Original Research

A HEALTH SUSTAINABILITY PROJECT FOR THE COMMUNITIES OF MILTON OTAGO, NEW ZEALAND

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INTRODUCTION

The following community and health promotion project focuses on the community of Milton in the Tokomairiro district, Otago, New Zealand. The purpose of this project was to create a community profile for these townships based on Anderson and McFarlane's (1996) community wheel, and use these profiles to identify key health needs within this community. Using primary and secondary data collection we have generated a community profile. We then identified health needs within the community and then undertook a literature review relating to these needs. Our last step was to create health promotion resources that can be used to improve the quality of health within this community. The health needs identified and the resources we created are presented in part A and part B in this paper.

MILTON

Milton is in the Tokomairiro district which loosely translates to 'a place where canoe must be poled.' This relates to the vast wetlands that are common in the district. (Milton NZETC, 2016)

Milton is a prosperous town, situated 50 kilometres south-west of Dunedin. Milton dates from the year 1860, when Mr.W. H. Mansford bought half an acre of land and built a store. Previous to this, Mr. Peter McGill's flour mill had been in operation, where the present highly-improved mill stands. Under the impetus of the diggings, Milton made such progress that it was proclaimed an incorporated town in 1866, and a mayor and council were elected (Milton NZETC, 2016).

Milton's early history was strongly affected by the discovery of gold by Gabriel Reid at Gabriel's Gully close to the nearby township of Lawrence. The first European settlers of the Milton began to settle on the eastern side of the Tokomairiro plain building the first township at Fairfax in 1850, now known as Tokoiti. During the gold rush years of 1860's, Milton grew greatly and was a major staging post for prospectors heading to the goldfields. As communication with the goldfields in the interior became more important, and the desirability of the town increased, the town boundaries widened onto the plains around the Tokomairiro river (Milton District, n.d.). The Tokomairiro High school, was founded in 1856, only eight years after the province itself, and was one of the leading schools for many years thereafter.

Figure 1: Milton
Source: Tomas Woodford-Webb

Community Assessment

We undertook a primary and secondary data analysis using the community assessment wheel by Anderson and McFarlane (1996). This tool is used as a guide to undertake our assessment with a focus on health. 1,926 people usually live in Milton. There has been a population increase of 2.1%, since the 2006 Census. Milton has 11.4% of Clutha District's population. There are 798 occupied dwellings and 66 unoccupied dwellings. The median age is 41.7 years, 19.6% of people are aged 65 years and over and 21.5% of people are aged under 15 years.

A healthy community is one in which there are opportunities for people to achieve and maintain a high level of health and wellness. People are supported to make healthy lifestyle choices, have access to good nutrition, young families are supported, children are nurtured, older people are valued and policies are inclusive. The health of a community is multi-dimensional and is a product of empowered people, social inclusion, participation by members in community development, collaborative interaction with healthy physical, social and spiritual environments along with resources and services which are accessible, affordable and equitable (McMurray, & Clendon, 2015). Rural communities face their own unique challenges, some of which impact upon mental health, such as isolation, resilience and family dynamics.

Ethical Approval was granted by Otago Polytechnic Ethics Comittee, including Māori consultation with the Kaitohutohu office at Otago Polytechnic.

From this community assessment, research and consultation with professionals in the community, we identified two health needs of vulnerable populations

Identified health needs

Mental well-being in children within the rural community and limited after-hours health care and emergency response in the Milton area. We have separated these two health needs into part A and part B of this paper.

PART A

Identified health need - Mental Health of School Aged Children

These children in Milton are exposed to the physical distance and social isolation that rural communities experience. This is in direct contrast to children who live in urban areas where such disparities are not as relevant.

Mental health is a current health priority for the New Zealand government. The Prime Minister's Youth Mental Health Project is rolling out programmes and activities in schools through health and community services and online to improve the mental health and well-being of young children. SPARX is a self-help e-therapy tool that teaches young people the key skills needed to help combat depression and anxiety through a child-friendly game format. This programme uses proven cognitive behavioural therapy techniques and is a place for whānau and friends to help young people enjoy positive mental health and well-being (Ministry of Health, 2018).

About 25,000 children have been diagnosed with behavioural and emotional problems, with anxiety the fastest growing condition, according to the Ministry of Health children's health report (Ministry of Health, 2017). Among 11-year-olds, there is up to 18% 1-year prevalence of anxiety, rising to 35% - 40% in 18-year-olds. Childhood anxiety commonly precedes adolescent depression and studies comparing anxiety and depression have revealed a common genetic predisposition for these disorders. In the presence of both anxiety and depression, there is an increased risk of developing a comorbid substance disorder (Otago University, 2010).

