Applying Collective Impact to Wicked Problems in Aboriginal Health

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Abstract

Aboriginal people fare worse than other Australians in every measure of health, including in a ten-year gap in life expectancy, infant mortality, cardiovascular disease, dental disease, mental health, chronic disease and maternal health. Despite sustained government effort, progress to improve Aboriginal health has been very slow. The collective impact tool may offer a solution. This paper provides examples of the application of collective impact, to address the significant gap in Aboriginal health and as a tool to enable community control. Three case studies in Aboriginal health demonstrate the stages and phases of collective impact to facilitate positive change.

Keywords: Aboriginal health; collective impact; wicked problems; Indigenous; cardiovascular disease; allied health; oral health

Introduction

Wicked problems are those that appear impossible to solve. They are complex, long-standing, seemingly intractable, and there are divergent opinions about the ways to address them (Head, 2008; Rittel and Webber, 1973). Wicked problems do not occur in a vacuum. They are enmeshed in wider social, cultural and political issues (Head, 2008; Rittel & Webber, 1973; Periyakoil, 2007; Raisio, 2009). Typically, governments and other organizations attempt to fix wicked problems through a particular lens or focus (such as housing, education or health) when, for real and lasting impact, these problems need multidimensional, dynamic and sustained solutions (Head, 2008; Rittel & Webber, 1973; Periyakoil, 2007).

Aboriginal and/or Torres Strait Islander peoples (hereafter Aboriginal) are the indigenous people of Australia and comprise approximately 3% of the Australian population. Like Indigenous peoples globally, Aboriginal people bear an unacceptably high burden of disease (Commonwealth of Australia, 2016a; Commonwealth of Australia, 2011; Holland, 2016; SCRGSP, 2014). Successive governments since the colonization of Australia in 1788 have developed and implemented strategies and policies related to Aboriginal peoples (Australian Law Reform Commission, 1986; Commonwealth of Australia, 2009; Thorpe et al., 2016). These included removing Aboriginal children from their families, disconnecting people from their land and culture and not recognizing Aboriginal people in the census until 1967, which have led to significant inter-generational trauma and subsequent disadvantage faced by many Aboriginal people today (Australian Law Reform Commission, 1986; Commonwealth of Australia, 2009).

The disparity in health outcomes for Aboriginal people results in a ten-year life expectancy gap between Aboriginal people and other Australians (Commonwealth of Australia, 2016a). Australian governments agreed in 2008 to a long term initiative to close the gap in life

expectancy for Aboriginal Australians by 2030 (Commonwealth of Australia, 2016a; Holland, 2016; Marmot, 2008). This program, known as Closing the Gap, has specific health targets of infant mortality and life expectancy, as well as targets for social determinants of health such as education and employment (Commonwealth of Australia, 2016a; Holland, 2016). Closing the Gap is monitored by the Council of Australian Governments (COAG) where the heads of each state/territory government and the Prime Minister meet to address matters of national importance (Commonwealth of Australia, 2016a). The Closing the Gap targets are:

- halve the gap in mortality rates for Indigenous children under five within a decade;
- ensure all Indigenous four years-olds in remote communities have access to early childhood education within five years;
- halve the gap for Indigenous students in reading, writing and numeracy within a decade;
- halve the gap for Indigenous students in year 12 attainment or equivalent attainment rates by 2020; and
- halve the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade (Commonwealth of Australia, 2016a; Holland, 2016).

Despite bi-partisan support, funding, policy and national reporting, progress in closing the gap in health outcomes has been very slow. Indeed, the only area where population parity has been reached is in the employment of university graduates (Li et al, 2016). Infant mortality remains almost double the rate of the wider Australian population and employment at 47.5% compared with other Australians at 72.1% (Commmonwealth of Australia, 2016a).

