SYNTHESIS REPORT

Public health law, regulation and policy for prevention

This document summarises the findings from a synthesis of research conducted by the Prevention Centre.

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The Australian Prevention Partnership Centre

Public health law, regulation and policy for prevention: Synthesis of knowledge from the Prevention Centre

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The views contained in this report are those of the authors listed above and do not in all cases reflect the views of each of the policy agencies participating in this knowledge synthesis.

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Contents

Executive summary

Public health law research is a relatively new field of research that looks at the determinants and relationships between law, policymaking and health. Research into specific topics is common, such as food labelling laws and implications for diet and obesity prevention, yet little work has been undertaken that examines and synthesises the evidence across topic areas to generate lessons for applied policy and practice.

The Australian Prevention Partnership Centre (Prevention Centre) is co-funded by multiple state and territory health departments as well as the National Health and Medical Research Council (NHMRC), Australian Government Department of Health, Medical Research Future Fund (MRFF), Cancer Council Australia and VicHealth. The Prevention Centre developed a knowledge synthesis process to bring together the findings from funded projects since 2013 that focus on public health law and chronic disease prevention, and identify, with input from our policy partners, the collective implications of this research.

This knowledge synthesis process is different to a typical systematic review. It focuses on a selective body of research and involves co-production between researchers, communication experts and policy partners.

We identified Prevention Centre projects that focused either on specific issues in law and regulation for prevention, or 'big policy' issues that set the regulatory agenda. In this knowledge synthesis, we conceptualise high-level policy frameworks and strategies as plans that set the agenda for action to achieve policy goals. We describe public health law as implementation tools (legislative and non-legislative) that can be used to achieve policy goals.

We analysed project outputs by public health topic, jurisdiction, research focus and stage of the policy cycle, and then analysed the research findings to identify common themes across our body of public health law research. We held policy dialogues with our policy partners to refine the themes and discuss policy implications of the findings.

Our synthesis identified 12 relevant projects and 40 peer-reviewed publications and reports, with half of those publications focused on big policy issues and the other half on law and regulation. The public health topics included food, alcohol, tobacco, physical activity, immunisation and road safety, and the research focused on local, state and territory and national levels of government. The types of research undertaken were: regulatory analyses; developing new methods or indicators to support evaluation; investigating governance and policy frameworks; evaluating impact on health or behaviour; perspectives on regulation; and industry relationships and tactics.

We identified five major themes or areas of research in relation to public health law from the key findings:

- Monitoring and evaluation
- Regulatory design, implementation and enforcement
- Impact on equity and disadvantage
- Political environment and considerations
- Engagement, collaboration and co-production.

The overlapping nature of some themes facilitated cross-cutting discussion in the policy dialogues, in particular the linkages between evaluating health outcomes and monitoring public health law; the overlap of regulatory design and enforcement, and gaps and failures; and the relationships between the political environment, differing portfolio objectives and industry influence.

Our knowledge synthesis highlights that public health law research can help make the case for the use of regulatory and legal strategies for prevention through generating relevant forms of evidence and identifying health and social outcomes, political engagement, and gaps or failures in policy design or implementation.

We found evidence of how public health law is important for driving cross-government action for systems change to prevent chronic disease. Public health law can create powerful changes to achieve population benefits, even where the changes themselves appear small. The role of public health law is particularly important in addressing complex problems such as chronic disease prevention and the social determinants of poor health (including in food systems, tobacco control, alcohol policy and urban planning).

The evidence also demonstrates how Australia has led the way in successfully using public health law to protect people from harm, for example in the areas of tobacco control and road safety. However, public health law can have unintended consequences, causing both positive and negative health outcomes. Many laws and regulations in Australia do not consider health, and these gaps or failures in regulation diminish opportunities for health gain. We also noted that industry is well organised and resourced and uses a range of strategies to influence public health law for commercial benefit and sometimes to the detriment of public health.

Our research shows the Australian public supports a range of government regulations for preventive health, including restrictions on unhealthy advertising to children, restrictions on alcohol advertising, setting salt limits on processed foods, immunisations for children, active transport measures, and tobacco control. National agreements and partnerships can be effective mechanisms to drive investment and policymaking in regulatory and legal frameworks for preventive health.

The knowledge synthesis has highlighted the diversity and value of public health law research. There are several possible justifications for regulation in public health, including the important impacts on health of social determinants, stewardship, human rights and market failure. Different research is required to justify regulation under different contexts. A broad spectrum of public health law research helps build the picture of the evidence needed for effective and equitable policymaking in prevention.

Across the breadth of public health law research conducted by the Prevention Centre, we have identified some key implications for policy and research:

- Research on public health law can help communicate the value of sometimes small but often powerful changes that law and regulation can produce to achieve a policy goal.
- Policy makers need a spectrum of research to justify public health laws, which includes many types of evidence ranging from monitoring for evidence generation, demonstrating a problem and evaluative evidence.
- There are different mechanisms through which policy partners engage in public health law research including co-producing evidence, commissioning independent evidence and conducting their own internal research. Researcher and policy networks are important for facilitating this engagement.
- When designing new regulations, consideration must be given to how they will be implemented in practice and what existing data sources, mechanisms and resources are available to monitor implementation and facilitate future evaluations.
- Design features of public health laws are often overlooked or not well described in research, yet could provide useful evidence for policy makers to inform the development and implementation of public health laws. Future research could look to better describe and understand what design features of public health laws are, or are not, effective.
- A range of impacts and outcomes should be measured when monitoring and evaluating public health laws. This includes accountability, transparency, power and influence, coverage or reach of public health laws, whether they were implemented as intended, acceptability, and health, social, economic, environmental and behavioural outcomes.

Some key reflections identified through this synthesis are:

- Public health law can provide the rules and frameworks to shape the social and commercial determinants of health
- Public health law research can help make the case for chronic disease prevention
- Independent and co-produced research make different contributions to public health law
- There are opportunities for public health law to strengthen a co-benefits approach across health and other sectors.

Introduction

This report contributes to the Prevention Centre's objectives to synthesise and communicate the policy and practice implications of its policy-relevant prevention research. The focus of this particular knowledge synthesis is the use of public health law, regulation and policy for chronic disease prevention.

The findings presented in this report are not those of a typical evidence review. The evidence on public health law, regulation and policy has been drawn from Prevention Centre-funded projects conducted since the Centre's inception in 2013, and the implications of the findings were considered in research-policy dialogues that drew on the expertise of our policy partners.

The emphasis was on identifying and synthesising the findings to-date from across our programs of work, and draw on the expertise of our policy partners to generate new learnings and insights. These learnings and insights are presented in this report, and in an accompanying suite of communication products to inform policy deliberations and future research.

The guiding questions that informed the overall synthesis process were as follows:

- What can we learn from the findings to-date of our funded programs — when we consider the findings across our whole body of work?
- How do these insights add to the existing body of evidence on this topic?
- What are the implications (if any) for Australian research, policy or practice?

Thus, drawing on evidence and knowledge from past and currently funded Prevention Centre projects, combined with the content expertise of research, policy and communication experts, this report aims to provide accessible, synthesised knowledge from our program of work to research, policy and practice audiences.

Background

What is public health law?

While public health law has been defined as encompassing policy, law and regulation[1], in this knowledge synthesis we conceptualise high-level policy frameworks and strategies, e.g. the National Preventive Health Strategy 2021-2030, as plans that set the agenda for action to achieve policy goals. We conceptualise public health law as implementation tools that can be used to achieve policy goals.

When we refer to public health law, we include legislative and non-legislative instruments, including policies that have the rule of law:

- Legislation and regulation (e.g. tobacco control Acts)
- Mandatory codes and standards (e.g. food standards)
- Voluntary co-regulatory approaches (e.g. Health Star Rating)
- Voluntary self-regulation (e.g. advertising to children)
- Intra-organisational policy (e.g. healthy food provision Directive)
- Inter-organisational policy (e.g. healthy built environment guidelines).

Policy law and regulation in the context of public health is also termed 'public health law' within the literature. Public health law aims to improve public health and health systems through the design, implementation, monitoring, evaluation and scale up of legal measures. Public health law employs traditional legal functions, but it also includes many related legal and regulatory activities including policy development, advocacy, monitoring, enforcement and evaluation.[1] While public health law has been defined as encompassing policy and regulation, grouping them together in this way can remove the nuance required to understand the different approaches and how they work together.

Policy decision making is complex and the context within which this takes place will dictate the type of tool used.[2.] While our definition focuses on the different mechanisms for intervention, actors within the prevention system use a range of approaches to inform, support the use of and evaluate public health law.[1] Examples include:

- Policy makers: develop policies that inform the use of public health law; support the design of legislation and regulation and its implementation; and monitor compliance with, and undertake or commission evaluations to assess the impacts of, public health law
- Public health researchers: undertake research, including process, outcome and economic evaluations, to inform the design, implementation and review of public health law initiatives, and to inform infrastructure and programs that support the enactment of public health law
- Public health advocates: encourage the use of public health law to achieve specific public health goals.

Why do we use public health law?

Public health law is used in chronic disease prevention to ensure that individuals, communities and populations are protected from harmful exposures (such as tobacco products, or alcohol, or unhealthy food), and that people's health is promoted (through access to green spaces, clean air and other healthy environments). Public health law provides governments with whole-of-population measures that have the power and scope to contribute to chronic disease prevention and reduce health inequities.[3] Many of Australia's successes in public health are grounded in public health law, such as folic acid fortification and tobacco control (see case studies 1 and 2).[4-7]

Case study 1: Tobacco control

- Tobacco control is one of Australia's greatest and internationally renowned public health law success stories.
- Australian Commonwealth, state and territory governments have used a combination of complementary instruments to significantly reduce Australia's tobacco smoking levels.
- These instruments and activities include: national, state and territory level tobacco strategies and plans; legislation (including plain packaging legislation); taxation of tobacco products; advertising bans; and mass media campaigns and education programs.
- Australia's daily smoking rate has reduced from around 33% of the adult population in 1980 to 11% in 2019.

Case study 2: Folic acid fortification of bread

- Folic acid fortification is a major public health intervention to prevent neural tube defects in babies.
- In September 2009, Australian and New Zealand governments introduced a mandatory folic acid fortification standard for bread products under the Australian and New Zealand Food Standards Code, after an earlier voluntary scheme was found to be ineffective.
- The mandatory standard has been effective in reducing neural tube defects in babies across the whole population, with the most pronounced effects in priority population groups including Aboriginal and Torres Strait Islander babies.

Public health law includes self-regulation, quasi-regulation, co-regulation or explicit government regulation. Regulatory theory provides important insights into public health governance and how different regulatory strategies can be employed by governments to guide or require industry behaviour and activities for public health benefits.[8]

There are several possible justifications for regulation in public health, based on the principles of social determinants, stewardship, human rights and market failure.[9] Social determinants relate to issues of inequity and

how to improve the social and economic environments in which people live and work to positively impact on their health and wellbeing; stewardship relates to the obligations of the government in providing a duty of care; human rights relates to international treaties and upholding the right to health, the rights of the child, and the rights of Indigenous peoples (among others); and market failure relates to issues where the market fails to self-regulate to the detriment of population health. Public health law may be designed to uphold one or more of these principles.

Public health law can be categorised as interventional, infrastructural or incidental.[10,11]

- **Interventional** public health law is intended to directly influence health outcomes, for example food labelling standards such as nutrition information panels.
- **Infrastructural** public health law establishes powers, duties and agencies; for example a Public Health Act sets out the legal frameworks that empower or force public health agencies to act, by defining the scope of their powers and duties.
- **Incidental** public health law is law that influences health but was not necessarily intended for health outcomes, for example liquor laws, planning laws and trade laws that are not specifically designed with health in mind but can positively or negatively impact health.

Why do we research public health law?

Evidence-based policy making is incremental and public health law research can support and inform policies, regulations and laws that impact on public health. As indicated by the case studies above, public health policy making is built on decades of work to support the development and implementation of effective tools that will improve health or behavioural outcomes at the population level. Research can provide policy makers and practitioners with the evidence needed to sustain effective public health laws and policies through: monitoring and evaluating laws and policies; providing new evidence so that laws and policies can be updated to remain fit for purpose; identifying any gaps or failures; and highlighting the complexities of the social, political and commercial determinants of health.