Mental Health of Primary aged children (Years 1-6)

The Labour-New Zealand First coalition policy announcement wants to address childrens' mental health and behavioural issues by piloting counsellors in primary schools is an acknowledgement of the difficulties and anxieties children face (Central, 2017). Within Milton Primary School there will soon be a third year counselling student available for the children to access on a weekly basis.

Anxiety is defined as an emotion characterized by feelings of tension, worried thoughts and physical changes. People with anxiety disorders usually have recurring intrusive thoughts or concerns and often accompanied by nervous behaviour (American Psychological Association, n.d.). Anxiety becomes disruptive to children's ability to progress socially, academically or developmentally. Through the use of books children can learn about anxiety, how to speak about it, and how to respond to it. Books can help in effective ways to use stories to support children in their learning about anxiety (Wilson-Hughes, 2017). Books that are specifically written about anxiety or the struggles of anxious characters are designed to help children learn anything that may be missing from their anxiety management. They can help broaden their emotional vocabularies and toolkits without specifically targeting anxiety or focusing on managing particular issues (Wilson-Hughes, 2017). Books are a positive influence in primary schools to normalise anxiety and gently show children that these anxieties are largely unfounded and certainly unhelpful, without being dismissive or condescending. 'Maia and the worry bug' is a New Zealand book and also available in Te Reo Māori that is used throughout New Zealand primary schools. Another option teachers can use is general children's books as prompts for discussion and learning. This is best for learning about particularly sensitive issues about their anxiety and may respond better to a more gentle approach. Whenever a situation arises in a story that the child may have some level of anxiety about, pause, wonder with them about how the character is feeling, and how other characters might feel in their position. Encouraging the child to guess which anxieties lie behind the calm veneers of their heroes may help them have the confidence to own up to their own anxious situations (Wilson-Hughes, 2017).

Childhood stress is an indicator for adulthood stress, and stressful life events have been shown to be related to reduced academic performance among individuals (Napoli, Krech, & Holley, 2005). There has been an increasing incidence of children presenting with anxiety and stress related problems and therefore will continue to rise if early intervention programmes are not implemented. The principal of Milton Primary School identified increasing anxiety among their school children as a growing problem. Anxiety can be detrimental to children's everyday life, at school,

which can slow down their development and have a significant effect on their schooling and relationships (Anguita, 2014).

The principal of the school highlighted that the teachers are in the process of introducing play based learning into their classroom programmes at the beginning of the school day to help children with anxiety settle for the rest of the school day. Play is an important component in normal child development and is a way children develop their social and emotional skills. It is their language, their work and their relaxation (Kids Matter, 2018). Play is a way that children can express themselves and their feelings before or when they do not have the words to say how they feel. It is how they learn and build confidence in themselves (Kids Matter, 2018). Research indicates that programmes in schools that focus on stress reduction, lead to improvements in academic performance, self-esteem, mood, concentration and behavioural problems (Mental Health Foundation, 2012).

While it may be difficult to change a child circumstances that may cause anxiety and behavioural issues, there are interventions that could be implemented in schools, such as mindfulness and sensory modulation that could give these children coping skills and enhance their present and future well-being.

Mindfulness

Mindfulness is an activity that can reduce stress and anxiety. Mindfulness is having the ability to be open, accepting and having an enhanced ability to respond to the present moment (Mental Health Foundation, 2012). Mindfulness allows people to become more aware of their body sensations and the way they are feeling and thinking (Hardy, 2015). Mindfulness can help children make sense of their emotions and their connections to the world and others around them (Mindful NZ Schools, n.d). It helps children regulate difficult emotions such as fear and anger, through breathing and grounding techniques. Mindfulness helps children to understand what another person is thinking or feeling, which helps improve their awareness of others and helps with building positive relationships (Kids Matter, 2018). Mindfulness has a positive effect on the mental health of children as it has been shown to reduce the severity of depression, anxiety and Attention Deficit Hyperactivity Disorder (ADHD). Mindfulness builds resilience by giving children skills to help them cope better with stress, but also helps engage with themselves and the world in a deeper way (Kids Matter, 2018).

Sensory modulation

Sensory modulation is a therapeutic approach that focuses on using a person's senses to promote mental well-being. It involves supporting and guiding people to gain skills in self-management and changing emotional states. It allows people to learn self-soothing techniques and change their current emotional and behavioural responses to a stressful situation (Te Pou, 2016). Sensory modulation is about using sight, smells, sounds and movement. Weighted blankets, music, lighting, essential oils, massage, sour lollies all help engage the senses are commonly used in sensory modulation therapy (Te Pou, 2016).