In 2013, the Australian government combined all Aboriginal-related funding in a new Indigenous Advancement Strategy with five areas of focus: Jobs, Land and Economy; Children and Schooling; Safety and Wellbeing; Culture and Capability; and Remote Australia Strategies (Commonwealth of Australia, 2014). This funding, the majority of which was already being used for Aboriginal-related projects across the country, was subject to a tender process (i.e., one where organizations were invited to submit proposals for funding which were assessed against published criteria and successful tender proposals were awarded funding under the Indigenous Advancement Strategy) which led to significant changes in the purpose and allocation of funding and in practice, program closures and development of new programs (Commonwealth of Australia, 2016b).

Despite these significant and sustained government action, the poor health outcomes of Aboriginal peoples meet the definition of a wicked problem. It is wicked because it is seemingly intractable, long standing and complex, with no single solution. Roberts (2000), describes three strategies to tackle wicked problems: authoritative; competitive and collaborative (Roberts, 2000). Authoritative solutions are prescribed by a small number of people who hold decision-making authority. Competitive solutions are those where organizations compete with each other for limited resources by pitching their solution. Collaborative solutions require stakeholder engagement in defining the problems and the solutions. Initially, the Australian government appears to have utilized what Roberts would define as authoritative approaches by placing the solutions in the hands of a few senior government officials through COAG and Closing the Gap. More recently, the government has used a competitive approach through the Indigenous Advancement Strategy. The approach we adopted was collaborative and we selected collective

impact because of the consensus approach which aligns well with the decision-making approaches of Australian Aboriginal communities.

Rittel asserts that solutions to wicked problems need collaborative approaches that engage stakeholders in the planning processes (Rittel & Webber, 1973). Collaborative approaches to Aboriginal health have developed over time with an emphasis on community engagement and consultation. Collective impact is more than collaboration, it provides a framework for bringing multiple parties together to define the problem and its complexities and priority, and to jointly develop, implement and evaluate multifaceted solutions (Aragón & Garcia, 2015; Banyai & Fleming, 2016; Bryan et al., 2015; Gillam et al., 2016; Kania & Kramer, 2014; Kania & Kramer, 2011).

Hanleybrown et al. (2012) identified three preconditions for selecting collective impact as the tool to address a complex problem: (a) strong and influential champions; (b) urgent issue requiring sustained response; (c) understanding of why existing solutions are not effective (Hanleybrown et al, 2012). Aboriginal health meets each of these criteria: (a) Aboriginal leaders and elders are strong and influential champions for their communities, (b) Aboriginal health is an urgent problem, and (c) we understand why the existing solutions in Aboriginal health are not working (Marmot et al., 2008). Once the preconditions for selection of collective impact as a tool have been met, collective impact projects have three phases of implementation identified by Hanleybrown et al. in 2012.

The three phases of implementation of collective impact are demonstrated in this paper through three case studies, each at a different phase of implementation: (a) phase 1 initiating action, as applied in Aboriginal cardiovascular disease; (b) phase 2 organizing for action, as applied in improving access to allied health services; and (c) phase 3 sustaining action and impact, as applied in oral health (Hanleybrown et al., 2012). Within each phase, the five stages of collective impact are utilized.

There is a considerable body of evidence that the mainstream health system is ineffective for Aboriginal people (Bar-Zeev et al., 2014; Kildea et al., 2012; Steenkamp et al., 2012) and that health services intended for Aboriginal people must be tailored in order to achieve sustained and measurable health improvements. Yet health care systems across Australia continue to offer usual health care to Aboriginal people (Bar-Zeev et al., 2012; Gao et al., 2014; Kildea et al., 2012; Steenkamp et al., 2012). There are few examples of tailored services, most notably is the Aboriginal Community Controlled Health Services sector, which as the name implies, are governed by, trusted and utilized widely by Aboriginal people. However, Aboriginal Community Controlled Health Services provide only a small and diminishing percentage of health care services for Aboriginal people. Most health care services for Aboriginal people are provided by mainstream health services (Panaretto et al., 2014). Many Aboriginal Australians access the health care system only in the late stages of the disease process or in emergencies, due to fear, racism and distance from services (Bainbridge et al., 2015; AIHW, 2014). It is therefore vitally important in addressing the health care needs of Aboriginal people that tailored, culturally safe care is available across all health care providers. Our hypothesis is that a structured and shared process from conception, through to design, implementation and evaluation increases the

likelihood that health services will be utilized by Aboriginal people and that, as a result, health outcomes will improve.