Public health law research is diverse, consisting of quantitative, qualitative and mixed methods studies using experimental, quasi-experimental, observational, or participatory designs, and ranging from decision analyses to evaluations of the effects of a law on a health outcome over time. Each piece of evidence offers important insights into the decision-making process, with different evidence required at different stages of the policy process. For example:

- Epidemiological evidence on health risks, morbidity and mortality is often needed to get the issue on the policy agenda, set a policy objective or help create a 'policy window'.
- Evidence of another jurisdiction using certain regulatory instruments to successfully (or unsuccessfully) achieve a policy goal can be used to support policy formation.
- Evidence of low uptake of voluntary self-regulation or lack of industry cooperation may be used to implement explicit government regulation.
- Monitoring certain outcomes and impacts is important and evaluation evidence can help to ensure the renewal, updating or termination of certain instruments.

There are many examples of public health law research being used to influence policy and practice decisions. For example, advertising bans on tobacco products as an effective regulatory tool to reduce smoking rates have been supported by empirical evidence and systematic reviews. This research has demonstrated that explicit government regulation with comprehensive restrictions across all media formats is most effective, whereas incomplete bans have limited effect as companies transfer advertising to media formats not covered by the regulations.[12-14]

Public health law research can also be used to monitor and evaluate existing regulations to ensure they remain fit for purpose. For example, emerging evidence shows that existing age restrictions for alcohol in state liquor regulations have not been amended to include newer technology such as online sales and delivery, which has resulted in large numbers of young people purchasing alcohol online without supplying appropriate proof-of-age identification.[15] This evidence has been used to update liquor regulations in New South Wales to close some loopholes for rapid and same-day delivery of alcohol.[16]

Methods

This knowledge synthesis aimed to review all research funded by the Prevention Centre between 2013 and 2021 that included references to public health law, and to synthesise the findings and consider their implications for policy, practice and research.

The overall guiding questions for the synthesis were:

- What can we learn from the findings to-date of our funded program(s) — when we consider the findings across our whole body of work?
- How do these insights add to the existing body of evidence on this topic?
- What are the implications (if any) for Australian research, policy, practice?

The specific research questions were:

1) How have Prevention Centre projects and studies focused on policy, law and regulation relating to prevention, in terms of type of research and public health topic or risk factor?
2) What are the cross-cutting themes of this synthesised body of research?

Inclusion and exclusion criteria

We identified and obtained projects and outputs from the Prevention Centre's program files and website, preventioncentre.org.au The intent was to purposefully sample projects and studies that relate to public health law from within the Prevention Centre's funded research.

We included projects if they focused on 'law and regulation' or 'big policy' issues that set the regulatory agenda. We defined 'law and regulation' projects as those focusing on specific regulatory issues or approaches such as planning legislation or regulation of the availability of unhealthy foods. We defined 'big policy' projects as those focusing on high level and generally whole-of-population policy frameworks that set the agenda for law and regulation.

We assessed peer-reviewed literature, reports and communication materials from relevant projects individually for inclusion. We included publications if they explicitly focused on a regulatory or policy issue. They were excluded if they were observational studies providing background or context and did not explicitly mention regulation or policy. We also excluded projects on modelling, implementation science and program interventions, however, we assessed individual sub-studies from within those projects for relevance and included them if they focused on a law, regulation or policy issue. The selection and relevance of projects and outputs were cross-checked by the Prevention Centre's Senior Policy Advisor.

Categorisation of research

We classified outputs as either 'big policy' or 'law and regulation' in line with the above project definitions. We further grouped peer-reviewed publications and reports (collectively referred to as 'research') into six thematic categories as described in Table 1.

Table 1: Study groupings and corresponding definitions

Study group	Definition
New methods to support evaluation	Developing new methods or tools to support understanding, monitoring and/or evaluation of policies, laws, and/or regulation.
Governance and policy frameworks	Developing a new framework or theory for governance and policy.
Regulatory analysis	Mapping, auditing and analysing existing policies, regulations or laws, including policy surveillance and benchmarking, and public health law research (such as judicial analysis or case law analysis).
Evaluating impact on health outcomes	Evaluating impact of a policy, law or regulation on health outcomes or behaviours.
Industry relationships and influence	Researching and monitoring the presence or impact of industry relationships and influence on policies and decision making.
Perspectives on policy, law and regulation	Measuring or assessing community and/or stakeholder views on policy, law and regulation for prevention.

Data extraction and analysis

We created a data extraction template, drawing out the legal/ regulatory or big policy focus, the study grouping, public health topic, stage of policy cycle, level of government, and key findings. We defined the policy cycle using the simplified stages model.[17] The stages model defined agenda setting as the problem identification stage, policy formation as the stage concerning decisions about policy content, policy implementation as the stage concerning both implementation and non-implementation, and evaluation as the stage assessing success or outcomes during or after implementation.

We tabulated the research groupings, legal/regulatory or big policy focus, public health topic, policy cycle, and jurisdiction. We undertook a thematic analysis of the key findings, informed by Braun and Clarke's process of coding and theme development through both an inductive (directed by the content of the data) and latent (reporting content and assumptions underpinning the data) process.[18] Policy and practice implications under each theme were drawn out as well as the implications from individual projects and studies.

Policy dialogues

We held two policy dialogues with the Prevention Centre's policy partners to help frame the thematic analysis and discuss the synthesis results and policy implications. The first dialogue aimed to develop a better understanding of policy partners' work in public health law, regulation and policy, and seek feedback on the framing of the thematic analysis, preliminary findings and emerging themes from the synthesis.

Following this initial dialogue, we finalised definitions, themes and results, and presented this further analysis at the second dialogue. This second dialogue aimed to discuss the final results of the thematic analysis in more detail, drawing out key discussion points, lessons learnt and implications for policy and research.

The synthesis process

This knowledge synthesis on public health law was the first knowledge synthesis conducted by the Prevention Centre. While undertaking this research, we refined the development of our process so that it can be applied to different research topics in a consistent and streamlined way. Figure 1 outlines the synthesis process we recommend for future work.

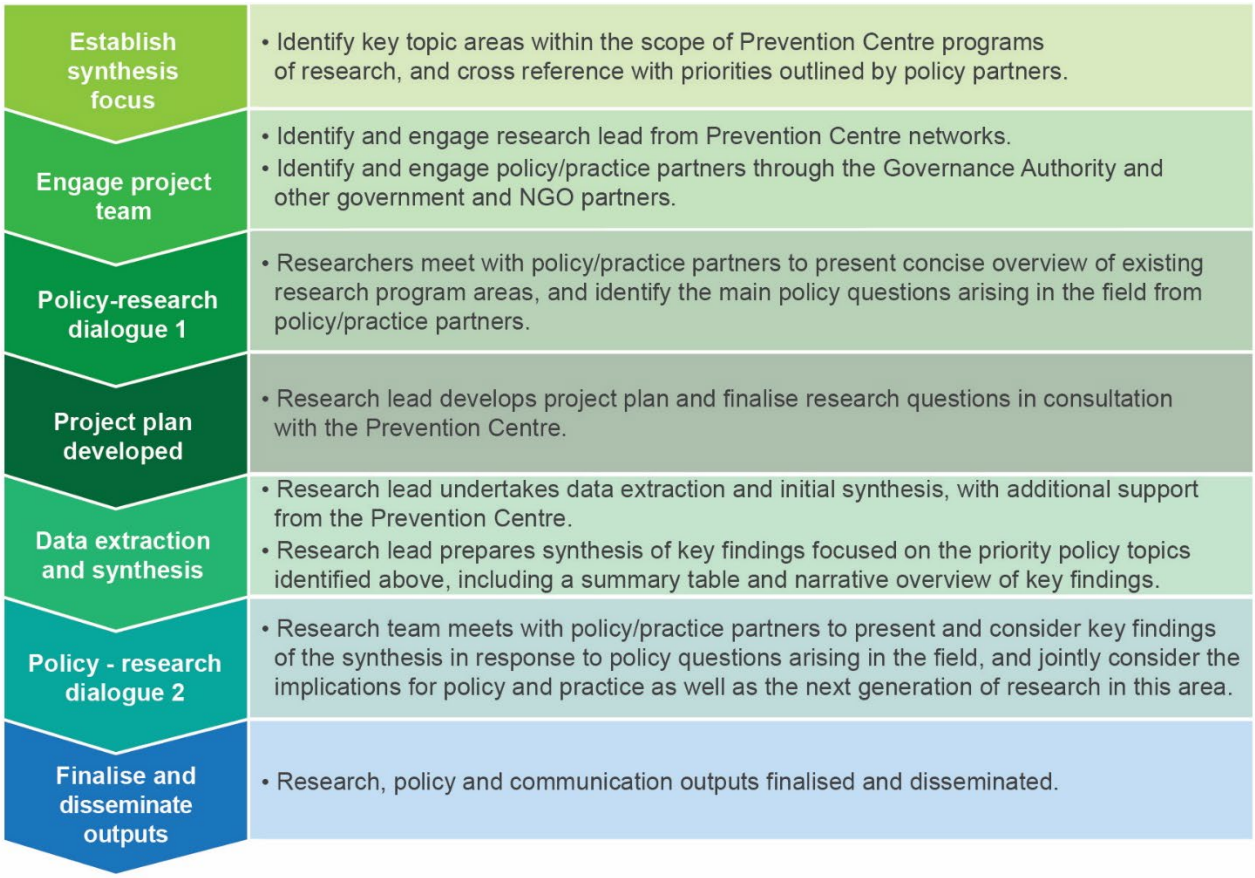

Figure 1: Prevention Centre recommended knowledge synthesis process

Findings

Summary of research types and focus areas

Through this process we identified 12 Prevention Centre projects (Appendix 1), with 30 relevant peer-reviewed publications and reports, and seven findings summaries focusing on policy, law and regulation. We identified an additional 10 relevant peer-reviewed publications addressing aspects of policy, law and regulation from other projects and included these in the synthesis. Of the 40 total publications and reports (collectively referred to as research) included in the synthesis, half focused on 'big policy' issues (n=20) and the other half on 'law and regulation' (n=20) (Appendix 2).

The types of research undertaken were regulatory analyses (30%); developing new methods or indicators to support evaluation (22%); investigating governance and policy frameworks (20%); evaluating impact on health or behaviour (11%); perspectives on regulation (9%); and industry relationships and tactics (7%) (Figure 2). Some research covered multiple areas. Research investigating new methods or indicators, or governance and policy frameworks, largely focused on 'big policy' issues. Research evaluating health or behaviour outcomes, conducting regulatory analyses, or investigating industry relationships, largely focused on legal and regulatory issues.

