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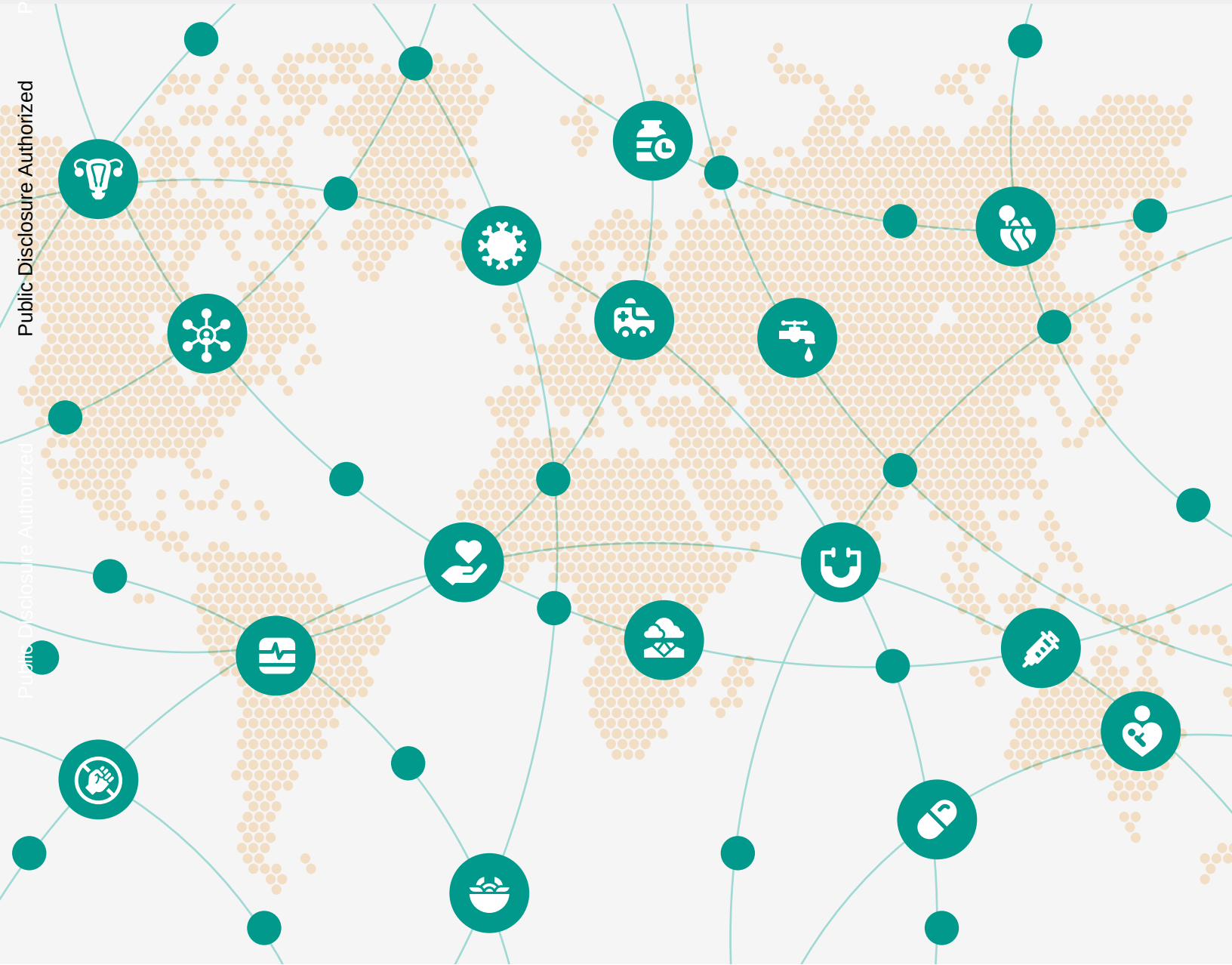
BEHAVIORAL SCIENCE AROUND THE WORLD

VOLUME III

PUBLIC HEALTH



Behavioral Science Around the World Volume III: Public Health

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Foreword

The intersection between public health and behavioral science continues to be an expanding area of exploration and development. The collaborative endeavor of the World Bank and the World Health Organization in this third report of our series underscores our collective commitment to delve deeper into this interdisciplinary nexus, harnessing the potential of behavioral science in advancing public health goals, including in achieving healthier populations.

The pandemic has been a stark reminder of the role behavior plays in shaping sustainable health outcomes. It has exposed gaps in traditional public health strategies and highlighted the urgency of integrating behavioral evidence into public health policymaking. The initial strategies to combat the pandemic, such as promoting physical distancing and mask-wearing, have brought to light the necessity of not just informing but enabling populations to protect their health and live longer, healthier lives.

Our report is structured to provide an insightful journey through the landscape of behavioral science in health today. The first section traces the evolution of efforts in public health to address behavior, providing an overview on current practice and challenges in integrating behavioral science into public health strategies. It invites public health leaders to reflect on key questions and challenges to bolstering the role of behavioral science within their domains and investment for healthier populations in light of new opportunities such as the adoption by the World Health Assembly of resolution WHA76.7 in 2023 on *Behavioural Science for better health.*

The second section of the report presents an in-depth analysis of three distinct models employed by various countries in developing Behavioral Insight Units (BIUs) that support health-related interventions. This analysis, derived from a survey of 70 countries and in-depth interviews, offers a unique perspective on the diverse approaches and strategies adopted worldwide for health. It can help understand how behavioral insights are currently being integrated into health programmes and policies, providing valuable lessons for countries and organizations seeking to establish or enhance their own health-related BIUs.

In an era when the global community must accelerate efforts and investments into health to meet the Sustainable Development Goals, particularly those related to health and well-being, the importance

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of incorporating behavioral approaches into public health cannot be overstated. This is strongly linked with efforts to improve pandemic prevention, preparedness, and response, service delivery, nutrition and sexual and reproductive health and rights, part of the health system strengthening agenda. This report aims to catalyze this integration, offering insights and evidence that can contribute to improving the health of communities globally.

We are at a pivotal moment in public health, when increasing attention to rigorous application of behavioral science theory and methods can contribute to more effective and sustainable health outcomes. As we continue to expand our understanding and application of these insights, the potential for impact on global health is promising. We eagerly anticipate the advancements and innovations this report will inspire in the realm of public health, and beyond.

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Abbreviations

BC BIG	British Columbia Behavioural Insights Group
BEET	Behavioural and Experimental Economics Team
BeSciO	Behavioural Science Office
BETA	Behavioural Economics Team of Australia
BIT	Behavioural Insights Team
BIU	Behavioral Insights Unit
BSSR	Behavioral and Social Sciences Research
BI4Gov	Behavioural Insights for Government
CDC	Centers for Disease Control
COM-B	Capability, Opportunity, and Motivation Model for Behavior Change
CUBE	Cultural, Behavioral and Media Insights Centre
DHSC	Department of Health and Social Care
DITP	Direction Interministérielle de la Transformation Publique
FDA	Food and Drug Administration
HiAP	Health in All Policies
HPV	Human papillomavirus
IIU	Impact and Innovation Unit
LabGob	Laboratorio de Gobierno
MoH	Ministry of Health
NIH	National Institutes of Health
NSW	New South Wales
OBSSR	Office of Behavioral and Social Science Research
OES	Office of Evaluation Sciences
PHAC	Public Health Agency of Canada
RCT	Randomized controlled trial
RSPU	Research Services and Policy, Behavioural Insights Unit
SBSWG	Social and Behavioral Science Working Group
SP&BI	Strategic Policy and Behavioural Insights
THL	Institute for Health and Welfare
WHO	World Health Organization
YBiT	Yokohama Behavioral Insights and Design Team

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Introduction

In 2018 and 2020, the World Bank published two reports on Behavioral Science Around the World that profiled the efforts of selected countries (Afif et al. 2019) and international organizations (Manning et al. 2020) to apply behavioral approaches to public policy. This third report, a joint effort of the World Bank and the World Health Organization (WHO), examines behavioral science as applied to the field of public health.

The COVID-19 pandemic has revealed the need for public health departments to improve how they address the behavioral components of health. The initial focus during the pandemic, for example, on informing the public about the virus and encouraging or even compelling certain behaviors (e.g., physical distancing, mask wearing) rather than enabling them was insufficient, in part because behavioral evidence was not considered when developing those strategies (Michie 2021). As research undertaken during the pandemic is published and circulated on what did and did not work, we have entered a period of improved learning about behavior and health.

Efforts to understand and address the linkages between behavior and health have been an area of engagement in public health for decades. The first section of this report, entitled *Behavioral science and public health*, sets the context, examining the complex ways in which behavior shapes health outcomes and looking at historical antecedents to the current focus on behavioral science in public health. This section concludes with a summary of key challenges facing those tasked with further integrating behavioral science into public health and poses a series of questions for consideration by public health leaders and teams as they seek to strengthen behavioral science functions within their work.

The second section of the report, entitled *three models for developing BIUs that address public health*, examines how some countries have created formal behavioral insight units (BIUs) to bring behavioral science and public health closer together. The section documents the work of 41 units operating in 26 countries based on a survey of 70 countries and subsequent interviews with respondents. Although all 41 units are actively addressing behaviours related to health challenges, their approaches and techniques vary. An analysis of survey responses identified three models that countries have embraced for integrating behavioral insights into health: (1) BIUs situated within the ministry of

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health (MoH) or equivalent body; (2) BIUs housed outside the MoH but within government agencies that address health challenges and other policy concerns; and (3) health institutions partnering with third parties for behavioral science support. Information collected on the work of the BIUs is presented and organized according to which model was adopted.

The global community is lagging in delivering progress on the Sustainable Development Goals that U.N. member states adopted in 2015 as part of the 2030 Agenda for Sustainable Development. The COVID-19 pandemic and the unprecedented pressures it placed on health systems and fiscal budgets have delayed progress on Sustainable Development Goal 3, better health and well-being. Better application of behavioral approaches to public health can contribute to achieving health outcomes and collectively transform the health of communities everywhere.

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Methodology

To draft the profiles included in this report, we compiled a list of 131 public health contacts in governments and partner agencies.

These contacts were drawn from the Organization for Economic Co-operation and Development behavioral insights knowledge hub and contacts of the World Bank, World Health Organization, and United Nations Children's Fund. The initial list of email recipients spanned 71 countries. Nearly half (49.2%) of the contacts reached out to represented countries classified as either high- or upper-middle income in the World Bank Income Classifications FY24 (World Bank, 2024).

We emailed these contacts up to three times; 41 countries responded and completed a survey to collect further details on the behavioral science capacity of their government. Of these 41 countries, 11 were excluded from interviews because they indicated that they did not have a behavioral insights unit (BIU) or they did not respond to the survey.

We conducted interviews with a subset of survey respondents (n = 19) to complete and clarify the information provided in the survey. Countries that were not interviewed provided enough information in the survey to identify if they met our inclusion criteria and to draft a profile of their unit. For those countries that were interviewed, we used the interviews to determine whether the units surveyed met the criteria to be included in this report. Only units that reported having a formal BIU or team within the government that works in public health were included. Any units that indicated completing behavior-change work outside of a formal BIU (e.g., health promotion, risk communication) were excluded.

Once the units to include were identified, we drew on the survey responses and any publicly available information to draft a profile. This resulted in the profiling of 26 countries with 41 units across the countries. We distributed the drafted profiles to contacts within each unit for review. All but four units profiled in this report reviewed, edited, and updated their unit's profile to reflect the state of their unit as of January 2024. The profiles were then copyedited before publication.

Survey sent to countries (n=71)
Argentina, Australia, Benin, Brazil, Brunei Darussalam, Canada, Côte d'Ivoire, Central African Republic, Chad, Chile, Comoros, Congo Republic, Democratic Republic of Congo, England, Eritrea, Equatorial Guinea, Eswatini, Estonia, Ethiopia, Finland, France, Gabon, Gambia, Ghana, Germany, Guinea, Guinea Bissau, India, Indonesia, Ireland, Italy, Jamaica, Japan, Kenya, Lesotho, Liberia, Madagascar, Malawi, Maldives, Mali, Mauritania, Mauritius, Malaysia, Mexico, Mozambique, Namibia, Netherlands, Nepal, New Zealand, Niger, Nigeria, Northern Ireland, Qatar, Rwanda, Kingdom of Saudi Arabia, Scotland, Senegal, Seychelles, Sierra Leone, Singapore, Slovak Republic, Sao Tome Principe, South Africa, South Sudan, Tanzania, Togo, Uganda, United States of America, Uruguay, Zambia, Zimbabwe.

29 excluded

Responded to survey (n = 41)
Argentina, Australia, Benin, Brazil, Brunei Darussalam, Canada, Chile, Côte d'Ivoire, Democratic Republic of Congo, England, Estonia, Ethiopia, Finland, France, Gambia, Ghana, India, Ireland, Japan, Lesotho, Liberia, Malaysia, Mali, Mauritius, Mexico, Mozambique, Namibia, Nepal, Netherlands, Qatar, Kingdom of Saudi Arabia, Scotland, Senegal, Singapore, Slovak Republic, South Africa, Uganda, United Kingdom, United States of America, Uruguay, Zambia.

11 excluded due to no response (Benin & Gambia) or indicated no unit (Côte d'Ivoire, Democratic Republic of Congo, Estonia, Ghana, Mauritius, Mozambique, Namibia, Nepal, Zambia)

Enough info to profile (n=10)
Australia, Brunei Darussalam, Canada, England, Finland, France, India, Malaysia, Netherlands, United States of America.

Interviewed (n=19)
Argentina, Chile, Brazil, Ethiopia, Ireland, Japan, Kingdom of Saudi Arabia, Lesotho, Liberia, Mali, Mexico, Qatar, Scotland, Senegal, Singapore, Slovak Republic, South Africa, Uganda, Uruguay.

Excluded (n=5)
Lesotho, Liberia, Mali, Senegal, Uganda.

Profiled (n=24)
Argentina, Australia, Brazil, Brunei Darussalam, Canada, Chile, England, Ethiopia, Finland, France, India, Ireland, Japan, Malaysia, Mexico, Netherlands, Qatar, The Kingdom of Saudi Arabia, Scotland, Singapore, Slovak Republic, South Africa, United States of America, Uruguay.

Countries added due to snowballing (n=2)
Northern Ireland, Wales.

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Disclaimers

- All unit representatives, except the Ontario BIU, the Public Health Agency of Canada's Behavioural Science Office, the Uruguay Observatory of Socioeconomic and Behavioral Sciences, and the Laboratório de Inovação em Governo reviewed their respective profiles in January 2024 and cleared their profiles for publication.
- The country profiles contain operational details and outcomes that the BIUs reported directly. Operational details and outcome claims do not imply verification by the World Bank. Sources of information on outcomes are cited where available. When outcomes are provided without citation, the World Bank received them directly from the unit in question.
- "Year established" indicates the year in which the department or government body established its BIU function or behavioral insights team, not the year in which a department or government body was itself created.
- The chapter follows American spelling guidelines but maintains the original spelling of unit names and products.

Limitations of the Report

This offers a descriptive snapshot of the experiences of the countries that participated in a 2022 survey on applying behavioral science perspectives to public health. These units subsequently updated their profiles following their survey responses in January 2024.

As with the previous two editions in the series, this report focuses on the establishment of behavioral insights or behavioral science units operating in the national health sector. As such, it does not include behavioral change approaches in public health that departments responsible for health promotion, communications, risk communications, or social determinants of health, among others, have undertaken. A more comprehensive tabulation of all public health efforts to promote behavioral change is beyond the scope of this report and the series to which it belongs. In addition to our focus on formalized BIUs, self-selection biases and the exclusive use of English for search and outreach may have omitted some units.

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Behavioral Science and Public Health

WHO (2022) regards "the highest attainable standard of health" to be a fundamental human right. Poor health can trap people in a devastating cycle of poverty and illness, whereas growing economies are built on and support strong, capable, healthy workforces.

Public health is the science of building healthy communities and societies. Governments and public health organizations advocate for health-promoting policies and build resilient health systems that reflect and respond to the communities they serve (WHO, 2010a). Governments try to expand health coverage through strong primary health care to ensure that people have access to the health services they need, as close as possible to their everyday environment (WHO, 2023c).

Although the impact of public health is measured at the population level, individual patterns of behavior often shape public health outcomes. Behavioral science, which is used to understand how and why different groups adopt behaviors and how their choices can reduce or exacerbate inequalities, can contribute to policymakers' and practitioners' efforts to improve the broader health-care system and achieve good health outcomes. By drawing from anthropology, psychology, sociology, behavioral economics, and other social sciences, behavioral science can reinforce a people-centered approach, situating individuals, their perspectives, and the barriers they face at the center of public health policies and programs.

The Complex Link Between Behavior and Good Health

Most current public health challenges are linked to individual and community behaviors, which vary widely by context. Behaviors can be complex or simple; for example, sneezing into one's elbow can be an individual, automatic habit that requires little external resources, whereas other behaviors such as getting vaccinated, hand hygiene or leading a healthy lifestyle, depend on a complex interplay of psychological and cognitive, social and cultural, and environmental and economic influences. For instance, it is not just knowledge about and intention to engage in hand-washing that drives the behavior, but also the availability of clean water and soap. Unlike biomedical treatments for diseases, which can have similar effects across a variety of groups in a population, behavioral interventions—even when rooted

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in behavioral evidence—must be tested and tailored to target populations, accounting for factors such as age, gender, literacy level, culture and norms, language, religion, economic resources, community infrastructure, and access to services.

There are also a wide range of actors whose behaviors can help improve health outcomes through a network of interdependencies and a cascade of effects. In some cases, the priority behaviors to be addressed are those of front-line health care workers and health teams, or local decision makers and medical professionals working in a decentralized health system. Behavioral science can help identify how to more effectively target interventions related to primary health-care (PHC) service delivery and building adaptive and resilient health systems. As PHC interventions aim to deliver services that meet people's needs, from prevention through treatment and rehabilitation, adopting a behavioral lens to better understand and address peoples' lived experiences and barriers to accessing services — perceived or actual — can contribute to improved planning, design, and evaluation of services and care around people's needs and preferences.

In other cases, better health outcomes are attained by influencing the behaviors of individuals, communities, or other stakeholders outside the health-care sector. For example, interventions to address antimicrobial resistance may involve not only doctors who prescribe antibiotics and patients who take them, but also veterinarians and livestock owners who overuse antibiotics in the food system, as well as pharmacists, manufacturers, retailers, and distributors, to name a few. As clearly demonstrated by the COVID-19 pandemic, effectively increasing demand for and acceptance of health measures, recommendations, and services depends in part on understanding behavior as a complex dynamic among groups of individuals who are affected by psychological, cognitive, social, and cultural factors and levels of interpersonal and institutional trust.

Given these complexities in addressing health-related behaviors, it is important to incorporate expert discussions of behavioral theory and evidence alongside traditional biomedical approaches when designing and evaluating public health policies and interventions. Such behavioral considerations will allow the identification and targeting of the specific behaviors of groups of actors and related barriers and drivers at the earliest stages of problem definition.

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Building on Historic Approaches to Behavior in Public Health

Public health's focus on behavior is not new: It is rooted in decades of effort to reduce health risks at the population level. For example, health literacy (WHO 2021a), which is often associated in health with behavior change, refers to personal knowledge and competencies that accumulate through daily activities and social interactions across generations. It is often seen as one of the starting points for promoting health-related behaviors in a target population. Health promotion, as articulated in WHO's 1986 Ottawa Charter (WHO 1987), has focused on enabling healthier choices by shaping the environment in which people make decisions. Health communication (WHO, 2017a) and risk communication (WHO, 2017b) in health emergencies are designed to support changes of health-related behaviors by providing target populations with accurate information and new skills, and by shaping social norms and attitudes. Interventions related to social determinants of health (WHO, 2010b) focus on shaping macro determinants that influence behaviors at the individual and community levels, such as access to housing, green space, healthy and affordable foods, income, social protection, and education.