Potential Consequences

There is a long history in Australia of non-Aboriginal people defining the problems and solutions in Aboriginal health (Thorpe et al, 2016). Collective impact provides a framework and process for engagement and power sharing with Aboriginal people, and is particularly suitable because it begins with agreeing on the problem that needs to be addressed from the collective or community perspective. The potential consequence of this approach is that health outcomes for Aboriginal people measurably improve, which is a worthy and important goal. This paper provides three examples of how the Poche Centre for Indigenous Health at the University of Sydney worked alongside Aboriginal communities utilizing collective impact to address wicked problems in three areas of Aboriginal health.

Description/Analysis/Methods

Three examples of the application of collective impact to address wicked problems in Aboriginal health are detailed in this paper: preventing stroke; improving access to allied health and improving oral health. The same processes as described in Figure 1, were applied in each of the three examples.

> Case study one applies phase one of collective impact, initiating action, in cardiovascular disease by detecting and treating atrial fibrillation and preventing stroke. A mixed methods pilot study is implemented to determine if the smart phone technology and software application (App) are effective tools for Aboriginal communities to identify patients with Atrial Fibrillation (AF) and facilitate access to further assessment and treatment.

On average, Aboriginal people develop AF approximately 20 years earlier than non-Aboriginal people and have a higher rate of associated co-morbidities than the wider Australian population (Katzenellenbogen et al, 2015; Wong et al, 2014). Risk factors for AF such as hypertension, diabetes, chronic kidney disease, and rheumatic heart disease are all more common in Aboriginal people and at a younger age than in non-Indigenous people (AIHW, 2014).

Our Framework for Action – Collective Impact

Collective Impact is the structured process that informs the way we work. It draws separate organisations together to resolve complex problems. Five processes underpin Collective Impact:

Common Agenda
Improved health; services embedded; capacity & skill building

Shared Measurement
Collaborative research project; shared data gathering & analysis

Mutually Reinforcing Activities
Genuine partnership; shared resources

Continuous Communication
Formal & informal; mutual accountability

Backbone Support
Coordination, not control; secretariat

1. **Common Agenda**
A common agenda is one that is agreed between the parties of the project. Clarity about the purpose and expected outcomes or impact of the activity is a critical first step in the Collective Impact process.

2. **Shared Measurement**
Shared measurement is about agreeing what is important to measure, the ways in which it will be measured and how the data and other information collected will be analysed and used.

3. **Mutually Reinforcing Activities**
Mutually reinforcing activities build and promote interdependence and are essential to genuine partnership. Across our projects the mutually reinforcing activities include: shared resources, personnel, clinical supervision, data, equipment, space, training, and knowledge.

4. **Continuous Communication**
Continuous communication is about making explicit expected outcomes, resolving issues that may arise, adapting and changing as required and ensuring all partners in the process understand the direction, status, issues and outcomes of the project.

5. **Backbone Support**
The backbone organisation takes responsibility for overall coordination, secretariat and reporting.

Figure 1. Collective impact stages as applied in three case studies in Aboriginal health.

A smartphone App with Therapeutic Goods Administration approval which had already been proven to be effective in non-Aboriginal people, was presented to Aboriginal communities as a potential tool to reduce stroke. The communities (including health workers, community members and elders and leaders) were initially invited to consider participation in the project. Those communities that agreed then participated in a series of meetings. At the meetings the resources each party would allocate to the project and how decisions would be made were discussed. In addition, the common agenda, measurement, mutually reinforcing activities, and communication processes were agreed and documented. The Poche Centre for Indigenous Health at the University of Sydney assumed the role of backbone in partnership with community organizations. Fundamental to the approach was that there would be no payment to people participating in the project (other than reimbursement for a Registered Nurse to collate the data). It was considered that unless there was inherent benefit to the communities such that they too would contribute resources to the project, then it should not proceed in that community. Table 1 shows how collective impact was applied to this project.

