Growing Brimbank

A COLLABORATIVE APPROACH TO LIFTING
HEALTH AND EDUCATION OUTCOMES

Growing Brimbank: an evaluation framework for a place-based, systems approach to improve health and education outcomes over the life course

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Summary

Background: There are clear associations between individuals' health and wellbeing and where they live, with people living in disadvantaged areas having the poorest outcomes. *Growing Brimbank* is a place-based systems approach aimed at lifting health and education outcomes across the life course in the disadvantaged city of Brimbank in the west of Melbourne, Australia. This approach recognises the complex interactions between the social and physical environment that affect health status, access and outcomes, and the need to engage the community as principal partners, enabling systemic and sustainable change.

Methods/design: A multi-level evaluation is used to assess change at the system level, at local services and program level, and at the individual level. Theories of Change are used to make explicit the assumptions about how implementation of, or improvement to, programs and services should result in better outcomes. Change at the system level is assessed through stakeholder interviews and council documents. Improvement in program and service delivery is assessed through the data used to monitor service delivery. Individual health and education outcomes is assessed using routinely collected health and education data collected Australia- or state-wide.

Discussion: Implementing and measuring the effects of place-based interventions is challenging. *Growing Brimbank* has addressed these challenges by developing a strong collaboration and focusing on the implementation of integrated evidence based policies, services and programs. Findings from *Growing Brimbank* will be used to inform national, state and local policies, services and practices that build on community capacity and assets and best address community needs.

Background

Chronic diseases such as cancer, mental illness, cardiovascular disease, respiratory disorders and type-two diabetes, have major long-term impacts on individuals, their families and their communities and are a growing burden to the health care system. [1]

Health and education risks that lead to costly and preventable conditions later in life can be averted or ameliorated by interventions, which tackle not just individuals' behaviour but also the social, economic and environmental influences that contribute to poor health and education outcomes across the life course. Behavioural change interventions can be effective [2] but the focus on behavioural change alone is insufficient to make transformational change [3-5] and must be incorporated into addressing the social, economic and environmental contexts which impact on health. [6, 7]

Place-based approaches designed to produce systemic change at the community level have emerged as a means to address complex problems known to have multiple, interacting causes. [8-10] This paper describes a place-based approach aimed at improving health and education in a disadvantaged community in Melbourne, Australia, and the evaluation framework developed to evaluate it.

Growing Brimbank – why take a place-based systems approach?

There are clear associations between individuals' health and wellbeing and where they live: place influences health positively and negatively, directly and indirectly. [6, 7] Living in an area of disadvantage in childhood impacts on adult health [8, 11] and those living in the poorest neighbourhoods report poor health earlier than those living in more advantaged areas – they become 'sicker quicker'. [12] Health promotion strategies focussed at individual level behaviour change are often not effective (e.g. [4]) because they ignore the multi-causal complex nature of these conditions and more importantly, ignore the fact that where people live contributes to their health and education. A place-based approach to health promotion recognises that geographical context matters and that local communities differ in their needs and their resources. [8-10, 13, 14]

Growing Brimbank is a collaboration between the Australian Health Policy Collaboration, Victoria University and Brimbank City Council. It aims to lift health and education outcomes in a population living in a significantly disadvantaged area in western metropolitan Melbourne, by taking a place-based systems approach to the development and implementation of integrated policies, services and strategies across the life-course. This approach recognises 1) the complex interactions between the social and physical environment and the impact on these health and education outcomes, and 2) the need to engage the community as principal partners and actors to not only support the delivery of evidence based services and programs but also to better co-ordinate and integrate these services thus delivering a multiplier effect and, enabling systemic and sustainable change to increase peoples' capacity to prevent or reduce the impact of chronic diseases and strive for optimal health, well-being and prosperity. The findings from *Growing Brimbank* will be used to inform national, state and local policies, services and practices that build on community capacity and assets and best address community needs.