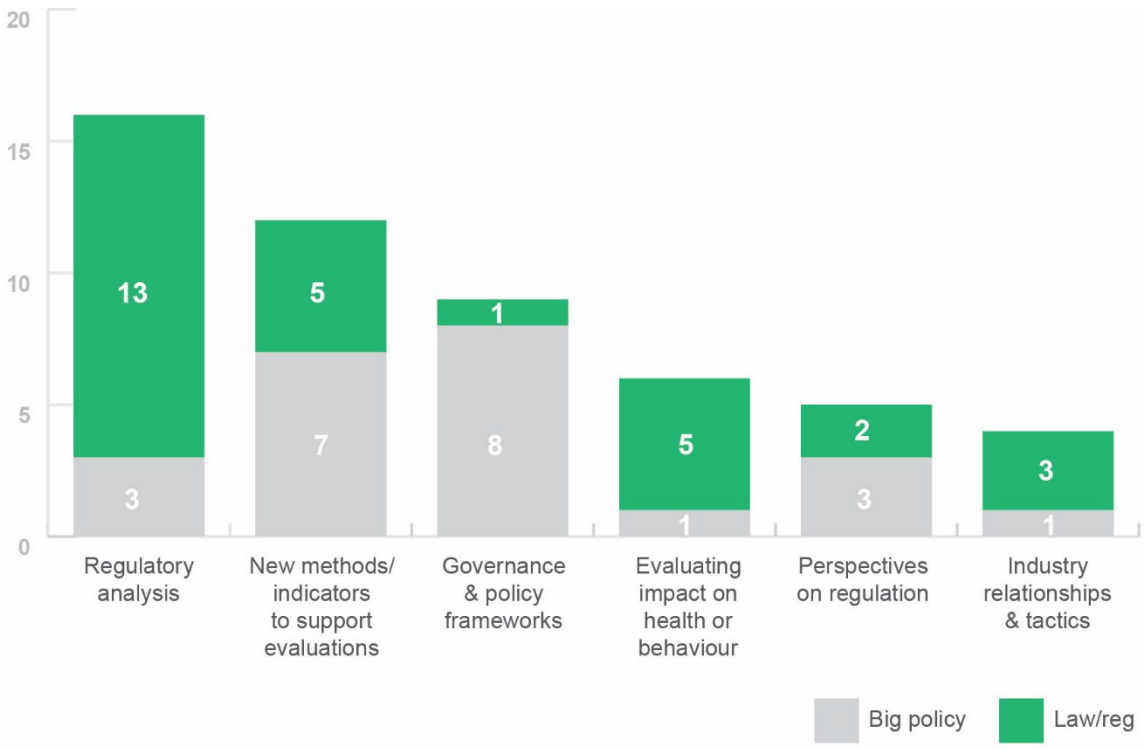

Figure 2: Types of research funded by the Prevention Centre investigating policy, law and regulation

Most research was concerned with implementation (38%) or agenda setting (33%), followed by evaluation (30%) (Appendix 2). The majority of agenda setting research focused on 'big policy', while the majority of evaluation research focused on specific law or regulation topics.

Regarding jurisdiction, 42% focused on state and territory governments, 27% on the national government, 16% on local government, and 15% were unspecified. Research focused on range of public health risks including food, physical activity, alcohol, tobacco, immunisation and road safety. The other category consisted of four studies with some focus on road safety, three with some focus on immunisation and three on health or prevention more generally.

Synthesis of research findings

We qualitatively analysed the research findings and authors' conclusions from across the whole body of work and synthesised them into eight main themes (Appendix 3). Following discussions with policy partners at the research-policy dialogues, we further consolidated these into five overarching themes, with research focus sub-themes (Figure 3). Much of the research was relevant across multiple themes. These five main themes and their sub-themes are described below.

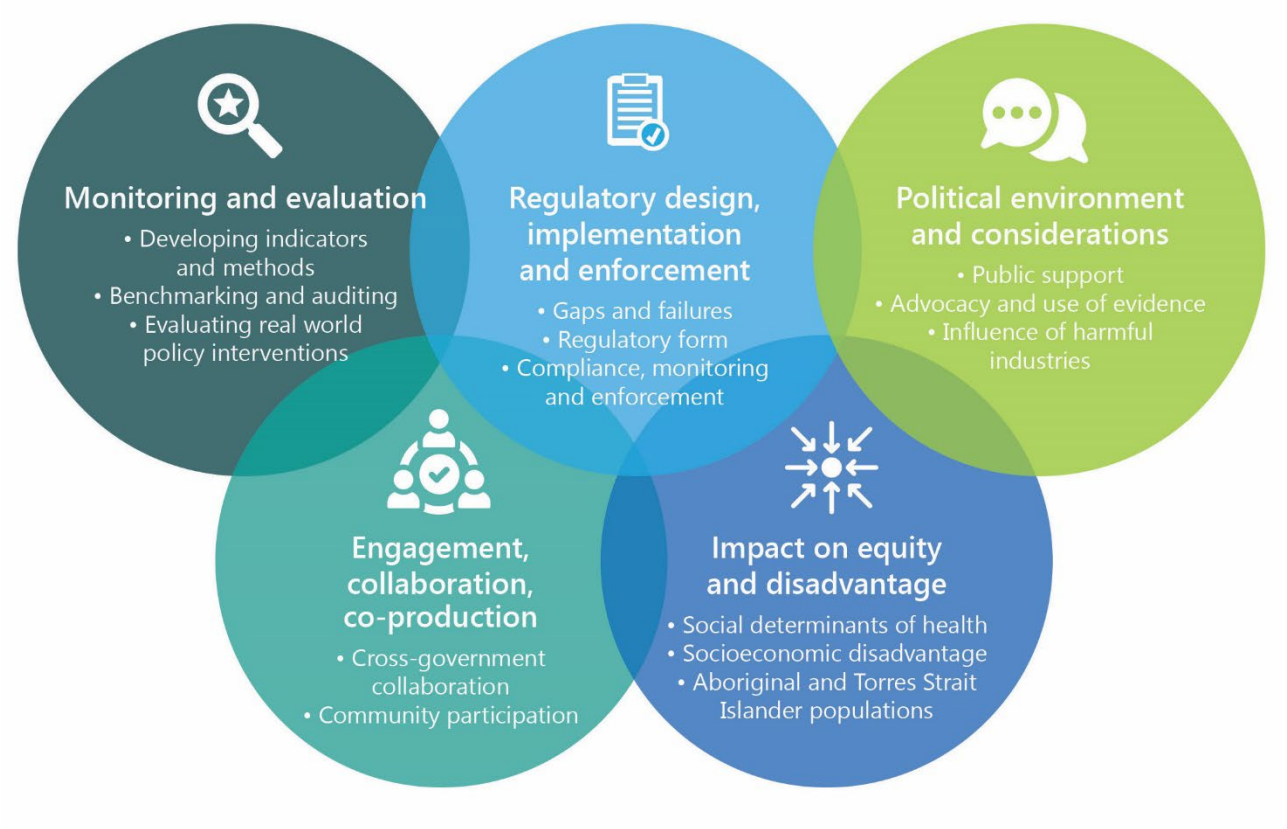

Figure 3: Themes of public health law research

1. Monitoring and evaluation

KEY SYNTHESIS FINDING

Monitoring and evaluation of public health law can assist with implementation, demonstrate impact and support transparency and accountability.

Monitoring and evaluation are needed because they can tell us about trends or changes in outcomes that occur as a result of public health law, as well as whether or not the intervention is working as intended. Our research in this area has focused on developing new indicators, benchmarking and monitoring compliance and other outcomes, and evaluating real-world policy interventions for prevention.

Developing indicators and methods

Monitoring and evaluation of public health law impacts rely on the development, testing and validation of relevant indicators. This is particularly important for measuring health impacts.

Two Prevention Centre projects focused on developing indicators in partnership with government to help monitor built environments for health and chronic disease prevention (Appendix 1, no. 1 and 5 – Liveable and healthy communities pilot and phase 1). Indicators were developed to assess liveability across key built environment domains (such as alcohol accessibility, food and services, open space, transport, walkability), which were then scaled up and developed into the Australian Urban Observatory (AUO).[19] The AUO aims to help policy makers and decision makers monitor trends and relationships between planning characteristics and health outcomes.[20] Other research examined whether spatial standards (or measures) are present within existing regulations, finding none existed to monitor the density of alcohol outlets. Twelve new spatial measures for alcohol outlet density were developed and tested against self-rated health.[21]

Reported policy and practice implications:

- *Creating liveability measures could help benchmark urban planning policies and allow for comparisons across jurisdictions. The creation of a standard national indicator that accounts for health impacts is recommended.*[19]

As part of a project looking at whether healthy diets were expensive in Australia,[22] one study developed novel indicators and methods to assist with monitoring and evaluating Australians' diets.[23] Prior to this research, there was no national standardised measure of food pricing and affordability. The Healthy Diets Australian Standardised Affordability and Pricing (ASAP) method created standardised pricing measures, which allow for better assessment, comparison and monitoring of price and affordability of healthy (recommended) and current (unhealthy) diets in Australia. The ASAP method has been applied and used in urban, regional and remote areas of Australia, including across capital cities and Aboriginal and Torres Strait Islander communities.[24]

Reported policy and practice implications:

- *Standardised pricing measures for healthy and unhealthy diets can assess and compare the price and relative affordability of diets from different locations over time. The method can also inform fiscal modelling and nutrition policy actions.*[23]

Benchmarking and auditing

Benchmarking and auditing are monitoring and evaluation activities that can prompt further action by governments and regulatory agencies.

This type of research compared current practice with policy intent or previously reported best practice to prompt governments to act.

As part of a project assessing the degree to which Australian policies are meeting best practice guidelines for improving food environments (Appendix 1, no. 4 – Benchmarking obesity policies), one study used the INFORMAS

Healthy Food Environment Policy Index (Food-EPI) to benchmark government policy across 14 action areas related to diet aspects of obesity prevention policy in Australia.[25] The tool comprised two components: a 'policy' component with seven domains related to specific aspects of food environments, and an 'infrastructure support' component with six domains based on the World Health Organization's building blocks for strengthening health systems. The researchers worked closely with government officials to rate implementation of food environment policies against global best practice, and made individual recommendations for Commonwealth, state and territory governments. In a follow-up study, the researchers found that some progress had been made against the recommendations, but significant variability across the jurisdictions still existed.[26]

Reported policy and practice implication:

- *Some aspects of obesity policy in Australia are meeting global best practice, however, there are several areas where Australia is significantly lagging behind other comparable countries. Strategic commitment, investment, and coordinated national action are urgently needed, particularly in retail environments and food promotion/advertising policies.[25,26]*

Another project aimed to benchmark, monitor and model healthy liveable cities, linking policy indicators to national health datasets (Appendix 1, no. 9 – Liveable and healthy communities phase 2). They undertook a policy audit of liveability domains (transport, open space, alcohol, food, walkability) across five jurisdictions, identifying 65 policies that were spatially relevant and measurable, with more found for transport (n=9), walkability (n=40) and public open space (n=16) domains than for alcohol (n=0) and food (n=0) domains.[27] In some cases, such as alcohol, policies did exist but they were not spatially-specific enough to test with health outcomes. Follow-up research providing scorecard reports for capital cities found little improvement in the presence of measurable spatial policies. They found government policies present for walkability/density, public transport and public open space, but no measurable government spatial policies for housing affordability, for providing employment in local areas or encouraging public and active transport to work, for healthy food environments or for moderating alcohol availability.[28,29]

Reported policy and practice implications:

- *It is difficult to measure impact on health and social outcomes without appropriate and measurable regulations. To enable cities to deliver amenities, healthy environments, affordable housing, public transport and accessible employment, policies and regulations should include measurable spatial targets. Having methods to benchmark policies and measure impacts could support integrated evidence-informed infrastructure planning, land use and transport.[27-29]*

Evaluating real-world policy interventions

Evaluation helps to measure the real-world policy impacts of laws and regulations, but measuring and demonstrating impact of public health law on health outcomes remains challenging.

One study evaluated the impact of a new sugar-sweetened beverage provision policy in YMCA centres.[30] The authors found following implementation of 'red' (not recommended) drink limits, volume sales of 'red' drinks reduced across centres while 'green' (recommended) drink volume sales did not change. This lack of substitution for 'green' drinks is inconsistent with the literature. However, the authors did find the initial decrease in total drinks sales value was ameliorated one-year post-implementation, consistent with the literature. The authors noted that diet carbonated beverages were often removed alongside sugar-sweetened beverages, which may have impacted substitution to 'amber' or 'green' products, highlighting the complexity of implementing and evaluating real-world policies. The study found a clear health benefit with moderate financial impact. However, the study did not assess other revenue sources that may counter any lost revenue from 'red' drinks sales such as attendance fees and increased foot traffic.