Current efforts to expand the public health toolkit to incorporate behavioral science echo a broader shift known as the "fifth wave of public health" (Davies et al. 2014), which calls for public health resources to more effectively confront chronic (noncommunicable) diseases such as diabetes, heart disease, and cancer, which are caused by a complex web of physical, economic, and environmental factors. In short, the fifth wave recognizes that an evidence-based understanding of how behavior is shaped and influenced is fundamental to achieving good health, particularly in the face of today's complex health challenges. In response to the fifth wave, many countries and public health organizations are changing their behavioral approaches to public health. To support these efforts, WHO, the World Bank, and other global entities are expanding the development of tools (WHO 2020; 2021b, 2023a) to help ensure that a scientific, data-driven approach is used to identify, define, and explain key behaviors contributing to complex health problems and to help countries use appropriate behavioral science approaches in program and policy design.

Public health as a field may have been ahead of the curve in its longstanding efforts to address behavioral components of good health. But these historical antecedents have also demonstrated the challenges practitioners face in rapidly translating behavioral evidence into public health policy and practice, in some cases leading to selective application of behavioral tools rather than a comprehensive integration of

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behavioral theories and frameworks (Byrne-Davis et al. 2022; Weston, Ip, and Amlôt 2020). Further, "siloed behavioral interventions" in public health have created pockets of learning and best practice within organizations, making it difficult to share important lessons and evidence of behavioral impact on public health outcomes (Ghebreyesus, 2021). But the use of behavioral science can provide a common and rigorous framework that can be systematically applied across public health disciplines, bringing together various tools and approaches to behavior change, and grounding interventions in an evidence-based understanding of individuals' experiences and barriers to change.

Current Challenges in Using Behavioral Approaches in Public Health

The findings of the survey and interviews conducted for this report reveal three main challenges facing public health practitioners attempting to integrate behavioral science into their efforts.

1. Moving from piecemeal, ad hoc, behavioral interventions to the more-systematic use of behavioral science theory, methods, and approaches informed by national health priorities.

The responses received from the 41 BIUs indicated that behavioral science is being applied across a range of health topics, including immunizations and infectious disease control, noncommunicable diseases, nutrition, and antimicrobial resistance (Figure 1). Respondents reported most behavioral interventions in the fields of immunization, health promotion, communicable disease and mental health. Given the breadth of public health challenges to which behavioral science has been applied, it will be important for lessons learned and best practices to be shared across health disciplines, avoiding past obstacles to wider behavioral learning and cross-pollination.

Interview respondents indicated that although behavioral science is used across a wide range of health topics, selection of specific behavioral interventions is often ad hoc—which most BIUs profiled explained as being necessary to build the case for more investment in behavioral sciences. Only a few countries reported using behavioral sciences to address wider systemic challenges, including Canada, Finland, the Kingdom of Saudi Arabia, Singapore, and the United States. Most respondents reported using behavioral interventions primarily to target "low-hanging fruit," with many focusing on simple health-related behaviors and relying heavily on nudge techniques involving patient outreach via email, text messages, or letters.

There are many possible reasons for an over-reliance on nudging, including the relatively recent founding and limited experience of several of the BIUs responding to the survey, human resource and budgetary limi-

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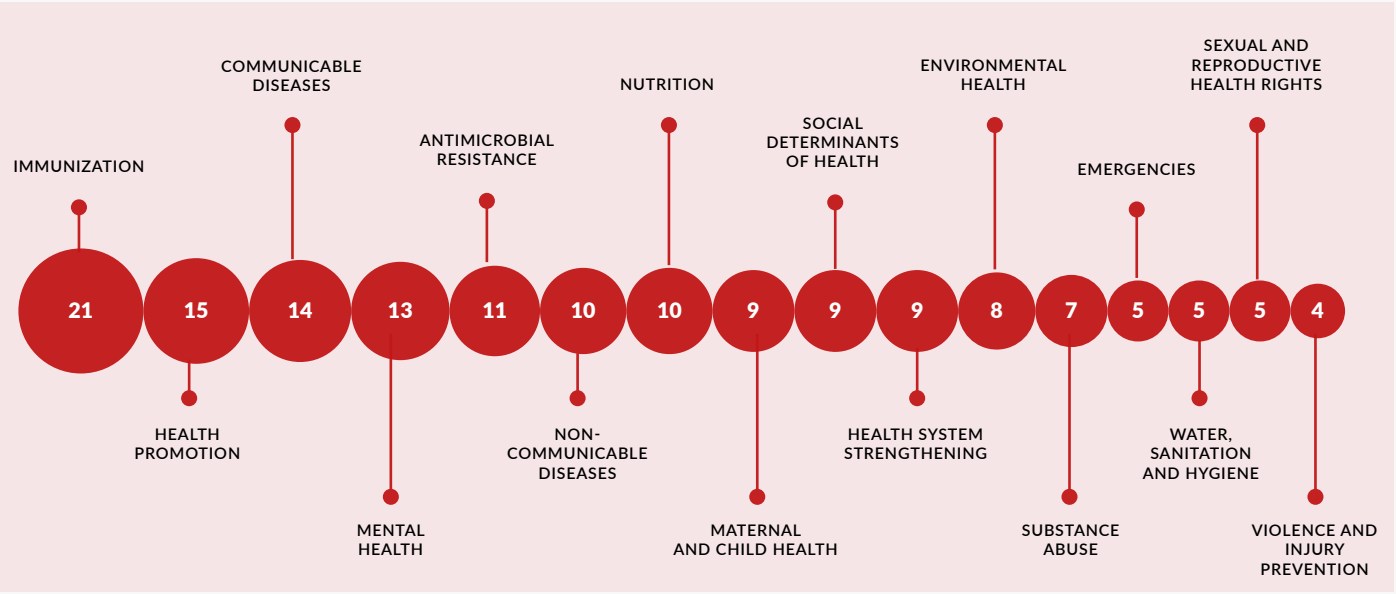
Figure 1. Health Area Focus reported by surveyed BIUs



tations, the organizational position of BIUs within their governments, or their relationship to the MoH. In addition, in many countries, considerable behavioral change-related focus has taken place outside of formal BIUs in teams responsible for such areas as health promotion and communications. It will be important in future analyses to determine whether the work of formal BIUs is progressively mainstreamed into public health and integrated into the work of other teams and, if not, what barriers prevent mainstreaming.

As countries apply behavioral approaches to complex health problems, one group over which MoHs have more latitude and capacity to effect change is public health professionals. Echoing a consideration from the second volume of the World Bank series (Manning et al., 2020), it is useful for MoHs to take a lead role in identifying and analyzing the behavioral component of public health and health systems' priorities in a country and testing various strategies for achieving measurable improvements. This report includes examples of several countries that are doing so, including a wide range of examples of how they are applying behavioral science to the health care system itself.

2. Keeping pace with scientific best practices and debates on methodology.

Public health practitioners and policymakers face challenges to staying current on the latest evidence and debates around documented health-related behavior change. Simply keeping pace with the volume of evidence generated can be difficult, to say nothing of the challenge of parsing the quality and relevance of published research to public health

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practice; researchers estimate that more than 100 papers on behavioral interventions are published each day (West and Michie 2023). Furthermore, there are ongoing debates within the research community on research methods. For example, although randomized controlled trials (RCTs) are considered the gold standard in health research—and use of behavioral science in different domains is often associated with trials and experiments to ensure as-rigorous-as-possible evaluation of effects on behaviors—their utility is sometimes questioned in complex, multi-factor environments where establishing behavioral control groups is particularly challenging (Hallsworth 2023). Publication bias can obscure complex findings that are never published, and rare examples of data fraud in the behavioral sciences (as is also sometimes the case with hard science research) can fuel misunderstanding about the field. The ethics of behavioral tools like nudging in public health became even more scrutinized during the pandemic as governments weighed individual freedoms against collective health (Ortega, Monasterio & Rodríguez-Arias, 2022). Navigating these methodological and ethical challenges and translating the high volume of published science into public health policies and programs, requires that countries have improved access to behavioral science experts and opportunities to transfer skills and expand capacity internally.

Public health researchers and practitioners must be comfortable learning from the expanding evidence base and employing a wide range of research techniques and approaches, including multi-wave population-based behavioral research, deep-dive experiments, natural experiments, and rigorous behavioral qualitative research alongside quantitative research. A whole-of-organization commitment to employing behavioral theories and frameworks in the early stages of problem definition, along with a commitment to meeting staffing and budgetary requirements, must accompany agility in the use of various behavioral research tools.

3. Embracing the "behavior" component of behavior change

This report reveals that, for public health interventions labeled "behavioral," the focus is still overwhelmingly on changing and measuring attitudes and awareness (not behaviors)—including, for example, interventions such as message framing, which involves subtly influencing individuals' perceptions and decisions by exposing them to specific stimuli. The tendency to measure only attitudes poses a challenge, given the well-documented intention–action gap, or the tendency for individuals to express positive intentions or awareness of a desired behavior but fail to act on them (Sheeran and Webb 2016). Further, this tendency contrasts with academic publications in behavioral science that clearly

demonstrate an ability to influence and measure behavioral outcomes (Hobby et al. 2022; Tang et al. 2019; Virtanen 2021). The focus of BIUs surveyed on awareness and attitude rather than behavior may result from public health practitioners lacking the necessary skills, confidence, time, budget, or opportunity to deploy more rigorous behavioral science tools and techniques. One way forward may involve better integration of the collection of behavioral data into existing data collection systems and surveillance data, with the objective of linking health-related intentions more easily with actions taken, measuring behavioral impact. Although COVID-19 has accelerated the digital transformation efforts of many countries, a significant portion of governments face challenges in developing and adopting digital institutional data (Maldonado et al. 2021; OECD 2020).

Opportunities to Accelerate Behavioral Approaches in Public Health

This report and the survey findings come at a time of increased attention to the behavioral sciences in public health. In May 2023, at the 76th World Health Assembly in Geneva, WHO member states adopted a new global resolution (WHO 2023b) on the behavioral sciences for better health, calling for efforts to better understand and address health-related behaviors at the individual, community, country, regional, and global levels. The resolution urges member states to acknowledge the role of behavioral sciences in health; identify opportunities for their use for equitable, human-centered health-related policies and functions across sectors; allocate resources to this area of work; and increase the capacity of health professionals in this area. The resolution also asks WHO to support the use of behavioral science approaches in its own work, across all programs and activities. WHO will be expected to compile and disseminate evidence of improvements resulting from the use of behavioral science and to develop guidance and a repository of behavioral science evidence. Implementation of the resolution provides an important opportunity to address the historically fragmented, siloed approach to the study of behaviors within public health that has made it difficult to advance a more systematic approach across all health areas. The resolution reflects the urgent need for tools and approaches that can increase understanding of health-related behaviors as we work toward the ambitious goal of transforming the health of more than 8 billion people.

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Behaviorally Informed Public Health: The Path Forward

Although the information collected through our survey of government BIUs provides useful insights into current practices of participating governments in applying behavioral science to public health, several important questions remain. As indicated in the resolution, additional research could reveal what is and is not working in governments' efforts to apply behavioral science to public health and to improve health outcomes as a result. As the global health community start implementing resolution WHA76.7, *Behavioural sciences for better health*, the following questions should be prioritized:

- To what extent does the existence of formalized behavioral science units, teams, or functions focused on health policy or programs affect the frequency and systematic use of behavioral science, the level of internal technical capacity for behavioral science, the quality and effectiveness of behavioral interventions, and improved health outcomes?
- How does the type of model adopted (BIUs situated within MoHs, BIUs within government but outside MoHs, BIUs outside government altogether) affect the range of health priorities in which behavioral approaches are used, the selection and prioritization of behavioral interventions, and the extent of knowledge transfer across health priorities?
- How do the funding and staffing models presently employed to promote integration of behavioral science influence the selection of methods and behavioral interventions?
- Is there a minimum skillset needed to apply behavioral interventions to public health? What are the core competencies needed to fulfill a behavioral science function?
- With the field relying heavily on academic and published literature and evidence, how can it be ensured that the latest evidence is of good quality, accessible, and relevant to practitioners operating in a variety of contexts?
- Health promotion teams, risk communications teams, and water, sanitation, and hygiene or HIV-AIDS programs (to mention just a few) have worked for decades on the behavioral components of good health. Are there examples of effective cross learning and cross-pollination among topics and teams or other health priorities in ways that expand behavioral approaches across all public health priorities?

Behavioral science is not a magic wand or a one-size-fits-all approach; it provides a range of complementary tools that can help public health practitioners and policymakers define, diagnose, and address the complex range of health behaviors in a scientific, systematic way (Brownson, Fielding, and Maylahn 2009; Glanz and Bishop 2010; Michie et al. 2013).

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Driven by the demand and commitment of countries and a clear need for a people-centered approach in heath, WHO, the World Bank, and other partners are committed to further mainstreaming behavioral perspectives into our work and helping governments incorporate behavioral science into functions and across health topics; reducing siloes that have kept behavioral learning within selected public health disciplines; and unlocking behavioral insights that reflect a rigorous, evidence-informed, and people-centered approach to public health.

THREE MODELS OF INCORPORATING BEHAVIORAL SCIENCE IN PUBLIC HEALTH

This chapter presents the information collected from our survey and interviews about the work of 41 formally established BIUs operating in 26 countries to address public health challenges (Map 1). The chapter is organized into three sections, each corresponding to a model that was discerned from the data:

- The first section explores units directly integrated into MoHs. Countries under this model tend to have had BIUs for years at a central level and, based on that experience, have created specialized units working exclusively on health-related behaviors.
- The second section covers units housed within government agencies that address health challenges. In this model, the behavioral science function remains embedded in government, but the team or unit focuses on a range of policy issues not limited to health.
- The third section discusses four governments, or MoHs, that commission work to BIUs that operate as independent entities outside of government offices, agencies, or ministries. These governments apply behavioral science principles but rely heavily on the knowledge and services of nongovernment employees.

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Table 1. Country and Model Mapping

This table is organized to reflect the order of units as they appear in this report

Country	Unit Name	Model
Australia	Strategic Policy and Behavioural Insights Team	1
	Behavioural Economics Team of Australia (BETA)	2
	New South Wales BIU	2
	Victorian BIU	2
Brunei Darussalam	Ministry of Health BIU	1
Canada	Public Health Agency of Canada Behavioural Science Office	1
	Impact and Innovation Unit	2
	British Columbia Behavioural Insights Unit	2
	Ontario Behavioural Insights Unit	2
Finland	Cultural, Behavioural and Media Insights Centre	1
Ireland	Research Services and Policy Behavioural Insights Unit	1
Malaysia	Institute for Health Behavioural Research	1
Netherlands	National Institue of Public Health and Environment Behavioural Unit	1
	Center for Behavioral Research and Development, Municipality of Rotterdam	2
Kingdom of Saudi Arabia	Health Nudge Team	1
Singapore	Behavioural Insights Unit, Ministry of Health Planning Group	1
Slovak Republic	Behavioural and Experimental Economics Team	1
England	Behavioural and Social Sciences Team	1
	Behavioural Science and Insights Unit	1
	National Health Service England Behavioural Science	1
Northern Ireland	Health Intelligence Unit	1
Scotland	Strategy and Insight Team and the Society and Wellbeing Research Team	2
Wales	Behavioural Science Unit, Public Health Wales	1
USA	Demand for Immunization Team	1
	Office of Evaluation Services	2
	National Institute of Health Office of Behavioral and Social Sciences Research	1
	Social and Behavioral Science Working Group in Food and Drug Administration	1
Argentina	Behavioral Sciences and Public Policies Unit	2
Brazil	Nudge Rio	2
	Laboratório de Inovação em Governo	2
Chile	Laboratorio de Gobierno de Chile	2
France	Direction Interministérielle de la Transformation Publique	2
India	Behavioural Insights Unit of India, NITI Aayog	2
Japan	Kagawa Nudge and Innovation Team	2
	Nudge Study Group, Tsukuba City	2
	Yokohama Behavioural Insights and Design Team	2
South Africa	BI4Gov	2
Uruguay	Observatory of Socioeconomic and Behavioral Sciences	3
Qatar	Health in all Policies Unit	3
Ethiopia	Behavioral Insights Research and Design Lab	3
Mexico	Health Promotion and Nutrition Department of Yucatán	3

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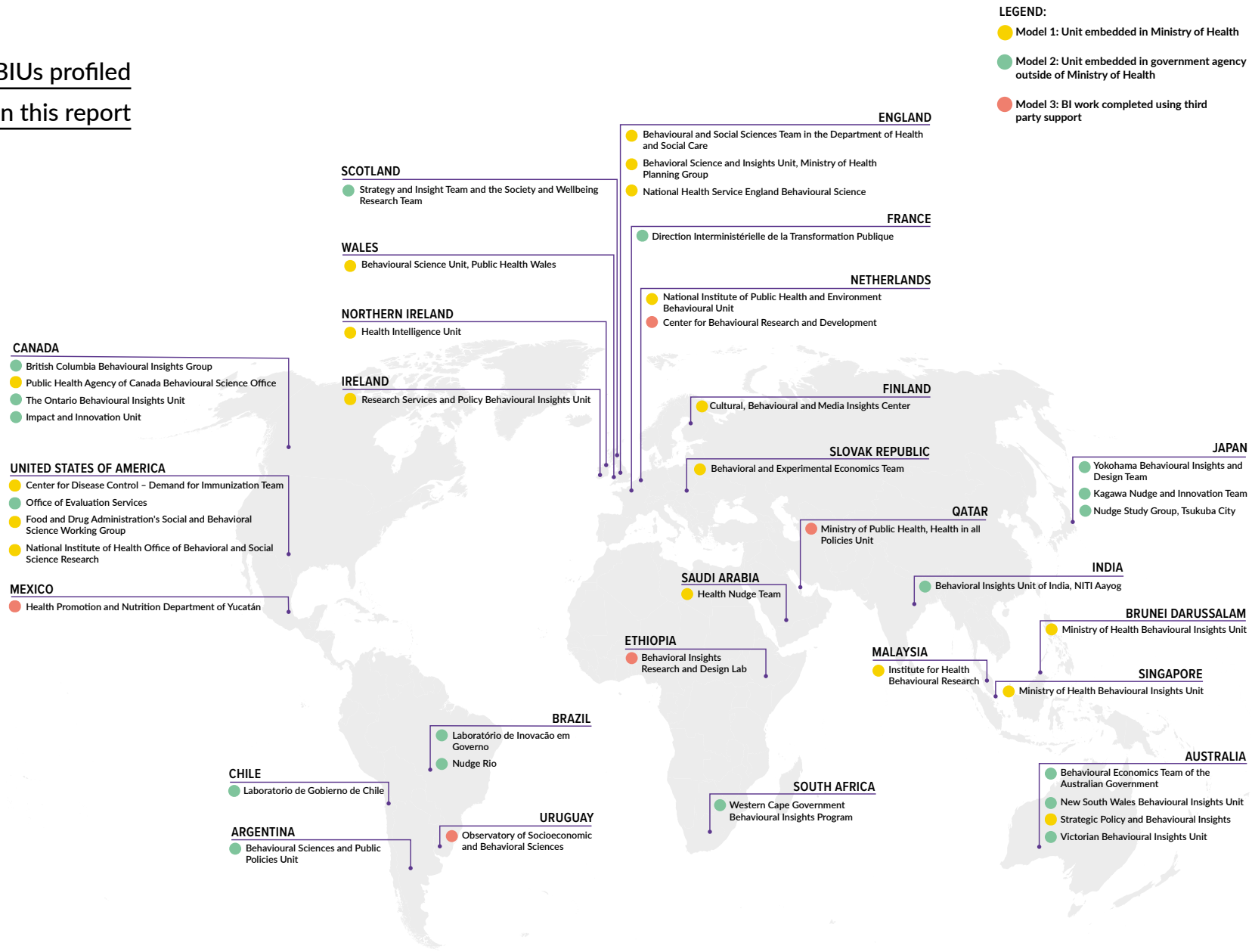
Map 1. BIUs profiled in this report



This map is not exhaustive. It is possible that due to our methodology we missed some government BIU's working in public health. We contacted 70 countries of which 41 responded to our survey and 26 met our inclusion criteria. This map showcases those countries that met our inclusion criteria and should only be used in reference to the countries covered in this report. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank and/or WHO concerning the legal status of any territory or the endorsement or acceptance of such boundaries. Terminology used to refer to countries, territories and areas as well as representation of countries, territories and areas, including delimitation of frontiers or boundaries, in this publication follows the institutional style and practice of the World Bank as lead publishing organization, and may be at variance with those used by the WHO.