Growing Brimbank began with the production of the Brimbank Atlas of Health and Education. [15]. This report used routinely collected national and state level datasets to identify local risk factors and indicators of health, education and wellbeing in the Brimbank community and the longer term impacts if not addressed. The report has been used to inform priorities for action and for guiding the selection of best evidence of how, and when, to intervene. Figure 1 provides a summary of the initiative: the goals, some of the risk factors, indicators and outcomes for health and, the approach to selecting interventions and activities, how progress will be monitored and how the findings will be used to influence national policy.

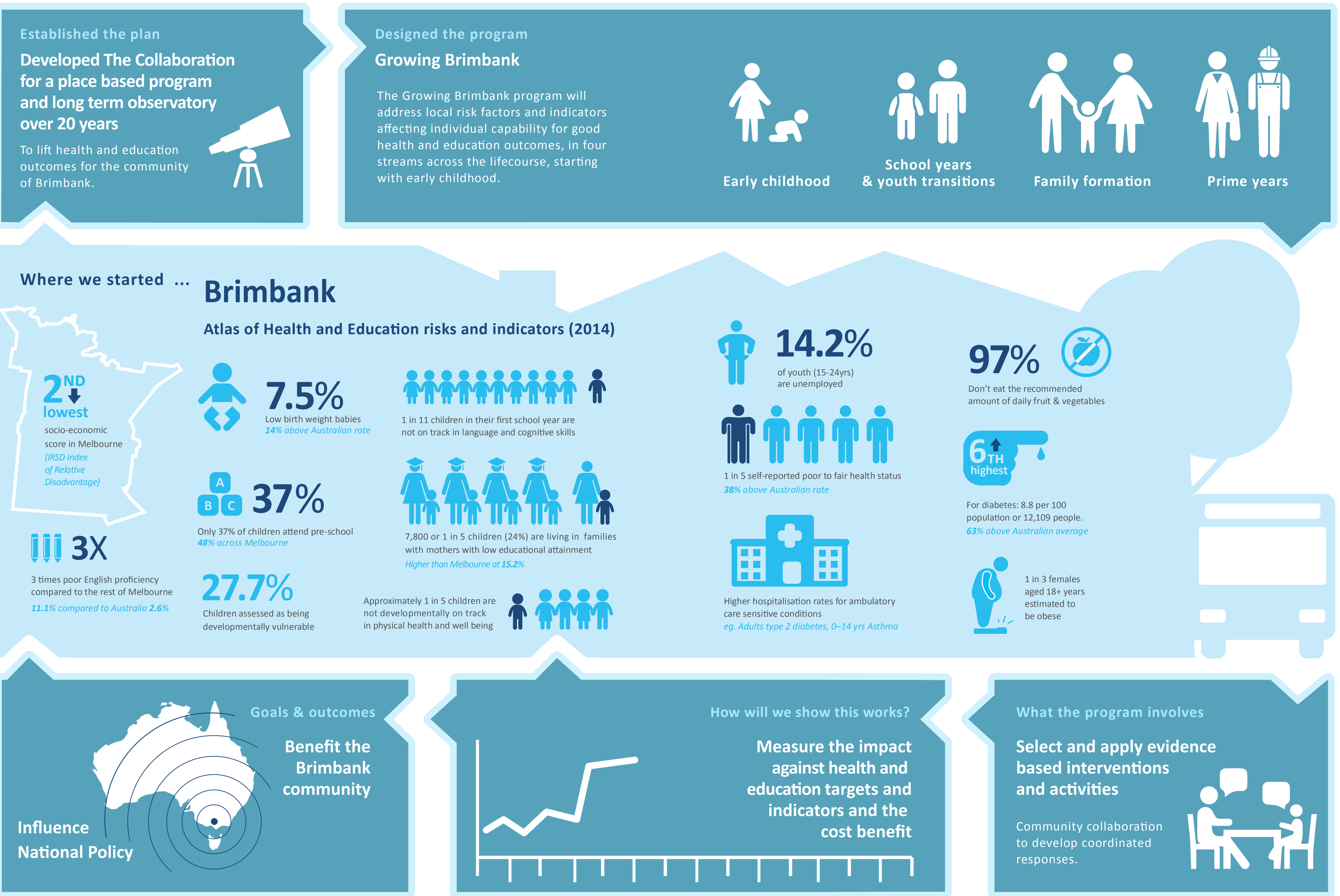

Figure 1. A summary of the *Growing Brimbank* Initiative

The underlying premise of *Growing Brimbank* is that pathways to good health and learning outcomes are interdependent and fundamental to both individual wellbeing and society-wide prosperity. The capacity of individuals to achieve optimal health, wellbeing and prosperity is an outcome of:

- the availability of, and access to, basic goods, services and public health assets, and
- individual capabilities to make healthy choices and achieve the best possible level of functioning.

