A., ... & Tough, S. (2017). Timeliness and completeness of routine childhood vaccinations in children by two years of age in Alberta, Canada. *Canadian Journal of Public Health*, 108(2), e124-e128. <https://doi.org/10.17269/CJPH.108.5885>

Salami B, Mason A, Salma J, Yohani S, Amin M, Okeke-Ihejirika P, Ladha T. (2020). Access to Healthcare for Immigrant Children in Canada. *International Journal of Environmental Research and Public Health*. 17(9):3320. <https://doi.org/10.3390/ijerph17093320>

Salehi, L., Lofters, A. K., Hoffmann, S. M., Polsky, J. Y., & Rouleau, K. D. (2015). Health and growth status of immigrant and refugee children in Toronto, Ontario: a retrospective chart review. *Paediatrics & child health*, 20(8), e38-e42. <https://doi.org/10.1093/pch/20.8.e38>

Shapiro, G. K., Guichon, J., & Kelaher, M. (2017). Canadian school-based HPV vaccine programs and policy considerations. *Vaccine*, 35(42), 5700-5707.

<https://doi.org/10.1016/j.vaccine.2017.07.079>

Statistics Canada (2020). *Canadian Community Health Survey - Annual Component (CCHS)*. Government of Canada. Retrieved from:

<https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3226>

Statistics Canada (2018). *Generation Status: Canadian-born Children of Immigrants*. Archived. Government of Canada. Retrieved from:

[https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-010-x/99-010-x2011003\\_2-eng.cfm](https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-010-x/99-010-x2011003_2-eng.cfm)

Suleman, S., Garber, K. D., & Rutkow, L. (2018). Xenophobia as a determinant of health: an integrative review. *Journal of public health policy*, 39(4), 407-423.

<https://doi.org/10.1057/s41271-018-0140-1>

Thompson, S. R., Watson, M. C., & Tilford, S. (2018). The Ottawa Charter 30 years on: still an important standard for health promotion. *International Journal of Health Promotion and Education*, 56(2), 73-84. <https://doi.org/10.1080/14635240.2017.1415765>

Tonelli, M., Tang, K. C., & Forest, P. G. (2020). Canada needs a "Health in All Policies" action plan now. *Canadian Medical Association Journal (CMAJ)*, 192(3), E61-E67.

<https://doi.org/10.1503/cmaj.190517>

Troper, Harold (2021). *Immigration to Canada*. The Canadian Encyclopedia. Historica Canada. Retrieved from: <https://www.thecanadianencyclopedia.ca/en/article/immigration>

Tungohan, E. (2018). Living with compromised legal status: Irregular temporary foreign workers in Alberta and the importance of imagining, strategizing, and inter-provincial legal consciousness. *International Migration*, 56(6), 207-220. <https://doi.org/10.1111/imig.12506>

Welch, V. A., Akl, E. A., Pottie, K., Ansari, M. T., Briel, M., Christensen, R., ... & Tugwell, P. (2017). GRADE equity guidelines 3: considering health equity in GRADE guideline development: rating the certainty of synthesized evidence. *Journal of clinical epidemiology*, 90, 76-83. <https://doi.org/10.1016/j.jclinepi.2017.01.015>

Wilson, L., Rubens-Augustson, T., Murphy, M., Jardine, C., Crowcroft, N., Hui, C., & Wilson (2018). Barriers to immunization among newcomers: A systematic review. *Vaccine*, 36(8), 1055-1062. <https://doi.org/10.1016/j.vaccine.2018.01.025>

Wilson, S. E., Quach, S., MacDonald, S. E., Naus, M., Deeks, S. L., Crowcroft, N. S., ... & Desai, S. (2017). Methods used for immunization coverage assessment in Canada, a Canadian Immunization Research Network (CIRN) study. *Human vaccines & immunotherapeutics*, 13(8), 1928-1936. <https://doi.org/10.1080/21645515.2017.1319022>

Wilson, S. E., Quach, S., MacDonald, S. E., Naus, M., Deeks, S. L., Crowcroft, N. S., ... & Desai, S. (2016). Immunization information systems in Canada: Attributes, functionality, strengths and challenges. A Canadian Immunization Research Network study. *Canadian Journal of Public Health*, 107(6), e575-e582. <https://doi.org/10.17269/CJPH.107.5679>