Reported policy or practice implication:

- *Robust evaluations of feasibility and outcomes can help lower the perceived risks of introducing healthy food and beverage policies. Community-based organisations such as the YMCA can set an example for the wider retail sector. These organisations are engaged in health-promotion activities and/or are expected to produce*

public good by the wider community making them ideal settings to implement policies that reduce consumption of unhealthy food and drinks. Furthermore, the financial risk is less as food and beverage retail is generally not the major income source.[30]

Other evaluation research demonstrated the challenges of evaluating legislative reforms within a wider context of public health regulations and laws. The original work involved an interrupted time series analysis to evaluate the effectiveness of child restraint legislation on serious motor vehicle injuries and fatalities across Australia.[31] The study found no statistically significant effect from examining road accident datasets. The focused quantitative approach could not offer insights on the value of public health law in general education and awareness raising about road safety behaviour, or for reinforcing positive social norms. Furthermore, the wider implementation of several concurrent programs and the success of broader road safety strategies and legislation could explain apparent lack of impact of this specific piece of legislation. The challenges with evaluating public health law identified in this study suggest a mixed methods approach with a system-wide focus may be required.

Reported policy or practice implication:

- *It can be difficult to conduct evaluations on single legislative reforms when often they are part of a wider multi-interventional strategy targeting the whole system. Implementation factors may also limit the impact of new legislation, such as low awareness and compliance with the law, and so comprehensive evaluations assessing both implementation and proximal impacts as well as longer term outcomes are required.*[31]

2. Regulatory design, implementation, and enforcement

KEY SYNTHESIS FINDING

Regulatory design, implementation and enforcement can affect whether policy goals are achieved.

Regulatory design (such as having clear objectives, or identifying who has oversight over the regulations) can impact uptake, implementation and outcomes. It is also important to consider the types of impacts or objectives that are included when regulations are designed, particularly for intersectoral regulations led by non-health government departments and portfolios. Problems such as gaps in the regulatory framework or failure in the governance, implementation or design of regulations can then lead to regulations being challenged, watered down, removed, never adopted, or unenforced. This can impact effective prevention and potentially limit possible gains for population health.

Prevention Centre research in this area has focused on questions related to the responsibilities and objectives of regulation, implementation gaps, poor design, and regulatory form (for example, self-regulation, government regulation), compliance and enforcement.

Gaps and failures

Regulatory gaps and failures diminish opportunities for health gains, and an absence of health goals can limit the impact of public health law.

Gaps and failures in regulation design and implementation can also contribute to inequities and further disadvantage. We identified a 'gap' as the absence of public health law when the knowledge of a problem exists and can be addressed through public health law, or when reference to health is absent in incidental public health law, such as planning and liquor regulation. We defined failures as occurring when public health law was not supported by evidence, or when the public health law failed to achieve expected outcomes or resulted in negative unintended consequences. Some of the Prevention Centre's research focused on these gaps and failures.

As part of a project looking at the impact of case law and other legal systems in the regulation of alcohol (Appendix 1, no. 2 – Law and prevention), one study examined the types of evidence being assessed by the judiciary in court hearings for liquor licence appeals. They found public health research evidence appeared to have little or no influence on licensing decisions, as there is no requirement in the legislation to consider public health benefit.[32] As a result, public health impact is relegated in practice below other considerations, including market

freedoms, amenity and the compatibility of industry's proposal with existing planning controls. However, in jurisdictions where health considerations are incorporated into liquor legislation, the research showed appeals against imposed liquor licence restrictions are less likely to be brought before the courts.

Reported policy and practice implications:

- *Currently judicial decision making in liquor licensing has a strong pro-competition emphasis and a lack of explicit legislative support for preventive health arguments. States and territories could better improve public health outcomes through their liquor licensing legislation by considering and prioritising the health impacts of liquor licence decisions.*[32]

Other research examined the impact of existing public open space policies on physical activity, finding 16 relevant policy standards for greenspace in Australia.[33] However, when linked with health data, only one policy standard was found to increase the likelihood of physical activity in the neighbourhood; the rest did not. Having any public open space within 400 metres of the home was the strongest 'health enhancing' policy standard. Some policy standards could be considered 'legacy' standards that were designed to increase the amount of public open space but not necessarily physical activity.

Reported policy or practice implications:

- *There is an opportunity for greenspace policy to consider health. Updating existing public open space standards could assist state and local governments to transition to a catchment model of public open space (that is, within 400 metres of every home) which is the strongest 'health enhancing' evidence-based policy standard for increasing physical activity.*[33]

Sometimes gaps in public health law can lead to regulatory failures. One study found policies for walkability, transport, and public open space were often inconsistent with evidence about how to achieve healthy cities, with policy implementation gaps and spatial inequities within cities.[34] No Australian city performed well on all liveability domains and even modest policy targets were often not achieved. The researchers found that outer suburbs had poorer access to amenities compared to inner-city areas. Another study also found state policy targets for public transport infrastructure were not being met. Those living in areas that lacked infrastructure had higher car ownership, higher traffic exposure and more time spent commuting (that is, sitting), which were all associated with poorer self-rated health. This highlights how implementation gaps can lead to failures resulting in poorer health outcomes.

Reported policy and practice implications:

- *Policy-relevant, empirically derived liveability indicators can help to identify gaps and priorities, provide an early warning system of unintended consequences, and identify regulations requiring amendments. The application of these indicators can support evidence-informed planning and help overcome gaps and failures in implementation.*[34,35]

Other examples of regulatory failures explored by Prevention Centre researchers were identified through key informant interviews with policy makers involved in the National Partnership Agreement for Preventive Health (NPAPH).[36] The researchers found that, while there were positive views and experiences regarding the agreement, early termination of the NPAPH meant potential return on investment was unrealised, new partnerships could not be sustained and the prevention workforce was under threat due to divestment.

Reported policy and practice implications:

- *National agreements and partnerships can be effective mechanisms to drive investment and policy making in preventive health. However, early termination of such agreements can affect their impact in terms of improving preventive health outcomes.*[36]

Regulatory form

Different regulatory strategies can be employed in different contexts. Consideration of effective design and implementation features, and how public health laws will operate in practice, can better promote positive outcomes.

Our research showed that public health law approaches vary, often due to unique contexts. Careful consideration is required to ensure design and enforcement approaches are appropriate to the given context and the public health risk.

In creating a legal framework for physical activity, one study identified a range of strategies governments could implement across different portfolios.[37] Using the categorisation of public health law (as outlined in the Introduction), the authors provided examples of interventional, infrastructural and incidental approaches to physical activity promotion:

- **Interventional** strategies include minimum physical education requirements in schools, as this strategy is intended to directly influence physical activity outcomes.
- **Infrastructural** strategies include establishing an agency through legislation with powers and duties that promotes intersectoral action on active transport.
- **Incidental** strategies include land use planning laws, as these laws are not specifically aimed at improving physical activity but can support (or hinder) it. By their nature, certain laws are incidental as they are developed by departments outside of health.

The framework focused on awareness, funding, incentives, standards, authorisation, prohibition, and exemptions. These are different mechanisms and considerations required for effective law-making. These determinants affect whether governments decide to pursue legal strategies, whether proposed legislation is successfully enacted (or legislation that creates barriers successfully repealed), and the form and content that legislation takes. This framework is the first of its kind to focus on physical activity. Conceptual frameworks have been developed in other public health areas, but physical activity is significantly underdeveloped.

Reported policy or practice implications:

- *Different governments, and different departments within government, may use different legal strategies to achieve their goals. The legal framework for physical activity can assist the process of legal mapping, identify legal strategies, gaps and opportunities where laws can be developed or improved, and helps integrate research and practical understanding of the factors that influence design, implementation and enforcement. It also may promote and support discussion among policy makers about where legal intervention could strengthen or support action, and the resources (structural and financial) required for implementation and enforcement of laws.*[37]

Another study considered the importance of regulatory design and implementation best practice. These researchers conducted a review of regulatory governance and design of food and nutrition policy, looking at a variety of different regulatory forms adopted in different countries. They found regulatory designs were different across policy domains, with mandatory legislation and 'command and control' strategies used for taxes or menu labels; quasi-regulatory approaches used for food reformulation, and co-regulation or self-regulation commonly used for food marketing.[38] Different actors' roles in rule-making, monitoring and enforcement varied across these regulatory designs but they also varied within them. For example, quasi-regulatory public-private partnerships for reformulation were monitored independently in some countries and by industry in others. The researchers also looked at implementation best practice. They found that the key elements of best practice include clear policy goals or objectives combined with rigorous standards that are independently monitored and enforced.

Reported policy or practice implications:

- *Approaches to design and implementation of food policies vary among jurisdictions and policy domains. A better understanding is needed of how regulatory governance factors influence policy outcomes. Understanding regulatory design beyond mandatory vs voluntary, or government vs self-regulation, and*

considering the roles, responsibilities and conflicts of interest of actors within the regulatory framework could help to improve outcomes within complex policy settings.[38]

Compliance, monitoring and enforcement

Compliance, monitoring and enforcement can significantly influence whether legal strategies in prevention achieve their objectives or policy goals.

Even well-designed public health laws still require regular monitoring and evaluation to ensure laws remain fit for purpose, and are not exploited or undermined by harmful industries.

One Prevention Centre project is investigating strategies for reducing tobacco harm in high smoking groups, in particular focusing on the price-marketing strategies of the tobacco industry (Appendix 1, no. 12 – Reducing tobacco-related harms). As part of this project, the investigators monitored the extent of regulation softening (termed 'cushioning') in Australia. This practice is used by the tobacco industry to minimise the effects of tax increases in the Australian tobacco market. Researchers found tobacco retailers strategically increase prices over time, with prices continuing to increase at least one month after scheduled changes in order to minimise the immediate impact of tobacco excise increases.[39] They also found evidence of 'over shifting' (increasing prices beyond what is required), particularly on products used by less price-sensitive smokers. This allows retailers to under-price products used by those who are more price sensitive.

Reported policy or practice implications:

- *Regulation softening and increasing prices beyond what is required ('over shifting') by the tobacco industry (including retailers) are employed to reduce the overall impact of tobacco control regulations. This research recommends the Australian Government limit wholesale quantities in the months ahead of scheduled price increases, adopt minimum pricing policies, and require increases only on set days to mitigate the potential loopholes in existing legislation.*[39]

Other Prevention Centre research evaluated public health law and suggested that non-compliance and poor enforcement limit positive outcomes. In their evaluation of child restraint legislation, the researchers in one study suggested that the reported lack of impact was likely due to relatively high levels of non-compliance and improper use of restraints.[31] Unlike seatbelt use, which incurs no cost to passengers and drivers, the cost of purchasing appropriate child restraint equipment can be high and the level of enforcement or penalties for non-compliance may be insufficient to motivate compliance compared to the initial equipment costs.

Reported policy or practice implications:

- *Public health law has the benefit of applying broad-based measures equally to all populations. However, lack of awareness and capacity to comply can counteract the effects of legislation, and the costs of compliance can create inequities. This suggests that efforts to improve enforcement, information and the affordability of compliance need to be prioritised.*[31]

Compliance, monitoring and enforcement can also be challenging when dealing with industry self-regulation. Businesses often create their own policies and commitments as part of their self-regulation or corporate social responsibility strategy, which they may or may not self-enforce. Public health law research can be used to promote transparency, accountability and industry self-enforcement in the absence of government regulation. One Prevention Centre study developed and implemented a Business Impact Assessment tool for benchmarking food and beverage company policies and practices related to obesity and population-level nutrition at the national level in Australia.[26] The researchers directly engaged with companies to monitor levels of policy implementation, providing company-specific recommendations to improve obesity and nutrition policy. They acknowledged challenges in working with commercial operators and potential conflicts of interest through direct engagement which often results in building relationships.

Reported policy or practice implications:

- *Scorecards to assess and compare companies or businesses can be useful tools for researchers and governments to evaluate gaps and successes of existing policies, particularly where they rely on voluntary*

industry implementation. When government compliance monitoring and enforcement is absent, independently led strategies to enhance accountability can be useful. However, researchers and governments need to be aware of potential conflicts of interest in their engagement with businesses and industries, and the ways in which industry groups use these relationships to influence policy and public opinion, often in conflict with public health goals.[26]

3. Political environment and considerations

KEY SYNTHESIS FINDING

The political environment has flow on effects for the adoption, funding, implementation, design and effectiveness of public health laws.