Furthermore, the effects of exposure to risk factors compounds over the lifetime. To improve outcomes these need to be addressed as early as possible. Thus, as shown in the figure, *Growing Brimbank* identified four streams: early childhood; school years and youth transitions, family formation and prime years. The program comprises a suite of interventions within each of these streams aimed at addressing multiple, interacting risk factors that if not addressed have compounding effects over the life course. Work is focused on peoples' transition across the life-course, starting with early childhood, as critical for future and ongoing health, education and wellbeing. Table 1 summarises these risk factors across the life course. The ticks indicate the presence of risk factors for poor health in Brimbank as identified by the Brimbank Atlas [15] for each life course stream and across the streams. The circles in Table 1 show how multiple risk factors within a life course stream (e.g. early childhood) can be addressed and/or one risk factor across the life course (e.g. low physical activity) can be addressed.

Table 1. Risk factors identified in the Brimbank Atlas of Health and Education (2014) across the four streams: early childhood, school years & youth transitions, family formation and the prime years

STREAMS ACROSS THE LIFE COURSE	RISK FACTORS IDENTIFIED IN BRIMBANK ATLAS OF HEALTH AND EDUCATION (2014)														
	Poor nutrition food	Low physical activity	Developmental vulnerability • motor skills • language and cognition	Parent skills	Pre-school attendance	Early detection of & intervention for chronic conditions	Preventable hospitalis-ations	Poor mental health and well being	Poor engagement and inclusion	Youth Justice system involvement	Low educational attainment, early school leavers, youth un-employment	High rates psychological distress	Harmful health choices (smoking, alcohol & eating)	Self reported poor health status	Inter-generational joblessness
Early childhood	√	√	√	√	√	√	√								
School years & youth transitions	√	√	√	√		√	√	√	√	√	√	√	√		
Family formations	√	√		√		√	√	√				√	√	√	√
Prime years	√	√					√	√	√			√	√	√	√

Growing Brimbank interventions

Growing Brimbank involves multiple, and interacting layers of interventions. At the highest level, the Brimbank Collaboration is itself an intervention; current services and programs delivered by the Council, University and others in the community are interventions that can be connected, facilitated or leveraged through the *Growing Brimbank* platform. So too are new policies, programs and initiatives that may be introduced over the years.

The Brimbank Collaboration as part of the intervention

The Brimbank Collaboration influences and changes how we work together, share expertise and resources and develop relationships and networks across sectors, in order to lift health and education outcomes. The Brimbank Collaboration acknowledges that it is not a blank slate, that the Council and community are already implementing services and programs, plans and strategies. The aim of the Brimbank Collaboration is to:

- focus on enhancing current programs and services that align with the evidence base to ensure they are delivered with sufficient quality and quantity to the people who need them the most, and where necessary or feasible;
- implement new evidence-based programs or activities.

This work is achieved through a team at AHPC led by a facilitator or change agent (DL) who works closely with a similar team at BCC led by KB & EL. These teams work with other BCC staff, Brimbank community, Victoria University researchers, and other partners. Early outputs of this close working relationship [15] [16] have been used to inform initial areas for action and intervention points and key strategies with *Growing Brimbank* now embedded in the Council strategic plans.

Services and programs

Current and new services and programs are also part of the *Growing Brimbank* intervention. As stated above the focus is on how to enhance current evidence-based programs and services to ensure the optimal delivery of quality programs with sufficient quantity (dose) and ensuring they are reaching those most in need, and where needed to support the implementation of new evidence-based programs or activities within a coordinated and integrated platform.