World Health Organization (2020). *Table 2: Summary of WHO Position Papers—Recommended Routine Immunizations for Children*. Retrieved from: [https://www.who.int/immunization/policy/Immunization\\_routine\\_table2.pdf](https://www.who.int/immunization/policy/Immunization_routine_table2.pdf)

Vang, Z. M., Sigouin, J., Flenon, A., & Gagnon, A. (2017). Are immigrants healthier than native-born Canadians? A systematic review of the healthy immigrant effect in Canada.

*Ethnicity & health*, 22(3), 209-241. <https://doi.org/10.1080/13557858.2016.1246518>

Zhang, J., Ohinmaa, A., Nguyen, T. H., Mashinter, L., Hanrahan, A., Loewen, J., & Jacobs, P. D. (2008). Determinants for immunization coverage by age 2 in a population cohort in the Capital Health region, Edmonton, Alberta. *Canada Communicable Disease Report*, 34(9), 1-11.

Available:

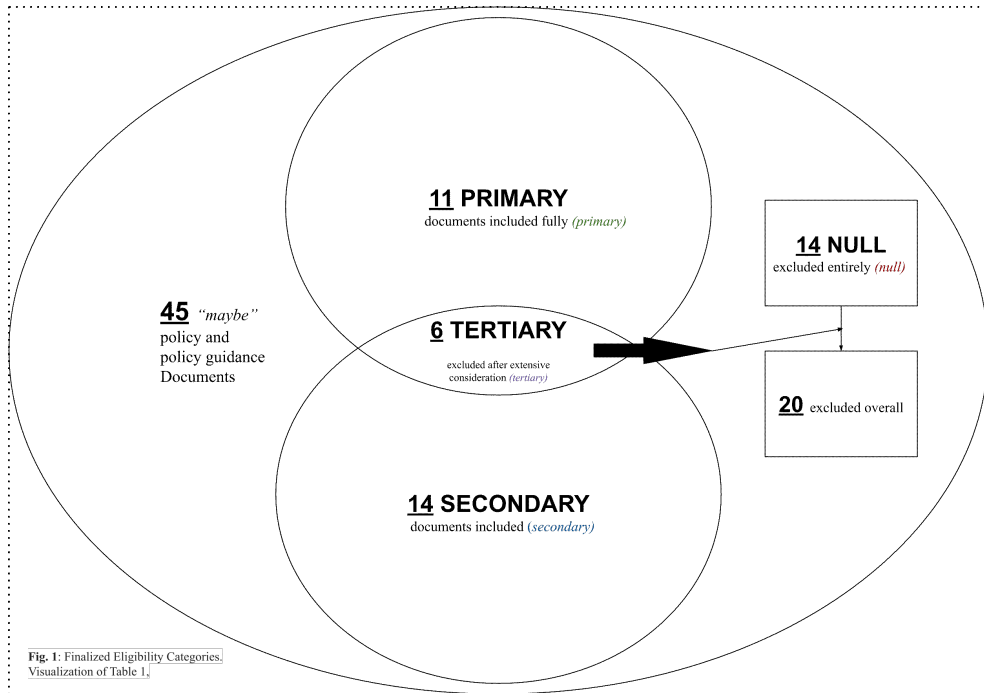
<https://www.canada.ca/content/dam/phac-aspc/migration/phac-aspc/publicat/ccdr-rmtc/08pdf/cdr3409.pdf>















Note: The links in this table are active (as of 8/3/2021), however the links current functionality may change in the future.

