

Phase 2 Report on the National Telehealth Service Evaluation

Prepared for:
Ministry of Health
Manatū Hauora

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1. Executive summary

The Ministry of Health (the Ministry) commissioned an evaluation of the National Telehealth Service (NTS) between 1 June 2017 and 30 June 2019 to assess NTS's implementation and user outcomes, understand its impact on the health system, and provide a value for money assessment.

The evaluation assesses a dynamic service within a rapidly changing health system. The Ministry expects that by the completion of evaluation in June 2019, NTS will have evolved to meet the changing needs of New Zealanders and new technologies. The evaluation focuses on identifying quality improvements and contributing to the ongoing innovation of NTS.

We are using a three-phased approach to answer the evaluation questions. We have completed Phase 1, the post-implementation review ([Litmus & Sapere 2017a,b](#)). Phase 2 focuses on Healthline and NTS services providing injury-related support/advice. Phase 3 will focus on mental health and addiction services.

This report presents the Phase 2 findings conducted between June 2017 and June 2018. Phase 2 provides a process and outcomes evaluation of Healthline and NTS injury-related services. We also updated the NTS whole-of-service trend data and followed up areas identified in the post-implementation review (Litmus & Sapere 2017a).

The Phase 2 evaluation findings are based on: NTS administrative data; matching data with primary care, emergency department (ED) and Accident Compensation Corporation (ACC) data; clinical process review; costing and value for money analysis; qualitative interviews with NTS stakeholders, Homecare Medical staff, Healthline users and non-users, and primary and secondary health providers.

Key findings

NTS whole-of-service

The NTS platform was developed to adapt and support the Ministry and other government agencies to meet the changing needs of New Zealanders. Since the post-implementation review, Homecare Medical has worked to improve the existing NTS services and evolved to include new services (such as Kupe). The NTS contract has allowed for a change in the mix of services without the need to renegotiate the contract (eg, increased mental health contacts, following the launch and promotion of 1737).

NTS has rigorous clinical governance processes. Homecare Medical has enabled other agencies to use the platform for new services (eg, Safe to Talk with the Ministry of Social Development).

Homecare Medical is working to address issues identified in the post-implementation review. Homecare Medical is strengthening NTS as an equity-led service. A data review, led by Ernst & Young (EY), is focused on improving data quality and access. A new Quit strategy has been introduced to seek to address the decline in the four-week smoking cessation rate.

The partnership with the Ministry and other funders continues to be effective at a senior manager level. A performance framework has been developed that, with the review to improve data quality, may offer greater reassurance on NTS's operational delivery. District health boards (DHBs) continue to be uncertain about the value of NTS to their services.

Healthline

Homecare Medical has continued to strengthen Healthline. Workforce capability has strengthened through improving Standard Operating Procedures and access to senior nursing advice. Introducing a caller-centric call flow created a seamless user experience.

Healthline was accessed by around six percent of New Zealanders. Māori adults and those living in higher deprivation were more likely to use Healthline than other adults. However, contact rates for Pacific and Asian adults are low. For calls relating to children, which accounts for a substantial proportion of Healthline's work, European/Other and higher socio-economic areas have disproportionately high Healthline use. These findings represent areas for a more targeted approach to ensure more equitable access and an improved response to unmet health need in the population.

Users and non-users value having a free, accessible and nurse-led service. Users appreciate the advice and direction offered by Healthline. However, they do not always follow the advice due to a range of factors. Only half follow Healthline advice to go to ED, which suggests some users receiving this advice do not perceive their symptoms to require urgent, hospital level medical intervention. The primary care data analysis estimated around one-third follow through, within a few days, on advice to go to their general practice. Self-referral to ED after contacting Healthline is low.

Healthline's cost per contact of [REDACTED] is relatively expensive compared to other services, such as general practice. We are unable to determine value for money due to difficulties quantifying benefits. The main uncertainty is what would happen in the absence of Healthline (eg, how many contacts to Healthline result in users taking a different action than they would take if they did not contact Healthline).