Recognising that *Growing Brimbank* could not address every risk factor for each life course stream at the same time, in partnership with Council staff and other organisations, two initial priority areas for action were decided: 1) a focus on the early years stream and 2) focusing on low levels of physical activity across the life course (see Table 1). These were identified through facilitated workshops and working groups with *Growing Brimbank* stakeholders focused on these two areas for action. Initial outcomes of these workshops has been to inform and influence the Council's Municipal Public Health and Wellbeing Plans. [17]

The early childhood stream identified gaps in services and programs at key transition points for children 0 to 8 years. Interventions to address these gaps include: implementation of a shared record system between the local hospital and the Maternal and Child Health Service for early identification of at risk families; engaging community leaders and using community liaison workers to encourage the uptake of pre-school education for some culturally and linguistically diverse communities; improving data collection to monitor and improve services.

Taking advantage of Council's $20 million investment in regenerating parks and developing walking and

bicycle the focus on leisure time physical activity uses evidence based programs and the Council's staff's knowledge of their diverse community to implement initiatives to encourage use. These initiatives will be embedded in the Council's Physical Activity Strategy, which is expected to be endorsed in 2018.

To progress the work *Growing Brimbank* is engaging with partners who bring research expertise and/ or effective programs that can be implemented to address other life course streams or risk factors. The place-based approach is developmental, with new areas of activity implemented over time. The evaluation of *Growing Brimbank* needs to take account of these changes.

Evaluation framework for *Growing Brimbank*

The evaluation framework draws on place-based, systems thinking approaches for community interventions. [18-22] It has a multi-level focus to evaluate change at the system level, at the level of local services and programs and at the individual level, using multiple sources of data. We have included as a key element to the evaluation of *Growing Brimbank,* the use of Theories of Change [23] to assist us to make explicit the assumptions about how implementation of, or improvement to, specific programs, policies and services should result in better outcomes [19, 23-26] and therefore, where to focus the data collection.

In the development, implementation and evaluation of *Growing Brimbank* we have combined the place-based approach with a systems approach as they complement each other. Place-based approaches aim to change the conditions that influence health and wellbeing in communities by considering the local social, political and economic factors, within the broader context.[27-29] Systems thinking approaches allow us to consider how the elements within the local context inter-relate. [30-32]

Systems are made up of a set of inter-related and inter-dependent elements (including actors, activities, resources, and policies) that form an organised, purposeful structure. [30, 32] Examples of systems include ecological or environmental, organisational and political systems. They can contain subsystems, be part of larger systems or coupled with other systems that continually adapt to each other. [19, 33] The health and education systems contain multiple agencies, programs and institutions which are inter-related and inter-connected at local, state and federal levels in the Australian context, and interconnected with each other and connected with other systems. The interconnection between activities, between levels of policy and service delivery and between the health and education systems (along with environmental, social, and political systems) affects health and education outcomes for individuals and communities. Unfortunately, more often than not, the interconnections between these systems are ignored, with each working and funded within their own silos, resulting in poorer outcomes. Recognising this there is growing interest in explicitly considering and implementing systems interventions such as those interventions that focus on system elements.

The key areas of action of a systems intervention are the context, components, infrastructure and reach (see Figure 2). [18, 19, 21] Here we consider the context as being policies and regulations, and norms, attitudes and values, at the federal, state and local levels. Both policy and norms influence each other and affect what is considered important, worth investing in and doing, with whom and for whom. Thus they in turn, influence the components (services, programs and practices) in the system, the connections or interrelationships between parts of the system, the resources and infrastructure committed and the reach of these services and practices. Key questions to direct action on system 'components' are related to infrastructure and reach: do the services and policies reach enough of the people who need them?

Systems interventions therefore are not focused solely on the implementation of discrete programs, but on the '...complex, comprehensive efforts aimed at systemic community change.' [18] p2) achieved by '...shifting existing policies and practices, resource allocation, relational structures, community norms and values, and skills and attitudes' [34] (p 269).