Public health law is inherently political. It is influenced by community attitudes, political ideology and the prevailing political authority for addressing an issue through legislative means. Different actors can influence public health law through the political environment, including the community, public health groups and advocates, and industry stakeholders.

Prevention Centre research in this area has focused on public support for regulatory interventions, political engagement on public health issues, advocacy strategies to support implementation and industry tactics to avoid regulation.

Public support

Public support can garner political support for investment in prevention by governments.

Several Prevention Centre projects have investigated public support for prevention policies and regulatory approaches, finding that, overall, Australians have largely positive responses to public health regulation.

A major Prevention Centre project, 'AUSPOPS' (AUStralian Perceptions Of Prevention Survey), focused on tracking community perceptions of prevention, including policy support, over a six-year period (Appendix, no. 6 – Perceptions of prevention). AUSPOPS is a national survey of Australians' attitudes to prevention, run in 2016, 2018 and 2021. Results from these three surveys suggest there is broad support for government-led initiatives for disease prevention, and this support has increased over time.[40,41] Australians generally do not support a 'nanny state' framing of public health and prevention, instead seeing the promotion and maintenance of health as a shared responsibility between government and individuals – a sentiment that is felt widely across different population subgroups.[42,43] There is overall strong support in Australia for a range of preventive health measures by governments, including: restrictions of unhealthy advertising to children, restrictions on alcohol advertising, setting salt limits on processed foods, immunisations for children, some active transport measures, and tobacco control. However, levels of support can differ amongst population subgroups, such as young men.

Reported policy and practice implications:

- *Monitoring trends in community attitudes to public health law could help regulators and advocates understand community sentiment and better direct information and messaging to certain demographics. Advocacy campaigns could also be better targeted, and the conversation focused on equity, cost-benefit and vested interests.*[41]

Other research funded by the Prevention Centre examining public support for regulatory approaches included a review as part of a project on food and nutrition systems and policy (Appendix 1, no. 8 – priority actions in the food system). The authors reviewed the published literature on public opinion of nutrition regulation in Australia. They found moderate to high levels of support for the majority of evidence-based regulatory and legislative policies.[44] Despite this support, national public health nutrition policy in Australia has not evolved to reflect this level of public support for evidence-based actions, suggesting factors other than evidence and public support are having greater influence on nutrition policy making.

Reported policy and practice implications:

- *Identifying support for public health laws alone may not be enough to influence policy change. Examining the links between public support for evidence-based nutrition policy and political party affiliation or voting preferences, (and how this compares with support for other policy issues) could provide valuable insights into the political strategies required.*[44]

Public health advocacy and use of evidence

Advocacy and use of evidence by public health groups can enable political action and support evidence-based policy making.

Advocacy can be used to help disseminate research evidence and to influence policy decision making in prevention. One study investigated lobbying of health ministers. Ministerial diaries were examined to determine if industry relationships with state health ministers could explain the limited action on nutrition policy.[45] Interestingly, the researchers found medical associations met most frequently with health ministers, rather than food industry groups. They also examined political engagement with nutrition policy, finding nutrition policy issues were very infrequently (<0.1%) listed on health minister agendas. There was also an apparent lack of nutrition advocates engaging with health ministers, which could contribute to nutrition policy being a low political priority.

Reported policy and practice implications:

- *Direct engagement with health ministers can help ensure nutrition policy and regulation is on the political agenda. Opportunities for nutrition policy advocates to increase engagement include building alliances with medical associations, who have frequent and direct meetings with health ministers.*[45]

Another study investigated the policy relevance of research evidence. They examined whether systematic reviews of overweight and obesity prevention interventions are framed and conducted in a way that is useful for policy makers and take into consideration the policy implications of research.[46] They found only a quarter of published reviews discussed cost or cost-effectiveness of interventions, and less than a third of systematic reviews discussed the policy implications of findings. Reviews that were framed around a policy issue or question were significantly more likely to discuss costs and policy implications, which may be more useful for policy makers.

Reported policy and practice implications:

- *Conducting and disseminating research evidence can be more powerful and potentially more influential when policy and regulatory implications are considered. Improving the usefulness of evidence reviews requires better framing of the review questions, consideration and discussion of the policy implications of review findings, as well as improved reporting of cost-effectiveness and policy implications within primary studies.*[46]

Influence of harmful industries

Industry stakeholders and industry-sponsored groups are organised, well-resourced and use a range of strategies to influence public health law.

Industry groups employ different tactics to influence, avoid or delay regulation, including the use of strong and consistent messaging, litigation, arguing for exemptions, building relationships and lobbying. Public health law research led by the Prevention Centre provides empirical evidence of previously anecdotal experience that could be used to highlight, challenge and counter political influence on prevention policy by industry groups and stakeholders.

Prevention Centre research has examined a range of industry tactics including the ways in which public health and prevention topics are publicly communicated. One study reviewed news media stories to identify views on Sydney's 'last drinks' alcohol control laws.[47] This research found industry actors used the complexity of the policy problem and solution, highlighting the impact of the laws on other sectors, including business and the performing arts. Industry actors and opponents to the laws were also much more frequently cited by the media, which increased as

time went on. In conjunction with an effective community campaign against the laws, it appears that industry actors influenced government to repeal and relax these laws.

Reported policy or practice implication:

- *Governments and public health advocates need to be aware of how actors and groups representing industry use messaging, particularly in the media, to strategically campaign against new preventive health policies and laws. For new policies that are publicly contested, public health policy makers and advocates need to invest in media and communications strategies that involve a wide variety of supporters and arguments (particularly non-health arguments) and build a compelling story or narrative.*[47]

Another study investigated opinions and messaging surrounding food regulation, finding the food industry has influenced public discourse and impacted government support for and implementation of regulatory approaches.[44] Messages commonly promoted by the food industry include personal responsibility and that government policy action would disrupt commercial activity. Regulatory initiatives were more supported by the public when companies were perceived to be acting unethically, such as deceptive or child-directed marketing.

Reported policy or practice implications:

- *Researchers and policy makers should be cognisant of the power of the food industry in shaping the policy environment and using persuasive messaging to influence opinions.*[44]

Litigation is a well-known industry tactic but is not well researched in Australia. One Prevention Centre study explored the use of litigation and research evidence in court appeals for liquor licenses. It found 90% of cases were appeals brought by industry actors against state or local governments who had previously rejected their development or liquor licence applications. Industry litigation was successful in over three quarters (77%) of cases due to a strong pro-competition emphasis, resulting in licence applications being awarded despite governments not supporting them.[32] The authors also suggested there may be challenges in judicial officers understanding and critically appraising public health evidence, particularly where evidence may be emerging, not locally contextual or not traditional gold standard. Industry capitalises on this, contributing to their high rates of success. It can be challenging and costly for governments to defend preventive health interventions in the face of industry opposition. Furthermore, precedent shapes case law and the judiciary is limited in its ability to address health and social issues by what has been explicitly addressed in previous cases or in legislation.

Reported policy or practice implication:

- *Legislation that prioritises public health impacts could help shift judicial decision making and set new precedent away from a pro-competition emphasis. Government agencies may continue to be unsuccessful in their public health arguments within the courts without changes to the legislative environment.*[32]

4. Engagement, collaboration and co-production

KEY SYNTHESIS FINDING

Effective prevention through law, regulation and policy requires coordination, collaboration and partnerships among different groups and sectors.

Collaboration and engagement with multiple groups can improve regulatory design and strengthen support for implementation. This includes coordinated, cross-government collaboration, and engagement or co-design of laws and policies with communities. Community participation is also important as it promotes equity, sustainability and more effective regulation.

Prevention Centre research in this area has focused on cross-government collaboration and multi-sector partnerships, co-production with end users, and community engagement.

Cross-government collaboration

Cross-government collaboration can build legitimacy and coordinate action in prevention.

Some of the power, authority and structural capabilities for decision making for prevention exist across multiple portfolios and departments outside of health, with many different agencies involved in the implementation of public health laws. Prevention Centre research has demonstrated the relevance and importance of public health laws within the policy agendas of multiple sectors.

Some Prevention Centre research has looked at the role of departments and agencies outside of health regarding chronic disease prevention. The Australian Systems Approaches to Physical Activity (the ASAPa) project mapped physical activity policies across jurisdictions, provided key performance indicators to enable monitoring and undertook a distillation of evidence to guide cross-sectoral approaches to physical activity governance and coordination (Appendix 1, no. 7 – ASAPa). Research within the ASAPa project highlighted the complexity of physical activity policy and found that goals and responsibilities exist across multiple portfolios and departments. One study audited physical activity policy at a state and territory and national level to determine the extent to which global recommendations were being implemented.[48] They found most policy documents (86%) were by state and territory governments and nearly half were developed by a single agency (41%). Only half mentioning cross-agency or whole-of-government approaches (46%). This could explain the mostly siloed portfolio action when it comes to physical activity policy. The authors also found that physical activity was rarely the primary objective of policy documents (except for sport sector policies), mostly appearing as a co-benefit (often framed in terms of transport and planning policy) and sometimes a contributing factor towards another health objective (such as preventing obesity). This could have implications in terms of achieving outcomes such as improved physical activity levels.

The researchers undertook another audit to identify policy gaps and review monitoring and surveillance systems, finding that most policies purporting to promote physical activity did not have this goal as a primary objective, and that while physical activity policies were mainly led by health or planning sectors, resources and financing were lacking or absent from nearly two thirds of policies and documents.[49] They engaged with governments to identify the mechanisms that need strengthening to avoid regulatory shortcomings, which highlighted the importance of good governance, coordination and financing.

Reported policy and practice implications:

- *Working toward an integrated, whole-of-system approach is required to support the strategic, cross-sectoral action needed to achieve global commitments.[48] A good understanding of the cross-sectoral governance and translation mechanisms could help overcome common regulatory pitfalls, including inconsistent governance and accountability, poor investment, and inappropriate strategy design to support multi-sectoral action.[49]*

Another Prevention Centre study also reflected on the success of cross-portfolio action for prevention, in particular on the processes for adopting a whole-of-government obesity action plan, stating that cross-government legitimacy was important for its success.[50] To achieve this, health officials tried to avoid the perception of health imperialism that may occur when they instruct other government agencies on changes to their business. All agencies were allowed to propose policy actions, with the final plan determined by a working group with health expertise. Political commitment at the highest level and successive terms of government supported successful implementation.

Reported policy and practice implications:

- *Political commitment and a clear whole-of-governance framework are important in achieving meaningful population-level action in overweight and obesity prevention. However, embedding a plan within the machinery of government may take more time than political election cycles allow.[50]*

New Prevention Centre research is underway to examine further opportunities for multi-sectoral action for prevention (Appendix 1, no. 10 – Multi-sectoral Action for Community Health).

Community participation

Community participation and co-design can significantly strengthen prevention policy or regulatory design and support implementation.

In our research, community participation was particularly pertinent for Aboriginal and Torres Strait Islander communities.

One study reviewed the effectiveness of community-led alcohol regulations across the globe, finding community participation in design and implementation of laws is important for ensuring support, minimising unintended consequences and enabling a more effective approach.[51]

Reported policy and practice implications:

- *Community participation could support better design and implementation of public health laws. A menu of legislative options/legal avenues could be useful for Aboriginal and Torres Strait Islander communities to consider within their local context, thereby facilitating co-production of evidence-based and locally relevant laws.*[51]

Other Prevention Centre research examined the importance of community participation for ensuring equitable, sustainable and effective regulations. Community participation in research can help to identify and respond to the complexity of prevention policy, law and regulation. The Murradambirra Dhangaang tool to help address food security in urban and regional Australia was co-designed in collaboration and partnership with Aboriginal and Torres Strait Islander community organisations and other groups.[52] The community participation process resulted in the development of a food security planning tool that engaged with the challenges causing food security, such as housing, transport access, cultural knowledge, food relief and charities, and retail food environments.