We are uncertain what impact Healthline has on the demand for other health services, although the impact will be relatively small compared to the scale of general practice and ED. Healthline's future role in a rapidly changing health system needs to be defined by working with DHBs and users, in particular: Māori, those living rurally and in areas of deprivation.

NTS injury-related services

NTS injury-related services (ie, all Poisons line and injury-related contacts to Healthline and ambulance secondary triage) are continuing to improve their services and to enhance links with the wider health system. However, it is difficult to draw robust conclusions from analysis of injury-related NTS service use. The extent to which NTS injury-related services avoid ACC claims is unknown.

The identification of injury-related Healthline contacts is unlikely to be accurate. We found that where an ACC claim was lodged for someone within a few days of a call (or recorded by an ED within 24 hours), a substantial proportion had not been identified through Healthline as injury. This warrants investigation by Homecare Medical as to the validity and use of injury question sets.

The costs and value for money of NTS injury-service varies by service type. We estimate the average cost per injury-related contact to be [REDACTED]. The cost per contact differs by service line, [REDACTED] for Healthline, [REDACTED] for ambulance triage and [REDACTED] for Poisons line. An evaluation of the ambulance secondary triage pilot demonstrated cost savings. Based on the literature, the Poisons line offers relatively good value for money. Healthline contacts, both injury and non-injury, has uncertain value for money.

Recommendations

NTS whole-of-service

- Continue to improve NTS data collection, quality and access.
- Demonstrate the value of the NTS to the wider health sector, particularly DHBs.
- Continue to strengthen NTS as an equity-led service.

Healthline

- Work with the wider health sector including users to determine the integration opportunities for Healthline in a rapidly changing health system.
- Continue to work with DHBs to identify how Healthline can best support their services, given its scale and function.
- Develop a more targeted approach to promote and deliver Healthline to ensure its limited capacity is used to service the populations with the greatest unmet need.

NTS injury-related services

- Determine the validity and investigate the use of clinical triage injury question sets to provide a more accurate view of injury-related service use and outcomes.

- Continue to fund ambulance secondary triage and the Poisons line to support people with injuries to be reassured and directed to the correct care.

2. National Telehealth Service overview

This section provides an overview of NTS, Healthline and NTS injury-related services.

NTS roles and objectives

The Ministry partners with Homecare Medical (New Zealand) Limited Partnership (Homecare Medical) to deliver the integrated NTS.¹ The Ministry is the primary funder of NTS, with additional funding from the Accident Compensation Corporation (ACC) and the Health Promotion Agency (HPA).² NTS has a Service Improvement Board, which is a cross-sector advisory group including the Ministry, ACC, the Ministry of Social Development, and HPA.

The purpose and objectives of NTS are to:

- Be a trusted part of the healthcare system that offers a confidential, reliable and consistent source of advice to enable consumers to manage their healthcare in an appropriate manner.
- Facilitate the right person delivering the right care at the right time and at the right place.
- Increase cost-effectiveness in the healthcare sector and reduce demand on other health services.
- Have the flexibility to adapt and develop over time to meet the changing needs of users and technology.³

NTS provides a range of services

NTS provides clinically appropriate, evidence-based services 24 hours a day, 365 days a year. NTS provides unplanned care and counselling services through telephone triage and phone advice, text, email, phone applications, social media and web-based services. Service users receive triage, health advice, support, counselling care, information and signposting to appropriate services and care.

¹ A limited liability partnership is a relatively recent form of corporate whereby the partners to the venture retain limited liability but their tax status is maintained.

² Collectively referred to in this report as the NTS funders.