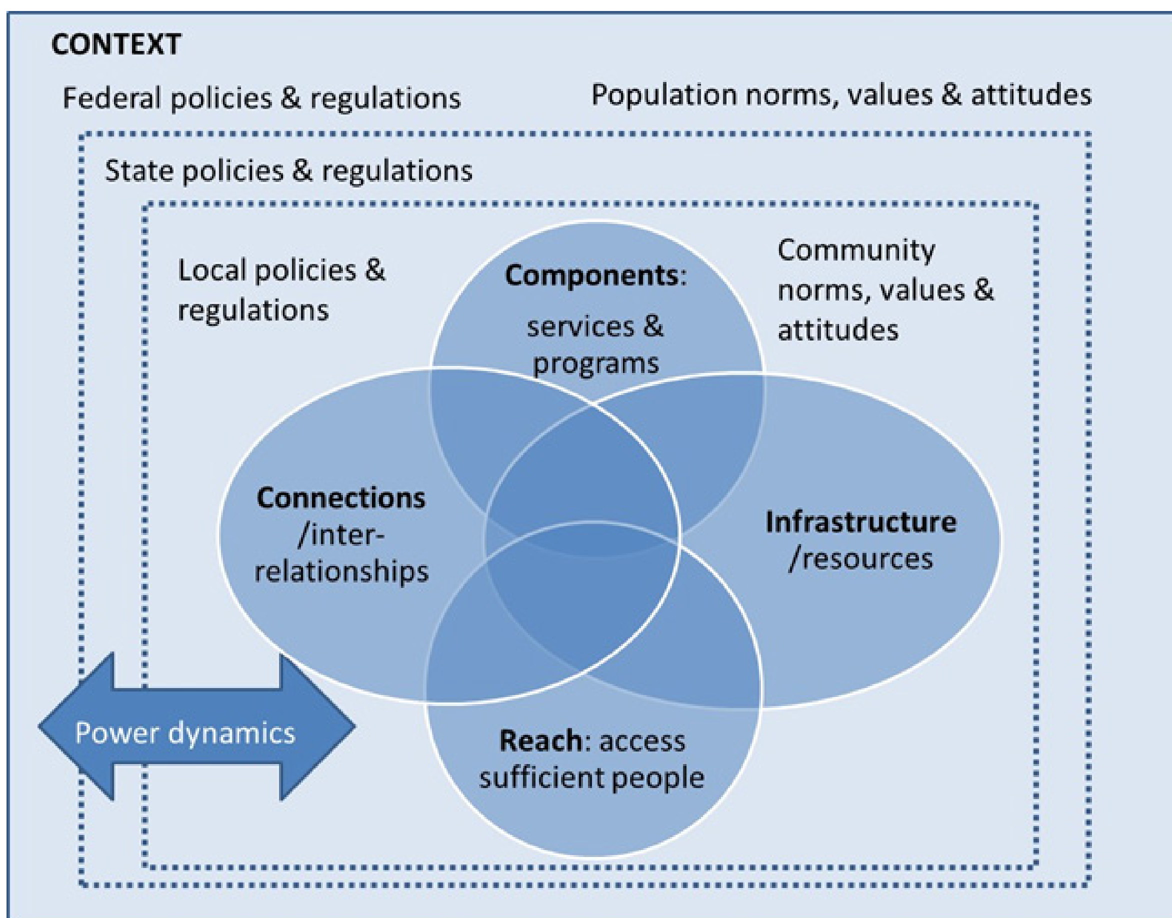

Figure 2. Key areas of focus for systems change initiatives (Adapted from Coffman 2007 [19])

Using Theories of Change

Many strategies, services and programs will be included in *Growing Brimbank*.. To assist in determining the relevance and fit of these to the *Growing Brimbank* goals and therefore to be included in the evaluation, we have used Theories of Change as tool. A Theory of Change is a comprehensive description of how and why a desired change will happen to reach an expected goal. [23]. It is used to articulate underlying assumptions based on available evidence, providing a causal description of what early and intermediate changes are needed to produce long-term outcomes and impacts.