Reported policy and practice implications:

- *Collaborating with the local community in co-designing public health laws and policy tools can help gain a better understanding of the local context and the intersection of issues outside of traditional health. This may be particularly pertinent for priority population groups and for policy actions outside the health system. Working in a collaborative, co-designed way with Aboriginal and Torres Strait Islander communities enables the development of culturally relevant policy responses to complex issues like food insecurity and in a way that is more acceptable and may increase the value and impact of prevention policy and laws.*

Co-production

Co-production can provide greater ownership from diverse stakeholder groups and could facilitate implementation of public health laws.

Co-production is frequently used in program development but can also be used in the design and implementation of public health laws. Current Prevention Centre research aims to co-design regulation under the Public Health Act with a multi-disciplinary team of researchers, practitioners and policy makers (Appendix 1, no. 11 – Developing codes of practice for NCD prevention). Regulatory best practice requires that laws and regulations undergo consultative processes, but it is not common to establish a technical advisory group of public health lawyers, economics, health researchers and policy makers to guide the design and implementation of public health laws. At the time of writing this knowledge synthesis, the project had not yet produced specific outcomes. However, once completed, this work could provide an example for policy makers on how to conduct co-production processes regarding public health law.

5. Impact on equity and disadvantage

KEY SYNTHESIS FINDING

Public health law can support a systems approach in prevention to address health inequity and reduce disadvantage.

Universally targeted, population-level interventions such as policies and laws can play a significant role in reducing health inequity and disadvantage, particularly policy interventions beyond health (e.g. social services and support, education, housing). However, the way policies and laws are designed can also disproportionately negatively affect some groups.

Population-level interventions like public health law can be supported by more targeted interventions to ensure disadvantage and inequities are not further entrenched.

Prevention Centre research that relates to this area has focused on the social determinants of health and the complexity of prevention for specific populations, including Aboriginal and Torres Strait Islander populations.

Social determinants of health

Public health law can help address the social determinants of health that lie outside the remit of the health system.

Addressing equity and disadvantage is an important focus of Prevention Centre research on public health law. For example, a Prevention Centre project on systems approaches to healthy equitable eating examined the food system and plausible policy actions to improve health inequities (Appendix 1, no. 3 – healthy, equitable eating). One study worked with expert stakeholders to generate a comprehensive causal loop diagram of the determinants of inequity in healthy eating (the HE^2 Diagram).[53] The diagram shows a highly complex system of 67 variables and 129 connecting arrows. Each variable was allocated into a sub-system of policy domains, such as 'transport' and 'social protection', as well as more meso and micro-level factors such as 'health literacy' and 'food preferences'. The study illustrated a highly complex system of determinants of food inequities, with cross-sector complexity across many policy domains. The identification of seven broad policy domains that affect inequity in healthy eating suggests that whole-of-government action is needed to improve population-level nutrition. A similar tool was developed specifically for urban and remote Aboriginal populations — the Murradambirra Dhangaang food security planning tool.

Reported policy and practice implications:

- *Understanding the broader social determinants of health and how that relates to the policy problem in question could enhance the sustainability and impact of public health law. This conceptualisation of the drivers of inequities helps demonstrate the importance of public health law and policy action that tackles the systemic drivers of the availability, affordability, accessibility and acceptability of healthy food, and that these actions are not confined to the food system, food environment, or health system alone.*[53]

Socioeconomic disadvantage

Changes to incidental public health law that improve income or other socioeconomic determinants of health can have significant positive impacts on reducing inequity and disadvantage.

Chronic diseases disproportionately affect lower socioeconomic groups. Public health laws can acknowledge or address broader social contexts, whether through monitoring impact by socioeconomic status or directly seeking to address socioeconomic disadvantage. One area of research looked at the impact of a major public policy change during the COVID-19 pandemic in 2020 – a temporary increase to unemployment benefits – on the chronic disease risk factors of unhealthy diet and food insecurity. The researchers found the increase in unemployment

benefits (+$250 per week) made healthy diets more affordable for low-income households compared to receiving the pre-COVID unemployment benefits (20% and 36% of household income respectively).[54]

Reported policy and practice implication:

- *Laws and policies that consider and aim to address socioeconomic disadvantage could have positive flow on effects for chronic disease prevention. Evidence during the COVID-19 pandemic indicates a permanent, sufficient increase to the unemployment benefit rate would support health in disadvantaged groups by making healthy diets more affordable.[54]*

Another Prevention Centre study looked at broader population-based regulations and their impacts on health by socioeconomic status, finding that not having alcohol outlets in proximity to the home was protective of self-rated health, particularly for those in disadvantaged areas.[21] Currently, there are no clear density or spatial controls for alcohol outlets at state or territory level. The researchers recommended density controls for off-premises alcohol outlets as a way to minimise harms from alcohol, particularly in lower socioeconomic areas.

Reported policy and practice implication:

- *Population-level interventions employed through public health law could have the greatest impact on those most socioeconomically disadvantaged. Equity and health outcomes in urban planning can be enhanced through regulations and laws regarding density controls of alcohol outlets, combined with other urban planning strategies to benefit disadvantaged socioeconomic areas, that have a higher density of outlets and lower self-rated health.[21]*

Impacts on Aboriginal and Torres Strait Islander communities

A combination of population-level and targeted public health laws can have positive health and social outcomes for Aboriginal and Torres Strait Islander communities.

Public health law research has demonstrated the potential for regulations to improve health, and also highlights current inequities and where changes to policy may be needed. As highlighted in section 4 on engagement, collaboration and co-production, central to this is the importance of engagement and participation from Aboriginal and Torres Strait Islander populations in the laws, policies and research that affects them.

The positive and negative impacts of public health law for Aboriginal and Torres Strait Islander populations and communities has been another key focus of Prevention Centre research. In one study, the Healthy Diets ASAP method was tailored to test the price of diets in remote Aboriginal communities to improve food security.[24] The researchers found the current diet costs nearly 50% of disposable household income and that 62% of the current food budget is spent on discretionary foods and drinks. When community store pricing policies are present to help improve affordability, healthy (recommended) diets are around 20% more affordable than current (unhealthy) diets, but still cost around 40% of disposable household income. Despite healthy diets being more affordable than less healthy diets, such diets may still have low affordability for remote Aboriginal and Torres Strait Islander families and communities.

Reported policy and practice implications:

- *Understanding current contexts and the realities facing many Aboriginal and Torres Strait Islander communities can help identify more effective and sustainable approaches to public health law within those communities. Investigation into other factors affecting food choice and affordability is warranted, such as housing, access to educational and employment opportunities, transport, and promotions and marketing.[24]*

Another study examined the decline in smoking following the introduction of Australia's comprehensive tobacco laws and found the number of Aboriginal and Torres Strait Islander students who have never smoked significantly increased from 49% in 2005 to 70% in 2017.[55] The period covered by the study included a number of tobacco control interventions including: national mass media campaigns, graphic health warnings on packaging, increased smoke-free legislation, the introduction of tobacco plain packaging and annual excise increases. During this period, the 2008 Council of Australian Governments' (COAG) Closing the Gap Strategy also led to targeted mass media campaigns and the introduction of specific Aboriginal and Torres Strait Islander smoking reduction programs.

Despite a significant increase in Aboriginal and Torres Strait Islander young people who have never smoked, there is still a higher prevalence of smoking amongst this group compared to the national average. Sustained or greater investment in targeted strengths-based Aboriginal community-controlled programs and initiatives are needed to support population-level tobacco control laws.

Reported policy and practice implications:

- *Public health laws can have significant and positive outcomes for Aboriginal and Torres Strait Islander populations. However, inequities remain between population groups. Inequities could be further reduced by investing in targeted interventions and programs led by or designed with Aboriginal and Torres Strait Islander populations that support population-level public health laws.*[55]

Policy dialogues

This knowledge synthesis was informed by two policy dialogues held with the Prevention Centre's policy partners. These dialogues helped to define the framing and scope of the analysis of the existing research, and to consider the policy and practice implications of the synthesis findings. The first dialogue aimed to develop a better understanding of policy partners' work in public health law, and seek feedback on the value of public health law research, and how best to define and categorise our research. The second dialogue discussed the results of the thematic analysis, drawing out key implications for policy, practice and research.

Defining the work and understanding the value of public health law research

The first policy dialogue was held in December 2021 and had participation from four state government health departments and two non-government organisations working in policy, advocacy and research. Each department or organisation shared their current interests and areas of work in law and regulation, with the most common shared areas of interest among all parties being tobacco control and food regulation.

The proposed definitions of public health law, regulation and policy were discussed and refined during the dialogue to help guide the synthesis work. Policy partners emphasised the importance of adopting a nuanced approach that clarifies the difference between policy as a strategy, and law and regulation as the tools to implement policy. This nuance was described as important for understanding the range of different approaches available to policy makers as well as for researchers studying the field. Policy partners expressed that research on public health law should help communicate the value of the sometimes small but often powerful changes that law and regulation can produce to achieve a policy objective.

Policy partners also highlighted challenges they often encounter related to the lack of relevant evidence to inform different aspects of their work. They said different types of evidence are needed at different stages of the policy process and can have different purposes for supporting policy design, implementation and review. Through this synthesis, we have adapted and reconceptualised a pathway of stages of public health law research that focuses on contributing new evidence throughout the policy process (Figure 4).

Discussions at the first policy dialogue proposed that future work could build on this knowledge synthesis to examine and further describe the strength and nature of evidence that is required to support public health policy, regulation and law. Different researchers produce different types of evidence (for example, epidemiologists, modellers, implementation scientists, lawyers). A strength of the Prevention Centre is its network of researchers and policy makers, and its ability to facilitate inter-disciplinary and cross-sector collaborations. While this knowledge synthesis focused on funded projects that explicitly investigate public health law, policy partners highlighted that other work funded by the Prevention Centre (such as epidemiological evidence and economic evidence) has also provided important evidence for policy development and decision making. Much of this

evidence was excluded from this synthesis because it did not explicitly focus on or reference law and regulation or a 'big policy' issue setting the regulatory agenda.

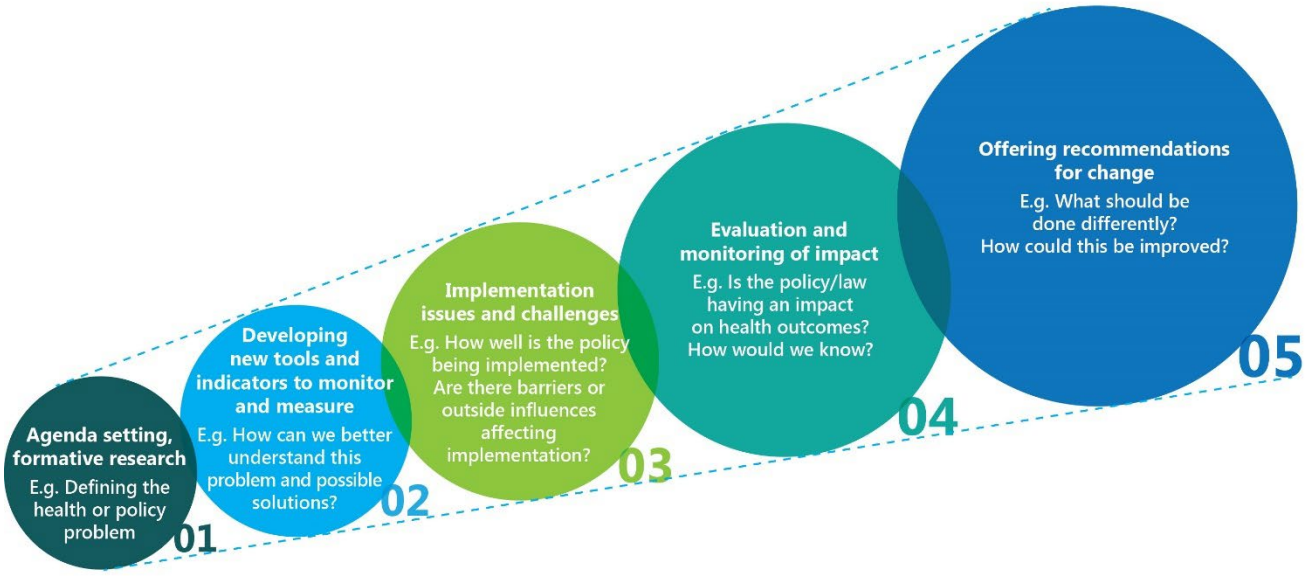

Figure 4: Stages of research and evaluation in public health law. Adapted from Nutbeam and Bauman's stages of research and evaluation in public health[1]

Identifying implications for policy, practice and future research

The second dialogue was held in February 2022 and had participation from five state government health departments and two non-government organisations working in policy, advocacy and research. It facilitated discussion on the knowledge synthesis findings, aiming to identify policy implications and how the results relate to existing practice. The overlapping nature of some of the identified themes facilitated cross-cutting discussion, in particular the linkages between evaluating health outcomes and monitoring public health law; the overlap of regulatory design and enforcement gaps and failures; and the relationships between the political environment, differing portfolio objectives and industry influence.

