Assessing the health and social impacts of transport policies and projects

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Introduction

The New Zealand Government's 'Wellbeing Budget' in 2019 signalled a shift in focus of government policy from economic growth towards a greater consideration of social and wellbeing outcomes across all of government. In line with this approach, the Ministry of Transport has developed a Transport Outcomes Framework (Ministry of Transport, 2018), outlining five broad outcomes of the transport system: healthy and safe people; environmental sustainability; resilience and security economic prosperity; and inclusive access.

These outcomes recognise the breadth of impacts that the transport system has on social (including health), environmental and economic outcomes. Focussing on how transport can positively and negatively impact a range of outcomes marks a notable shift away from transport planning and policy that has focussed primarily on achieving economic growth and productivity, whilst mitigating negative externalities.

To ensure that transport policies, plans and projects are designed in a way to ensure that all the broad outcomes are met, new approaches to appraisal in transport planning are required. Transport planners and policy makers can draw on existing health and social impact assessment frameworks to support decision making aligned with the Transport Outcomes Framework.

This short article starts with a brief overview of the multiple ways in which transport affects health outcomes. It then provides an overview of how health impacts have been considered in transport appraisal and the use of health and social impact assessments for transport policies and projects in New Zealand, before using the example of mode shift policies to demonstrate the importance of wider health and social impacts in transport assessment.

Health impacts of transport

The way in which we get around has profound impacts on health of populations and individuals. In many ways mobility is good for our health and wellbeing. Being mobile facilitates access to places and people that are important for a good quality of life, such as healthcare, employment

and social connections, and movement in and of itself is good for physical and mental wellbeing. However, there are limits – and excess mobility, or needing to travel long distances can be detrimental, in particular for mental wellbeing.

Importantly, the *mode of transport* used has considerable impacts on health and wellbeing of populations and individuals. New Zealand's rate of car ownerships is among the highest in the world, with 93.5% of households owning cars. This high level of car dependence has many negative impacts on health and wellbeing.

Road traffic injuries and deaths, air and noise pollution are estimated to account for around 650 deaths per year in New Zealand (Briggs et al., 2015). Transport related emissions constitute a considerable proportion of total emissions contributing to climate change. Increased car use for short local journeys is associated with sedentary lifestyles and inactivity, which are associated with rising levels of obesity and poor mental and physical wellbeing. Financial stress, associated with the cost of car ownership, constitutes a considerable proportion of household budgets for those on lower incomes.

Historically, high levels of investment in road infrastructure have led to lower density cities, built around car ownership. As a result, car use is further perpetuated as it becomes difficult to travel by other modes of transport. This dependence on car as a means of accessing essential services can lead to forced car ownership, whereby a large proportion of household income is spent on car ownership and use, or social exclusion for those unable to afford a car and unable to access essential services as a result.

Addressing persistent heath inequities is a key challenge for public policy in New Zealand (Baker et al., 2019). Yet relatively little attention has been paid to understanding how transport inequalities, as a key social determinant of health, leads to inequities in health outcomes (Hosking et al., 2019). A large body of literature focusses on transport-related inequalities, mainly in the availability of transport resources, differences in travel patterns, and transport accessibility levels (Pereira et al., 2017). Inequities in the availability and use of transport affects the way in which people travel and the destinations they are able to reach, with clear implications for life outcomes. Consideration of the differential impacts of any proposed policy or plan is key to social impact assessment (Vanclay, 2003) but these impacts have rarely been considered in transport assessment.

Despite clear relationships between transport planning decisions and health outcomes, health has not featured explicitly in transport decision making. The following section outlines how health is incorporated into transport planning and the potential for broader health and social impact assessments.

Health and social impact assessment of transport policies and project

There are several examples of health impact assessments (HIA) of transport strategies and policies. Haigh et al. (2013) reviewed 24 HIAs undertaken in New Zealand between 2005 and 2009. Three of them focussed on transport: the Auckland Regional Land and Transport Strategy

HIA (2009); Wairau Road Widening HIA (2006), and the HIA of the Greater Wellington Regional Land Transport Strategy (2006). However, some of the other HIAs assessed also considered transport as part of their broader focus, for example the HIA of Greater Christchurch Urban Development Strategy options (2006). There are also more recent examples of HIA of transport strategies or projects, for example the Canterbury Regional Land Transport Strategy 2011-2041 and the Nelson Arterial Traffic Study (2010).