Theories of Change will be produced in conjunction with the members of the Brimbank Collaboration and appropriate stakeholders for each stream or risk focus. These will outline the assumptions, inputs, strategies, outputs and system level and individual/community level outcomes. A draft for the early childhood stream is provided in Box 1 as an example. However, this draft Theory of Change does not yet contain detailed specification of required inputs and expected outcomes. That is, it does not yet specify how much services need to increase their activities, how many families would be needed to increase attendance at preschool or other granular detail. Such specification is necessary to make explicit why expected changes in outcomes will occur but these estimates will be determined in conjunction with the early childhood sector partners as the usefulness of Theory

of Change is in their joint production by the teams implementing new or current programs and services. These Theories of Change are then used as tools for monitoring progress and in their revision, as interventions, strategies, programs and services are implemented and modified. [21, 24]

Box 1 Draft Theory of Change Early Childhood Stream

IF we improve our capacity to support 'at risk' infants and their families ***BY***

1) improving systems between hospital/maternity ward and Maternal & Child Health Nurses (MCHN) to identify at risk infants within one week of birth

2) providing intensive services by enhanced MCHN to the families in 1st 12 months of life including increased number of visits, parenting skills, language development, motor function, nutrition advice

3) providing sufficient access to quality early childhood development and education programs such as supported playgroups, quality childcare and preschool education programs, and

4) supporting and encouraging these children to attend preschool education programs (kindergarten)

THEN the children in Brimbank will have better health (reduced hospitalisations, increased fruit and vegetable intake, increased number of children developmentally on track for physical health and wellbeing) and education (as indicated by Australian Education Development Census) outcomes.

NOTE*: This draft Theory of Change does not yet include any quantification of inputs and therefore expected outcomes. That is, it does not yet specify how much services need to increase their activities, how many families would be needed to increase attendance at preschool etc. Such specification is necessary to make explicit why expected changes in outcomes will occur. These estimates will be determined in conjunction with the early childhood sector partners.*

Evaluation questions

Growing Brimbank and its evaluation focuses on three levels: the system level, the level of programs and services and at the individual level. The overarching evaluation questions at each of these levels are:

System level:

- What impact do changes to the elements of the system (context, components, connections, infrastructure and reach) have on the services and programs, and on the organisations who deliver these, to better meet community needs, reach those most needing these services and address community risk factors?
- How has the Brimbank Collaboration contributed to these changes?

Programs and services level:

- What is the impact of improving quality, quantity and reach of individual programs and services on their clients and on the organisations delivering them?
- How has the Brimbank Collaboration contributed to these changes?

Individual and community level:

- What is the long term effect on health and education outcomes of the community?

Methods

Setting

The City of Brimbank is located in western metropolitan Melbourne. Is spans 123 km² and has a population of about 195,500 in 2016. [15] Of the 31 Melbourne metropolitan municipalities it is the second most populous and the second most disadvantaged in Victoria. Brimbank is also culturally diverse: about 43% of the population were born overseas, more than half speak a language other than English and there are more than 150 different languages spoken. Neighbourhoods within Brimbank experience significant equity issues due to high levels of social and economic disadvantage.

Study design

The nature of the intervention –change at multiple levels, utilising multiple, inter-related strategies and focused on multiple outcomes and implemented across a community - makes it difficult to consider or include a counterfactual and therefore to assess attribution. To address these difficulties, and build the evidence of *Growing Brimbank* having a positive (or indeed no effect, or a negative effect) we propose:

1. collecting data from multiple sources and multiple levels within Brimbank;
2. using Theories of Change at multiple levels to strengthen the development of interventions by making explicit the assumptions between the strategies and programs implemented and their expected impacts; [24, 25]
3. monitoring change in health and education outcomes in the Brimbank community using routinely collected data. We recognise that not everyone in the community will necessarily have been exposed to any or all programs and services, especially early in the study where sufficient reach may not have been achieved. This is analogous to intention to treat analysis where all intended recipients of the interventions are included in the analyses. This will conservatively estimate any outcomes;
4. initiating a *Growing Brimbank* birth cohort to monitor health and education outcomes through data linkage of routinely collected administrative data[1] through the life course;
5. comparing changes in Brimbank outcomes with similarly disadvantaged communities in Victoria, recognising that in these comparison areas we have no or little knowledge of the quality or quantity of health and education interventions being implemented. [25]

Assessment of implementation, process, impact and outcome at the multiple levels of *Growing Brimbank*

Data sources and time frames for data collection at the system level, for the suite of programs and services implemented in each stream and the assessment of community health and education outcomes are outlined below.