Policy partners reflected on the important role of researchers for independent monitoring and evaluation of policies and laws; while there is a need for building and maintaining capacity within government, this needs to be balanced with independent evaluation by researchers at a distance from government to inform implementation. Research institutes and universities have an important role to play in providing rigorous research methodology to enable governments to effectively monitor and evaluate prevention policies and laws (for example, in tobacco control, or improving air quality).

Policy partners again highlighted the different types of evidence required for policy action. Public health law research includes epidemiological evidence, and supports a paradigm shift from the typical clinical health gold standard of randomised controlled trials of interventions, to other methods of monitoring and evaluating the uncontrolled 'real world'. Public health law is seen by many as an incremental advance as part of large-scale public health objectives, so it can be difficult to demonstrate large-scale outcomes in the short term. Policy partners considered it important to be mindful of this when conducting evaluations and articulating impact of public health law initiatives. For example, highlighting how small-scale, short-term impacts can lead to large-scale, long-term

outcomes. Demonstrating a continuing trend in the right direction for the long-term outcomes being sought, combined with measuring steps along the way that would not necessarily be seen as a 'win' in their own right, can give confidence that public health law is beneficial. Research demonstrating such incremental steps can thus still be valuable as evidence for policy makers.

Policy partners also discussed the political reality of public health law – that decisions are made on a range of evidence, including what public opinion will support. Health departments also need evidence that counters the negative outcome arguments from interest groups or other departments, such as industry warnings of regulations resulting in decreased sales or less patrons. Strong public advocacy can promote action based on evidence and garner public and political support. Different parts of the prevention system have different roles, including providing evidence-informed advice within government, public advocacy by non-government organisations, researchers and community groups, partnerships between researchers and government, and publicly available repositories of data and comparison, such as the Australian Urban Observatory.

The synthesis identified regulatory 'gaps and failures' as a sub-theme within the existing research. Policy partners helped define what is meant by gaps and failures and provided examples. For example, implementation gaps may occur either because the issue has not been identified as a problem, or there has been a limited focus on implementation. Failures were identified by partners to include policy repeals, unintended consequences, or failure to achieve the intended outcomes. Gaps in public health law can lead to a failure, for example, when early tobacco control laws had no enforcement provisions. Some partners felt it is important to acknowledge and learn from failures and to acknowledge the political and systemic challenges of improving policy and law-making in prevention.

Some of the synthesis findings, in particular the need for cross-government collaboration and working outside of health, were already well recognised and commonly experienced by policy makers. Consistency and alignment of policy across jurisdictions can strengthen a policy outcome and make evaluation and monitoring easier. However, Australia's federated system is highly complex. Policy partners suggested high-level consistency across jurisdictions could be helpful. Partners were also particularly supportive of different parts of government working together to prevent chronic disease. Challenges include that health departments often seek out other agencies and departments, but this is rarely reciprocated. Future work could potentially fill this gap and researchers could work with those other agencies, demonstrating co-benefits. Public health law research can also help understand and provide guidance on cross-government collaboration. Caution was also raised regarding the potential for industry capture when working with other departments, particularly regarding food and alcohol, which do not have the benefit of the Framework Convention on Tobacco Control (FCTC) to prevent industry interference.

Discussion and implications

This knowledge synthesis highlights the diversity and value of investment in public health law research. It helps establish the evidence needed for effective and equitable policy making in prevention.

We show that public health law approaches are powerful tools with which to achieve health gains. The most appropriate tool is determined by the complexity and the context within which policy decision making takes place.[2] This knowledge synthesis has demonstrated this complexity, highlighting a range of public health risk areas and decisions required at multiple levels of government, at varying stages of the policy process and across multiple portfolios. There are many potential justifications for regulation in public health including social determinants, stewardship, human rights and market failure.[8,9] Different research is required to justify regulation under different contexts.

Use of, and effectiveness of, public health law is also influenced by the five main themes identified in the synthesis: monitoring and evaluation, the political environment, regulatory design and enforcement, engagement and collaboration, and the impact on equity and disadvantage.

The findings of the research and their reported implications for policy and practice have been contextualised through the discussions with policy partners during the policy dialogues, and contributed to the formulation of the higher-level implications and broad reflections discussed here. Across the breadth of public health law research conducted by the Prevention Centre, we have identified some key implications for policy and research:

- Research on public health law can help communicate the value of sometimes small but often powerful changes that law and regulation can produce to achieve a policy goal.
- Policy makers need a spectrum of research to justify public health laws, which includes many types of evidence ranging from monitoring for evidence generation, demonstrating a problem and evaluative evidence.
- There are different mechanisms through which policy partners engage in public health law research including co-producing evidence, commissioning independent evidence, and conducting their own internal research. Researcher and policy networks are important for facilitating this engagement.
- When designing new regulations, consideration must be given to how they will be implemented in practice and what existing data sources, mechanisms and resources are available to monitor implementation and facilitate future evaluations.
- Design features of public health laws are often overlooked or not well described in research, yet could provide useful evidence for policy makers to inform the development and implementation of public health laws. Future research should look to better describe and understand what design features of public health laws are or are not effective.
- A range of impacts and outcomes should be measured when monitoring and evaluating public health laws. This includes accountability, transparency, power and influence, coverage or reach of public health laws, whether they were implemented as intended, acceptability and health, social, economic, environmental and behavioural outcomes.

Reflecting on the findings of this knowledge synthesis, it is evident that public health law can provide the rules and frameworks to shape the social and commercial determinants of health; public health law research can help make the case for prevention; independent and co-produced research make different contributions to public health law; and there are opportunities for public health law to strengthen a co-benefits approach across health and other sectors. We discuss these further below.

Public health law can provide the rules and frameworks to shape the social and commercial determinants of health

Public health law focuses on working outside the health system for solutions to complex health conditions such as chronic disease. Public health law is also particularly important and effective for addressing the social determinants of poor health. Prevention Centre work across food systems research,[23,26,53] tobacco control,[39,55] alcohol policy,[32,51] and urban planning[19,49] demonstrates the value of public health law for prevention. The different public health law approaches investigated provide rules and frameworks that can shape social and economic outcomes, thereby influencing the social determinants of health.[2,56]

Public health law can also influence the commercial determinants of health by providing the power, rules and frameworks for regulatory action. Prevention Centre research highlights this, by demonstrating when laws need updating to remain current with changing industry practices,[39] that current systems are biased towards industry and prioritise economic competition over health,[32] and that laws can successful regulate and restrict commercial activity for long-term and sustained health benefits[55].

Industry groups are organised, well-resourced and use a range of strategies to influence public health law for their commercial benefit. Research can also monitor these industries, draw attention to their activities and hold them and governments accountable.[45,47,57]

Public health law research can help make the case for prevention

Public health law research can also help make the case for prevention through generating a range of evidence. This includes: measuring and demonstrating levels of public support for prevention policy;[44,58] showing there are no unintended consequences as a result of real-world policy interventions;[30] and highlighting the influence of harmful industries and their tactics in terms of policy making.[47] Furthermore, public health law research can help to identify gaps or failures in policy design or implementation, drawing attention to evidence-informed recommendations for improvement.[39]

Making the case for prevention also involves political engagement. Advocacy and a coordinated prevention agenda, that includes research, is an important part of the strategy mix. Research can focus on political engagement and advocacy,[45] and research can be used in political engagement and advocacy.[49,59] Without political engagement, public health law issues will remain low priority. This is demonstrated in the examples of recently passed legislation for mandatory pregnancy warning labels on alcohol in Australia and New Zealand,[60] and mandatory menu kilojoule labelling in Victoria.[61]

Independent and co-produced research make different contributions to public health law

This synthesis also highlighted the different roles for researchers in terms of working with government on public health law. Much of our work takes the form of co-produced or highly engaged research with policy partners as 'end users'; but there is also commissioned or consultancy work, and completely independent research at arm's length from partners. Prevention Centre research reflects all of these types of research, influenced by a systems approach to mobilising and translating knowledge in prevention, in which collaborative practice is key.[62]

This knowledge synthesis highlights the importance of having a range of public health law research that can help answer different research or policy questions. For example, independent academic research can directly challenge government action or inaction, or highlight industry activity, in ways that highly co-produced research with policy or government partners cannot. Similarly, the need for public health law monitoring and evaluation was a key theme in the synthesis, yet insufficient attention has been paid to-date on how such monitoring and evaluation should occur, and who should undertake it. Monitoring and evaluation are also conducted by government or parliament through reviews and inquiries. There are opportunities for researchers to engage in these processes and provide evidence or assist with research. While none of the Prevention Centre-funded work has looked directly at these review processes, what is not captured by this synthesis is how our funded research may have been used in government reviews and had policy or practice impact in public health law.

There are opportunities for public health law to strengthen a co-benefits approach across health and other sectors

Chronic disease prevention is a complex field and there remain ongoing challenges regarding the way health and other sectors can productively and meaningfully work together to generate improved outcomes for prevention. This synthesis has highlighted the need for multi-sectoral engagement and the often-missed opportunities for co-benefits.

Prevention Centre research on physical activity and urban planning show that different departments and agencies may use different legal strategies to achieve different outcomes.[33,37] By their nature, certain laws are incidental as they are developed by non-health departments. However, they can have positive or negative health outcomes depending on whether health co-benefits are emphasised and prioritised. This may not be necessarily a policy failure from the perspective of the department or agency, but a missed opportunity to work together with the health system for co-benefits. Prevention Centre research is underway that looks at these opportunities for multi-sectoral action for prevention (Appendix 1, no. 10 – Multi-sectoral Action for Community Health).

This synthesis does highlight that working together cross-sectorally in practice is challenging. Public health law researchers can assist the health sector by working with other sectors, building relationships and generating evidence of co-benefits that can then support a better systems approach to prevention. Identifying sections within other departments that would value health input, investing in relational infrastructure and collaborating with these sections through cross-government initiatives (such as the health department working with the active transport branch, or the environmental protection agency on air pollution) could assist in breaking down silos.

Conclusion

Public health law research is a diverse and growing field. Public health law can contribute to a systems approach to prevention, providing rules and frameworks for cross-government action to address complex problems and the social and commercial determinants of health. This synthesis strengthens the conceptual and practical linkages between public health research and practice. Research on law, regulation and policy for prevention is about communicating the value of the sometimes small but often powerful changes that law and regulation can produce to achieve a policy objective for effective, equitable prevention.

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Appendix 1: Prevention Centre-funded projects on public health law

Project title	Focus area	Lead investigator	Number of included outputs
Creating liveable and healthy communities (pilot)	Big policy	Prof Billie Giles-Corti	4
The role of law in chronic disease prevention (PhD)	Law/ regulation	Dr Jan Shanthosh	2
Healthy public policy to support healthy equitable eating	Big policy	Prof Sharon Friel	1
Benchmarking obesity policies in Australia	Law/ regulation	A/Prof Gary Sacks	3
Creating liveable and healthy communities – measuring and mapping urban liveability (phase 1)	Big policy	Prof Billie Giles-Corti	4
Perceptions of prevention: what does the Australian community think?	Big policy	Dr Anne Grunseit	3
Australian Systems Approaches to Physical Activity (ASAPa project)	Big policy	Prof Adrian Bauman	4
Supporting implementation of priority actions in the food system	Law/ regulation	Prof Amanda Lee	7
Creating liveable and healthy communities – benchmarking, monitoring, modelling (phase 2)	Big policy	Prof Billie Giles-Corti	1
Multi-sectoral Action for Community Health (MACHI): Institutionalising a whole-of-government approach	Big policy	Prof Stephen Jan	*not yet published
Developing codes of practice for NCD-prevention under the South Australian Public Health Act 2011	Law/ regulation	Dr Jan Shanthosh	*not yet published
Identifying and assessing options for reducing tobacco-related harms for high prevalence smoking groups	Law/ regulation	Prof Melanie Wakefield	1

*Note: 10 additional publications and reports were included in the synthesis that were not from the above projects.