Table 1. Elements of collective impact in preventing stroke in Aboriginal people.

Common agenda	Shared measurement	Mutually reinforcing activities	Continuous communication	Backbone support
Preconditions for collective impact have been met: champions have been identified; cardiovascular disease is the leading cause of death for Aboriginal people and is therefore an urgent issue; and we understand why existing responses are not working.				
Preventing stroke by identifying people with asymptomatic Atrial fibrillation—a precursor to stroke—and facilitating access to assessment and treatment. Discussion and development of the common agenda over a twelve-month period with communities across three Australian jurisdictions to establish common agenda and the processes for achieving this including customized referral pathways and training for each participating community.	Local investigators from every site on the decision-making team. Local Aboriginal staff use the device and App to detect AF. The App provides a diagnosis in 30 seconds. Cloud based data directly from the App is available to all investigators. Only local investigators have data linked to individual people in order to facilitate further assessment and treatment where this is indicated.	Training is provided for the local Aboriginal Health workforce in the device and cardiovascular disease health more broadly so that overall health literacy is an additional benefit to the community. Aboriginal Health Workers trained to screen Aboriginal people using a smart phone device and App to detect Atrial Fibrillation. Each Aboriginal Health Worker conducted 50 screens as part of the project and retained the device to use in their practice. Patients with a non-normal result assisted to access further assessment and treatment.	Monthly meetings of the project decision- making team. Aboriginal health workers and investigators meet formally and informally to implement and refine the process and to ensure the optimal outcome for patients and the study Written letters of support were provided from each community once the common agenda, shared measurement and mutually reinforcing activities were agreed by all parties. Information sheets and consent forms customized to each location to reflect community language, customs and beliefs.	The Poche Centre purchased the equipment, acquitted the funding, arranged logistics, organized the meetings and supplied the technology.
Shared aspects of control: Local people from each site are on the decision-making team, local health workers implement project as part of their existing roles, data held and owned locally and shared on request, identifying information is never shared, local leadership of implementation, and shared decision-making and approaches to dissemination of findings.				

The research protocol for this study was significantly shaped by the collective impact process (Gwynne et al, 2016). For example, the research team initially imagined a single participant information sheet incorporating pictorial elements. Through the collective impact process, it was decided that each site required a customized brochure, incorporating local language and meaning, written in plain English and supplementary pictures, which not only provided information about the study for participants but also the consent processes and information about cardiovascular health. This shaped the training for health workers, as they needed to be competent and confident to explain the information in the brochure. This approach was more substantial and potentially more effective than a typical participant information sheet. A further feature is that the research team anticipated partnering with one organization at each site; that organization would coordinate the project locally. Through the collective impact process, this was managed differently at different sites. At one site, five organizations took part in the design and implementation, at another site there was a single organization.

Each party to the collective impact process contributed resources and shared decision-making responsibility. Specifically, in this project, local investigators led the data collection, held the data, and only shared the data when it was agreed by the project partners.

Data collection for this study is currently in progress and is expected to be completed in mid-2017. The analysis and dissemination of the results will be coordinated through the established collective impact process. Depending on the qualitative and quantitative findings, participating communities may wish to extend this project to examine the efficacy (including adherence) of treatment options for Aboriginal people with AF and track long term whether or not this approach impacts on premature deaths and disability as a result of AF stroke.

Case study two demonstrates the application of phase 2 of collective impact, organizing for action, to improve access to allied health services. A mixed methods study to design and implement allied health services to best meet the needs of Aboriginal people living in rural Australia. Allied health services include services such as physiotherapy, speech pathology and occupational therapy.

After preliminary scoping discussions, semi-structured interviews gathered input from Aboriginal organizations and community members across rural and remote Aboriginal communities. Early findings indicated the importance of local expertise to facilitate access to assessment and treatment, provide treatment, and assist families and health workers to navigate the service system for people requiring allied health services. A decision-making group has been established and resources pooled, and a common agenda has been agreed and documented. The first stage of demonstrating a local support model in the form of Aboriginal Allied Health Assistants (AAHAs) has commenced in five rural Aboriginal communities. The AAHAs are employed regionally and funded from the pooled resources. Table 2 documents our early progress. It has taken two years to get to this stage which reflects the lengthy process of engagement and shared decision-making when utilizing the collective impact approach.