None of these HIAs were mandated but rather they were decision -support HIAs undertaken by or in conjunction with the organisation responsible for the proposed project or policy (Haigh et al., 2013), often led by or with considerable input from the area public health unit. In an international context, Christofa et al. (2020) suggest that health impact assessments have often been undertaken by public health agencies, and it is unclear to what extent they influenced transport decision making.

In addition to being undertaken on a voluntary basis, it is notable that all of the HIAs identified by Haigh et al. (2013) were undertaken at a regional or local level. Despite research undertaken in 2009 on how to integrate HIA into land transport planning (Ball et al., 2009) there is no requirement to undertake in-depth health or social impact assessments of transport policies, strategies or projects at the national level. Recently, however, the Ministry of Transport has undertaken a Social Impact Assessment (SIA) of the proposed (now approved) Clean Car discount scheme (Ministry of Transport., 2019).

Consideration of how national level policy might impact the population differentially is an important part of a social impact assessment and it is encouraging to see progress in this direction, especially given the focus on ‘inclusive access’ as a transport outcome. However, the approach taken in the SIA of the Clean Car discount scheme was a data intensive disaggregation of costs and benefits, without any community engagement or consideration of impact pathways that should also form part of a full SIA. So called “full chain” impact assessments can be challenging because of data and labour intensiveness, the multi-disciplinary expertise required, and inherent uncertainties and inaccuracies when considering complex causal pathways (Nieuwenhuijsen et al., 2020). A disaggregation of costs and benefits can be seen as one part of a health or social impact assessment but is not sufficient for understanding wider impacts. Community engagement and social science expertise are important to ensure that assessments do not become a tick box exercises (Hickman, 2019; Walker & Curl, 2021).

So while there are examples of health and social impact assessments applied to transport policies, plans, and projects in New Zealand, these are not mainstream approaches to the appraisal of transport investment. Assessment of proposed investment in transport often follows a business case approach, using multi-criteria assessment heavily dominated by quantifiable cost-benefit analysis. The monetisation of benefits has historically been dominated by journey time savings, leading to the prioritisation of vehicle mobility over accessibility and the prioritisation of investment in faster modes of travel, often the private car, leading to many of the health problems noted.

More recently a wider range of impacts, including health impacts, has been incorporated into the cost-benefit approach (Waka Kotahi NZ Transport Agency, 2021). Those impacts that explicitly relate to the transport outcome “healthy and safe people” include: crash cost savings; walking and cycling health benefits; vehicle emission reduction benefits; and impact of noise and vibration on health. However, impacts on health and wellbeing cut across all of the transport outcomes, not just those included in “healthy and safe people”. Vehicle emission reduction benefits are quantified under “environmental sustainability”; cost savings are monetised under “economic prosperity” and driver frustration reduction benefits, and user benefits from new public transport or cycling facilities, are monetised under “inclusive access”.

Beyond the monetisable impacts, Waka Kotahi’s social impact guide (Waka Kotahi NZ Transport Agency, 2016) outlines a range of social impacts that are likely to occur as a result of highway interventions. These include: air quality, noise, vibration, water quality, changes to transport modes, social connectedness, community severance, changes to facilities, changes to local movement patterns, safety, economy or public health. However, these impacts are considered largely as negative social impacts that should be mitigated. Instead social and health impact approaches could help to identify transport as having positive health outcomes across the whole of the transport outcomes framework.

Although the inclusion of aspects such as health benefits and valuation of noise and environmental impact demonstrate a broadening of impacts considered in cost-benefit analyses, there is still an emphasis on journey time savings. Furthermore, the impacts noted above are limited: for example, walking and cycling health benefits are often the health impacts associated with physical activity from active modes, but health impacts are much broader and not limited to active modes. There is no consideration of the negative health or physical activity impacts of investment in other modes.