System level outcomes

Changes in the systems elements will be assessed through interviews with key informants including members of the Brimbank Collaboration, and other service providers, annually. Routine and administrative data from the service and program level initiatives will be used to inform and assess changes to system level elements. For example, for the early childhood stream several strategies and proposed outputs would contribute to systems change such as increasing connections across

1 This will be dependent on the feasibility of linking data from health and education sources

organisations, aligning practices and programs, and measuring reach. Similarly, the work focused on increasing physical activity may establish or change relationships across and within Council departments, where we might see these departments planning together not just talking to each other.

Service and program level impact and outcomes

The evaluation of service and programs level will collect information about process, impact and change at the organisational level. Drawing on service and administrative data collected by service and program providers to monitor and improve their services we will focus on capturing the quality, quantity and reach of the services: are the services and programs delivered of sufficient quality (i.e. appropriate implementation of evidence-based practice and programs) and sufficient quantity to have an impact on those participating in the programs and services and do they reach those in the community most in need, to have a measurable effect on health and education outcomes? We will also assess the inter-relationship between components (are the programs and services co-ordinated, are their goals aligned?) and between organisations (do organisations have aligned goals?).

Interventions devised and implemented by researchers linked with *Growing Brimbank* will have their own evaluation protocol assessing process, implementation and effect. In collaboration with these researchers we will use the results of these evaluations to contribute to the overall evaluation of *Growing Brimbank*.

Community and individual level health and education outcomes

To assess changes in health and education outcomes we propose:

1. Using routinely collected data from Departments of Health and Education in Victoria and Australian Bureau of Statistics surveys (e.g. hospitalisation rates, prevalence of chronic diseases, psychological distress, levels of physical activity, Australian Education Development Census, National Assessment Program – Literacy and Numeracy, school completion, number of 15-24 year olds not in Education, employment or training). These data provided the baseline for the community health and education outcomes. [15] Brimbank's data will be compared to communities with similar levels of disadvantage;
2. Establishment of the Brimbank Birth Cohort to monitor health, development and education outcomes at the individual level using data linkage[2] to health and education data sources;
3. Outcome data from individual research projects will also be used to contribute to the evidence base.

Management and funding

A Memorandum of Understanding between Brimbank City Council and Victoria University outlines the roles of the organisations in terms of governance, communication, and engagement. The Council provides program coordination across Council policies and responsibilities and a joint Victoria University, Council advisory group provides administration and governance, and priority setting. Brimbank City Council and Victoria University currently fund *Growing Brimbank* through in-kind contributions of leadership and resources within each organisation's capacity. Specific purpose funding may be provided by either collaborator and/or through external partnerships including philanthropic organisations and national research funding bodies over time.

2 This will be dependent on the feasibility of linking data from health and education sources

Ethics

Ethics approval will be sought from Victoria University's Human Research Ethics Committee (VUHREC) and appropriate authorities to undertake data linkage. Evaluation of research-led programs/initiatives will obtain ethics approval separately.

Discussion

Growing Brimbank is an ambitious 20-year program aimed at improving health and wellbeing across the life-course in a significantly socio-economically disadvantaged community. It involves more than the implementation of discrete, evidence based programs for different target groups and for different outcomes and intentionally seeks a multiplier effect by linking programs across a stream (e.g. school years and youth transitions) or risks across the lifecourse. While such programs may be implemented, it also involves quality improvement initiatives where the *Growing Brimbank* partners have identified priority areas, significant groups and service gaps, and have developed multi-stakeholder collaborations in recognition that lifting health and education outcomes is beyond the health and education sectors. To be successful *Growing Brimbank* requires long term commitment from its partners and broadening the partnership to include those who are undertaking and evaluating relevant initiatives (e.g. Bridging the Gap [35]; Restacking the Odds at http://www.rch.org.au/ccch/research-projects/Restacking_the_odds), from whom we can learn and share.