**TABLE 3: Evaluation Table for Primary Documents (Policies AND Policy Guides)**

| Primary Selection Document Code | Alberta Jurisdictional Public Document Title | Publication Source   | Citation  | Publication Year (Descending Recent to Past) | STANDARD POLICY DETERMINANTS        |                   |                |   |  |             |                                    |                 |                | EQUITY-BASED POLICY DETERMINANTS     |   |   |
|---------------------------------|--|--|---|--|-------------------------------------|-------------------|----------------|---|--|-------------|------------------------------------|-----------------|----------------|--------------------------------------|---|---|
|                                 |  |  |   |  | Online Navigation and Accessibility | Policy Background | Goals and Aims | Public Opportunities for Consultation or Community Engagement | Brought into Funding Sources or Access | Obligations | Potential for Public Health Impact | Data Collection | Cost/Up-Grades | Victimhood of Children of Immigrants | Victimhood of Children of Prisoners/Status Immigrants | Data Collection Accounting for Disproportional Harms and Inequitable Status |
| 1                               | X  | <a href="#">Government of Alberta - Law 100: Access to Information Act</a>   | <a href="#">Government of Alberta (2014). Public Health Act Part 1: Communicable Diseases and Public Health Emergencies. Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>   | 2014   | N                                   | Y                 | Y              | N   | N                                      | Y           | Y                                  | Y               | N              | N                                    | N   | N   |
| 2                               | 1A   | <a href="#">Alberta Infection Prevention Policy (IPP) - Updated February 25, 2021 - but each separate component of this AIP document has different version effective from 2014 to 2021</a> | <a href="#">Government of Alberta (2021). Alberta Infection Prevention Policy (IPP). www.alberta.ca/Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>  | 2021   | Y                                   | Y                 | Y              | Y   | Y                                      | Y           | Y                                  | N               | N              | N                                    | N   | N   |
| 3                               | 1X   | <a href="#">Alberta Infection Prevention Policy (IPP) - Updated June 12, 2020</a>  | <a href="#">Government of Alberta (2020). Alberta Infection Prevention Policy (IPP). www.alberta.ca/Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>  | 2020   | N                                   | N                 | Y              | Y   | Y                                      | Y           | Y                                  | Y               | N              | N                                    | N   | N   |
| 4                               | 2B   | <a href="#">Prevention and control of respiratory viruses and other acute respiratory infections in Canada - Updated December 2020</a>   | <a href="#">Public Health Agency of Canada (2020). Prevention and control of respiratory viruses and other acute respiratory infections in Canada. Retrieved from https://www.canada.ca/en/public-health/services/prevention-and-control-of-respiratory-viruses-and-other-acute-respiratory-infections-in-canada.html</a> | 2020   | Y                                   | N                 | Y              | Y   | Y                                      | Y           | Y                                  | N               | Y              | N                                    | N   | N   |
| 5                               | 2X   | <a href="#">Alberta Infection Prevention Policy - Revised December 2020, Published December 2020. Effective January 2021.</a>  | <a href="#">Government of Alberta (2020). Alberta Infection Prevention Policy - Revised December 2020. Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>   | 2020   | Y                                   | Y                 | Y              | Y   | N                                      | Y           | Y                                  | N               | N              | N                                    | N   | N   |
| 6                               | 3C   | <a href="#">Alberta Infection Prevention Policy - Revised December 2020</a>  | <a href="#">Government of Alberta (2020). Alberta Infection Prevention Policy - Revised December 2020. Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>   | 2020   | Y                                   | Y                 | Y              | Y   | Y                                      | Y           | Y                                  | N               | N              | N                                    | N   | N   |
| 7                               | 4D   | <a href="#">Alberta Infection Prevention Policy - Revised December 2020</a>  | <a href="#">Government of Alberta (2020). Alberta Infection Prevention Policy - Revised December 2020. Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>   | 2020   | Y                                   | Y                 | Y              | Y   | Y                                      | Y           | Y                                  | N               | N              | N                                    | N   | N   |
| 8                               | 5E   | <a href="#">Alberta Infection Prevention Policy - Revised December 2020</a>  | <a href="#">Government of Alberta (2020). Alberta Infection Prevention Policy - Revised December 2020. Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>   | 2020   | N                                   | N                 | N              | Y   | N                                      | Y           | Y                                  | N               | N              | N                                    | N   | N   |
| 9                               | 6F   | <a href="#">Alberta Infection Prevention Policy - Revised December 2020</a>  | <a href="#">Government of Alberta (2020). Alberta Infection Prevention Policy - Revised December 2020. Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>   | 2020   | Y                                   | Y                 | Y              | Y   | N                                      | Y           | Y                                  | N               | N              | N                                    | N   | N   |
| 10                              | 7G   | <a href="#">Alberta Infection Prevention Policy - Revised December 2020</a>  | <a href="#">Government of Alberta (2020). Alberta Infection Prevention Policy - Revised December 2020. Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>   | 2020   | Y                                   | Y                 | Y              | N   | N                                      | Y           | Y                                  | N               | N              | Y                                    | N   | N   |
| 11                              | 8H   | <a href="#">Alberta Infection Prevention Policy - Revised December 2020</a>  | <a href="#">Government of Alberta (2020). Alberta Infection Prevention Policy - Revised December 2020. Retrieved from https://www.alberta.ca/health-services-and-public-health-emergencies.aspx</a>   | 2020   | Y                                   | Y                 | Y              | N   | N                                      | Y           | Y                                  | N               | N              | Y                                    | Y   | N   |