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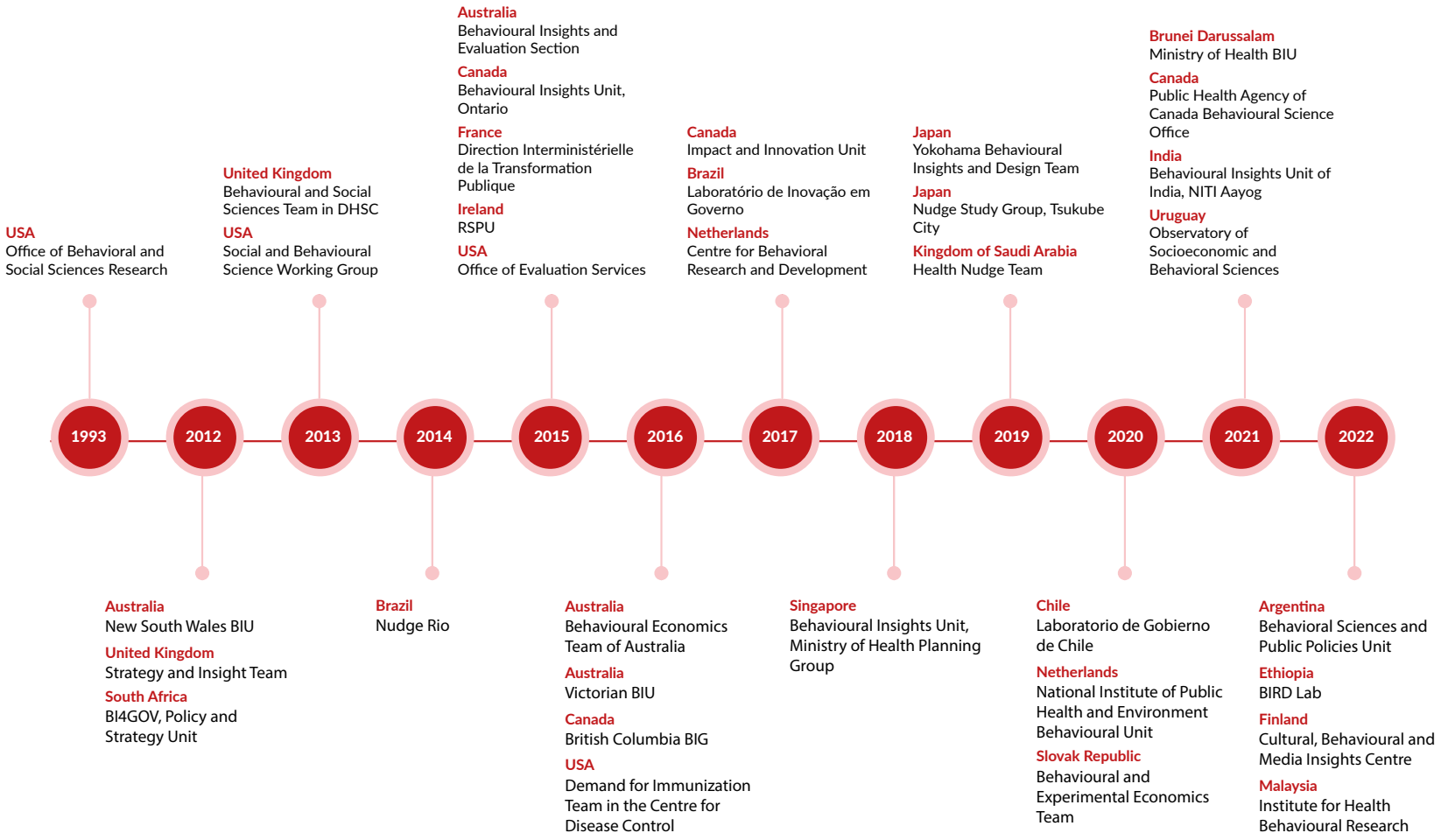
Figure 2. The initiation of behavioral science units profiled in this report



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MODEL 1: Countries with Units Embedded in MOHs

- AUSTRALIA
- BRUNEI DARUSSALAM
- CANADA
- FINLAND
- IRELAND
- MALAYSIA
- NETHERLANDS
- THE KINGDOM OF SAUDI ARABIA
- SINGAPORE
- SLOVAK REPUBLIC
- UNITED KINGDOM
- UNITED STATES

Behavioral science has been integrated into governments in a variety of ways. The countries profiled in this section showcase a model in which a formal behavioral function has been built directly in a government's MoH or an equivalent body. This model enables the government to conduct most of its behavioral science work internally, as opposed to outsourcing it.

Because of these units' direct integration into MoHs, countries' public health priorities often guide the selection of projects. The MoH sets

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public health strategy for the country, and the BIU aligns its strategic priorities directly with achievement of the overarching strategy.

Apart from Brunei Darussalam, Malaysia, and the Kingdom of Saudi Arabia, whose first behavioral science units sit directly in the MoH, most countries developed their first behavioral science unit outside of the MoH (e.g., Canada, Singapore, United Kingdom, United States of America).

Survey respondents provided the examples reported under each profile, which were discussed in the follow-up interviews. Australia and Canada have a BIU embedded in the MoH, and BIUs embedded in government agencies outside of the MoH. For these two countries, the government agencies outside of the MoH are showcased in this section (as opposed to the next) for simplicity.

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AUSTRALIA

Photo Credit: Tiff Ng

Background and Overview

Australia has one BIU focused on public health at the ministry level and three BIUs that work on public health challenges and other policy areas.

The country operates on a dispersed-with-central-steering model in which the Strategic Policy and Behavioural Insights Team (SP&BI), which sits within the MoH, and the Behavioural Economics Team of Australia (BETA), located in the Department of the Prime Minister and Cabinet, act as coordinating bodies for subnational governments. The SP&BI was established in 2015 to apply behavioral science more consistently to public health challenges. At the subnational level, the Victorian BIU and the New South Wales (NSW) BIU apply behavioral science to a broader set of challenges. Their portfolio includes some public health–related projects in coordination with the SP&BI and projects in other policy areas in coordination with BETA. Only the public health work of these subnational units is showcased in their respective profiles.

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National Government Behavioral Insights Units

Strategic Policy and Behavioural Insights Team, Department of Health and Aged Care, Ministry of Health, Compliance Assessment Branch
Year established: 2015

PUBLIC HEALTH AREAS

Antimicrobial resistance

BEHAVIORAL SCIENCE ACTIVITIES

- Use data analysis to evaluate behavioral change in response to programs, policies, and initiatives
- Conduct randomized controlled trials to evaluate behavioral outcomes of department initiatives
- Collaborate with stakeholders inside and outside government to develop initiatives

Objective Develop novel, cost-effective solutions to compliance and policy-related challenges. The team incorporates behavioral science into government interventions to inform health policy, improve communication between the MoH and health providers, support compliance with the Medicare Benefits Scheme, and promote evidence-based medicine and policy.

Staffing As of the first quarter of 2023, SP&BI has had two behavioral insights experts and two data analysts.

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Select projects

- Addressing antimicrobial resistance by reducing physician prescriptions. WHO (2021c) describes antimicrobial resistance as one of the key global health challenges facing this generation. In 2015, Australia's antibiotic prescribing rate was significantly higher than the Organization for Economic Cooperation and Development (2017) average. To reduce overprescribing of antibiotics, in partnership with the Department of Health, the team ran a trial to test the impact of sending personalized letters from Australia's chief medical officers that encouraged high-prescribing general practitioners to reduce their prescriptions. The most effective letter, which included a graph comparing their prescribing behavior with that of their peers, led to a 12% reduction in antibiotic prescriptions over six months (Goodchild et al. 2018).

- Addressing diagnostic imaging overuse by reducing physician prescriptions. SP&BI launched an RCT to test the impact of a behaviorally informed letter. The letter included a graph comparing a general practitioners' rate of requesting diagnostic tests relative to their peers, a table comparing request rates for each individual test to their peers, encouragement to reflect whether there were opportunities to reduce requesting of diagnostic imaging, information on why overuse of diagnostic imaging is not desirable, and links to resources on appropriate requesting. Compared to the control, where general practitioners received no letters, those that received a letter were significantly less likely to order diagnostic imaging tests by 10.6% over 6 months, 9.2% over 12 months, and 8% over 18 months. They estimate that 47,318 fewer diagnostic imaging tests were requested due to the letters over 18 months (DHAC 2022).

Future of behavioral science

SP&BI is exploring the potential of behavioral insights to design and deliver digital health solutions, promote evidence-based medicine, and help health-care providers navigate an increasingly complex legislative and practical landscape.

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Behavioural Economics Team of Australia, Department of the Prime Minister and Cabinet

Year established: 2016

PUBLIC HEALTH AREAS

- Antimicrobial resistance
- Communicable diseases
- Health system strengthening
- Health promotion
- Immunization

BEHAVIORAL SCIENCE ACTIVITIES

- Conduct national or local studies on behavioral influencing factors
- Conduct experiments to evaluate the impact of evidence-informed interventions in specific contexts and with specific population groups
- Conduct national or local studies or applied research on behavioral influencing factors
- Build capacity

Website https://behavioureconomics.pmc.gov.au/about

Objective Improve the lives of Australians using evidence from behavioral and social sciences to address complex policy problems, conduct research to understand how people interact with programs and policy challenges,

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design evidence-based solutions, evaluate the impact of programs and program changes, and build the capability of the Australian Public Service to apply evidence from the behavioral and social sciences to public policy.

Staffing As of February 2022, BETA had 27 full-time-equivalent staff with a mix of skills and experience across the social sciences (particularly economics and psychology), public policy, and data analytics.

Process BETA projects follow the 4D Framework (Discover, Diagnose, Design, Deliver), which BETA developed. BETA provides an online course that outlines the framework and how to use it.

Select projects

- **Understanding beliefs, intentions, and behaviors of people with poor mental health.** The National Mental Health Commission asked BETA to assist with a national survey of mental health–related stigma and discrimination. In a survey of more than 7,000 Australians, the researchers discovered that respondents with discriminatory experiences were more than twice as likely to report that they had avoided accessing health care in the past year because of how they anticipated people might respond (Carron-Arthur et al. 2022).
- **Understanding motivations and barriers to organ donor registration**. The Organ and Tissue Authority observed a large gap between the proportion of Australians who say they want to be organ donors (70%) and the proportion who register to do so (33%). The authority engaged BETA to conduct desktop research and focus groups to investigate barriers to registration for young adults, which revealed that young adults overestimate how difficult it would be to register. Using these insights, the team ran an online experiment to evaluate messages that would have the greatest impact on organ donation. The most effective message, which highlighted how easy it was to register, increased registration by 7 to 8 percentage points more than the alternative messages (Ridgway et al. 2022).

Subnational Government Behavioral Insights Units

New South Wales Behavioural Insights Unit, Department of Customer Service
Year established: 2012

PUBLIC HEALTH AREAS

Mental health

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct experiments to evaluate impact
- Build capacity

Website https://www.nsw.gov.au/behavioural-insights-unit

Objective Work with NSW government agencies to increase the effectiveness of public services and public policy. The NSW BIU combines evidence from behavioral sciences and behavioral economics with the experience of service agencies and customers to identify and evaluate when, why, and how to change behavior.

Staffing In 2022, the NSW BIU had 15 employees with backgrounds in psychology, economics, public policy, service design, and customer experience.

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Budget

The budget for the NSW BIU is determined by the NSW Government and provides for the continued employment of behavioral scientists and related behavioral research and interventions.

Select projects

- **Supporting customers in distress.** Every day, people in distress access services provided by government, including challenging mental health issues and thoughts of suicide. However, many frontline staff face barriers that prevent them from giving the best support to these customers. The NSW BIU wanted to understand which staff behaviors were most important to customers and how staff could be supported to take these important actions. They conducted first-hand research with people with a lived experience of distress, sector experts, and frontline government staff, and produced the guide Taking Action to Help Customers in Distress. The guide includes the ten most important actions for staff to take and describes how to change a service environment to help staff take these actions when it counts. The guide is being used by agencies across the NSW government to improve health outcomes for people in NSW.

- **Encouraging compliance with COVID-19 self-isolation recommendations.** Self-isolation after COVID PCR testing was an essential part of the strategy to reduce the spread of COVID in 2020 and 2021. Uncertainty at that time around rules reduced the number of people correctly isolating. As such, the NSW BIU partnered with NSW Health and a local health district to identify and remove behavioral barriers to self-isolation. They tested their solution over six weeks in nine clinics relative to the standard process. The treatment condition involved providing a new handout with an enhanced briefing process ("teach-back") designed using behavioral insights principles. The control group received a standard NSW health leaflet for customers with the pre-existing briefing process delivered (no teach-back). This intervention reduced self-reported self-isolation breaches by 29% compared with the control group (NSW, 2022).

- **Reducing hospital appointment no-shows.** Appointment no-shows cost hospitals in NSW between $125 to $800 AUD. To reduce the number of missed hospital appointments, the team worked with the Central Coast Local Health District (CCLHD) to test seven text message reminders. Reminders that included how much money the hospital lost for no shows resulted in a 19% reduction in the number of people missing their appointments. The CCLHD accounts team calculated the productivity benefits of the BI reminders to be $119,606 AUD over the four-month period in which they were implemented (NSW, 2020).

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Future of behavioral science — The unit is focused on finding new ways to empower public servants to use behavioral insights to improve service delivery and develop services aligned with how people think.

Victorian Behavioural Insights Unit, Department of Premier and Cabinet

Year established: 2016

PUBLIC HEALTH AREAS

- Health system strengthening
- Preventative health
- Immunization
- Sexual and reproductive health

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct experiments to evaluate the impact of interventions
- Build capacity

Website — https://www.vic.gov.au/behavioural-insights

Objective — Embed the use of behavioral science methodologies in policy design across the government.

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Staffing

As of January 2023, the unit had 10 core staff with multidisciplinary backgrounds in behavioral science, data analysis, public policy, market research, and evaluation.

Select projects

- **Increasing organ donation rates through online messaging.** Although 69% of adults in Victoria say they would donate their organs, only 33% have registered to do so. To increase organ donation rates, the team partnered with the Department of Health and Human Services, DonateLife Victoria, VicRoads, and a private behavioral science organization to test five behaviorally informed messages and a control message on the VicRoads Renew Your License website. The messages included a priming message ("Did you tick the organ donor box on your driver's license years ago?"), a reciprocity message ("If you'd say yes to a life-saving transplant, have you said yes to being an organ donor?"), a scarcity message ("There are 1,400 Australians waiting for a lifesaving transplant. You can help end their wait"), a message with an image, and a gain-framed message ("One organ and tissue donor can save more than 10 lives"). The gain-framed message worked best, although not by a significant margin (Vic Gov, 2017).

- **Encouraging schools to share data with local councils on human papillomavirus (HPV) vaccination rates by sending letters to school coordinators.** The HPV vaccine protects against cancer and serious harm, but a vaccination rate greater than 80% is essential for herd immunity. To increase HPV vaccine uptake, the team partnered with the Department of Health and Human Services and the Public Sector Innovation Fund to draft a letter that included an action planning sheet sent directly to school immunization coordinators. Using an RCT, the letter was tested alongside a control (nothing sent to school immunization coordinators). The letter led to 12.6% more parent contact details shared with local councils and 10.8% more student details shared with local councils than with the control (Vic Gov, 2022a).

- **Increasing medical appointment attendance using text reminders.** Missed appointments harm patients and are of significant cost to the health-care system. To encourage attendance at specialist medical clinical appointments, the team partnered with the Department of Health and Human Services to design text reminders. A personalization-and-reciprocity text increased attendance by 1%. (Vic Gov, 2022b)

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Future of behavioral science

The Victorian BIU would like to see behavioral science and related methodologies actively used across government, beyond that delivered through their unit.

Special Thanks:

Bradley Carron-Arthur
BETA

Dina Schram
SP&BI

Fiona Grinwald
Victoria BIU

Jaime Comber
NSW BIU

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BRUNEI DARUSSALAM

Photo Credit: Vitalina

Background and Overview

In 2021, the government of Brunei Darussalam, through various departments and expertise within the MoH, initiated the process of establishing a BI unit.

The COVID-19 pandemic led many government officials, particularly those at the MoH, to recognize the value of an evidence-based approach to behavioral change. The Brunei Darussalam MoH has been working in close partnership with the WHO and the Singapore MoH BIU to get the unit running.

Brunei Darussalam's behavioral science function will exist within pre-existing divisions and departments. The unit's first few years will be dedicated to building the team's technical expertise in behavioral science.

National Government Behavioral Insights Unit

Ministry of Health
Behavioural Insights Unit
Year established: 2021

PUBLIC HEALTH AREAS

- Communicable diseases
- Environmental health
- Health promotion
- Immunization
- Maternal and child health
- Mental health
- Nutrition
- Non-communicable diseases
- Substance abuse

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BEHAVIORAL SCIENCE ACTIVITIES

- Mobilize and engage the community
- Conduct experiments to evaluate the impact of interventions
- Build capacity
- Synthesize existing behavioral evidence

Objective Conduct research and produce evidence to inform policy and decision making within the MoH. The BIU will produce evaluation reports on all behavioral science initiatives with recommendations to address problems or gaps and increase accountability and learning within the MoH.

Staffing Members will consist of experts in public health, psychology, health promotion, research, communications, and digital health.

Budget WHO provides technical expertise, as well as a behavioral insights consultant to support the establishment of the BIU in both Malaysia and Brunei Darussalam. The MoH is working closely with the WHO Representative Office for Malaysia, Brunei Darussalam, and Singapore to determine which projects can be conducted using behavioral insights and will allocate resources, funding, and support for the unit's behavioral science projects.

Special Thanks:

Athirah Fakhriah Hj Awg Yussof
MOH, Brunei Darussalam

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CANADA

Photo Credit: Jaime Reimer

Background and Overview

Since 2013, Canada has been using behavioral science within government to address a range of challenges, beginning with the Ontario BIU.

In 2018, the Impact and Innovation Unit (IIU) was created within the government of Canada's Privy Council Office and has been spreading the practice of applied behavioral science across Canada's federal government since. Canada has government behavioral science units at the subnational (e.g., Ontario BIU, British Columbia Behavioural Insights Group (BC BIG)) and national (IIU, BeSciO) levels. All units have a broad scope of work applying behavioral science to health care, sustainability, financial services, and more.

During the COVID-19 pandemic, many of these units worked independently on public health challenges. In 2021, in response to a call from Canada's Chief Public Health Officer, a behavioral science team (the BeSciO) was developed within PHAC. The BeSciO sits at the national level and focuses solely on applying behavioral science to public health challenges.

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National Government Behavioral Insights Units

Ministry of Health, Public Health Agency of Canada, Corporate Data and Surveillance Branch, Behavioural Science Office
Year established: 2021

PUBLIC HEALTH AREAS

- Antimicrobial resistance
- Communicable diseases
- Environmental health
- Health promotion
- Immunization
- Mental health

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies or applied research on behavioral influencing factors

Cont.

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- Conduct experiments to evaluate the impact of interventions
- Build capacity

Objective

Deliver behavior change advice to PHAC program areas with the goal of integrating behavioral science evidence into policy, communications, and programming interventions. This work contributes to the development of the PHAC as a world-leading, data-driven public health organization.

Staffing

As of January 2023, BeSciO had approximately 20 full-time core employees and eight behavioral science research fellows. Core staff are primarily recruited through standardized public service competitions, as well as through networks developed through behavioral science communities of practice. BeSciO brings in fellows from the Privy Council Office IIU for a two-year term. Fellows and behavioral science advisors typically have a graduate degree (masters, PhD) in neuroscience or the social sciences. There are also several specialist roles on the team requiring expertise in areas such as public health, public policy, qualitative methods, knowledge translation and storytelling, and human-centered design. Research projects are staffed with a minimum of two members: a team lead who serves as an advisor and a research fellow who leads the project.

Process

Projects are identified annually by scanning key government documents and research to identify potential priority areas and assess sub-national department interest in partnering on a project. Feedback and endorsement are then required from PHAC senior leadership before research fellows are assigned to priority areas based on their interests, education, and experience. Sometimes projects are identified throughout the year as new priorities emerge.