Although there seems to be limited research about using sensory modulation in school aged children, there is however research that links the effectiveness of sensory modulation as an intervention for mental health disorders. Children who have autism, sensory processing difficulties and ADHD typically respond well to either weight or pressure (Sensory Toy Warehouse, 2018). Deep touch pressure also causes the release of both serotonin and dopamine in the brain. These neurotransmitters produce a feeling of calm within the nervous system which benefits individuals with high levels of anxiety. By helping to calm these individuals, deep touch pressure improves their ability to cope with stress and anxiety, giving them more control over their life (Tjacket, n.d.).

Teachers at Milton Primary school may find it helpful to embed principles of mindfulness and sensory modulation into their play-based learning classroom environments, as it may help not only the mental well-being of children with anxiety, but could have positive effects for every child at school.

RESOURCES WE DEVELOPED TO IMPROVE HEALTH

We decided to develop two resources we hope the Milton Primary School will uptake and implement into their school.

Resource: Stress Lightbulb and Instructions for Use

A printed light bulb stress toy with a simple and easy to understand message (1 2 3 4 5 Breathe) to distribute to the primary school aged children. This is to encourage them to be self-aware when they become anxious or stressed, remind the child to take some initial steps to de-escalate themselves and to seek further support from their teacher. We hope that this will form the basis for acknowledgement and individual mindfulness.

Figure 2: Stress Lightbulb
Source: Authors

RESOURCE: INSTRUCTIONS FOR USING STRESS LIGHTBULB

We will follow this first resource up with a printed document, that summarises effective strategies and pathways the teachers can support the anxious children when they seek further support or if the teacher recognises that a child is becoming distressed. We hope this resource will give the teaching staff a basis to support the children within their classes who do struggle with anxiety.