Note: The links in this table are active (as of 8/20/2021), however the links current functionality may change in the future.

TABLE 4: Evaluation Table for Secondary Documents (Policies AND Policy Guidelines)

| Secondary Document Code | Alberta-Related Policy/Guideline Document Title | Publication Source   | Citations  | Publication Year (Discontinuing Recent to Past)  | STANDARD POLICY DETERMINANTS        |                   |               |  |                                      |             |                                    |                 |                  | EQUITY-BASED POLICY DETERMINANTS      |  |   |   |
|-------------------------|---|--|--|--|-------------------------------------|-------------------|---------------|--|--------------------------------------|-------------|------------------------------------|-----------------|------------------|---------------------------------------|--|---|---|
|                         |   |  |  |  | 1                                   | 2                 | 3             | 4  | 5                                    | 6           | 7                                  | 8               | 9                | 10                                    | 11   | 12  |   |
|                         |   |  |  |  | Online Navigation and Accessibility | Policy Background | Goals and Aim | Public Openness for Consultation or Comments | Budget into Funding Source or Access | Obligations | Potential for Public Health Impact | Data Collection | Catch-Up Factors | Vaccination of Children of Immigrants | Vaccination of Children of Precursor-Status Immigrants | Data Collection Accounting for Ethnocultural Diversity and Immigration Statuses |   |
| 1                       | X   | <a href="#">Immunity for Children: Deciding to Vaccinate</a>   | Government of Canada   | <a href="#">Government of Canada (2014a). Immunity for Children: Deciding to Vaccinate. Retrieved from https://www.canada.ca/en/health-canada/services/immunization/immunity-children.html</a>   | 2021                                | Y                 | N             | Y  | N                                    | N           | Y                                  | Y               | N                | N                                     | N  | N   | N |
| 2                       | X2  | <a href="#">Alberta Health Services: Information for Immigrants</a>                                    | Alberta Health Services  | <a href="#">Alberta Health Services (2021a). Information for Immigrants. Retrieved from https://www.albertahealthservices.ca/info.aspx?lang=eng</a>  | 2021                                | Y                 | N             | Y  | Y                                    | N           | Y                                  | Y               | N                | N                                     | N  | N   | N |
| 3                       | X3  | <a href="#">Alberta Health Services: Immunization Program: Standard Hours (updated March 20, 2021)</a> | Alberta Health Services  | <a href="#">Alberta Health Services (2021b). Immunization Program: Standard Hours. Retrieved from https://www.albertahealthservices.ca/info.aspx?lang=eng</a>  | 2021                                | Y                 | Y             | Y  | Y                                    | N           | Y                                  | Y               | Y                | N                                     | N  | N   | N |
| 4                       | X4  | <a href="#">Immunity Information Program Update (March 2021)</a>                                       | Alberta Health Services  | <a href="#">Alberta Health Services (2021c). Immunity Information Program Update. March 2021. Retrieved from https://www.albertahealthservices.ca/info.aspx?lang=eng</a>   | 2021                                | N                 | N             | Y  | Y                                    | Y           | Y                                  | Y               | N                | N                                     | N  | N   | N |
| 5                       | 1   | <a href="#">Immigration and Refugee Integration Schedule (effective January 1, 2021)</a>               | Government of Alberta (IRIS)   | <a href="#">Government of Alberta (2021b). Immigration and Refugee Integration Schedule. Retrieved from https://www.alberta.ca/immigration-integration-schedule.aspx</a>   | 2021                                | Y                 | N             | Y  | N                                    | N           | Y                                  | Y               | N                | N                                     | N  | N   | N |
| 6                       | 1X  | <a href="#">Health Information and Book - Immigration, Children of Immigrants</a>                      | Government of Alberta, Alberta Health Services, Alberta Immigration Services | <a href="#">Government of Alberta (2020a). Health Information and Book - Childhood Immunization. Retrieved from https://health.alberta.ca/AlbertaPages/Childhood-Immunization.aspx</a>   | 2020                                | N                 | N             | Y  | N                                    | N           | Y                                  | Y               | Y                | N                                     | N  | N   | N |