Future of behavioral science

BeSciO aims to stabilize internal resources and apply behavioral science in new areas in the PHAC and beyond. By fostering academic collaborations and strategic partnerships, BeSciO hopes to equip the PHAC to face the next global health emergency.

Impact and Innovation Unit, Privy Council Office, Prime Minister and the Cabinet

Year established: 2017

PUBLIC HEALTH AREAS

- Antimicrobial resistance
- Communicable diseases
- Emergencies
- Environmental health
- Health system strengthening
- Health promotion
- Immunization
- Maternal and child health
- Mental health
- Social determinants of health

BEHAVIORAL SCIENCE ACTIVITIES

- Mobilize and engage the community
- Conduct experiments to evaluate the impact of interventions

Cont.

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- Build capacity
- Synthesize existing behavioral evidence

Website https://impact.canada.ca/behavioural-science

Objective Integrate behavioral science into public programs, services, communications, and policy design across the federal public service by establishing applied behavioral science research programs, providing advice, and building capacity to apply insights from behavioral science across the federal government.

Staffing In February 2023, the unit stood at 38 people. The IIU Behavioural Science Team operates using a hub-and-spoke model, with a centrally located team in the Privy Council Office and behavioral science fellows cross-appointed to host teams across the federal public service. Team leadership and some senior behavioral scientists, advisors, and operations specialists sit in the central hub. The fellows lead research studies and help translate the results of the IIU's work and apply them within their host departments. The combined effort of a centralized unit and cross-appointed staff allows the IIU to meet government-wide demand for behavioral science expertise in a coordinated way.

Select projects

- **Measuring Canadians' evolving knowledge, risk perceptions, and behaviors related to COVID-19.** During the early stages of the COVID-19 pandemic, Impact Canada led implementation of the WHO Behavioural Insights Tool on COVID-19 in Canada in partnership with the PHAC. The COVID-19 Snapshot Monitoring Study collected longitudinal data from 2,000 participants recruited from an online panel over 16 data collection waves. Results informed the federal pandemic response and enabled government-wide decision making to meet the changing needs of citizens throughout the pandemic.
- **Using operational transparency to build trust in COVID-19 vaccines.** Operational transparency—disclosure of an organization's behind-the-scenes work—enhances trust in and engagement with government services (Buell and Norton 2011). The team tested various interventions designed to determine how COVID-19 vaccine development and the authorization process moved quickly without cutting corners or compromising safety, in lieu of simply telling Canadians

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that vaccines were safe and that decisions were based on science. The team found that unvaccinated respondents exposed to operationally transparent messaging were approximately 8% more likely to express an intention to obtain a COVID-19 vaccine than those who were not exposed to the messaging. Based on this work, operationally transparent messaging was integrated into national communication strategies, including materials distributed to health-care providers nationwide.

Future of behavioral science

Since 2017, the application of behavioral science has transitioned from a nice-to-have, innovative approach to a fundamental function. The unit is expanding its research scope and staff to cover new policy areas while continuing to integrate behavioral science into government policy across Canada.

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Subnational Government Behavioral Insights Units

Behavioural Insights Group, Public Service Agency, British Columbia
Year established: 2016

PUBLIC HEALTH AREAS

- Communicable diseases
- Environmental health
- Health promotion
- Immunization
- Mental health
- Substance use

BEHAVIORAL SCIENCE ACTIVITIES

- Provide evidence-informed advice and guidance
- Conduct experiments to evaluate the impact of interventions
- Build capacity
- Synthesize existing behavioral evidence
- Conduct studies or applied research on factors influencing behavior

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Website https://www2.gov.bc.ca/gov/content/governments/services-for-governmentservice-experience-digital-delivery/behavioural-insights

Objective Solve behavior-based problems spanning the policy spectrum.

Staffing As of January 2023, BC BIG had eight full-time employees: a managing lead, a project director, two senior behavioral scientists, three methods specialists, and a knowledge translation strategist. Members have backgrounds in areas such as public policy, public health, communications, and development economics.

Select projects BC BIG's support of public health initiatives have included supporting communication efforts during the COVID-19 pandemic, advising on initiatives to help health-care practitioners address opioid use disorder, and increasing organ donation registration.

Behavioural Insights Unit, Strategy and Continuous Improvement Branch, Treasury Board Secretariat, Ontario

Year established: 2015

PUBLIC HEALTH AREAS

Immunization

BEHAVIORAL SCIENCE ACTIVITIES

- Conduct experiments to evaluate the impact of interventions

Website https://www.ontario.ca/page/behavioural-science-insights-pilot-projects

Objective Enhance public services by leveraging behavioral science research, including building capacity, providing advisory services, and designing and evaluating solutions.

Staffing The unit comprises one manager, three behavioral scientists (usually PhDs in the social sciences), and two senior policy advisors (usually with experience in the field).

Select projects

- **Testing interventions to increase meningitis vaccination uptake among high school students.** About 30% of Toronto high school students have missing vaccine records for meningococcal disease. The team collaborated with the MoH and Toronto Public Health to compare a prompt that encouraged students to plan when and where to get vaccinated with an email sent to school principals showcasing how their school fared on vaccinations relative to other schools and identifying students with incomplete vaccinations. Evaluation of both treatments revealed no statistically significant effect on meningococcal vaccination (Behavioural Insights in Ontario 2020a).

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- **Shifting health card renewals online.** In 2018, Ontario launched an integrated online health card and driver's license renewal service. The BIU partnered with ServiceOntario, the MoH, and the Ministry of Transportation to test behaviorally informed notices to increase timely health card renewal online. A sample of 48,000 clients was randomly assigned to receive one of three behaviorally informed notices—which used simplified language, a clear call to action, and either an exclusivity statement or a statement about how easy it is to bundle the renewal of two cards online—or a control notice similar to the existing renewal notice. The behaviorally informed renewal notices resulted in 1% greater uptake of the online service than the standard notice. The team estimated this would shift an additional 16,000 transactions online per year (Behavioural Insights in Ontario 2020b).

Special Thanks:

Heather Devine
PHAC BeSciO

Lindsay Miles-Pickup
BC BIG

Victoria Peace
Ontario BIU

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National Government Behavioral Insights Unit 55

FINLAND

Photo Credit: Paul Theodor Oja

Background and Overview

Finland has one BIU working specifically with health topics at the national level, launched in 2022. The unit works at the intersection of behavioral science and public health within the communications division of the Institute for Health and Welfare (THL). The relatively new unit has conducted several public health projects aligned with the public health priorities of the MoH.

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National Government Behavioral Insights Unit

Ministry of Health, Cultural, Behavioural and Media Insights Centre, Communications and Influencing Unit, Institute for Health and Welfare
Year established: 2022

Public health areas

- Antimicrobial resistance
- Communicable diseases
- Emergencies
- Environmental health
- Health system strengthening
- Health promotion
- Immunization
- Mental health
- Nutrition

Cont.

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Sexual and reproductive health and rights

Social determinants of health

Substance abuse

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct national or local studies on behavioral influencing factors
- Conduct experimene to valuate the impact of evidence-informed interventions
- Mobilize and engage community
- Capacity building

Website www.thl.fi/en/cube

Objective Design evidence-informed policy by conducting research on public health perceptions and behaviors.

Staffing As of January 2024, CUBE had five staff members, two senior researchers, one research manager, one researcher, and one chief specialist, who also leads CUBE's work. Three staff members hold permanent positions and have a PhD (in anthropology, media and communications research, and public health). Three other THL staff members are actively involved in CUBE's activities. CUBE also has an international advisory board that meets twice a year.

Process In 2022, in collaboration with CUBE's advisory board and the WHO Regional Office for Europe, CUBE developed a strategic action plan that outlines CUBE's vision, position, and mandate within THL. Projects are selected based on needs that surface within THL that are congruent with THL's overall strategy.

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Select projects

- **Reconstructing crisis narratives for trustworthy communication.** Unclear signals, misinformation, and conflicting reports that must be collectively interpreted and analyzed often accompany a crisis. The Crisis Narratives project is a multidisciplinary research consortium led by THL and Aalto University designed to analyze the COVID-19 pandemic in Finland, with a particular focus on key narratives, public perceptions of risk, news and media coverage, and health care communication experts' experiences with crisis management. The Academy of Finland funds the project.

- **Addressing vaccine hesitancy in Europe.** CUBE focuses on childhood vaccines using quantitative (survey, media analysis) and qualitative (ethnography, in-depth interview) methodology to conduct social-scientific and context-sensitive research on vaccine hesitancy in specific regions of Finland. VAX-TRUST, a consortium of 10 partner organizations in seven European countries, designs interventions to increase awareness of the complexity of vaccine hesitancy among health-care professionals involved in discussing childhood vaccines with parents. The project is also evaluating the suitability of the overall design of these interventions to reduce vaccine hesitancy and consolidate vaccination coverage in Europe. VAX-TRUST has received funding from the EU Horizon 2020 research and innovation program.

- **Increasing uptake of the HPV vaccine among adolescent boys.** Because of COVID-19-related delays in administration and uptake of the HPV vaccine, the recommended age for initiating the HPV vaccine series has been extended to include individuals up to 18 years of age. To ensure that everyone who has the right to receive the HPV vaccine is adequately informed about this change and provided with the opportunity for vaccination, CUBE is conducting pilot research that uses rapid ethnographic assessments and qualitative data from Finnish secondary schools to design targeted communications to strengthen HPV vaccine uptake among boys aged 15 to 19.

Special Thanks:

Jonas Sïvelä
CUBE

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National Government Behavioral Insights Unit 60

IRELAND

Photo Credit: Kelly

Background and Overview

Ireland formed the Behavioural Insights Team (BIT) within the MoH in 2015. The team works within the Research Services and Policy Behavioural Insights Unit (RSPU) to encourage evidence-informed policy making across the MoH.

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National Government Behavioral Insights Unit

Research Services and Policy Behavioural Insights Unit, Research and Development, Health Analytics, Ministry of Health
Year established: 2015

PUBLIC HEALTH AREAS

- Antimicrobial resistance
- Health system strengthening
- Immunization
- Nutrition

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies or applied research on factors that influence behavior
- Conduct experiments to evaluate impact
- Capacity building

Website https://www.gov.ie/en/collection/3c5bc8-health-research-and-statistics

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Objective Support the RSPU with evidence-informed policymaking across the MoH by developing and supporting the application of behavioral insights to policy and practice.

Staffing The BIT has two full-time staff trained formally in the behavioral sciences. One member acts as the team lead and the other as an advisory officer. The unit also draws on an internship program through the Irish Government Economics and Evaluation Service and a behavioral advisory group that includes leading academics in the behavioral sciences.

Process The team selects a framework to use based on the specific challenge. Frameworks include EAST, MINDSPACE, the Behaviour Change Wheel, and the Health Belief Model. For literature reviews, the team follows Effective Practice and Organization of Care and Cochrane guidance.

Select projects

- **Reviewing the literature to identify the main reasons for missed medical appointments.** One in six patients in Ireland did not attend hospital outpatient appointments in 2015, costing the Health Service Executive more than €20 million and compounding the wait-list problem (Cullen 2016). With the Health Service Executive and the National Treatment Purchase Fund, the team reviewed international studies exploring the reasons patients provide for non-attendance. The most common reasons identified were patient-related factors such as forgetting about the appointment, not seeing a benefit to the appointment, or rescheduling the appointment because of personal circumstance (e.g., felt better, went on vacation) (Murphy and Taaffe 2019). These findings suggested potential intervention opportunities for future work.

- **Increasing responses to a wait-list validation letter for medical procedures.** It is common for hospitals to contact patients on wait lists to check if they still require a procedure or wish to be removed from the wait list; 25% of patients do not respond to the outreach. To increase response rates, the BIT redesigned the validation letter by stressing the importance of the validation process and clarifying what the patient is expected to do. These changes statistically significantly decreased the non-response rate (19%) (Murphy et al. 2020).

- **Increasing patient engagement by redesigning hospital communications.** Following the success of the wait-list validation letter, the National Treatment Purchase Fund produced a communications packet for hospitals that included a template appointment offer letter for inpatient and day case appointments. The RSPU designed a

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behaviorally informed and tested appointment correspondence. The redesigned letter was simplified, and the call to action, which asked recipients to reply to the letter, was made more visible. These changes increased confirmation rates in the two test sites from 67% to approximately 77%. The redesign increased engagement when patients received the appointment offer and on the day of the appointment (Murphy et al. 2020).

Future of behavioral science

The team believes that application of behavioral insights to public health will expand to include antimicrobial resistance and health-care system efficiency. It is likely that more staff will be allocated to the behavioral science function.

Special Thanks:

Robert Murphy
RSPU

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National Government Behavioral Insights Unit 65

MALAYSIA

Photo Credit: Zukiman Mohamad

Background and Overview

In September 2022, the Malaysian government launched a BIU within the MoH under the Centre for Competency and Advanced Learning in Health Promotion, Institute for Health Behavioural Research. Working closely with WHO, Malaysia's Institute for Health Behavioural Research will pull from dedicated health promotion staff and upskill embedded government staff in behavioral science. The BIU will select projects based on priority areas that the MoH establishes, ensuring they are aligned with high-level government needs to avoid ad hoc implementation.

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National Government Behavioral Insights Unit

Institute for Health Behavioural Research, Centre for Competency and Advanced Learning in Health Promotion, National Institute of Health
Year established:
September 2022

PUBLIC HEALTH AREAS

- Communicable diseases
- Health promotion
- Immunization
- Mental health
- Non-communicable diseases
- Sexual and reproductive health and rights
- Social determinants of health

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BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct national or local studies on behavioral influencing factors
- Evaluate the impact of evidence-informed interventions
- Mobilize and engage community
- Capacity building

Objective Provide evidence and data for policymaking, provide advice and technical assistance to other organizations conducting behavioral science research, build capacity in behavioral insights across relevant organizations, and engage and collaborate with various agencies to promote behavioral sciences in health programs.

Staffing The BIU has two dedicated staff members. A senior health education officer with a PhD and broad experience working with policymakers and communities heads the unit.

Process Projects focus on priorities set by the MoH. The PRIME framework, a behavioral insights framework that the Malaysia Productivity Corporation developed for the Malaysian context, and the DDDIE (define, diagnose, design, implement and evaluate) framework, as suggested by the WHO Technical Advisory Group on Behavioural Insights and Sciences for Health, guides project work.

Select projects

- **Understanding the public's perception of the use of emergency department services.** Emergency department presentations in Malaysian hospitals are increasing, and a significant proportion of these visits are not emergencies, which can contribute to delays and overcrowding. For example, 35.2% of the 53,360 patient visits to a government hospital emergency department were categorized as nonemergencies. The unit is conducting a study to inform development of messaging to encourage the public not to visit the emergency department for nonemergencies. The effectiveness of

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this intervention will be evaluated using a mixed-methods approach incorporating administrative and survey data.

- **Transforming a diabetes behavior diagnosis tool using artificial intelligence.** Mobile apps that the government of Malaysia developed to manage the COVID-19 outbreak have been expanded to assist with a range of health concerns, including general health-screening appointments, blood donation appointments, and noncommunicable diseases. The system is using artificial intelligence to gather information about patients' diabetes status, motivation, and behavior, and the team is crafting tailored messages based on the evidence collected, enabling individuals with diabetes to assess and manage their condition.
- **Promoting COVID-19 prevention behaviors.** In collaboration with BIT Singapore and WHO, the team developed a series of nine posters to encourage protective COVID-19 behaviors: self-testing, booster vaccinations, and a package of "new normal" behaviors (hand hygiene, wearing masks, opening windows, social distancing). The posters were refined in focus groups and interviews to strengthen their content and presentation. The posters use a range of devices to encourage the desired behaviors (e.g., loss framing, social norms, instructive, credible source). An online experiment with 4,000 Malaysian adults measured the impact of the posters on recall and behavioral intent against a control group that was not exposed to any posters. All of the posters increased behavioral intent. Of the three self-test posters, the loss-framed poster resulted in the highest proportion of participants indicating their intent to test (87%), compared with the control at 82%. The booster poster increased intention (62%) more than the control (52%).

Future of behavioral science

The unit hopes to increase uptake of the behavioral insights approach by various departments within the MoH by expanding the number of staff capable of integrating behavioral insights into their work. This will contribute to the sustainability and long-term impact of behavioral science initiatives, ultimately improving health outcomes.

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Special Thanks:

Dr. Saiful Adli Suhaimi
MoH Malaysia

Dr. Trevor Webb
WHO Malaysia, Brunei Darussalam and Singapore Office

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NETHERLANDS

Photo Credit: Chait Goli

Background and Overview

The Netherlands has incorporated behavioral science as part of a broader social science approach, embedded in national local institutions to address public health issues for many years.

This is done internally and through partnerships with third parties. For example, the municipality of Rotterdam participated in a cooperative called the Center for Behavioral Research and Development to work at the intersection of behavioral science and public health policy. Government officers in the municipality of Rotterdam approached Erasmus University staff for help with public health challenges. Some of the larger municipalities and many municipal health services (GGD) have embedded behavioral and social scientists that address regional issues. Some public health issues were also addressed through the Behavioural Insights Network of the Netherlands (BIN NL), a national network of behavioral scientists working in civil service. Moreover, the Ministry of Health Welfare and Sport (VWS), National institute for Public Health and the Environment (RIVM), and a number of closely connected partners had a network of social scientists embedded in the national nutrition center (Voedingscentrum), local youth health-care facilities (JGZ), and other facilities.

At the start of the COVID-19 pandemic, the federal government additionally decided to develop a dedicated behavioral science unit focused on the new disease—the Corona Behavioral Unit. The unit used scientific knowledge and expertise to exclusively inform and support COVID-19 policy. After the unit demonstrated its value to policymaking with large-scale studies for two years, the government expanded its

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scope to broad public health challenges. The Netherlands uses these various approaches to incorporate behavioral science into policymaking: on the one hand, by ensuring dedicated capacity for behavioral science and public health at a national level, and on the other, through subnational government structures that form regional or local partnership with or without external bodies to assist with behavioral science and public health work.

National Government Behavioral Insights Units

Behaviour and Health Unit, National Institute for Public Health and Environment Behavioral Unit, Ministry of Health
Year established: 2020

PUBLIC HEALTH AREAS

- Antimicrobial resistance
- Communicable diseases
- Emergencies
- Environmental health
- Health promotion

Cont.

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	Immunization
	Maternal and child health
	Mental health
	Nutrition
	Non-communicable diseases
	Sexual and reproductive health and rights
	Social determinants of health
	Substance abuse
	Water, Sanitation and Hygiene

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies or applied research on factors influencing behavior
- Conduct experiments to evaluate the impact of interventions and monitor the impact of health and education policies
- Mobilize and engage community
- Capacity building

Website https://www.rivm.nl/en/coronavirus-covid-19/research/behaviour

Department The National Institute of Public Health and the Environment established the Corona Behavioural Unit and placed it in the Centre for Health and Society. In 2023, the unit began transitioning to become the Behavioural Unit of the National Institute of Public Health and the

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Environment, with the aim of bringing together social scientists from the health-care and environmental domains.

Objective

Deploy scientific knowledge and expertise to inform and support policy and government communication at the national and regional levels.

Staffing

The unit has approximately 10 behavioral scientists. Unit staff have educational backgrounds in psychology, sociology, anthropology, behavioral economics, epidemiology, and health sciences. Visiting scholars, consultants, interns, scientific advisory board members, and expert groups (including 20 professors from several Dutch universities) also support the unit.

Process

The unit has produced several theoretical frameworks to facilitate use of behavioral science in public health policy, specifically in relation to the COVID-19 pandemic. Frameworks and models include a step-by-step plan for government communication interventions, the 3C intervention model for COVID-19, and a matrix on communication methods for supporting behavior. Each of these frameworks and models guides the unit's approach to projects.

Select projects

- **Understanding public support for COVID-19 pandemic mitigation measures.** The team launched a longitudinal survey that collected 12 waves of data. The study did not find pandemic fatigue or a gradual decline in support for all mitigation measures over time among the public (de Wit et al. 2022).
- **Understanding COVID-19 vaccination willingness of youth.** The survey found that 73% of respondents were willing to get vaccinated; those who were hesitant pointed to perceived side effects and potential unknown long-term consequences (Euser et al. 2022).
- **Understanding the effect of distance to site on testing uptake using two quasi-experimental studies.** The researchers discovered that reducing the distance to COVID-19 testing facilities from an average of 3.5 kilometers to 200 meters increased test uptake. They concluded that localizing testing facilities could substantially increase COVID-19 testing (Sanders et al. 2022).