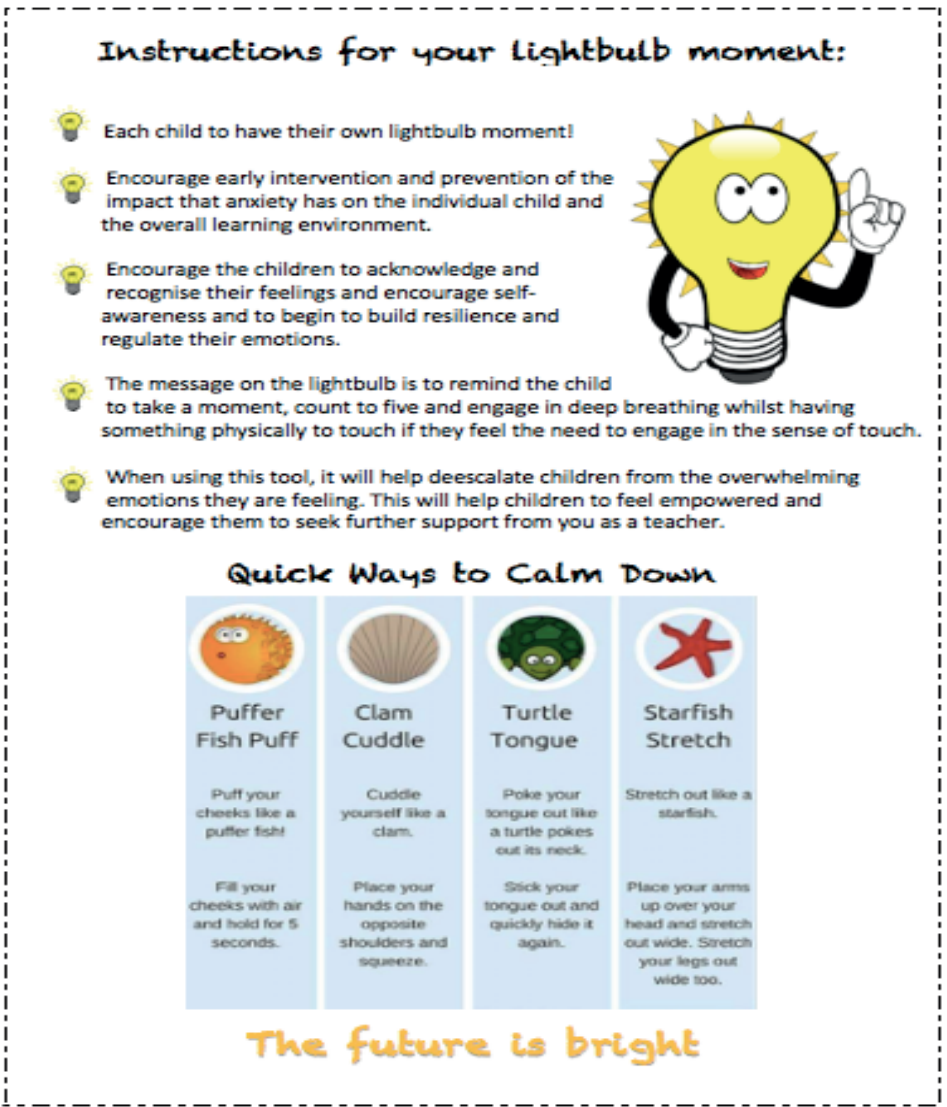

Figure 3: Instructions for using Stress Lightbulb
Source: Authors

PART B

Identified health need-Limited After-hours Health and Emergency Care

Through the primary data collection process we identified that emergency services support in the Milton area was insufficient. Our interviews with the chief fire officer, paramedic and practice nurse all showed that the community was left under-resourced when emergency response was needed elsewhere for acute medical emergencies. Milton is a well-established community with many health resources available. However, the only paramedic in Milton stated he sometimes felt alone and scared when responding to emergencies especially by himself due to being the only fully trained 'first responder' in the community. Others in the Milton community stated that there was a feeling of isolation in the town when the only ambulance was called elsewhere, as it is a timely process for other ambulances to reach Milton. We wanted to explore the research surrounding emergency medical response in rural communities.

Milton has a medical centre which is open from 8am-5.30pm, Monday to Friday with a late night clinic every second Wednesday from 5pm-7pm by appointment only (Health Point, 2018). After-hours care is not available at this clinic. The closest after-hours care is in Balclutha which is a 20 minute drive from Milton (25.2km) via SH1 (Google Maps, 2018). An after-hours service is supported by inpatient medical and nursing staff at Balclutha Hospital (Clutha Health First), allowing access to healthcare 24 hours a day. Patient access for after-hours service is through a triage service by phone. Clutha Health First also runs urgent clinics in the weekends from 9am-6pm, outside of the set week day hours of 8:30am-6pm (Clutha Health First, 2018). The after-hours service also comes at a cost and is a barrier for seeking after-hours care. Aside from this after-hours care can be sought from the Emergency Department at Dunedin Public Hospital, a 40-45 minute drive away.

When talking to the St John paramedic and Chief Volunteer Fire Officer in Milton, we found that there is a St John ambulance service in Milton which is run mostly by volunteers. There is one paramedic and only one ambulance, therefore if the ambulance has been called to an emergency and needs to take someone to Dunedin Hospital, the ambulance will be out of Milton for prolonged periods of time, leaving no ambulance for further emergencies if they arise. The paramedic works from 8am-5pm Monday to Friday. A point to note is that the medical centre is also operating Monday to Friday from 8am-5pm, so from 8am-5pm there is sufficient healthcare but not from 5pm-8am. There is also a fire brigade in Milton. The firefighters are all volunteers and there are approximately 25 members. However, most members work outside of Milton, therefore they may not always be able to make a callout. The volunteer fire brigade are trained in comprehensive first aid but are not trained first responders. The majority of their callouts are motor vehicle accidents and specific medical events such as cardiac arrests and seizures. The most common age groups they are called out to are elderly and children. If the St John ambulance is outside of Milton, the fire brigade sometimes attends the callouts the ambulance would normally go to, and provides first aid and reassurance until further help arrives.

As Milton is considered a "rural" township, funding can be scarce as with other rural areas. WellSouth is the primary health organisation, funded by the Southern District Health Board. It provides healthcare service funding to medical practices and accredited Māori and Pacific Island agencies in Otago and Southland. This includes, the Milton Medical Centre and Clutha Health First. However, not all healthcare costs are funded. For some people, cost may be a barrier for seeking healthcare.

No public transport runs from Milton to Balclutha or Dunedin therefore access may be limited for those people who do not have a personal vehicle. It is a 20 minute drive to Balclutha therefore the cost of travel may be acting as a barrier to accessing after-hours care in Balclutha. As well as this, the emergency department in Dunedin is even further away. This contributes to people not seeking after-hours care.

PRIME stands for 'primary response in medical emergencies'. There is no PRIME nurse or PRIME practitioners in the Milton area (St John New Zealand, 2018). The closest PRIME practitioner is in Outram but this service does

not cover the Milton area as discussed with PRIME National Headquarters. The General Practitioners (GP's) and some of the nurses who work at the medical centre do not live in the Milton township, so this makes it difficult to provide after-hours support.