Place-based systems approaches involving multi-stakeholder collaborations are considered to be important methods to address complex problems. [10, 13] However, while there is some evidence that they are effective (e.g. [25, 29, 36-39]), overall evidence of effect is limited due to the challenges of evaluating a complex series of initiatives, strategies and actions which can vary across sites and over time.[10, 13, 38, 40]

As proposed here, most place-based systems approaches are evaluated using quasi-experimental designs - simple comparison of before and after data, interrupted time-series and/or creating comparisons through methods such as propensity scoring (e.g. SureStart [39]). Such designs can limit the assessment of attributing changes in outcomes to the intervention in particular because of the difficulty of identifying an appropriate comparison group or area. [10, 24] Randomised controlled trials which overcome this problem by randomly allocating similar communities to intervention or control status are rarely feasible and sometimes considered not appropriate for community interventions. [40] Even with the counterfactual provided in the randomised controlled trial-design, where it has been used (e.g. evaluation of Well London [41, 42]) and other quasi-experimental designs, attribution and estimating the effects of the intervention remain difficult because:

- Place-based approaches involve the implementation of multiple interventions, strategies and programs designed to respond to the needs of the community and therefore may change over time; [24]
- The interventions do not necessarily involve or effect all individuals in the community, thus using community-wide data to assess effects is likely to provide a conservative estimate or miss any effects of the interventions; [38, 41]
- Place-based approaches take time to be implemented and to have an effect. Capturing the long-term outcomes are often beyond the scope of evaluations; [10]
- Measuring impacts and outcomes such as partnerships, capacity building and participation, which are important components of these approaches, can be difficult. [10, 41]

Thus it can be difficult to know if such approaches are ineffective, or poorly implemented, did not reach the appropriate groups sufficiently, or was not evaluated for long enough. [38, 40-42]

To address these challenges, the proposed evaluation of *Growing Brimbank*:

1. Uses Theories of Change to explicitly link the intervention actions and components to the expected outcomes. [10, 13, 24]. While not overcoming the problem of a counterfactual, theories of change help to strengthen the understanding of how and why the interventions should work, what actions need to occur to achieve desired outcomes and what reach is needed to have an effect;
2. Takes a systems approach to focus on changes in the system, policies and norms, components, interrelationships between parts of the system, the infrastructure and reach;
3. Combines quasi-experimental methods with theory and using multiple methods of inquiry and multiple data sources and take a developmental approach to the evaluation to capture the learning, collaboration and changes as they occur throughout implementation of the intervention(s); [10, 43]
4. Seeks to assess multiple outcomes at different levels of the system and uses routinely collected data to ascertain both baseline levels and changes in health and education risk factors and outcomes over the long term;
5. Seeks to embed the use of routinely collected data by the service providers for continued monitoring and continuous quality improvement, thus becoming self-sustaining;
6. Plans for long term evaluation including economic impact of change and opportunity costs.

In developing the evaluation framework we acknowledge and recognise that the evaluation has multiple purposes. The evaluation will be used to: find out what works, what doesn’t, how and why; build capacity to continue to improve practice; strengthen actions and programs, and capture change and emergent events. So it will include process and implementation data, encourage reflective practice, engage participants and be participatory, provide timely and systematic feedback and be flexible. [18, 43, 44]

Conclusion

Growing Brimbank is a long-term, place-based program of research and interventions that will lift health and education outcomes in Brimbank, through applying ‘what works’ to identified risk factors that can lead to poor health and education, and particularly to preventable chronic diseases. The place-based systems approach highlights the complex interactions between the social and physical environment of Brimbank and demonstrates ways to better integrate its services and social systems in collaboration with the local community. The lessons learned from *Growing Brimbank* will be used to inform national, state and local policies, services and practices.

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A complete directory of the interventions, the individual projects briefs, the supporting research program and resourcing requirements is available upon request from deborah.law@vu.edu.au