Future of behavioral science

Over the next five years, the unit aims to:

- Increase its intervention and implementation research in support of evidence-based behavioral policy targeting health, as well as climate change and environmental use.
- Replicate interventions to facilitate adaptation of behavioral intervention policies for non-majority groups.
- Foster stronger relationships with organizations and academics with specific expertise in conducting research in vulnerable populations or advanced analytical capacity to help draw additional behavioral insights for such populations.
- Support behavioral modeling by incorporating behavioral knowledge into infection models to provide a better picture of the effect of behavior on infections and increase the reliability of forecasts.

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Subnational Government Behavioral Insights Units

Center for Behavioral Research and Development, Municipality of Rotterdam
Year established: 2017

PUBLIC HEALTH AREAS

- Communicable diseases
- Health promotion
- Health system strengthening
- Immunization
- Mental health
- Nutrition
- Physical Activity
- Social determinants of health
- Substance abuse
- Water, Sanitation and Hygiene

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BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies or applied research on factors influencing behavior
- Conduct experiments to evaluate the impact of interventions
- Build capacity

Website https://healthyr.nl/

Objective Bring together policymakers within the social development unit of the local government of Rotterdam and behavioral scientists from Erasmus University Rotterdam. The team is linked to the Behavioral Insights Group Rotterdam, but unlike that group, which focuses on broader policy issues, the Center for Behavioral Research and Development focuses on health issues. The unit is designed to develop solutions that lead to healthier lifestyles for the people of Rotterdam.

Staffing As of October 2022, the unit had six full-time researchers—one tenured professor, two assistant professors, and three PhD candidates—all of whom have a background in behavioral science, health policy, or medical science.

Process The Social Development Unit of the municipality of Rotterdam brings health concerns to the attention of the Center for Behavioral Research and Development.

Select projects About 80% of the unit's past projects are diagnostic, looking to understand the drivers of behavior through surveys and interviews, and about 20% cover the design and evaluation of behavioral change interventions. The unit has worked on several initiatives related to public health, including the following:

- **Understanding what influences people's decisions to use telemedicine.** During the COVID-19 pandemic, many in-person doctor's appointments transitioned to virtual appointments. To understand

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the impact of this transition, the team conducted 27 in-depth interviews with health care providers working in general practices and 78 patients to identify the sociodemographic and health factors that affect people's decisions to use telemedicine; they also surveyed 213 patients. The team discovered that patients generally liked virtual consultations, especially for non-acute needs, although many found it impersonal or difficult to resolve certain complaints.

- **Identifying barriers to and enablers of exercise in teenagers.** Physical exercise is important for growing teenagers, yet only 45% of Rotterdam teens aged 13 to 16 exercise for at least one hour at least five days a week, below the national average of 54%. The team conducted a survey to understand barriers to and enablers of exercise in teenagers; 9,068 teens responded. The top five factors related to exercising less were lack of social support, gaming, poor health, not eating fruit every day, and not drinking water daily (Healthy'R, a).
- **Identifying self-regulating behavior-modification techniques that work for young people to reduce obesity.** To understand how to reduce soft drink consumption in teenagers, the unit conducted a meta-analysis of 22 published studies that identified five self-regulating behavior-modification techniques that may work in young people with low socioeconomic status or migrant backgrounds: setting a goal of drinking fewer sugary drinks per week, giving feedback about whether a goal was reached, creating action plans, allowing teenagers to self-monitor consumption, and having teenagers preemptively create solutions for situations in which it is difficult to avoid sugary drinks (Healthy'R, b).

Future of behavioral science

The unit aims to continue working on behavior- and health-related topics, given the long-term commitment between the university and municipality. The unit operates for four-year periods with the intention of continuing the collaboration.

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Special Thanks:

Jet Sanders
National Institute of Public Health and the Environment

Semiha Denktas
Erasmus School of Social and Behavioural Sciences

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THE KINGDOM OF SAUDI ARABIA

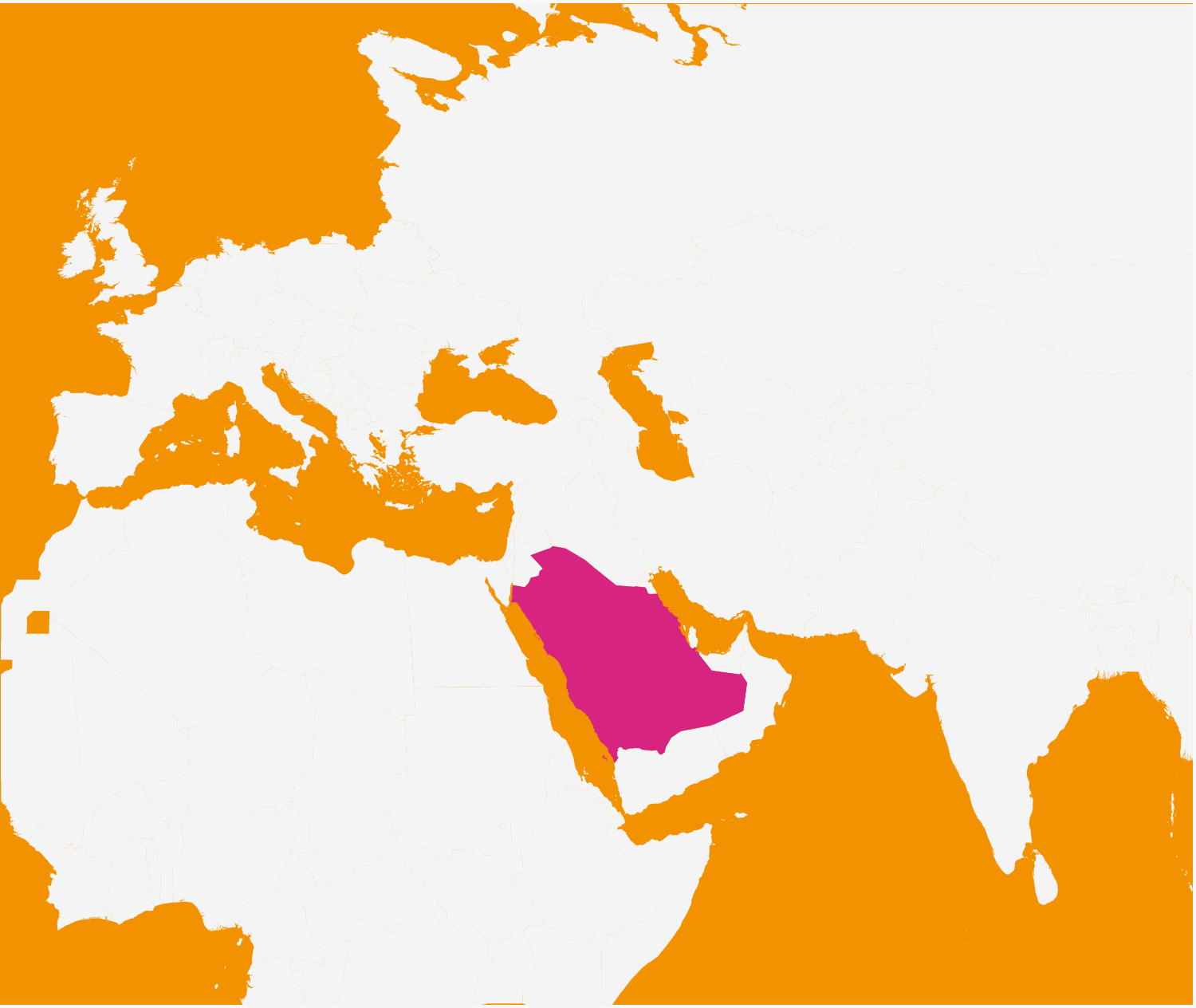

Photo Credit: Konevi

Background and Overview

Established in 2019, the Health Nudge Team is the first formal government unit to apply behavioral science to policy in the Kingdom of Saudi Arabia. The unit sits within the Assistant Minister's Office at the MoH and focuses on informing health policies and programs to increase the efficiency and quality of Saudi Arabia's free health services. The country has established a vision of improving quality of life, promoting healthy living, and prevention. A behavioral science function is viewed as a tool for building a reputation in alignment with this vision, helping citizens make healthier choices.

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National Government Behavioral Insights Unit

Health Nudge Team, Assistant Minister Office, Ministry of Health
Year established: 2019

PUBLIC HEALTH AREAS

- Antimicrobial resistance
- Communicable diseases
- Health promotion
- Immunization
- Maternal and child health
- Non-communicable diseases
- Nutrition
- Social determinants of health
- Substance abuse

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BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies or applied research on behavioral influencing factors
- Conduct experiments to evaluate impact
- Mobilize and engage community
- Capacity building

Objective Inform health policies and programs by providing decision makers with evidence-based recommendations to increase the efficiency and quality of health services.

Staffing As of October 2022, the unit had five core members. Two are research specialists, assisting with literature reviews, manuscript writing, and implementing interventions; one is a statistician, who conducts data analysis; one is a graphic designer; and one is a director with a PhD in behavioral sciences, who oversees the unit's scientific and strategic work. All except for the statistician, who was recruited through a university partnership, were assigned to the unit from the MoH. Most staff members had formal education in public health or medicine; to build their behavioral science capacity, the government supported capacity-building exercises with other organizations.

Process The team takes proactive and reactive approaches to conducting behavioral projects at the MoH. Its proactive approach involves noticing challenges at the MoH level and speaking with stakeholders to determine whether these challenges warrant a larger project. The reactive approach involves receiving requests from MoH departments about services that could use improvements, such as low uptake of the flu vaccine. Once the team has decided on a project, it follows the IDEA framework, which the unit developed as a guide for designing and implementing behavioral interventions. The team also published a first-of-its-kind behavioral health toolkit to guide practitioners in diagnosing, developing, and implementing behavioral interventions in public health.

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Select projects

- **Using precommitment to increase virtual medical appointment attendance.** Missed health appointments are disruptive and costly to the health-care system. A prior qualitative study revealed that patients often failed to show up because they did not know their appointment would be virtual. To increase medical appointment attendance, the Health Nudge Team implemented a printed consent form that patients were required to sign after an in-person appointment asking them to check off that they realized that their next appointment would be virtual. This behaviorally informed commitment device led to an 18% increase in appointment attendance.

- **Increasing COVID-19 vaccine appointment bookings using social norms messaging.** To encourage COVID-19 vaccine uptake, the unit conducted a multi-arm RCT examining which message frames would increase vaccine appointment bookings. They tested commitment framing, loss aversion framing, salience framing, social norms framing, and ego framing. All except commitment framing resulted in significantly more booked appointments than the control. Social norms framing had the highest rate of booked appointments (21%), followed by ego framing (19%) and salience framing (19%) (Alhajji, Alzeer, and Alshehri 2022).

- **Understanding knowledge about and attitudes toward organ donation to design interventions.** Organ availability is inadequate in Saudi Arabia. To better understand why some citizens sign up for organ donation and others do not, the Health Nudge Team administered a questionnaire to assess people's knowledge about and attitudes toward organ donation. They discovered that people are knowledgeable about organ donation but that religious beliefs, cultural justifications, and negative attitudes stop them from registering. This finding led the team to advise policymakers to focus on initiatives that shift the public mindset and create a new social norm rather than simply providing facts and information.

Future of behavioral science

The unit is viewed as a key strategic enabler for public health. The team aims to build a core national behavioral science function that supports end-to-end delivery of campaigns for public health programs, working closely with implementing entities and the Ministry of Media. The unit sees an opportunity for the public health agenda to use technology in a cutting-edge way to provide world-class digital, personalized behavioral programs.

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Special Thanks:

Dr. Mohammed Alhajji
Behavioural Insights and Nudge Unit

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SINGAPORE

Photo Credit: Stijn Dijkstra

Background and Overview

The Ministry of Health have been leveraging BI as a tool for policy and programme implementation since 2018.

The Ministry works with BI experts to support MoH's vision of championing a healthy nation where residents live well, long and with peace of mind.

National Government Behavioral Insights Unit

Behavioural Insights Unit, Ministry of Health Planning Group
Year established: 2018

PUBLIC HEALTH AREAS

- Health promotion
- Immunization
- Non-communicable diseases
- Social determinants of health

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies or applied research on factors influencing behavior
- Conduct experiments to evaluate the impact of interventions
- Build capacity

Objective Develop behavioral insight capabilities in the MoH and deepen the ministry's insights into health behaviors in Singapore. The unit uses behavioral insights to improve the design of public health policies, programs, and services in support of the MoH's vision.

Staffing As of October 2022, the unit had two full-time staff members dedicated

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to running behavioral insight projects, both with a bachelor's degree in the social sciences.

Process

Projects are selected through a combination of top-down and bottom-up processes. In some instances, requests for behavioral insight support arise from shifts in organizational priorities or major policy changes; in others, the BIT proposes behavioral insight projects that are initiated as a result of the Ministry's need-identification work (e.g., engagement with policy teams, health-care clusters). Once a project is selected, the team typically uses the TEST and COM-B frameworks as a starting point. Depending on the project topic and objectives, the suitability of other frameworks and methodologies is assessed.

Activities

The Ministry has applied behavioral insights to a range of activities, including increasing regulatory compliance and enforcement efforts, blood donation, and patient billing. Most recently, the Ministry's work focused on empowering residents to take charge of their own health, in support of the MoH's Healthier SG strategy, which launched in July 2023. Since 2018, MoH has completed seven RCTs in the area of BI and has conducted exploratory research, conducting more than 300 interviews to date. Several of their projects are described below.

- **Using behavioral science to inform the national population's health strategy.** Behavioral insights were used to support policy design and implementation of Healthier Singapore, a multi-year strategy for transforming how health care is delivered in Singapore that emphasizes population health and proactive preventative care. In particular, user research is applied to guide the strategy's development, including recommendations for communicating key aspects of the strategy and encouraging uptake of preventative health actions.
- **Understanding factors influencing choice of vaccination site.** To inform solutions to maximize the capacity of vaccination sites, the Ministry conducted observations and interviewed Singapore residents to understand the factors that influenced their choice of vaccination site.
- **Understanding drivers of and barriers to attendance at diabetic retinal photography and diabetic foot screening.** The Ministry conducted qualitative research to understand patients' attitudes toward and attendance in diabetic retinal photography and diabetic foot screenings. Research findings have been shared with stakeholders who are working on improving the health outcomes of diabetic patients.

Future of behavioral science

Application of behavioral insights is expected to focus on crisis preparedness within the MoH to increase organizational resilience and improve preventative health and chronic disease management to support the national Healthier SG strategy.

Special Thanks:

Rachel Ang
MoH BIU

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SLOVAK REPUBLIC

Photo Credit: Helena Jankovičová Kováčová

Background and Overview

Established in 2020, the Behavioural and Experimental Economics Team (BEET) operates in the Slovak MoH under the Department of Innovative Approaches in Health Care. Providing guidance on technology and evaluation methods and aiming to be a holistic behavioral science unit that ties behavioral insights to other methodologies, including anthropology, human-centered design, and data science. BEET is working to generate buy-in from government stakeholders on the power of applying behavioral science to public policy.

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National Government Behavioral Insights Unit

Behavioural and Experimental Economics Team, Department of Innovative Approaches in Health Care, Ministry of Health

Year established: 2020

Public health areas

- Antimicrobial resistance
- Health system strengthening
- Immunization
- Maternal and child health
- Mental health

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Behavioral science activities

- Synthesize existing behavioral evidence
- Conduct studies or applied research on factors influencing behavior
- Conduct experiments to evaluate impact
- Mobilize and engage community
- Capacity building

Website https://www.beet.sk/en

Objective Introduce proven principles, knowledge, and solutions based on behavioral science to the Slovak health care system to improve the quality of health care and make the latest medical knowledge available to all. This includes conducting health-care studies to inform policy recommendations that increase efficiency and save public resources.

Staffing There are five full-time members of BEET and one external member. The team operates using an agile model in which members take on different roles depending on the project. The unit director has a background in behavioral science, three associates have backgrounds in public policy, one associate has a background in psychology, and the external member has a background in the behavioral sciences. The team is not strictly dedicated to the application of behavioral insights, but it aims to incorporate behavioral insights into projects when appropriate.

Process The unit proposes ideas to government units to try to generate buy-in and financial resources for the project to be conducted.

Select projects

- **Reducing misinformation and disinformation about COVID-19 using gamification.** The team prepared a behavioral questionnaire on perception of disinformation in the Slovak Republic in connection with COVID-19. Findings from the questionnaire led to the development with the University of London of an online game that uses gamification to increase critical thinking about misinformation related to

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COVID-19 and vaccination.

- **Designing a peer-to-peer system to increase uptake of mental health services.** During the COVID-19 pandemic, distance education, which lasted almost four semesters, disrupted the cognitive, emotional, and social development of university students. To understand the scale of these effects, BEET launched a well-being questionnaire. Findings indicated that female students experienced more intense depression than male students, bachelor's degree students experienced the most depressive symptoms, and finances were a significant barrier to seeking professional psychological help. As a result of these findings, BEET created a peer support program called the "buddy system" to remove barriers to seeking professional help by training peers in providing basic mental health services. The program is being piloted at the Pavel Jozef Šafárik University in Košice.
- **Understanding barriers to and facilitators of blood donation.** During the COVID-19 pandemic, the number of blood donors in the Slovak Republic dropped sharply. To stabilize the blood supply, BEET partnered with the National Transfusion Society to investigate factors that influence people's motivation to donate blood.

Special Thanks:

Lukáš Sekelsky
Department of Innovative Approaches in Healthcare, Slovakia

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UNITED KINGDOM

Background and Overview

England, Scotland, Wales, and Northern Ireland make up the United Kingdom (UK). In the UK, the National Health Service (NHS) is the umbrella term for the four health systems of England, Scotland, Wales, and Northern Ireland. The Department for Health and Social Care (DHSC) is a UK-wide ministerial department responsible for health policy in England; responsibility for public health policy is devolved to each nation.

A UK Four Nations Behavioural Science group continues to meet virtually on a regular basis to informally support the application of behavioral science for better health, exchanging approaches, resources, and expertise.

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Photo Credit: Pierre Blaché

National Government Behavioral Insights Units

England

Behavioural and Social Sciences Team (BeSST), Department of Health and Social Care
Year established: 2013

Objective

Advise the Secretary of State for Health, health ministers, the Chief Medical Officer, and health policy officials on the generation, application, and implementation of behavioral science theory, evidence, and methods to improve public health (i.e., non-communicable diseases); increase length and quality of life; and reduce health disparities.

Staffing

The unit is home to the Head of Behavioural and Social Sciences and comprises two permanent staff members, one short-term contracted staff member, and interns (PhD students and public health consultants in training). Core expertise is required in health psychology, behavioral economics, research and evaluation, public health, and policy. The team is positioned within the Strategic Evidence and Analysis Division.

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Activities The team applies behavioral science to a range of topic areas, including digitalization of the NHS Health Check, a behavioral audit of alcohol for low/no alcohol products, and behavioral mapping for increasing blood pressure checks. The team are active in the Government Social Research Profession, Cross-Government Behavioural Insights Network, and the Behavioural Science and Public Health Network. The team engages with the many local authority public health teams using behavioral science.

There are two further teams in the DHSC, one focused on commissioning behavioral science research (Science, Research and Evidence) in health and one that runs social marketing campaigns and products (Behavioural Programmes Unit).

Behavioural Science and Insights Unit, UK Health Security Agency

Year established: 2013

Website UK Health Security Agency - GOV.UK (www.gov.uk)

Department The UK Health Security Agency's Behavioural Science and Insights Unit (BSIU) was first established in Public Health England's Emergency Response Department, part of the Health Protection and Medical Directorate. With the establishment of the UK Health Security Agency (UKHSA) in October 2021, the BSIU is now part of the Evaluation and Translation Directorate in the Science Group of UKHSA. UKHSA is an operationally autonomous Executive Agency sponsored by the Department of Health and Social Care in the United Kingdom.

Objectives The BSIU provides subject matter expertise in the behavioral and psychological aspects of health protection and security, with a particular focus on public health incidents and emergency preparedness and response.