Barriers to health of rural communities

Due to urbanisation, smaller communities are often disadvantaged, finding it harder to compete for medical, nursing, and specialist services in their community (Clendon & McMurray, 2015). According to Hartley (2004), rural residents tend to smoke more, exercise less, have less nutritional diets, and are more likely to be obese than suburban residents. Clendon and McMurray (2015) add that there is less preventative care such as screening in rural communities due to individual reluctance as well as pressure on health professionals. Bushy (2000), states that the decreased use of health screening may be due to decreased literacy skills, impaired access, as well as the belief about health; that prevention of disease is not important to them if they are still able to work.

Bushy (2000) also suggests that persons living rurally more often seek health care once they become gravely sick or incapacitated. Fraser (2006) concluded that there is a lack of national health data in New Zealand on health needs and health conditions on those living in rural communities.

Rural communities experience barriers to their healthcare due to many factors. Royal Health Information (2017) states that for rural residents to have good healthcare, they must have:

- Finances to pay for service
- Transportation and time off work
- Ability to communicate with healthcare providers
- Ability to use services and trust their privacy
- Have confidence in quality of the care they receive.

Health professionals in rural areas

Access to healthcare services is critical to good health, yet rural residents face a variety of barriers to access services (Ministry of Health NZ, 2011). The biggest single issue facing remote hospitals and rural GP practices in New Zealand is the shortage of medical professionals and this has been the case for many years. There are several factors that contribute to this shortage such as funding shortfalls, decreasing rural populations and the closing of some facilities. In a few rural places, conversely, increased population growth has placed pressure on existing small rural practices (Ochre Recruitment, 2018).

Primary health care is the most basic, and along with emergency services the most vital service needed in rural communities (World Health Organization, 2018). Primary health care providers offer a broad range of services and treat a wide spectrum of medical issues. Primary health care serves as a first entry point into the health system, which can be particularly important for groups such as rural residents and racial/ethnic minorities, who might otherwise face barriers to accessing health care (Ministry of Health, 2001).

Statistics from the Ministry of Health state that one in four New Zealanders live in rural areas or small towns. Also, rural areas have a higher proportion of children and older people living there. Thirty two percent of Māori live in rural areas, compared with twenty three percent of non-Māori (Ministry of Health, 2001). Of particular concern is the significantly poor health conditions of rural Māori compared with urban Māori and rural non-Māori. If we

are to reduce inequalities, it is vital that enough health practitioners with appropriate skills are accessible to rural communities (Ministry of Health, 2001).

An article from Ochre Recruitment suggests that filling New Zealand's rural medical positions remains a constant challenge (Ochre Recruitment, 2018). A survey from Ochre Recruitment also recognised that just over a third of all rural medical jobs in New Zealand were found to be vacant or temporarily filled by locum placements. Most hospital managers disclosed that they struggled to source suitably qualified staff for rural GP positions. While the workforce situation was found to be greatly improved in the 2016 survey, approximately 25% of hospital managers still indicated a serious or critical shortage (Ochre Recruitment, 2018).Health care workforce shortages have an impact on access to care in rural environments. A shortage of health professionals in rural New Zealand also limits access to care by limiting the supply of available services. The Milton Community Medical Centre is staffed by four registered nurses that work part time and two GP's who do not live in the Milton Community. Because the two GP's live in Dunedin and commute to Milton each day, they are not available for after-hours calls. If the GP's were to live inthe Milton community, there would be potential for an after-hours on call service that would benefit the community.

Emergency response in rural areas in New Zealand

Emergencies happen all the time, every day, all around the world. There is no cap on health and emergency care. However, a challenge in emergency care is attending to rural areas. This section of the literature review will focus on literature related to emergencies in the rural area, how they are dealt with and what is in place to support rural communities in relation to emergencies. Inequities between urban and rural care are evident across the continuum in rural communities. The distribution of health professionals and research gaps in rural healthcare exist, and act as a barrier to better rural health care (McMurray & Clendon, 2015).

According to a 2017 Stuff article a St John representative stated emergency crews who arrive first at the scene of a tragedy have found that small details can be the difference between life and death when emergency strikes in a rural area. Knowing farm property names and their RAPID numbers when calling 111 could reduce the time it takes for emergency services to reach the scene. It is also important to note if the area is only accessible by 4WD or if there are any landmarks because that this may help pinpoint the location (Taunton, 2017).

It is also encouraged for people living in rural communities to be first aid trained. St John first aid trainer Tracy Sherwood said the organisation was seeing an increase in farm staff receiving first aid training through a range of courses. "You are isolated so it's important that you know what those basic first aid requirements are, especially things like monitoring and maintaining an airway for the fire service or ambulance staff to arrive," she said. A basic first aid course - what they call 'basic life support' - is a morning course from 8am until lunchtime and that could save a life (Taunton, 2017).