| 7                       | 1.2X  | <a href="#">Alberta Newcomer Learning Centre - Immunization Registration Information</a>               | Government of Alberta, Alberta Health Services, Alberta Immigration Services | <a href="#">Government of Alberta (2020b). Alberta Newcomer Learning Centre - Immunization Registration. Retrieved from https://www.alberta.ca/</a>  | 2020                                | Y                 | Y             | Y  | N                                    | N           | Y                                  | Y               | Y                | N                                     | N  | N   | N |
| 8                       | 1.3X  | <a href="#">New Information about the Immunization Regulations for Healthcare Professionals</a>        | Government of Alberta, Alberta Health Services                               | <a href="#">Government of Alberta (2019). New Information about the Immunization Regulations for Healthcare Professionals. Retrieved from https://www.alberta.ca/new-information-about-the-immunization-regulations-for-healthcare-professionals.aspx</a>                          | 2019                                | Y                 | Y             | Y  | N                                    | N           | Y                                  | Y               | Y                | N                                     | N  | N   | N |
| 9                       | 1A  | <a href="#">A Parent's Guide to Immunization (updated Jan 2011)</a>                                    | Government of Canada   | <a href="#">Public Health Agency of Canada (2011). A Parent's Guide to Immunization. Retrieved from https://www.canada.ca/en/public-health/services/immunization/a-parents-guide-to-immunization.html</a>  | 2018                                | Y                 | Y             | Y  | N                                    | N           | Y                                  | Y               | N                | N                                     | N  | N   | N |
| 10                      | 2   | <a href="#">Government of Canada: "New Child's Exemption Schedule"</a>                                 | Government of Canada   | <a href="#">Government of Alberta (2018). New Child's Exemption Schedule. Retrieved from https://www.healthycanada.gc.ca/immunisation/immunisation-schedule.aspx</a>   | 2018                                | Y                 | N             | Y  | N                                    | N           | Y                                  | Y               | N                | Y                                     | N  | N   | N |
| 11                      | 2B  | <a href="#">National Immunization Strategy - Objectives 2016 - 2022 "Better 2022"</a>                  | Government of Canada   | <a href="#">Public Health Agency of Canada (2017). National Immunization Strategy - Objectives 2016 - 2022. Retrieved from https://www.canada.ca/en/public-health/services/immunization/national-immunization-strategy-objectives-2016-2022.html</a>                               | 2017                                | Y                 | Y             | Y  | N                                    | Y           | Y                                  | Y               | N                | N                                     | N  | N   | N |
| 12                      | 3C  | <a href="#">New Child's, New Start - A Parent's Guide to Immunization</a>                              | Canadian Paediatric Society  | <a href="#">Canadian Paediatric Society (2017). New Child's, New Start - A Parent's Guide to Immunization. Retrieved from https://www.cps.ca/immunization/new-child-new-start-a-parents-guide-to-immunization</a>  | 2015                                | N                 | N             | Y  | N                                    | N           | Y                                  | Y               | N                | N                                     | N  | N   | N |
| 13                      | 4D  | <a href="#">C/11417 Statement: Pediatric Populifer</a>   | Government of Canada   | <a href="#">Public Health Agency of Canada (2016). Committee on Advice on Special Medicine and Immunization of Children. Retrieved from https://www.canada.ca/en/public-health/services/immunization/committee-on-advice-on-special-medicine-and-immunization-of-children.html</a> | 2010                                | Y                 | N             | Y  | N                                    | N           | Y                                  | Y               | N                | Y                                     | Y  | N   | N |
| 14                      | 5E  | <a href="#">Alberta Immunization Strategy 2007-2017 (effective Feb. 2007, last updated May 2021)</a>   | Government of Alberta (IRIS)   | <a href="#">Government of Alberta (2007). Alberta Immunization Strategy 2007-2017. Retrieved from https://www.alberta.ca/immunization-strategy-2007-2017.aspx</a>  | 2007                                | N                 | Y             | Y  | Y                                    | Y           | Y                                  | Y               | Y                | N                                     | N  | N   | N |