Staffing As of January 2024, the BSIU has 20 full-time behavioral and social scientists, and seven market research and insights professionals.

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Employees are typically post-graduate and post-doctoral level behavioral and social scientists, with some team members currently pursuing PhD qualifications with academic partners while working for UKHSA. The BSIU also manages several honorary public health consultant contracts for academic partners to support active project work and broader collaborations.

Budget

The BSIU receives core funding from UKHSA and further income to support activities aligned with UKHSA priorities through participation in external grants and contracts—for example, the National Institute of Health and Care Research (NIHR) Health Protection Research Units (Research Units | NIHR), and the EU Horizon 2020-funded PROACTIVE project (Home – Proactive project (proactive-h2020.eu). Eligibility for external funding is because of UKHSA's status as a public sector research establishment (PSRE).

Activities

- **Identifying parents' intention to vaccinate against COVID-19.** A mixed methods study was conducted using an online survey of 270 UK parents (between October 4-15, 2021). Parents were asked how likely they were to vaccinate their child(ren) against COVID-19 and the main reasons for their response. The survey revealed that 39.3% of parents were likely to get their children vaccinated against COVID-19, while 33.9% were uncertain about vaccinating their child, and 26.8% were unlikely to vaccinate their child. Intention was associated with parental vaccination status, greater perceived necessity and social norms regarding COVID-19 vaccination, greater COVID-19 threat appraisal, and lower vaccine safety and novelty concerns (Smith, Sherman, Amlôt et al., 2022).

- **Providing real-time COVID-19 insights and recommendations to policy makers.** The CORSAIR study (The CORSAIR study | Emergency Preparedness and Response | Health Protection Research Unit (nihr.ac.uk) was a collaboration between UKHSA, King's College London, and University College London. In February 2020, the COVID-19 pandemic spread to the UK, and the Department of Health and Social Care began a series of surveys to explore public responses in late January. The CORSAIR study worked with the tracker data to deliver insights and recommendations to DHSC, the UK Scientific Advisory Group for Emergencies (SAGE), and others.

- **Emergency preparedness field exercises.** The PROACTIVE project (Home - Proactive project (proactive-h2020.eu) seeks to enhance preparedness against and in response to chemical, biological, radiological and nuclear (CBRN) incidents through a better harmonization

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of procedures between various categories of practitioners and emergency responders, and a better understanding of the needs of vulnerable citizen groups. The BSIU provide subject matter expertise in the behavioral and psychological aspects of incident management, including leading the evaluation of several large-scale European emergency preparedness field exercises.

Future of behavioral science

During the COVID-19 pandemic, the BSIU demonstrated the importance of incorporating the behavioral and social sciences in responding to public health incidents and emergencies. As a result of these successes, the unit has maintained its capacity within UKHSA and has established an organization-wide Behavioural and Social Science Network (BSSN); it will continue to support capacity and capability strengthening across the public health system and government. Further, the BSIU is a partner in a substantial new Economic and Social Science Research Council (ESRC) funded initiative, a £17 million investment aiming to transform the UK's ability to address major societal challenges using knowledge gained from research into human behavior (ESRC to radically expand UK behavioural research capacity – UKRI).

NHS England (NHSE) Behavioural Science

Objectives

NHS England's behavioral science unit exists to apply insights from behavioral science and real-world data to understand behavioral challenges the NHS faces. Some of the team's work is diagnostic: to understand why behaviors do or do not take place. Commonly, the team goes further to design, test, and implement scalable behavioral change interventions.

Staffing

NHSE has a central team of nine behavioral scientists working among a wider team of other analysts and data scientists. The team sits under the NHS Chief Analyst. Alongside the central team are pockets of behavioral science interest and expertise across regional teams and embedded within some program teams.

Activities

The team's remit is broad, across projects that seek to support patients and the public, or clinicians and other healthcare staff. Themes include the adoption of new healthcare technologies, optimal use

of NHS resources, and behavioral factors that form part of complex change programs, as when introducing new clinical pathways. As of early 2024, specific projects include improving the uptake of cancer screening, supporting patients' management of long-term conditions at home, and motivating participation in clinical trials.

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Photo Credit: K Mitch Hodge

Northern Ireland

In Northern Ireland, the public health behavioral science function is provided by the Health Intelligence Unit in the Northern Ireland Public Health Agency.

Health Intelligence Unit

Objective

Ensure that a rigorous behavioral science approach is used in the development and evaluation of public health behavioral interventions led by or involving the Public Health Agency. Provision of public health behavioral advice and guidance in policy/strategy development.

Staffing

The public health behavioral science function is provided by the Health Intelligence Unit, which currently sits in the Operations Directorate of the Northern Ireland Public Health Agency. The Health Intelligence Unit has approximately 12 staff members. The Unit provides both public health behavioral research and analytics and population health research and analytics, so its behavioral science capacity is spread thin. Many team members worked as qualitative and/or quantitative researchers before joining the Unit.

Activities

Synthesize existing behavioral evidence, conduct primary research on factors influencing behaviors, test and evaluate public health behavioral interventions.

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Photo Credit: Pixabay

Scotland

Strategy and Insight Team and the Society and Wellbeing Research Team in Scotland
Year established: 2012

Department

Scotland has behavioral science coordination functions spread across two teams in the national government: the Strategy & Insight Team (in the Communications Division) and the Society and Wellbeing research team in the Central Analysis Division, which provides guidance and training. The latter also coordinates a network for people using behavioral science approaches within policy and analytical programs.

Objective

Ensure that behavioral science informs all policy and communications activity delivered by or on behalf of the Scottish government.

Staffing

The Strategy and Insight Team specializes in communications and research. It has approximately 10 members, who use behavioral insights to shape communications activity. Many team members worked as qualitative or quantitative researchers before joining the team.

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Photo Credit: Beata Mitrega Nsi

Wales

Behavioural Science Unit, Public Health Wales

Department

The team is located within the Policy and International Health (WHO Collaborating Centre on investment in health and wellbeing) Directorate.

Objective

To lead and enable the increased routine use of behavioral science to improve and protect health and wellbeing and reduce health inequities. The unit scope covers service user behaviors and practitioner/policymaker behaviors and is concerned with the application of behavioral sciences to optimize policy, services, and communications.

Staffing

The unit has a Programme Director, Head of Behavioural Science, two permanent Senior Behavioral Science Specialists, an allied staff member working on health protection, and a fixed-term staff member focused on transportation (in partnership with Transport for Wales). Knowledge, research, and project support officers complete the team. Interns (PhD students and public health specialty registrars) occasionally work in the Unit. Core expertise in health psychology, sociology, research and evaluation, public health, and policy development are present.

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Activities

The team supports the application of behavioral science in a dynamic

range of topic areas, including cancer screening and diabetic eye screening uptake, vaccine uptake, healthy weight, physical activity, health-harming behavior modification interventions, and climate-positive behaviors. The team also focus on capability development to routinely apply behavioral science across the public health system through readiness assessment, training, facilitating a cross-sector Community of Practice, producing guidance and tools, and curating a repository of resources on behavioral science for better health.

Special Thanks:

Anna Sallis
U.K. Behavioural and Social Sciences Team

Ben Cavanagh
U.K. Behavioural and Social Sciences Team

Dan Berry
U.K. Behavioural and Social Sciences Team

Richard Amlôt
U.K. Health Security Agency

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UNITED STATES

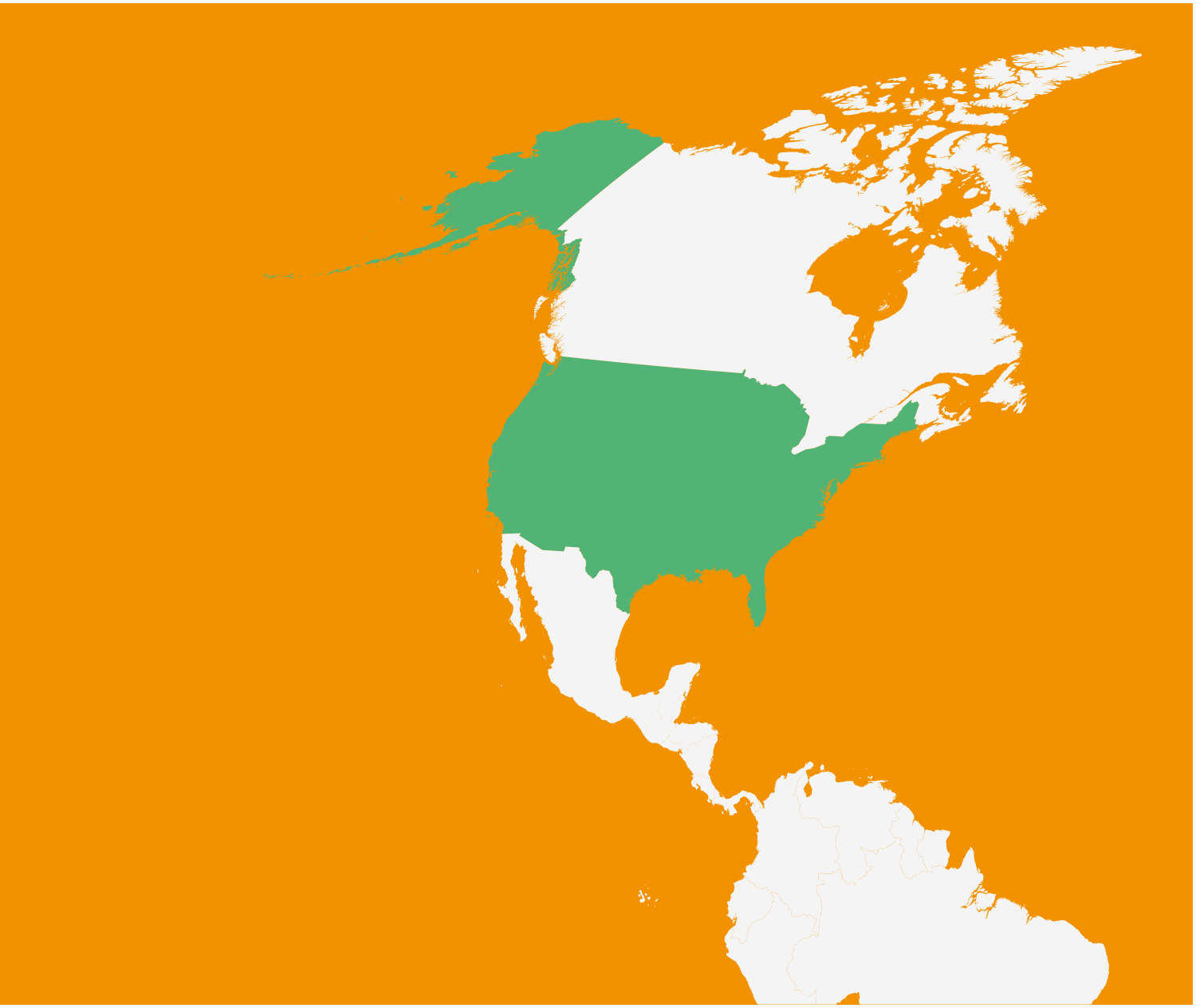

Photo Credit: Alex Azabache

Background and Overview

The United States began incorporating behavioral science into public policy in the mid-to late 2000s.

Many units have since formed across the national (federal) and subnational (state) governments, including the Centers for Disease Control and Prevention (CDC) Demand for Immunization Team (DIT) and the National Institutes of Health (NIH) Office of Behavioral and Social Sciences Research (OBSSR), both of which are dedicated to the application of behavioral insights to public health. At the federal level, the General Services Administration Office of Evaluation Sciences (OES) also works on public health challenges, although not exclusively.

Each national unit targets slightly different health challenges, with the DIT focusing more on building demand for immunization in low- and middle-income countries (the only entity in this report that works outside its country), the OBSSR focusing on generating health-related research on behavioral and social sciences, and the OES working on health-based projects on a more ad-hoc basis. The United States also has state units that use behavioral science to address policy challenges, but their scope tends to expand beyond public health. In this way, the U.S. model is like that of Australia's and Canada's, which both have national behavioral science units that coordinate work conducted at the subnational level.

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National Government Behavioral Insights Unit

Demand for Immunization Team, Global Immunization Division, Centre for Disease Control, Global Health Center
Year established: 2016

PUBLIC HEALTH AREAS

Immunization

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies or applied research on factors influencing behavior
- Mobilize and engage community

Objective

Use behavioral science and health communication principles and methods to increase demand and uptake of immunization in low- and middle-income countries. The team works in three main areas: diagnosing and intervening in behavioral and social drivers of vaccine demand and uptake; uniting technical expertise from safety and demand disciplines to address the impact of vaccine safety concerns on vaccine confidence; and generating evidence, guidance, and tools to manage false or misleading information circulating in digital and physical environments. In addition to behavioral insights capacity, the team has infodemic management and risk communication functions.

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Staffing As of January 2024, the team had six full-time technical staff and one fellow, and included backgrounds in health communication, psychology, behavioral sciences, epidemiology, health promotion, and implementation science.

Process Projects are developed and initiated through consultations with global partners and working relationships with MoHs, and by implementing partners in countries. To support the lifecycle of its work, from assessment and diagnostics to interventions and evaluations, the unit uses a multitude of frameworks. In recent years, it has adopted the WHO-recommended behavioral and social drivers' framework and related tools for understanding determinants of vaccine demand and uptake. It also uses the COM-B model.

Activities

- **Using rapid community assessment to understand barriers and facilitators of vaccination.** In Haiti, DIT supported the MoH in conducting a rapid community assessment to understand barriers to and facilitators of COVID-19 vaccine demand and uptake. Through the community assessment, findings identified a lack of community engagement and social mobilization among community leaders. A need for updated communications and social-listening activities to detect and respond to community questions and concerns and circulating mis- and disinformation was discovered. The assessment also identified barriers to accessing vaccination among some community members. In Uganda, DIT adapted the rapid community assessment methodology to understand potential facilitators and barriers to uptake of measles-containing vaccine second dose (MCV2) among caregivers and healthcare workers prior to its introduction to help inform the MoH roll-out of the vaccine. Findings from this activity were disseminated with the national EPI, who is currently planning for relevant, tailored community engagement strategies to improve MCV2 uptake.

- **Working with governments and partners in Ghana and Thailand to establish national social-listening systems to diagnose infodemic-related issues.** Given the rise in mis- and disinformation since the COVID-19 pandemic, there is a need to build health system capacity for social listening and related analysis to identify and mitigate issues that can affect vaccine confidence. The DIT led trainings in close collaboration with the MoH in Thailand and Ghana to build their capacity and systems for social listening and infodemic management to increase COVID-19 vaccine confidence and demand. The trainings were tailored for each country context and need by applying subject

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matter expertise in health communications, risk communication, infodemic management, and qualitative analysis. These trainings included the establishment of trained infodemic management teams within the existing government public health structures and development of a system for routine development and dissemination of infodemic and vaccine demand reports through routine social listening and integrated analysis. This enabled MoH with current data to identify potential signals based on circulating misinformation, develop and take specific actions, and broadly address any infodemic challenges.

Office of Evaluation Sciences, General Services Administration

Year established: 2015

PUBLIC HEALTH AREAS

Immunization

BEHAVIORAL SCIENCE ACTIVITIES

- Conduct studies or applied research on factors influencing behavior
- Mobilize and engage community

Website https://oes.gsa.gov/

Objective The Office of Evaluation Sciences (OES) is an interdisciplinary team that works across the federal government to help agencies build and use evidence. The OES aims to make government better by helping agencies build and use evidence to learn what works. It partners with federal agencies to answer priority questions with rigorous evaluation methods and administrative data, and it designs and conducts evaluations of existing programs and evidence-based program changes.

Staffing The OES has recruited more than 175 interdisciplinary experts (e.g., psychologists, economists, statisticians)—a mix of federal employees,

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fellows, and academic affiliates who are often on loan from a university or research institution.

Process

The team follows a well-documented six-step process for every evaluation. At each step, templated paperwork helps guide team members to produce results that are relevant and reliable.

Select projects

Since 2015, the OES has conducted nearly 100 impact evaluations. The following are a few examples:

- **Encouraging vaccine uptake compliance of older adults.** The CDC has identified that adults aged 65 and older are at higher risk of vaccine-preventable diseases than younger people and recommends a series of vaccinations. To encourage compliance with these recommendations, OES worked with the Louisiana Department of Health to send a postcard reminder of recommended vaccines to people aged 65 to 70. The OES randomized when an individual received the postcard reminder and studied the effect of sending the postcard earlier or later in the season on the proportion of vaccinations that individuals received. Reminders in November led to the most vaccinations received, with 876 more delivered in the test group than the control group, which received no reminder (Louisiana Department of Health, 2019).
- **Reducing quetiapine prescriptions using behaviorally informed letters to physicians.** Quetiapine is an antipsychotic that is prescribed at a particularly high frequency for off-label use. To increase the value and safety of quetiapine prescribing to Medicare program beneficiaries, the OES partnered with the Centers for Medicare and Medicaid Services Center for Program Integrity to send a series of peer comparison letters to high-volume quetiapine prescribers indicating that their prescribing was much higher than that of their within-state peers. Prescribers who were sent these letters supplied 11.1% less quetiapine prescriptions than those in the control arm, without any detectable harm to patients (JAMA Psychiatry, 2018).

Office of Behavioral and Social Sciences Research, Department of Health and Human Services, National Institutes of Health

Year established: 1993

PUBLIC HEALTH AREAS

- Antimicrobial resistance
- Communicable diseases
- Emergencies
- Environmental health
- Health promotion
- Health system strengthening
- Immunization
- Maternal and child health
- Mental health
- Nutrition
- Non-communicable diseases
- Sexual and reproductive health and rights

Cont.

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Social determinants of health

Substance abuse

Violence and injury prevention

Water, Sanitation and Hygiene

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Build capacity

Website https://obssr.od.nih.gov/

Objective Enhance the impact of health-related behavioral and social sciences research (BSSR), coordinate BSSR that NIH conducts or supports, and communicate health-related BSSR findings to stakeholders within and outside the federal government.

Staffing The office has 22 staff members: three directors, six policy analysts, nine health science or social and behavioral science administrators, one scientific writer (contractor), one communications specialist, and two program specialists. All scientific staff have advanced degrees in public health or the social sciences.

Select projects A research activity or project (e.g., grant application, funded grant, contract) is considered a BSSR project if one or more of its specific aims includes understanding or modifying behavioral or social phenomena related to health. The office does not award or manage research grants but works closely with NIH institutes and centers in support of BSSR in several areas of health.

- **Behaviorally informed recommendations on distribution of COVID-19 vaccines to encourage public uptake.** Although COVID-19 vaccines have been a powerful tool for controlling the pandemic, the public's confidence in and willingness to receive the vaccines were

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believed to determine the outcome of this mass-scale public health intervention. As such, the OBSSR developed a report that outlined evidence-informed communication strategies to help federal agencies and their state and local partners distribute COVID-19 vaccines. The report recommended coordinated communication and consistent messaging, building trust through partnerships, considering various health literacy levels in the population, and prioritizing equity in all aspects of communication (Chou et al. 2020).

- **Providing recommendations to increase sleep.** In 2016, more than 35% of American adults and nearly 73% of high school students were sleep deprived, receiving fewer than eight hours of sleep per night. Poor sleep contributes to many health-related problems, including automotive fatalities, medical errors, obesity, heart disease, and diabetes. OBSSR has contributed solutions to reduce the impact of limited sleep on public health, such as implementing regulations that limit the work hours of commercial vehicle operators and recommending later school times to increase the median sleep time of students and school attendance (NIH n.d.).

Future of behavioral science

A new strategic plan for OBSSR that will guide future work will be published in 2024 and posted to the OBSSR website (https://obssr.od.nih.gov/about/strategic-plan).

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Social and Behavioral Science Working Group, Office of Regulatory Science and Innovation, Food and Drug Administration

Year established: 2013

PUBLIC HEALTH AREAS

- Antimicrobial resistance
- Communicable diseases
- Emergencies
- Health promotion
- Immunization
- Maternal and child health
- Mental health
- Non-communicable diseases
- Nutrition
- Social determinants of health
- Substance abuse

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BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies on factors influencing behavior
- Conduct experiments to evaluate impact
- Mobilize and engage community
- Build capacity

Objective Promote scientific communication and collaboration internally and with external stakeholders. The SBSWG makes recommendations to the FDA and Chief Scientist on planning, reporting, programs, communication, and emerging challenges related to social and behavioral aspects of regulatory science. The functions of the SBSWG are separate and distinct from activities within FDA centers and offices, which manage their own social and behavioral scientific responsibilities that are unique to their mission.