Table 2. Elements of collective impact in improving allied health services for Aboriginal people.

Common agenda	Shared measurement	Mutually reinforcing activities	Continuous communication	Backbone support
Preconditions for collective impact are met: champions have been identified; there are very limited allied health services available to Aboriginal people in rural and remote areas which is impacting for example on early identification and treatment of issues such as coordination, speech and behavior in young children and effective management of chronic disease management; and we understand that reasons for the paucity of allied health services.				
Improving allied health by designing service models with communities and demonstrating implementation. Research team includes local Aboriginal service providers	50% of the investigators on the research team are Aboriginal and they are directly shaping the study design and implementation. Semi-structured interviews with Aboriginal people including families, service providers and community leaders. Thematic analysis of interviews by the research led to the design of pilot model of Aboriginal allied health assistant role. Process and output data to be collected by the AAHAs as part of pilot study.	Demonstrate allied health assistant roles in five communities. Local education, employment and local priority setting. Development of a local skilled and supported AAHA workforce that supports visiting allied health professionals	Weekly meetings with Aboriginal allied health assistants. Quarterly meetings with decision- making group. Monthly meeting of project team for AAHA project.	The Poche Centre acquitted the funding, arranged logistics, organized the meetings and funded the research.
Shared aspects of control: Local people from each site are on the decision-making team, AAHAs employed regionally and funded from pooled funds, data held and owned locally and shared on request, identifying information is never shared, and shared decision-making and approaches to dissemination of findings. A jointly owned document details roles and responsibilities within the project and is regularly reviewed and developed by the decision-making group.				

The third case study demonstrates the application of phase 3 of collective impact, sustaining action and impact, to improve oral health.

A longitudinal, mixed-methods study was developed and implemented using collective impact to design and deliver the best available evidence to reduce dental disease and promote oral health in Aboriginal people. This study began with two communities and has since expanded to a further nine. The communities identified oral health as a thirty-year problem and were seeking local solutions (Gwynne et al, 2015). The oral health of the Aboriginal communities was significantly poorer than Aboriginal people in other parts of Australia, and non-Aboriginal people locally and elsewhere (Gwynne et al., 2016). Governments had attempted to provide oral health services to these communities, however, an effective response had not been delivered (Gwynne et al, 2015; Gwynne et al, 2016). The Poche Centre for Indigenous Health was invited in 2013 to assist the communities in developing solutions to improve oral health and utilize a collective impact approach to achieve this (Gwynne et al., 2015).

Local community organizations, schools, health care workers, community members, elders and other leaders came together to discuss and agree the common agenda and measures of success. They also agreed how and what resources would be pooled and what decision-making and communication processes would be followed. The measures themselves were discussed at length, as well as the process of collection, storage, reporting and access. During these early discussions, a temporary emergency dental service was established using a dental van at each of the two initial communities. This helped to build trust and also provided employment for local Aboriginal people as Trainee Dental Assistants (i.e., it is possible to work as a Trainee Dental Assistant without a qualification in Australia. Once qualified, Dental Assistants have increased remuneration).

Once the common agenda and measurement had been agreed, the services were established at existing community facilities (schools, pre-schools and community health centers) and began the mutually reinforcing activities. In addition to being known and safe places, the community facilities provided reception, cleaning, power, waiting areas and other ancillary support which enabled the services to operate effectively. Local employment and skills development were part of the common agenda and as such all Trainee Dental Assistant positions were filled by local Aboriginal people who were also assisted to complete Dental Assistant qualifications. The service is coordinated and delivered by local Aboriginal people with the support of clinicians who live and work locally. The services have been operating for three years utilizing a collective impact approach as detailed in Table 3.

Table 3. Elements of collective impact to improve Aboriginal oral health.