The impacts considered are also usually the direct impacts arising from a particular project or policy, but there is limited consideration of the longer term pathways to impact or system level changes that occur as a result of investment decisions.

The nature of cost benefit analysis means that it focusses on aggregate costs and benefits at the population level and does not consider the gains and losses of different groups (Thomopoulos et al., 2009). Better consideration of health and social impacts can also help draw attention to issues of equity and fairness, which are important both in ensuring a fair and inclusive transport system and addressing persistent health inequities that can arise from an unfair transport system.

The example of mode shift policies

The example of mode shift policy demonstrates the importance of considering health and social impacts at the national policy level. Transport mode shift is a key priority in shifting towards a healthier, fairer and more sustainable transport system. Mode shift policy that leads to reduced car use, better public transport, and walking and cycling for short journeys can be health

promoting and has the potential to help reduce health inequities. However, policy approaches that seek to limit car use and promote shared or active modes of transport can be perceived as unfair, especially where car ownership is seen as necessary (Mattioli & Colleoni, 2016; Smith et al., 2012) as is the case in many parts of New Zealand. In particular concerns are often raised around the fairness of mode shift policies that involve pricing (Levinson, 2010; Rajé, 2003) and increases in fuel tax (Farrington & Farrington, 2005). Public acceptability can be threatened when policies are seen to be unfair (Schuitema et al., 2011).

Concerns around fairness and public acceptability, as well as consideration of the 'inclusive access' transport outcome, have underpinned recent Waka Kotahi research to understand the potential social impacts of mode shift policy levers (Curl et al., 2020). Previous research has considered mode shift as one policy approach to address climate change (AEA Group, 2011; Lucas & Pangbourne, 2014; Markkanen & Anger-Kraavi, 2019) and concluded that at a macro level mode shift has positive social impacts. However, less consideration has been given to the way in which mode shift is achieved, and different mode-shift policy levers may have different health and social impacts. For example, public transport interventions to increase mode share can prioritise patronage over coverage, meaning areas with high need experience reduced services (Mattioli, 2016; Walker, 2008). Large infrastructure projects in particular often have considerable community impacts (Mottee et al., 2020), which also need to be considered as part of mode-shift interventions.

Waka Kotahi NZ Transport Agency (2019)'s mode shift strategy outlines three high-level policy levers for achieving mode shift:

1) shaping urban form;
2) making shared and active modes more attractive; and
3) influencing travel demand and transport choices.

Based on a review of existing evidence, Curl et al. (2020) concluded that reducing the need to travel, by shaping urban form is the most important and fairest way to encourage mode shift. In areas where people currently experience transport disadvantage, infrastructure investments that make shared and active modes should be prioritised next, with lower emphasis on influencing travel demand and transport choices through education or pricing tools. However, in areas where excess travel already occurs and transport choices are good, the focus should be on influencing travel demand and transport choices through pricing, education and awareness.

Although it is clear that mode shift away from private car use is beneficial overall, it is important that this occurs in a way which does not restrict the travel options of those who are already restricted, while widening choices for those who currently travel most. Mode shift policies that align with the Transport Outcomes Framework need to consider a broad range of economic, environmental, health and social impacts, beyond those typically considered in transport appraisal frameworks. Use of a broader range of impact assessment tools such as HIA and SIA can help achieve this.

Conclusions

The focus on a broad range of transport outcomes, in line with the national wellbeing budget, demands a change in the ways in which transport plans and policies are assessed.

There are considerable overlaps between health impact assessment and social impact assessment, both of which are helpful in understanding the broader impacts of transport policies, plans and projects. While there are some examples of health and social impact assessments of transport policies or projects, neither approach is currently mandated.

Equity considerations are also largely missing from transport decision making processes. Given considerable inequities in health outcomes, many of which can be influenced by transport planning, there is a need to ensure equity is more embedded in impact assessments of transport policy and planning at all levels.

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