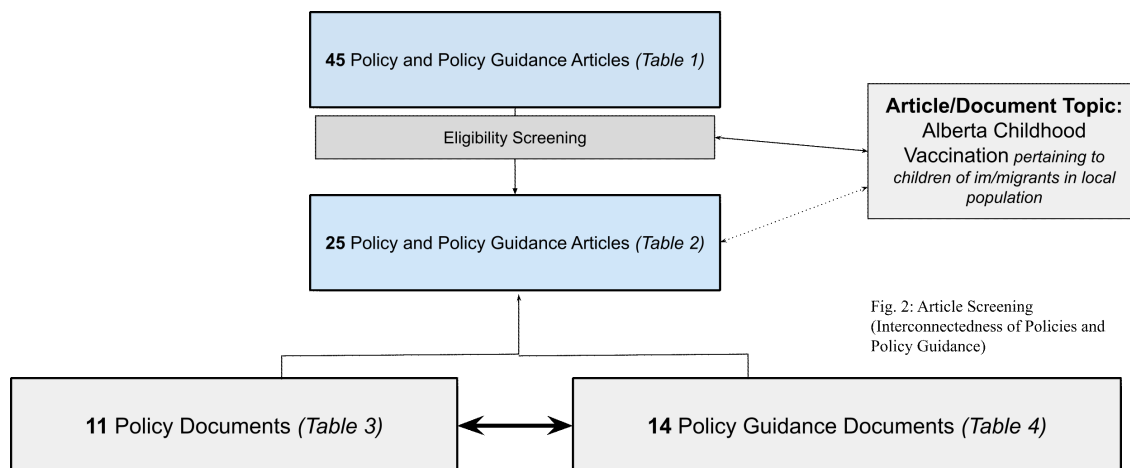


Fig. 2: Article Screening (Interconnectedness of Policies and Policy Guidance)