It is important for people working in rural healthcare to be well connected with other health professionals like them to maximise the care they give. A great resource for this is the Rural General Practice Network. The network was established in the early 1990's by a small group of rural GP's to provide a support network for their colleagues. The network has grown into a professional organisation with an executive board consisting of rural hospital doctors, GP's, rural nurses and more. The group has an annual conference which enables like-minded practitioners to gather and discuss rural health issues and experiences. Memberships are available for all people working in the rural healthcare sector. This is a valuable resource for healthcare professionals in the rural sector, and may help contribute to positive initiatives related to handling emergencies in rural areas (New Zealand Rural General Practice Network, 2018).

The NZ government is committed to ensuring a safe backbone of acute and emergency services throughout the country. It is an essential requirement of our publicly funded health system. Through the initiative "roadside to bedside" an acute management system is in place to ensure people get "the right care, at the right time, in the right

place, from the right person." The framework for acute management released in 1999 has key elements including: transferring patients with acute health needs to the nearest hospital capable of providing definitive care, ensuring appropriate and timely access to resuscitation and stabilisation services for all emergency patients, ensuring an appropriate emergency transport system and more. It aims at ensuring rural health professionals are supported and well linked into a network of providers. As well as this, they provide rural populations with certainty about their ability to access the most appropriate place of care within the optimal time frame. The PRIME scheme developed from this network is now in place in many rural areas around New Zealand (New Zealand Government, 1999).

Rural areas also rely heavily on volunteers for support. According to a 2017 Volunteering New Zealand report, over 1.4 million New Zealanders volunteer in some form, giving 157 million hours of their time each year (Foxcroft, 2018). Volunteer first responders who live in rural areas often know areas well and are able to reach emergencies faster than emergency services. Thus, this is an important aspect for emergencies in rural communities, especially volunteer firefighters and St John members.

Rural Health Alliance Aotearoa New Zealand (RHAANZ) is however calling for more equitable access to services for rural people. Many rural areas are losing hospitals, emergency services and have under funded health services. With over 600,000 kiwis living rurally, something needs to be done (The Country, 2018). The RHAANZ created a strategy for healthy rural communities from 2014-2017 which included, supporting initiatives designed to improve access to after-hours services in rural areas. The strategy is vital to the whole country as Rural New Zealand is the heart of Aotearoa, it is essential for the economy with the whole nation benefitting when rural communities experience optimal health and well-being (Rural Health Alliance Aotearoa New Zealand, 2014). However, unfortunately in March of 2018 RHAANZ had to cease its operations due to the government's failure to provide the core funding needed; this is a huge loss for the rural community (Rural Health Alliance Aotearoa New Zealand, 2018).

As part of the Budget 2017, Health Minister Jonathan Coleman announced a plan for $59.2 million in funding over the next four years for the ambulance sector. The funding will go towards introducing 375 new emergency medical and paramedical roles across the country which will bring an end to single crewed ambulances which is often an occurrence. This will save more lives and make it safer for crews. Ambulance providers will continue to work closely with Fire Crews to maximize efficiency and response to emergencies. New legislation in 2017 also created a single fire organisation- Fire and Emergency New Zealand, which brings together New Zealand's urban, rural, paid and volunteer firefighters. Expanding rural healthcare by combining all first responders in an area is something worth looking into, as rural areas in NZ are often a long distance from a main hospital, even with the use of emergency helicopter services. Rural areas need high quality medical and emergency care, if not more than urban areas due to their often isolated areas (Otago Daily Times, 2017).

According to a University of Otago study, official figures estimate that one quarter of New Zealanders live in rural areas or small towns. GPs in these areas spend much of their time providing after-hours care as hospitals are often quite a distance away. There are issues surrounding after-hours care in rural communities due to being understaffed, GPs actually living out of the area, and the ageing GP population. Having to be on call is one of the reasons that GPs choose not to work in rural areas. Barriers to seeking after-hour' for patients care can include distance and cost barrier (Johnson, University of Otago, 2018).

In a study carried out on rural areas in the Canterbury region, the rural population seemed less likely to seek care for medical issues after-hours unless it was an actual medical emergency. An attitude was expressed of not wanting to "waste everyone's time." Telephone services such as Healthline were rarely used, this may be as some people do not know this service exists or how it works. It came up that weekend surgeries in some rural towns could also be beneficial to save trips into cities over the weekend, allowing GPs to see patients with minor issues without having to travel (Johnson, University of Otago, 2018). This information could definitely benefit members in our Milton/ Waihola community.