Common agenda	Shared measurement	Mutually reinforcing activities	Continuous communication	Backbone support
Preconditions for collective impact have been met: local Aboriginal leaders and elders are champions and decision makers in the project; high rates of oral disease are impacting on nutrition, overall health and self-esteem of Aboriginal people and is an urgent priority for the community; and we understand why previously existing services were ineffective.				
Improving oral health by providing comprehensive oral health services as close as possible to where people live and developing the local Aboriginal oral health workforce.	Patient data held by local Aboriginal organizations and shared with stakeholders on request. Joint research project with local service and university investigators. Joint analysis and publication of results.	Shared equipment and training; shared supervision by senior clinicians; and shared employment of staff. Regional employment within existing health care services. Assisting local Aboriginal people to complete qualifications in oral health with a view to local backbone/ management overtime.	Formal meetings weekly with the joint teams. Quarterly meetings with community members and stakeholder organizations about service outcomes and issues. Annual research reports to communities. Informal communication daily about service outcomes and issues.	Shared between the Poche Centre for Indigenous Health and Armajun Aboriginal Community Controlled Health Service Both hold and acquit funding, Armajun produces reports, shared training, each responsible for clinical governance at half of the sites. Supply technology and other equipment.
Shared aspects of control: Local people from each site are on the decision-making team, local dental assistants and coordinators manage and deliver the services from existing community facilities, data held and owned locally and shared on request, identifying information is never shared, and shared decision-making and approaches to dissemination of findings. A jointly owned document details roles and responsibilities within the project and is regularly reviewed by the decision-making group.				

The findings of this study to date have been promising. Two published studies by Irving et al report positively on the experience of the service from the community perspective (Irving et al, 2016a) and the clinicians living in the communities (Irving et al, 2016b). In addition, a paper

comparing this model of oral health care with a visiting service model over two years (2014 and 2015) found that this service model delivered 47% more treatment at 25.2% of the cost of a visiting service (Gwynne et al, 2016).

Rationale/Reflection/Replication

The ways we have applied collective impact align to the original work of Kania and Kramer (2011) and the subsequent model development by Hanleybrown et al (2012). Whilst collective impact is a relatively straightforward framework, it is complex and time rich to implement, and the approach permeates all aspects of the project. One of the great strengths and challenges of collective impact is transparency. This transparency is achieved through collective responsibility, pooled and shared resources, goals, reporting and evaluation, and focusses attention on the problems and their resolution through collective action. All of the parties to the collective impact projects described in this paper are accountable to each other for the process and outcomes, and collectively the parties contribute to achieving the common agenda and results.

In all of the three projects, the Poche Centre for Indigenous Health at the University of Sydney provides the backbone, either singularly or in partnership with an Aboriginal Community Controlled Health Service. Whilst there is an intention to transition the backbone role to community control over time, this currently is a limitation of our approach. It is our hope that as the approach becomes well understood, Aboriginal Community Controlled Organisations will initiate and lead collective impact projects.

The case studies in this paper demonstrate promising progress and the next steps will be to cycle through the phases of collective impact, increase local sustainability and measure impact over time. The capacity to transition the backbone to local organizations and sustain the programs will be key markers of the efficacy of collective impact as a tool for tackling wicked problems in Aboriginal health. Given the similar health issues faced by indigenous peoples globally, collective impact may provide a tool for engaging effectively with indigenous communities to define problems and design, deliver and evaluate solutions.

Conclusion

Many solutions to wicked problems exist. They exist in research, communities, and in public policy, but the execution of the solutions and the customization of the responses requires a structured and shared process, such as collective impact. Collective impact requires all parties to have a stake in the resources and decision-making, and assumes all parties have part of the picture which collectively contributes to the goals and the solutions. Importantly, all parties have a part to play in designing, customizing and implementing local sustainable solutions. Given the enormous disparities in Aboriginal health and the failure of governments and other organizations to address this, collective impact provides one approach to define problems and develop solutions collectively. Collective impact is a slow process, one of influencing and sharing resources and knowledge, one of trust and mutual accountability. Yet when applied effectively, positive change can result.

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