**Figure 3: Recommended Childhood Vaccinations (Alberta vs. International - WHO)**

| Figure 3A: Alberta Vaccination Schedule (2021) |                      |  | Figure 3B: International (WHO) Vaccination Schedule (2020) |  |  |
|--|----------------------|--|--|--|--|
| Age of First Dose                              | Alberta Vaccinations |  | Age of First Dose  | WHO International Vaccinations             |  |
| 1  | 2 months             | DTaP-IPV-Hib-HB, Pneumococcal conjugate (PNEU-C13), Rotavirus                                    | 1  | "As soon as possible after birth"          | Japanese Encephalitis 1, BCG   |
| 2  | 4 months             | DTaP-IPV-Hib-HB, Pneumococcal conjugate (PNEU-C13), Meningococcal conjugate (MenconC), Rotavirus | 2  | "As soon as possible after birth < 24 hrs" | Hepatitis B Option 1 and Option 2  |
|  | 6 months             | DTaP-IPV-Hib-HB, Pneumococcal conjugate (PNEU-C13) (for high-risk children only), Rotavirus      | 3  | 4 weeks                                    | Hepatitis B Option 1 (3 doses) and Option 2 (4 doses) - 4 weeks min with DTPCV1 and DTPCV2 respectively, Polio bOPV + IPV (4 weeks min with DTPCV2 - 2 doses and DTPCV3 - 3 doses), DTP-containing vaccine (4 weeks min to 8 weeks) - 3 doses, Haemophilus influenzae type b Option 1 (4 weeks min with DTPCV2) and Option 2 (4 weeks min if 3 doses), Pneumococcal Conjugate Option 1 Sp + 0 - 3 doses,                   |
| 3  | 6 months+            | Annual Seasonal Influenza  | 4  | 6 weeks                                    | DTP-containing vaccine, Haemophilus influenzae type b Option 1 and Option 2, Pneumococcal Conjugate Option 1 3p+0 and Option 2 2p+1, Rotavirus (with DTP1) - 2-3 doses depending on product, Measles 2 shots, Japanese Encephalitis Inactivated Vero cell-derived (2 doses generally), Seasonal Influenza (inactivated tri- and quadri-valent) - 2 doses Varicella - 4 weeks to 3 months per manufacturer recommendations. |
| 4  | 12 months            | MMR-Var, Pneumococcal conjugate (PNEU-C13), Meningococcal conjugate (MenconC)                    | 5  | 8 weeks                                    | Polio IPV/bOPV Sequential, Polio IPV, DTP Containing Vaccine, Haemophilus influenzae type b (if only 2 doses), Pneumococcal Conjugate Option 2 2p+1 (2 doses), Meningococcal Conjugate (MenC conjugate; 2 doses)   |
| 5  | 18 months            | DTaP-IPV-Hib, MMR-Var  | 6  | 2-11 months                                | Meningococcal - MenC Conjugate (first dose), 2 doses at an interval of at least 2 months and a booster a year later.   |
| 6  | 4 years              | dTap-IPV, MMR-Var (if did not get at 18 months)  | 7  | 9-12 months                                | Yellow Fever (1 dose - 9-12 months with measles containing vaccine)  |
| 7  | Grade 6 (~11 yrs)    | Hepatitis B (2 doses, 6 months apart), HPV (2 or 3 doses over 6 months)                          | 8  | 9-18 months                                | Booster dose of Pneumococcal Conjugate Option 2 2p+1, Meningococcal - Men A Conjugate (5µg)  |
| 8  | Grade 9 (~15 yrs)    | dTap, MenC-ACYW  | 9  | 12-18 months                               | Mumps (1st dose - 1 month min to school entry, 2 doses in total) with measles containing vaccine, Varicella (1-2 doses) with first dose four weeks to three months per manufacturer recommendations.   |
|  |                      |  | 10   | 9-23 months                                | Meningococcal Quadrivalent Conjugate - 2 doses with first dose after 12 weeks  |
|  |                      |  | 11   | 6 months and up; 6 months +                | Seasonal Influenza (inactivated tri- and quadri-valent), Typhoid - TCV (Typbar)  |
|  |                      |  | 12   | 1 year and up                              | Hepatitis A  |
|  |                      |  | 13   | 2 years and up                             | Typhoid Vi PS, Cholera Dukoral (WC-rBS), Meningococcal 1-dose > or = 2 years of age).  |
|  |                      |  | 14   | 2-5 years                                  | Cholera Dukoral (WC-rBS) - 3 doses   |
|  |                      |  | 15   | 6 years and up                             | Cholera Dukoral (WC-rBS) - 2 doses   |
|  |                      |  | 16   | 9 years; 9 years +                         | Dengue (CYD-TDV) - 3 doses (9 years of age minimum), Seasonal influenza (inactivated tri- and quadri-valent) - 1 dose (revaccinate annually)   |

**DATA SOURCED FROM:**

**Figure 1A:** [Alberta Health Services \(2021d\). Routine Immunization Schedule. ImmunizeAlberta.ca. Retrieved from https://www.albertahealthservices.ca/assets/info/hp/cdc/if-hp-cdc-ipsm-routine-imm-schedule.pdf](https://www.albertahealthservices.ca/assets/info/hp/cdc/if-hp-cdc-ipsm-routine-imm-schedule.pdf)

**Figure 1B:** [World Health Organization \(2020\). Table 2. Summary of WHO Position Papers—Recommended Routine Immunizations for Children. Retrieved from https://www.who.int/immunization/policy/immunization\\_routine\\_table2.pdf](https://www.who.int/immunization/policy/immunization_routine_table2.pdf)