Distance to hospital and prognosis

In emergency situations such as trauma and acute medical events, longer travel time is associated with higher mortality rates, therefore it is vital for fast transportation and initiation of treatment (Nicholl, West, Goodacre, & Turner, 2007). A review in Switzerland showed that mortality was increased for all ages regarding acute Myocardial Infarction (MI) with increased distance to a central hospital (Berlin, Panczak, Hasler, & Zwahlen, 2016). The same review showed that mortality was also increased for stroke patients over 65 years of age. In the United States, the time to get to a coronary intervention facility during a cardiac trauma was significantly varied depending upon the location of a patient. The study explained it took on average 5.5 minutes to reach the facility for those in urban environments, 10 minutes for suburban, and an average of 35.9 minutes for those in rural environments (Bates, Wang, Bradley, & Krumholz, 2006). There was also a relationship found in a study by Nallamothu (2006), showing that a person's first MI mortality increases with distance to hospital, as well as increasing mortality after hospital admission. This is due to the fact that early commencement of reperfusion therapy for acute MI improves the patients' survivability.

Prime trained nurses in rural areas

"The Primary Response in Medical Emergencies (PRIME) service is a system that contributes to the best possible outcomes of patients involved in trauma or non-trauma, medical, obstetric or psychiatric emergencies in rural areas. It involves a coordinated response by primary health care practitioners, together with ambulance services, to emergencies in rural areas" (New Zealand Rural General Practice Network Inc, 2006, p.4). An emergency can be defined as "a sudden potentially dangerous, unforeseen injury or illness that constitutes an immediate threat to a person's health or life and requires urgent attention" (Horner, 2008, p. 125). As evidenced previously, timely access to trauma services and swift treatment for all acute medical needs is essential in achieving the best health outcomes for all emergencies that occur out of hospital (Horner, 2008).

PRIME is a joint service, funded by the Ministry of Health and Accident Compensation Corporation (ACC), and administered by St. John. The programme uses rural nurses and GP's to support the St. John ambulance service in a medical emergency where response times may be longer than usual or where more specialised medical skills would help the patient's condition (St. John, 2018). The scheme gives rural people more security about the immediacy, quality and co-ordination of their emergency services, reducing the effects of distance and isolation on health outcomes (Ministry of Health, 1999).

According to Hore, Coster and Bills (2003), prior to the 1993 health reforms, the management of medical emergencies in rural communities was dependent on local solutions through the knowledge and compassion of concerned community members and local health professionals. Due to this, inconsistencies in standards and practices between differing rural communities were highlighted. Issues were identified regarding the inconsistencies in GP training, knowledge and skills (Hore et al., 2003). Therefore, the PRIME scheme was developed for the purpose of consistency and coordinated response to trauma and medical emergencies within the rural community. This scheme has been operational since 1998 in the South Island and 2000 in the North Island (New Zealand Rural General Practice Network Inc, 2006). It includes primary assessment, essential resuscitation, followed by rapid and safe delivery of patients to the appropriate place of care (Hore et al., 2003).

Training comprises of an initial five day course, with two day refresher courses at two year intervals. The course requirement is pass/fail (PRIME Service Review, 2016). The course content includes training for scene management and safety alongside specific skills to manage airways, breathing, circulation, damage to the brain and spinal cord and environmental injuries (Horner, 2008). According to the service review concern was expressed regarding the maintenance of advanced skills that were not often required in clinical practice, claiming the two yearly refresher course was not sufficient (Horner, 2008). During the consultation phase of the PRIME Service Review (2016), it was recognised that some PRIME practitioners would value additional training in between the mandatory refresher

courses. It was not viable for the PRIME programme to facilitate this, however, PRIME practitioners are welcome, through local arrangements to observe on other medical emergencies where they see fit (PRIME Service Review, 2016).

Following the year long review of the PRIME service published in 2016, upon recommendation, a PRIME committee was established in late 2017. Alongside establishing a national committee, other initiatives from the review have already been implemented. These include, employing additional St. John staff to focus on the PRIME programme, introducing a bi-monthly newsletter keeping PRIME practitioners up-to-date with new information and best practice evidence, and the release of a new 'smart device' application to aide PRIME responders in clinical decision making (Health Central NZ, 2018). Other initiatives said to be implemented by July 2018 include a comprehensive plan to ensure all recommendations within the review are met, new health and safety bundles for practitioners (including hard helmets and high visibility jackets), the purchase of automated external defibrillators (AED) (where practices do not have access to these currently), PRIME education material updated, and the implementation of a new funding model (Health Central NZ, 2018).