Staffing The SBSWG consists of approximately 30 subject-matter experts from across the FDA centers and offices as appointed by their respective senior management.

Process The SBSWG defines its goals and objectives in alignment with the missions of the Department of Health and Human Services and the FDA, which is one of 11 operating divisions within the Department of Health and Human Services. The SBSWG reports to the FDA Senior Science Council and provides updates on its accomplishments. As an advisory group, the SBSWG is not intended to replace the decision-making responsibilities of the FDA office and center leadership, which will have the final authority on science and policy issues.

Select Projects SBSWG activities include coordinating cross-cutting regulatory challenges as they pertain to social and behavioral sciences, such as identifying gaps in the scientific research, making recommendations to

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address those gaps, providing input on development of research proposals, and reviewing social and behavioral aspects of program activities in the Office of the Chief Scientist that support regulatory science, including professional development, training, and scientific integrity.

Special Thanks:

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BSSR & OBSSR, NIH

Elizabeth Petrun Sayers
FDA

Neetu Abad
DIT, CDC

Pompa Debroy
OES

Shibani Kulkarni
DIT, CDC

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MODEL 2: Countries with Units Outside MOHs

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This section profiles Argentina, Brazil, Chile, France, India, Japan, and South Africa. Units in these countries tend to be relatively new (developed within the last five years) and often the first behavioral science function within government. Units profiled in this section sit within the national government (except for Brazil and Japan) in the Ministry of Economics or Finance or in a transformation or innovation department. As such, these units focus on a broad range of policy challenges, including in public health, finance, transportation, employment, and energy.

Rather than projects being chosen through higher-level strategy, the government agencies that approach the behavioral science unit for assistance often select them. This type of model seems to work well in countries new to the application of behavioral science that are

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looking to build buy-in and momentum for the approach across the government. Being placed outside of the MoH, these units are presented with more opportunities to showcase the value of behavioral science across sectors.

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ARGENTINA

Photo Credit: Nicolas Flor

Background and Overview

The Argentina Behavioral Sciences and Public Policies Unit is the country's first government behavioral science unit.

Established in July 2021, it applies behavioral science to a range of policy areas, including finance, health care, and energy. Within its health care portfolio, it has focused on improving maternal and child health, nutrition, immunization, organ donation, and hygiene among Argentineans.

Although the unit is still making a case for behavioral science in policy, it believes that more BIUs will emerge at various government levels, with some units tailored to policy areas such as health care.

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National Government Behavioral Insights Unit

Behavioral Sciences and Public Policies Unit, National Secretariat of Development Planning and Federal Competitiveness, Ministry of Economics
Year established: 2022

Public health areas

- Immunization
- Maternal and child health
- Nutrition
- Water, Sanitation and Hygiene

Behavioral science activities

- Conduct experiments to evaluate impact
- Build capacity

Website https://www.argentina.gob.ar/consejo/unidad-de-ciencias-del-comportamiento-y-politicas-publicas/quienes-somos-y-que-hacemos

Objective Improve the lives of people and communities by working with the

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federal, provincial, and municipal governments to implement simple changes that have the potential to solve big problems.

Staffing

The unit comprises nine people: a managing director, a scientific director, a project coordinator, a sociologist, two economists, two political scientists, and a psychologist. Consultants are periodically brought in from the Argentina Behavioral Sciences Network and IDB to consult on specific projects.

Process

The team uses academically published behavioral frameworks, theories, and models to guide its work, including COM-B, MINDSPACE, and EAST.

Select projects

Although the unit works on projects within and outside the public health sector, its public health work is coordinated with health authorities to ensure priority alignment. A selection of projects within its health portfolio is outlined below.

- **Encouraging breastfeeding among mothers during the first six months of a child's life.** The team is working to identify why primary health-care centers prescribe formula. They aim to use this information to design behavioral interventions that will reduce prescriptions of formula and promote exclusive breastfeeding for the first six months of a child's life.
- **Leveraging artificial intelligence to increase uptake of COVID-19 vaccine booster shots.** To increase COVID-19 vaccination rates for the second dose and booster shots in Chaco, the unit implemented a WhatsApp chatbot that reminded people to get vaccinated and simplified the process of getting vaccinated. The team is analyzing the effect of the chatbot on vaccination demand. As the results in Chaco were promising, the team and the National Health Ministry are designing a plan to extend the chatbot to the rest of the country and to use it not only with vaccination plans but with other non-communicable diseases.
- **Design a manual for augmenting organ donation.** The number of organ donors has grown following a legislative change in the default option to assume a willingness to donate and effective enforcement by health authorities. However, there has not been a corresponding increase in effective ablation procedures. The Unit worked with regulatory agencies at the field levels to identify the behavioral barriers within the system that prevent the transformation of donors into

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organ transplants. After two years of work, agencies and the Unit designed a behavioral manual to try to remove those barriers.

Future of behavioral science

The unit aims for a future in which, in addition to the currently centralized unit within the federal government, decentralized units emerge across regional and local agencies and ministries. They plan to facilitate this change by demonstrating impact and developing a toolkit of behavioral science resources that makes it easy for decision makers to apply behavioral science to public policy in Argentina.

Special Thanks:

Fernando Torrente
Inter-American Development Bank

Iván Budassi
Behavioural Science and Public Policy Unit

Paula Caccia
Behavioural Science and Public Policy Unit

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BRAZIL

Photo Credit: Michelle Guimarães

Background and Overview

Brazil's government-based behavioral science units reside in subnational governments.

For example, NudgeRio is based in Rio de Janeiro's City Hall, and the Laboratório de Inovação em Governo is located within the São Paulo Municipal Secretariat of Innovation and Technology. The Laboratório de Inovação em Governo unit is an innovation unit with behavioral science capacity. By contrast, NudgeRio is exclusively a behavioral science unit in the municipality of Rio de Janeiro.

Subnational Government Behavioral Insights Units

Nudge Rio, Data and Behavior Coordination Unit, João Goulart Foundation
Year established: 2014

Public health areas

- Communicable diseases
- Immunization
- Violence and injury prevention

Behavioral science activities

- Synthesize existing behavioral evidence
- Conduct studies on factors influencing behavior
- Conduct experiments to evaluate the impact of evidence-informed interventions

Objective Evaluate nudges that Rio City Hall implements to enable policymakers to make evidence-informed decisions.

Staffing The unit has three core staff members: one behavioral scientist and two data scientists. The behavioral scientist proposes and designs the experiments, and the data scientists analyze the results.

Process Typically, a decision maker from Rio City Hall approaches the unit with a problem they would like to address. The unit conducts stake-

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holder interviews to determine whether the challenge is behavioral. If the project is deemed a good fit, the unit will collect benchmark data before designing an evaluation.

Select projects

At the time of this writing, most of the unit's health-related work involved encouraging COVID-19-compliant behaviors. In the future, the unit hopes to work on appointment attendance.

Encouraging at-home isolation during COVID-19. During the COVID-19 pandemic, the unit helped produce messages to encourage people to stay at home, including a photograph of Sugar Loaf Mountain (one of the most iconic landmarks in Rio de Janeiro) with accompanying text that read: "Rio's landscape gives a hint. Let's flatten the curve." This image went viral, being shared around the world. City Hall also flew drones around the city with audio messages created by NudgeRio to remind people to avoid crowded areas and to wash their hands. Unfortunately, the novelty of the drone caused people to gather around it, resulting in a backfiring effect.

Laboratório de Inovação em Governo, Municipal Secretariat of Innovation and Technology, São Paulo

Year established: 2017

Website

https://011lab-prefeitura-sp-gov-br.translate.goog/sobre-o-011-lab?_x_tr_sl=pt&_x_tr_tl=en&_x_tr_hl=en&_x_tr_pto=sc

Objective

Address the difficulties of municipal management in the delivery of services to better meet the population's needs. The unit creates innovative solutions to problems of public interest and increases public servants' capacity to innovate so they can mobilize communities of practice and improve services for citizens.

Staffing

Twenty-three people work for the laboratory, five of them United Nations Educational, Scientific, and Cultural Organization short-term

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consultants, eight of them interns, and 10 civil servants. Behavioral science expertise is acquired in house.

Process

When the lab was established, most project work was generated through proactive outreach to government agencies. The unit has since built a reputation for its work, which has led agencies to approach it to develop projects jointly.

Select projects

- **Reducing missed medical appointments by changing call center scripts.** The Brazilian government provides universal health care, and public servants working for the city of São Paulo have access to a dedicated hospital. To schedule an exam or a visit, an individual phones a call center. One day before the appointment, patients receive a reminder call from the call center. For both types of calls, attendants follow a script. By changing the content of these scripts, the unit reduced missed appointments by 12%.
- **Identifying barriers to complying with COVID-19 mitigation measures on public transit.** During the COVID-19 pandemic, residents of São Paulo were asked to follow strict rules on public transit to limit the spread of the virus. To encourage transit-goers to wear masks and maintain physical distance, the unit designed a series of messages delivered as push notifications using Geofence technology to passengers at municipal bus terminals. Unit members then observed images from terminal security cameras to understand behavioral patterns. Based on these observations, the unit recommended specific communication strategies, and ensuing campaigns at the terminals targeted problematic behaviors identified.
- **Encouraging cervical cancer screenings.** In partnership with the Health Secretary and Sociedade Beneficente Israelita Albert Einstein, one of the main private health care providers in the country, the unit is exploring ways to motivate women to undergo cervical cancer screenings (Papanicolaou and HPV tests). The unit is in the diagnosis phase of the project, which includes mapping the behavior of the target audience to understand the behavioral challenges they might be experiencing via survey and observational data.

Future of behavioral science

The unit will take on another behavioral science and public health project focused on reducing obesity.

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Special Thanks:

Alexandre Cherman
Nudge Rio

Larissa dos Santos Paulo
Laboratório de Inovaçao em Governo

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CHILE

Photo Credit: Alisha Lubben

Background and Overview

The Laboratorio de Gobierno (LabGob) is an innovation program in the national government that uses behavioral science as an innovation tool. It began intentionally and formally embedding behavioral science in 2020 with one dedicated behavioral scientist.

Because the laboratory focuses on innovation, the team uses behavioral science, human-centered design, service design, user research, and technology to improve public services for citizens. The laboratory applies these tools to policy challenges ranging from financial services to public health.

National Government Behavioral Insights Unit

Laboratorio de Gobierno de Chile
Year established: 2020

PUBLIC HEALTH AREAS

- Health system strengthening
- Mental health

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies or applied research on factors influencing behavior
- Conduct experiments to evaluate impact
- Build capacity

Website https://www.lab.gob.cl/

Department Since 2022, LabGob has been housed in the Ministry of Finance. Previously, the lab depended on the Ministry of the General Secretariat of the Presidency and, before that, on a core committee that the Ministry of Economy, Development, and Tourism chaired. With the move to the Ministry of Finance, LabGob was incorporated into the State Modernization Agenda 2022-2026.

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Budget In 2023, LabGob had a US$1.7 million budget for its entire operation, consisting of 28 people.

Objective To devise evidence-based solutions to public problems in collaboration with other organizations; encourage behavioral science approaches in public institutions; and improve public services using a systematic, user-centered perspective.

Staffing The team has a resident behavioral scientist; other permanent members specialize in user research, technology, process management, engineering, and service design.

Process The unit uses the COM-B model for diagnostic activities and research to understand barriers related to a behavior they want to encourage. The team then uses the Behaviour Change Wheel to match potential interventions with the barriers identified. Finally, using self-report measures and administrative data, the team analyzes whether the implemented intervention changed behavior.

Select projects In most cases, LabGob gets its work through proactive outreach from government institutions. It has implemented 33 innovative solutions; a selection of its health-related projects is overviewed below.

- **Improving children's mental health during isolation due to COVID-19.** During the pandemic, more than 800,000 Chilean children were unable to go to school in person. In partnership with the Undersecretary of Early Childhood Education, LabGob created a behaviorally informed program to foster child development at home. The program encouraged parents to read stories to their children and physical play, which led to 32% and 8.5% improvements in mental health measures, respectively, according to an RCT (Laboratorio de Gobierno n.d.).
- **Supporting women experiencing domestic violence.** After domestic violence increased during COVID-19 lockdowns, LabGob worked with the Ministry of Women and Gender Equity and the National Service of Women and Gender Equity to create a WhatsApp channel where women who lived with their aggressor could provide information and receive emotional support. Meta funded the channel's development and three months of service support. This channel led to a 13% increase in reporting of domestic violence and has become a permanent service channel.

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- **Encouraging uptake of e-prescriptions by physicians.** To reduce medication errors, the MoH launched electronic prescription software, but few physicians have used it. LabGob is developing interventions to encourage uptake of e-prescriptions by health professionals and patients, and will evaluate the effectiveness of these interventions using an RCT.

Future of behavioral science

In the next five years, playing a leading role in the government's modernization agenda, the lab will leverage advances in technology and data science to provide knowledge of complex systems related to human behavior, enabling the design of behavioral interventions that have a high probability of success.

Special Thanks:

Catalina Gutiérrez
LabGob

Ignacio Paiva
LabGob

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National Government Behavioral Insights Unit 138

FRANCE

Photo Credit: Vincent Rivaud

Background and Overview

The Interministerial directorate of public transformation is entrusted with the implementation of the France's public transformation program.

Which aims to foster closer, simpler, and more efficient public action, ultimately leading to tangible improvements in the lives of French citizens and public sector employees. To achieve this, the DITP actively supports and oversees the delivery of high-impact policies, promotes the dissemination of innovative methods, and coordinates administrative action to simplify procedures and improve the quality of public services.

Like LabGob, DITP uses behavioral science in its innovation toolkit. Within a directorate of over 100 experts, a team of five people are responsible for promoting the use of behavioral sciences and evidence-based policy into policymaking. Their work within the DITP has been strengthened by €6 million in project funding (Programme d'investissement d'avenir & Fond pour la transformation de l'action publique), enabling the unit to apply behavioral science to a range of policy areas, including financial services, employment, environment, and health care. France does not have a behavioral science function embedded in its MoH, but its work under the Ministry of Public Sector Transformation and Civil Service has included public health projects.

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National Government Behavioral Insights Unit

Direction Interministérielle de la Transformation Publique, Ministry of Public Sector Transformation and Civil Service
Year established: 2015

PUBLIC HEALTH AREAS

- Antimicrobial resistance
- Environmental health
- Health promotion
- Immunization
- Maternal and child health
- Violence and injury prevention

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Contact studies on factors influencing behavior

Cont.

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- Conduct experiments to evaluate impact
- Mobilize and engage community
- Build capacity

Website https://www.modernisation.gouv.fr/loffre-daccompagnement-de-la-ditp/sciences-comportementales

Objective Implement the government's public transformation program to foster a closer, simpler, and more efficient public action, ultimately leading to tangible improvements in the lives of French citizens and public sector employees.

Staffing The DITP includes more than 100 experts and consultants in organization, project management, operational performance, citizen participation, user experience, design, and behavioral science. A team of experts is mobilized based on the project and the skillsets required. The behavioral sciences team within the DITP is composed of five experts in cognitive neuroscience, psychology, and public policy.

Process The DITP's BIU addresses policy challenges at the request of its administrative partners. High-impact projects corresponding to the government's agenda are prioritized.

Select projects

- **Encouraging physical activity by promoting sports uptake.** Following the government priority of increasing the number of people who engage in physical activity in France by 3 million by 2024, DITP supported the Ministry of Sport in 2020 to provide behavioral solutions to encourage physical activity. In its research, the BIU learned that lack of motivation and time were the leading contributors to lack of physical activity (DITP Behavioral Sciences Team 2019). These insights enabled DITP to create a platform to encourage civil servants to be more physically active. The platform overcomes identified barriers to exercising by providing daily reminders and personalized advice and content.
- **Increasing digital insurance claims through behaviorally informed emails.** Thirty percent of requests for insurance cards made to the

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National Health Insurance Fund could be made online. These requests instead tend to be made in person or via post because of a lack of knowledge of teleservice, complicated and contradictory information, status quo bias, and friction points when ordering online. To increase digital requests, the behavioral science team developed four versions of a simplified email incorporating various behavioral levers (simplification, visualization, personalization, social proof). All four versions increased the number of people ordering insurance cards online. The most efficient intervention was the personalized email, which increased the likelihood of ordering an insurance card online by 53% (DITP Behavioral Science Team 2021).

Future of behavioral science

In addition to the main goal of addressing high-impact policy challenges, the unit is working on a service offer aimed at promoting capacity building in other administrations.

Special Thanks:

Audrey Roncigli
Direction Interministériell de la Transformation Publique

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National Government Behavioal Insights Unit 143

INDIA

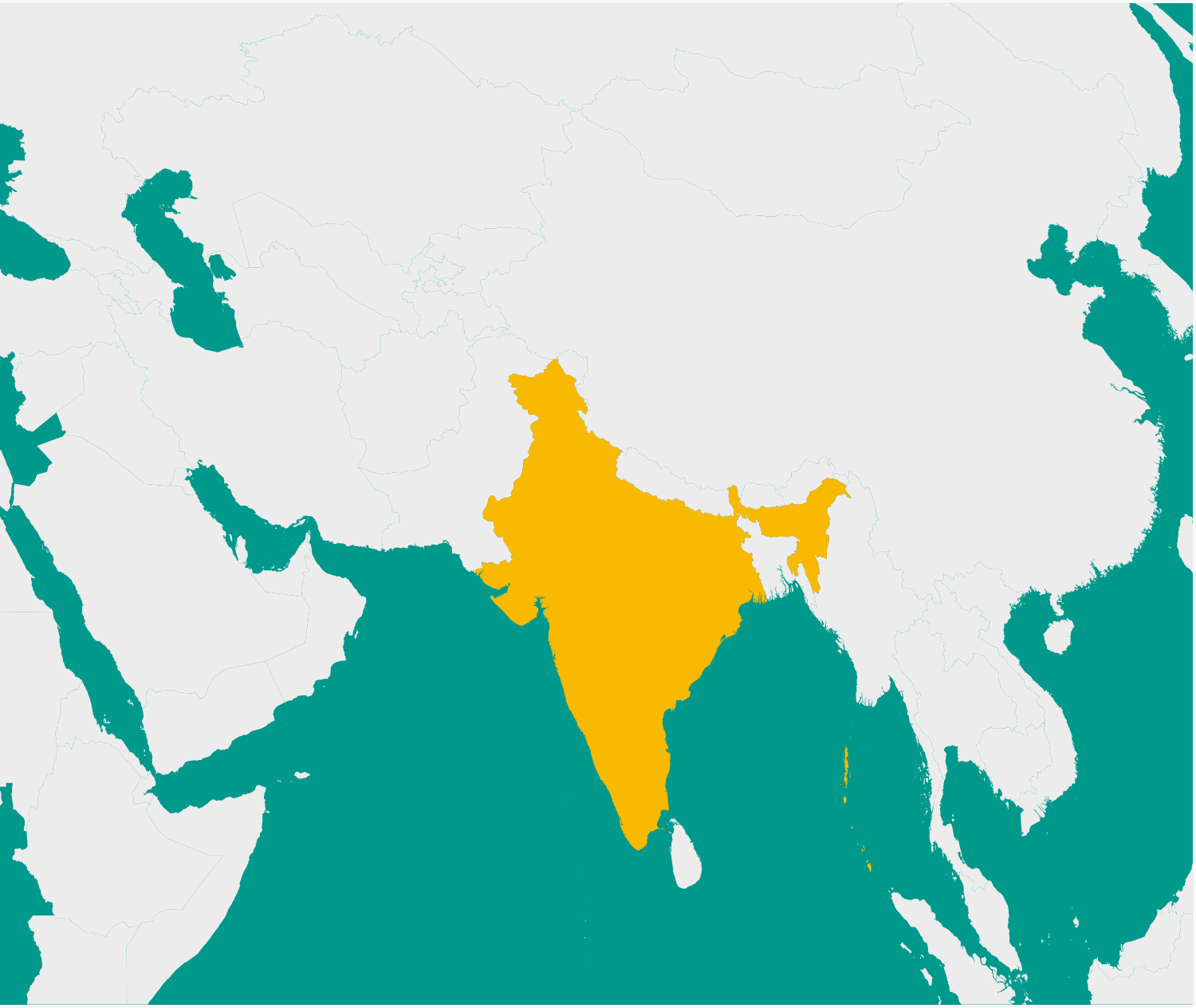

Photo Credit: Abdulaziz Mohammed

Background and Overview

India uses a unique model to embed behavioral science in policy. NITI Aayog is a government agency that operates as a think tank. It has a behavioral science unit known as the Behavioural Insights Unit of India, NITI Aayog (NITI-BIU).