Appendix 2: Publications and reports included in the synthesis

Title	Author, year	Project	Study type	Study group	Public health topic	Jurisdiction	Policy cycle
Reconnecting urban planning with health: a protocol for the development and validation of national liveability indicators associated with noncommunicable disease risk behaviours and health outcomes(19)	Giles-Corti et al (2014)	Creating liveable and healthy communities (pilot)	Big policy	New methods to support evaluation	Alcohol, food, physical activity	National, state	Agenda setting
Testing spatial measures of alcohol outlet density with self-rated health in the Australian context: Implications for policy and practice(21)	Badland et al (2016)	Creating liveable and healthy communities (pilot)	Law/ regulation	Regulatory analysis; new methods to support evaluation	Alcohol	State	Implementation
Creating and applying public transport indicators to test pathways of behaviours and health through an urban transport framework(35)	Badland et al (2017)	Creating liveable and healthy communities (pilot)	Big policy	Regulatory analysis; new methods to support evaluation	Physical activity	State	Implementation
Testing spatial measures of public open space planning standards with walking and physical activity health outcomes: Findings from the Australian national liveability study(33)	Hooper et al (2018)	Creating liveable and healthy communities (pilot)	Law/ regulation	Regulatory analysis, New methods	Physical activity	State	Evaluation

Title	Author, year	Project	Study type	Study group	Public health topic	Jurisdiction	Policy cycle
Judicial intervention in alcohol regulation: an empirical legal analysis(32)	Muhunthan et al (2017)	The role of law in chronic disease prevention (PhD)	Law/ regulation	Regulatory analysis; industry relationships & tactics	Alcohol	State, local	Evaluation
Global systematic review of Indigenous community-led legal interventions to control alcohol(51)	Muhunthan et al (2017)	The role of law in chronic disease prevention (PhD)	Law/ regulation	Evaluating impact on health outcomes	Alcohol	Local (community-led)	Evaluation
Using systems science to understand the determinants of inequities in healthy eating.(53)	Friel et al (2017)	Healthy public policy to support healthy equitable eating	Big policy	Governance & policy frameworks	Food	National, state, local	Agenda setting
Policies for tackling obesity and creating healthier food environments: Scorecard and priority recommendations for Australian governments(25)	Sacks et al (2017)	Benchmarking obesity policies in Australian	Law/ regulation	Regulatory analysis	Food	National, state	Implementation
An 11-country study to benchmark the implementation of recommended nutrition policies by national governments using the Healthy Food Environment Policy Index, 2015–2018(63)	Vandevijvere et al (2019)	Benchmarking obesity policies in Australian	Law/ regulation	Regulatory analysis	Food	National; international	Implementation
Policies for tackling obesity and creating healthier food environments: 2019 progress update Australian governments(26)	Sacks et al (2019)	Benchmarking obesity policies in Australian	Law/ regulation	Regulatory analysis	Food	National, state	Implementation

Title	Author, year	Project	Study type	Study group	Public health topic	Jurisdiction	Policy cycle
Identifying appropriate land use mix measures for use in a national walkability index(64)	Mavoa et al (2018)	Creating liveable and healthy communities – measuring and mapping urban liveability (phase 1)	Big policy	New methods to support evaluation	Physical activity	State, local	Agenda setting
Creating liveable cities in Australia: A scorecard and priority recommendations for Sydney(28)	Gunn et al (2018)	Creating liveable and healthy communities – measuring and mapping urban liveability (phase 1)	Law/ regulation	Regulatory analysis	physical activity, food, alcohol	State, Local	Implementation
Creating liveable cities in Australia: A scorecard and priority recommendations for Western Australia.(29)	Hooper et al (2018)	Creating liveable and healthy communities – measuring and mapping urban liveability (phase 1)	Law/ regulation	Regulatory analysis; new methods to support evaluation	physical activity, food, alcohol	State, Local	Implementation
The Australian National Liveability Study final report: Development of policy-relevant liveability indicators relating to health and wellbeing recommendations for their dissemination(27)	Mavoa et al (2016)	Creating liveable and healthy communities – measuring and mapping urban liveability (phase 1)	Big policy	New methods to support evaluation; regulatory analysis	Alcohol, Food, Physical activity,	State	Implementation
Are perceptions of government intervention for prevention different by gender and age? Results from the AUStralian perceptions of prevention survey (AUSPOPS) (42)	Howse et al (2020)	Perceptions of prevention: what does the Australian community think?	Big policy	Perspectives on regulation	Alcohol, tobacco, food, physical activity, immunisation, road safety	N/A	Agenda setting

Title	Author, year	Project	Study type	Study group	Public health topic	Jurisdiction	Policy cycle
AUSPOPS 2016–2021: Third national report(58)	Grunseit et al (2021)	Perceptions of prevention: what does the Australian community think?	Big policy	Perspectives on regulation	Alcohol, tobacco, food, physical activity, road safety, immunisation	N/A	Agenda setting
AUSPOPS 2016–2018: Second national report(43)	Grunseit et al (2019)	Perceptions of prevention: what does the Australian community think?	Big policy	Perspectives on regulation	Alcohol, tobacco, food, physical activity, road safety, immunisation		Agenda setting
Whole of systems approaches to physical activity policy and practice in Australia: The ASAPa project overview and initial systems map(49)	Bellew et al (2020)	Australian Systems Approaches to Physical Activity (ASAPa project)	Big policy	Governance & policy framework	Physical activity	National, state	Implementation
Toward whole-of-system action to promote for physical activity: A cross-sectoral analysis of physical activity policy in Australia(48)	Nau et al (2019)	Australian Systems Approaches to Physical Activity (ASAPa project)	Law/ regulation	Regulatory analysis	Physical activity	National, State,	Implementation
Getting Australia Active III: A systems approach to physical activity for policy makers(65)	Bellew et al (2020)	Australian Systems Approaches to Physical Activity (ASAPa project)	Big policy	Governance & policy frameworks	Physical activity	National, State, Local	Agenda setting
Legal strategies to improve physical activity in populations(37)	Nau et al (2021)	Australian Systems Approaches to Physical Activity (ASAPa project)	Law/ reg	Regulatory analysis; governance	Physical activity	N/A	Agenda setting

Title	Author, year	Project	Study type	Study group	Public health topic	Jurisdiction	Policy cycle
Healthy Diets ASAP – Australian Standardised Affordability and Pricing methods protocol(23)	Lee et al (2018)	Supporting implementation of priority actions in the food system	Big policy	New methods to support evaluation	Food		Agenda setting
Testing the price of healthy and current diets in remote Aboriginal communities to improve food security: Development of the Aboriginal and Torres Strait Islander Healthy Diets ASAP (Australian Standardised Affordability and Pricing) methods(24)	Lee & Lewis (2018)	Supporting implementation of priority actions in the food system	Big policy	New methods to support evaluation	Food	Local	Agenda setting
Doctors Rule: An Analysis of Health Ministers' Diaries in Australia(45)	Cullerton et al (2019)	Supporting implementation of priority actions in the food system	Big policy	Governance & policy frameworks; Industry relationships & influence	Prevention	State	Agenda setting
BIA-Obesity (Business Impact Assessment—Obesity and population-level nutrition): A tool and process to assess food company policies and commitments related to obesity prevention and population nutrition at the national level(57)	Sacks et al (2019)	Supporting implementation of priority actions in the food system	Law/ regulation	Regulatory analysis; Industry relationships & influence; new methods to support evaluation	Food	National	Evaluation
Change in drink purchases in 16 Australian recreation centres following a sugar-sweetened	Boelsen-Robinson et al (2020)	Supporting implementation of priority actions in the food system	Law/ regulation	Evaluating impact on health outcomes	Food	Local	Evaluation

Title	Author, year	Project	Study type	Study group	Public health topic	Jurisdiction	Policy cycle
beverage reduction initiative: An observational study(30)							
What do the Australian public think of regulatory nutrition policies? A systematic scoping review(44)	Cullerton et al (2021)	Supporting implementation of priority actions in the food system	Law/ regulation	Perspectives on regulation	Food		Agenda setting
A narrative review of regulatory governance factors that shape food and nutrition policies(38)	Ngqangashe et al (2022)	Supporting implementation of priority actions in the food system	Law/ regulation	Regulatory analysis	Food	National	Implementation
Liveability aspirations and realities: Implementation of urban policies designed to create healthy cities in Australia(34)	Lowe et al (2020)	Creating liveable and healthy communities – benchmarking, monitoring, modelling (phase 2)	Big policy	Regulatory analysis	Physical activity	State	Implementation
Evidence of cushioning of tobacco tax increases in large retailers in Australia(39)	Bayly et al (2021)	Identifying and assessing options for reducing tobacco-related harms for high prevalence smoking groups	Law/ regulation	Regulatory analysis	Tobacco	National	Evaluation
The decline of smoking initiation among Aboriginal and Torres Strait Islander secondary students: Implications for future policy(55)	Heris et al (2020)	Smoking in young Aboriginal and Torres Strait Islander people	Law/ regulation	Evaluating impact on health outcomes	Tobacco	National, state	Evaluation

Title	Author, year	Project	Study type	Study group	Public health topic	Jurisdiction	Policy cycle
Affording health during the COVID-19 pandemic and associated economic downturn(54)	Lewis & Lee (2020)	Affordability of diets by socioeconomic status	Law/ regulation	Evaluating impact on health outcomes	Food	National	Evaluation
Using natural experiments to improve public health evidence: A review of context and utility for obesity prevention(66)	Crane et al (2020)	Methods for implementation & scale up	Law/ regulation	New methods to support evaluation	Food, physical activity	N/A	Evaluation
Effectiveness of child restraint legislation to reduce motor vehicle related serious injuries and fatalities: A national interrupted time series analysis(31)	Shanthosh et al (2020)	N/A	Law/ regulation	Evaluating impact on health outcomes	Road safety/ seatbelt	State	Evaluation
Building the Machine: The Importance of Governance in Obesity Policy	Pengilley et al (2018)	N/A	Big policy	Governance & policy frameworks	Food, physical activity	State	Implementation
Australia's National Partnership Agreement on Preventive Health: Critical reflections from states and territories(36)	Wutzke et al (2018)	Prevention landscape	Big policy	Governance & policy frameworks	Prevention	National, State	Evaluation
Assessing the usefulness of systematic reviews for policymakers in public health: A case study of overweight and obesity prevention interventions(46)	Kite et al (2015)	N/A	Big policy	New methods to support evaluation	Food, physical activity	N/A	Agenda setting

Title	Author, year	Project	Study type	Study group	Public health topic	Jurisdiction	Policy cycle
Comprehensive sector-wide strategies to prevent and control obesity: what are the potential health and broader societal benefits? A case study from Australia(67)	Kite et al (2015)	N/A	Big policy	Governance & policy frameworks; evaluating impact on health or behaviour	Food, physical activity	State	Implementation
Chronic disease prevention landscape: Results of a national key informant survey(68)	Benton (2015)	Prevention landscape	Big policy	Governance & policy frameworks	Prevention	National	Implementation
Sydney's 'last drinks' laws: A content analysis of news media coverage of views and arguments about a preventive health policy(47)	Howes et al (2021)	N/A	Law/reg	Perceptions on regulation; Industry influence	Alcohol	State	Evaluation

Appendix 3: Codes and themes from the findings