The 24/7 essential service throughout 75 regions is provided a total of 1.8million in funding every year. Dalton Kelly, the chief executive of the Rural General Practice Network states this funding is not enough to provide even the basics. He states, many PRIME responders drive their own cars to accidents and until recently, many didn't have the appropriate equipment required (Kelly, 2018). He argues that, with the New Zealand tourism industry being as large as it is and being accessed almost exclusively via rural communities, the medical emergencies involving tourists has impacted hugely on our rural health and emergency response services, with very minimal increase in funding (Kelly, 2018).

The PRIME service is fundamental to rural communities where emergency situations can often be scary and isolating for both the patient and the responder. Having highly skilled health professionals to assist the St. John service in pre-hospital acute care in rural communities is incredibly important in improving the health outcomes of those involved in the medical emergency. As there is only one paramedic in the Milton community who works Monday - Friday, 8am - 5pm, the rest of the time being manned by volunteer ambulance officers, it seems pertinent to introduce a PRIME responder who lives in the community to be of assistance during medical emergencies.

Global initiatives for rural acute emergency

Rural isolation is an issue not only occurring in New Zealand, but around the world. Small communities exist internationally who require health care support, therefore global initiatives have been created to bridge the gap between urban and rural health care delivery. World-wide there are organisations being setup to bring safe and practical health care to all parts of the globe, one organisation being World Health Organization (WHO) which is a pivotal point of reference in healthcare. WHO state the aim of delivering health care is to deliver safe, accessible, high quality, people-centred, and integrated care in order to create and maintain universal health coverage (WHO, 2018). WHO collaborate with other organisations to provide care including World Organization of National Colleges (WONCA). This non-for-profit organization was set up through the World Organization of Family Doctors. They indicated that there are problems that are unique to rural communities, so they have set up the WONCA policy. This outlines several strategies that allocate financial resources as well as establishing structural rural health administrations, increasing rural health research, and to highlight issues indicated from rural doctors. New Zealand is set to host the next WONCA conference in 2020 which would be a great opportunity for rural practitioners from communities nationwide to attend (The Royal New Zealand College of General Practitioners, 2017).

A common system used worldwide currently, is the use of health specific phone services. Health line numbers are often used as a first point of contact for those seeking advice. These services are readily available in New Zealand through government agencies such as Health line which is manned 24/7 by registered nurses. They provide health advice and triage symptoms by assessing people over the phone, alongside giving advice about health services

nationwide to over 1000 New Zealanders every day (Ministry of Health, 2018). Australia has a similar telephone advice line, Health Direct, which provides advice in non-emergency situations as well as a service run by general practitioners to bridge the gaps in after-hour services (Health Direct, 2017).

Telehealth or telemedicine is a global initiative that uses a range of technologies to deliver health care to the public. Some countries deliver diagnostic and treatment services using live video conference between health professionals and health consumers or recorded health histories that can be stored and accessed at a later date. Another initiative, Remote Patient Monitoring (RPM) use devices that transmit data back to health professionals who can interpret and organize care without seeing the patient. Mobile health is a service which delivers education via applications that can be used on a smartphone, computers, and tablets (CCHPCA, 2018; Rural Health Information Hub, 2017). Essentially these Telehealth initiatives can bring more health care services to isolated areas as health care professionals including GP's, specialists, registered nurses, physiotherapists and counsellors can provide services remotely to rural areas. Feedback from those who have accessed telehealth services has been positive. A meta-analysis study comparing Australian telehealth with services that are face to face show similar if not better outcomes in some areas (Bogaardt et al., 2018).

Resources we developed

We decided to develop two resources we hope will benefit the community.

Resource 1

A submission regarding the need for a PRIME practitioner in the Milton area. The submission was addressed to Liz Parker (Ministry of Health) Project Manager for the PRIME Service Review. The submission highlighted the after-hours and emergency resources currently in the Milton area, and how a PRIME nurse would benefit the area

Resource 2

We developed an informative poster that is to be displayed at the local Milton Community Hub displaying a map of the Milton area, health and social services that are available, AED locations as well as distances to after-hours emergency facilities in Balclutha and Dunedin. It also has a list of things to have to "be prepared" in relation to healthcare after-hours such as having a first aid kit, pain relief, and numbers to call first before physically seeking care. Hopefully this will help make the community aware of what is available.

CONCLUSION

Milton is a small rural communities with well-established community supports within the working week. In conclusion this literature review has helped us to identify and understand the vulnerability of the Milton community in relation to the lack of after-hours and acute medical emergency services. Literature nationally and internationally has highlighted the need for increased after-hours and emergency medical support to improve the health outcomes of rural populations.

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