Unlike other government-embedded units, which the government funds entirely, NITI-BIU is resourced and financed through a tripartite relationship between the government, the Centre for Social and Behaviour Change (CSBC), Ashoka University, and the Bill and Melinda Gates Foundation. Ashoka University and the Gates Foundation pay the salaries of core staff and most project costs, and the government provides the core problem statements and research and policy support for the scale-up of successful behavioral interventions.

In this way, the NITI-BIU models a unique way to incorporate behavioral insights into public policy through government partnerships. NITI-BIU works on a range of policy issues, from public health to financial health. As the first BIU in South Asia, it shoulders the dual responsibility of introducing behavioral insights into new policies and analyzing India's current policy ecosystem to find opportunities to incorporate behavioral sciences.

National Government Behavioal Insights Unit

Behavioural Insights Unit of India, NITI Aayog, Office of the Chief Executive Officer
Year established: 2021

PUBLIC HEALTH AREAS

- Environmental health
- Maternal and child health
- Nutrition
- Sexual and reproductive health and rights
- Immunization
- Water, Sanitation and Hygiene

BEHAVIORAL SCIENCE ACTIVITIES

- Identify behavioral dependencies and factors in federal policy programs
- Synthesize existing behavioral and policy evidence
- Design and evaluate behavioral solutions
- Build capacity

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Website https://csbc.org.in/national-biu.php

Objective The core objective of NITI-BIU is to strengthen the design and delivery of public policy in India using a behavioral approach.

Staffing The NITI-BIU consists of an academic lead, a policy lead, a post-doctoral research fellow, a senior policy manager, and several other managers and associates. All team members have formal training and education in behavioral science or the social sciences. For certain projects, the unit is also periodically staffed with research experts from other teams at the Centre for Social and Behaviour Change (CSBC) at Ashoka University, Young Professionals of NITI Aayog, and on occasion, deputations from the United Nations.

Process The NITI-BIU develops an annual action plan in consultation with the key stakeholders.

Select projects

- **Reducing anemia by encouraging use of iron and folic acid tablets.** According to the National Family Health Survey 5 (2019-21), 52.1% of pregnant women in rural India are anemic. The unit designed two interventions—a goal-tracking calendar and a counseling card—to increase use of iron and folic acid tablets to reduce anemia in pregnant women. In an RCT, iron and folic acid pill uptake significantly increased, by 11 and 9 percentage points, respectively. Currently, the unit is supporting scale-up of the interventions and also working on other interventions to reduce anemia among adolescent girls.

- **Increasing uptake of the HPV vaccine.** In India, cervical cancer is the second-highest cause of cancer death in women, accounting for more than 96,922 new cases and an estimated 60,078 deaths annually (Arbyn et al. 2020). The HPV vaccine, which is recommended to be administered to adolescent girls, is a proven solution but has very low uptake in India. The team, along with other researchers from the CSBC, tested five interventions in a randomized experiment and discovered that an intervention directed at reminding physicians of the dangers of cervical cancer and the ease of preventing it led them to be 2.2 times as likely to recommend the vaccine to adolescent girls.

- **Improving the Demand for Water Quality Testing.** The Jal Jeevan Mission is a flagship scheme of the government that seeks to provide functional household tap connections to all rural households by the year 2024 to promote access to safe water for better health

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and hygiene. The team, along with other researchers from CSBC, designed several behavioral interventions that included a negative framing video that increased the salience of the negative consequences of unsafe water, a positive framing video that increased the salience of the positive consequences of safe water, a scientific testing video that demonstrated and demystified water quality tests, and a water taste-or-test game. A field experiment in rural India designed to evaluate the impact of the behavioral interventions revealed that the negative framing was most effective among the video interventions, and the game-based intervention significantly increased household testing of water. Currently, the unit is supporting scale-up of the interventions with the Department of Drinking Water and Sanitation.

- **Understanding current uses of behavioral science within government.** The NITI-BIU analyzed 122 national policy programs to identify behavior change approaches that central and state governments were taking, as well as resultant areas of opportunity for policymaking to integrate behavioral insights in a more rigorous and effective manner. With the Development Monitoring and Evaluation Office of India, the NITI-BIU jointly published the findings of this analysis in a public report, Behaviour Change in Public Policy.

Future of behavioral science

The vision of the NITI-BIU for the next five years is to:

- Demonstrate a measurable impact on policy indicators using behavioral insights.
- Increase capacity of policy makers to use behavioral insights.
- Embed behavioral insights into the core design and processes of policy making in India.
- Publish research on behavioral insights in the Global South.
- Contribute to the field of behavioral insights using big data, artificial intelligence, and machine learning.

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Special Thanks:

Shagata Mukherjee
Academic Lead, Behavioural Insights Unit of India, NITI Aayog

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JAPAN

Photo Credit: Tomáš Malík

Background and Overview

The Ministry of Health, Labour, and Welfare promotes the use of behavioral science in public health.

However, there are no institutionalized behavioral science units working in public health in the national government of Japan. At the sub-national level, there are three units working at the intersection of public health and policy in Kagawa Prefectural Government, Tsukuba city, and the city of Yokohama.

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Subnational Government Behavioral Insights Units

Kagawa Nudge and Innovation Team (KNIT) in the Health and Welfare Department, Kagawa Prefecture
Year established: 2020

PUBLIC HEALTH AREAS

- Communicable diseases
- Health promotion
- Immunization
- Non-communicable diseases
- Nutrition
- Sexual and reproductive health and rights
- Social determinants of health
- Substance (e.g., tobacco, alcohol)

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BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct national or local studies or applied research on behavioral influencing factors
- Conduct experiments to evaluate the impact of evidence-informed interventions
- Community mobilization and engagement
- Capacity building (e.g., seminars, workshops)

Objective

Unit members of the KNIT, established in July 2020, use behavioral science methodologies, namely nudges, to advance public health through effective awareness campaigns and other activities. In 2023, KNIT's activities were officially established at the Tosan Public Health Centre, one of the public health centers in the Kagawa Prefecture. This enabled the formation of a more comprehensive Behavioural Insight Team specializing in public health, further enhancing its organized promotion of activities.

Staffing

The unit is composed of 28 officials (public health doctors, nurses, nutritionists, and other non-healthcare professionals).

Budget

The unit does not have a separate budget and utilizes Kagawa Prefecture's budget for project implementation.

Select projects

- **Increasing HPV vaccination rates in Kagawa prefecture by distributing flyers and Manga books.** Using loss-framing messaging suggesting the loss of a free vaccination, the unit was able to increase vaccination rates nearly tenfold (from 0.77% to 6.72%).
- **Increasing sexually transmitted infections (STI) tests by enhancing the clarity and comprehensiveness of website.** Making it easier for young people to find information on the Tosan Public Health Centre website resulted in a threefold increase in the number of STI tests. In comparison, no such increase was observed in the testing numbers at other health centers within the same prefecture.

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Nudge Study Group, Statistics and Data Utilization Promotion Office, Policy and Innovation Department, Tsukuba City

Year established: 2019

PUBLIC HEALTH AREAS

- Immunization
- Emergencies
- Health promotion

BEHAVIORAL SCIENCE ACTIVITIES

- Conduct experiments to evaluate the impact of evidence-informed interventions

Objective The nudge unit in Tsukuba city was established in December 2019 with the aim of improving citizens' lives by using nudges methodologies in the city's administrative work. The team started by building capacities such as knowledge of cognitive biases, cases from other cities, nudge design/implementation, and evaluation methods. Members have since extended their expertise, and the team now receives about 10 to 15 consultations annually from a variety of bureaus in the city government.

Staffing The team consists of 12 government officials, mainly from the Statistics and Data Utilization Promotion Office of the Policy and Innovation Department.

Budget The unit utilizes the city's general revenues.

Select projects

- **Nudge intervention to improve hand disinfection rates for visitors to the city office.** As an urgent measure to prevent the spread of

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COVID-19, the team conducted an experiment, based on nudge theory, aimed at increasing the rate of hand disinfection among visitors. Various methods, such as asking for disinfection by a security guard and moving the disinfectant solution to be in visitors' flow line, had a great effect on the hand disinfection, which rose from 10.5% to as high as 78.5%. By asking the security guard to assist, the city was able to achieve significant results without incurring any costs.

Yokohama Behavioural Insights and Design Team

Year established: 2019

PUBLIC HEALTH AREAS

- Communicable diseases
- Health promotion
- Health system strengthening
- Immunization
- Maternal and child health
- Non-communicable diseases
- Nutrition
- Social determinants of health
- Water, Sanitation and Hygiene

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BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct national or local studies on behavioral influencing factors
- Conduct experiments to evaluate impact
- Build capacity

Website https://ybit.jp/top-en

Department The Yokohama Behavioral insights and Design Team (YBiT) is the first nudge unit in a Japanese local government. YBiT is run on a voluntary basis; Yokohama City government officials contribute their free time to work in the behavioral science group, not as part of their official roles, but as a personal commitment to applying behavioral science in government. It has not been determined in which bureau the team will be housed. YBiT closely works with General Affairs Bureau and Policy Bureau to promote the effective use of behavioral science in the government.

Objective Solve policy problems by incorporating behavioral insights into every applicable policy in the city administration in the fields of climate change, public health, and medical care.

Staffing The team comprises about 15 government officials and advisors from academia working on a voluntary basis. Members come from a variety of bureaus.

Process YBiT receives requests for project consultation and training lectures through a consultation sheet on the city's intranet or via e-mail. The team typically uses the Organization for Economic Cooperation and Development BASIC framework and the EAST framework when conducting projects and designing interventions. .

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Select projects

- **Increasing rates of opening health examination reminders through envelope design.** As part of an effort to prevent lifestyle-related diseases, guidance on receiving a physical examination had been disseminated via physical letters. However, the participation rate remained low in the city. The YBiT conducted interviews with citizens and found that only 20% of people who received the letter opened it. The unit changed the messages printed on the envelope to be a simplified message, a message that leveraged loss aversion, a message that indicated the monetary value of an appointment, and a social norms message. All conditions performed well, leading to an approximate 56-percentage-point increase in open rates over the previous year.

- **Encouraging uptake of health examinations using behaviorally informed text messages.** Yokohama citizens often forget to attend medical examinations, placing a financial burden on the health system. To encourage people aged 40 to 50 to get a medical examination, the city's Health and Social Welfare Bureau in collaboration with YBiT tested various text message reminders: a control text message, which included a subsidy and participation deadline, and three experimental text messages. These included (1) a text message with the subsidy, the participation deadline, and the statement that health authorities recommend examinations (injunctive norms); (2) an incentive text message noting that citizens could receive medical examinations that cost approximately 10,000 yen for free; and (3) a personalized text message which indicated that the recipient was specifically selected to receive a health examination. All three messages resulted in higher acceptance rates for health examinations than the control message: 1.8% higher for the norms condition, 1.4% higher for the incentive condition, and 1.6% for the personalized message.

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Special Thanks:

Katsunori Yokoyama
KNIT

Yosuke Sakai
KNIT

Mayu Ogawa, Nudge Study Group
Tsukuba City

Yusuke Takagi
YBiT

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SOUTH AFRICA

Photo Credit: Tobias Reich

Background and Overview

The Western Cape government's Behavioral Insights Programme (BI4GOV) was the first behavioral insights unit in the government of South Africa.

Similar to Canada, where the first behavioral unit was formed at the sub-national level (in Ontario), BI4GOV was established at the sub-national level, in 2012, operating within the Policy and Strategy Unit of the Department of the Premier of Western Cape Town. Employees were originally drawn from other units within the policy unit and trained in behavioral science to form BI4GOV. The unit works on a range of projects, including some in public health.

Projects are typically selected based on the administration's strategic priorities over a five-year administrative term. Since 2022, BI4GOV has evolved into a network for BI practitioners, largely from the global south, and has moved out of the Western Cape Government and managed independently by its inaugural Director. The WCG remains a core partner.

Subnational Government Behavioral Insights Unit

BI4GOV, Policy and Strategy Unit, Department of the Premier of Western Cape
Year established: 2012

PUBLIC HEALTH AREAS

- Communicable diseases
- Mental health
- Social determinants of health
- Violence and injury prevention
- Water, Sanitation and Hygiene

BEHAVIORAL SCIENCE ACTIVITIES

- Synthesize existing behavioral evidence
- Conduct studies or applied research on factors influencing behavior
- Conduct experiments to evaluate impact
- Mobilize and engage community
- Build capacity

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Website https://bi4gov.org/

Objective Improve public policy design and implementation. Evidence generation and testing are emphasized.

Staffing Three full-time employees are responsible for incorporating behavioral insights into government projects in addition to other responsibilities outside of BI4Gov. The team does not have formal training in behavioral science but has gained expertise through knowledge transfer opportunities with consultants and funded on-the-job micro-courses.

Funding Receives core funding; varies each year according to Provincial Treasury allocations.

Process The team selects projects based on the strategic priorities of the administration. In some cases, projects are selected based on demand from a government partner. In other instances, projects are selected based on a political priority that the unit has identified with its strategic committees. The unit may engage in an advisory role, program implementation, and behavioral insight training for government officials. When working on projects that require program implementation, the unit uses the Define, Diagnose, Design, Test, Scale framework.

Select projects BI4GOV has conducted nine RCTs and several A/B tests to identify the impact of their behaviorally informed interventions. Their public health work includes:

- **Resetting beliefs about the HIV risk of low-income South African teens using gamification.** According to the United Nations, in 2018, almost 8 million people were living with HIV in South Africa. Teenage schoolgirls are three times as likely to be HIV positive as boys their age, in part because of age-disparate sexual relationships with older men. To correct the misperception of girls in South Africa that older men are safer sexual partners, the unit launched an HIV risk game that provided young girls with information about HIV risk. The unit wanted to determine whether providing information about HIV risk in the form of a game would be more effective than traditional methods of information provision (e.g., awareness campaigns and billboards). The treatment group that played the HIV game was significantly more likely to identify correctly which of two hypothetical individuals of different ages was more likely to have HIV, answering twice

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as many questions correctly as those in the control group, which was given an essay on HIV to read. Furthermore, 80% of the teens who played the game answered the question about HIV risk and age correctly, compared with 63% of the teens who read the essay. The results also suggested that these effects persisted over the next three months (Datta et al. 2015).

- **Reducing obesity rates by encouraging exercise at work.** Obesity in South Africa is attributed in part to an increase in skilled office workers, whose jobs offer little opportunity for physical activity during the week. To combat rising rates of obesity, the unit launched the Walk4Health initiative, which targeted office workers. By implementing a friendly competition with a public leaderboard, the unit saw average weight loss of 2.8 kg and a reduction in body mass index, cholesterol, and blood pressure (Western Cape Government and ideas42, 2014).

Future of behavioral science

To ensure the longevity of behavioral science in government, BI4GOV believes that government must transition away from using behavioral insights only for communications and toward using it for environmental restructuring at the point-of-service. This will require a multidisciplinary approach that links human-centered design with behavioral insights.

Special Thanks:

Ammaarah Martinus
Inaugural Director – BI4GOV

Ruth Capon
Western Cape Government

MODEL 3: Countries Where Behaviorally Informed Work in Health Is Conducted with Third-Party Support

URUGUAY
QATAR
ETHIOPIA
MEXICO

The previous two sections offered profiles of behavioral science units embedded in governments. This section describes a different approach to integrating behavioral science into policymaking and program design, namely through agreements with third parties for delivery of a behavioral science function.

Uruguay

In 2021, Uruguay launched the Observatory of Socioeconomic and Behavioral Sciences to generate evidence to inform government policies related to COVID-19. Unlike other units, such as the Netherlands Corona Behavioural Unit, the Observatory of Socioeconomic and Behavioral Sciences sits outside the government in the Republic

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University. Strategically, the function was placed outside of the government to enable fast action. It provided the first opportunity for the government to show the relevance of behavioral insights to public health policy.

Qatar

Similarly, the Qatar Health in All Policies (HiAP) unit in the Ministry of Public Health operates using an external partnership model. Because HiAP does not have any staff with formal behavioral science training, it works closely with a local nudge team to provide expertise on using behavioral science in policy formation. Behavioral science was embedded in HiAP's work to help with execution of the 2022 World Cup. As such, most of the projects that HiAP has conducted in the realm of behavioral insights have been in relation to international sporting events. For example, to encourage healthier food selection, the team changed the menu display and food options of vendors across stadiums. HiAP is working with external consultants to analyze the outcomes of this effort. HiAP has also conducted COVID-19 knowledge, attitude, and practice surveys to inform development of communications that encourage hand washing, mask wearing, physical distancing, and vaccination. Over time, the ministry aims to incorporate behavioral insights across government health areas and programs.

Ethiopia

Partnering with the Behavioral health Insights Research and Design Lab, UNICEF, and the Ethiopian Health Education and Promotion Professionals Association (EHEPA) housed in the School of Public Health at Addis Ababa University, the Ethiopian MoH uses a model like the one that Uruguay and the Netherlands use. The lab was launched in 2022 to help the government explore various approaches to changing citizen behavior. The goal is to work closely with the MoH and other stakeholders to apply behavioral science; efforts to develop behavioral insights of MoH government employees have been introduced.

Mexico

In Mexico, the Health Promotion and Nutrition Department of Yucatán developed a formal agreement with the United Nations Children's Fund to conduct social and behavioral change activities. As part of this agreement, the MoH has established a behavioral change

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council, which has worked with the United Nations Children's Fund in the co-design of social and behavior change strategies and monitoring and evaluation systems.

Together, these countries offer a third method that governments might use to institutionalize behavioral science.

Special Thanks:

Denisse Dogmanas
Universidad de la República Uruguay

Eshetu Girma
Addis Ababa University, Ethiopia

Hatoun Saeb
Minister of Public Health Office, Qatar

Juan Antonio Bazán
Mexico Regional Office, United Nations Children's Fund

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APPENDIX A: Frameworks

The frameworks outlined below are featured in or mentioned by profiled units.

BASIC: A toolkit for applying behavioral insights to public policy published by the Organization for Economic Cooperation and Development.

Behaviour Change Wheel: The Behaviour Change Wheel provides nine intervention functions designed to address deficits in one or more of the capability, opportunity, and motivation categories of the Capability, Opportunity, and Motivation (COM-B) Model.

Behavioral and Social Drivers of Vaccination Framework: A framework that the World Health Organization Global Working Group developed that explores four domains: thinking and feeling, social processes, motivation, and practical issues.

COM-B: AA model of behavior that Susan Michie and colleagues developed that identifies three factors that must be present for any behavior to occur: capability, opportunity, and motivation.

DDIE: A framework suggested by the WHO Technical Advisory Group on Behavioural Insights and Sciences for Health. It stands for Define, Diagnose, Design, Implement and Evaluate.

EAST: A framework that the U.K. Behavioural Insights Team (BIT) developed to help apply behavioral science to the policy-making process. The framework stands for Easy, Attractive, Social, and Timely.

Health Belief Model: A model designed to identify why people fail to adopt disease-prevention strategies. The model suggests that a person's belief in a personal threat of an illness or disease, together with their belief in the effectiveness of the recommended health behavior or action, will predict the likelihood that they will adopt the behavior.

MINDSPACE: A framework that the U.K. BIT developed to help apply behavioral science to the policymaking process. The framework includes nine of the most robust influences on behavior: messenger, incentives, norms, defaults, salience, priming, affect, commitments, and ego.

4D framework: A framework that the Behavioral Economics Team of Australia developed to guide behavioral insights projects. It includes four project stages: Discover, Diagnose, Design, and Deliver.