³ Retrieved from <http://www.health.govt.nz/our-work/national-telehealth-service/aims-national-telehealth-service>

At June 2018, NTS included the following services: health advice; stop smoking support service; alcohol and other drug counselling support; mental health, depression and anxiety counselling support; gambling counselling and support; poisons advice; immunisation advice; advice on prostate cancer and ambulance secondary triage, and other services.⁴

Healthline is an NTS service

Healthline is a free 24/7 phone-based service staffed by experienced registered nurses. Healthline provides a first-line health service response. Around three-quarters of calls⁵ are triaged and users are either provided advice to self-care at home or signposted to the most appropriate health provider. For the other quarter of calls, the range of outcomes includes general provider information, people hanging up and transfers directly to other services.

Calls to Healthline include general public immunisation calls to 0800 IMMUNE and calls for unwell children handled by Plunket nurses. For this evaluation, we include call transfers to Healthline from other lines.

People with injuries contact a range of NTS services

People with injuries contact NTS via Healthline, ambulance secondary triage, poison advice services, and mental health and addiction services. Homecare Medical reports injury-related service use to ACC. Homecare Medical identifies injury-related calls by checking to see if an injury question set was opened during the clinical triage. For this evaluation phase, we have excluded people with injuries who contact mental health and addiction services.

The National Poisons Centre is located at the University of Otago in Dunedin. The National Poisons Centre provides information and advice about acute and chronic poisoning and toxic chemical effects. Specialist poisons staff, supported by medical toxicologists, provide 24-hour consultation. We have referred to the service as 'Poisons line'.

Ambulance secondary triage service assesses callers who contacted 111 and requested an ambulance. If the call is triaged as not urgent or immediately life-threatening, the caller is transferred to a nurse or informed a nurse will call back to advise on the appropriate care, via the most appropriate pathway. Ambulance secondary triage is provided by NTS registered nurses situated in St John and Wellington Free Ambulance.

⁴ More information on NTS services is available at <https://www.health.govt.nz/our-work/national-telehealth-service/range-services-provided>

⁵ Homecare Medical. Healthline quarterly report Q2 2018.

3. Phase 2 of the NTS evaluation

This section presents an overview of the NTS evaluation and the Phase 2 evaluation.

The NTS evaluation has three phases

The evaluation purpose is to assess NTS's implementation and user outcomes, to understand the health system impact, and provide a value for money assessment. The evaluation is assessing a dynamic service. The Ministry expects NTS to progressively innovate to meet the changing needs of New Zealanders.

The key evaluation questions are:

- To what extent is NTS delivered as intended?
- To what extent is NTS meeting the needs of New Zealanders, including Māori, Pacific and other priority populations?
- How well does NTS improve the ability of New Zealanders, including Māori, Pacific and other priority populations, to take appropriate health action?
- What are the areas for ongoing improvement?
- How and to what extent is NTS impacting on other parts of the health and social system?
- To what extent is the investment in NTS value for money?
- Where might the experience of NTS be applied to add value to other parts of the health and social system?

We are using a three-phased approach to answer the evaluation questions. We have completed phase 1 – the post-implementation review ([Litmus & Sapere 2017a,b](#)). Phase 2 focuses on Healthline and NTS services providing injury-related support/advice. Phase 3 will focus on mental health and addiction services.

The Phase 2 evaluation of NTS has two components

The two components of the Phase 2 evaluation are:

1. An update of the usage trend data and follow-up investigation areas identified in the post-implementation review report (Litmus & Sapere 2017a,b)
2. A process and outcomes evaluation of Healthline and NTS services providing injury-related support and advice.

Mixed-method data collection was used in Phase 2

To answer the key evaluation questions, we completed the following evaluation activities in Phase 2.

For the ongoing NTS process evaluation (whole-of-service), we:

- Updated the baseline analysis completed in the post-implementation review (Litmus & Sapere 2017b).
- Completed 36 key stakeholder interviews and 2 group discussions to understand the ongoing implementation of NTS, its innovation and its integration with other parts of the health system. We also explored areas of further investigation from the post-implementation review. The sample achieved is in Table 1.
- Completed a clinical governance review to assess the process to monitor the clinical safety of NTS.

For the process and outcomes evaluation of Healthline and NTS services providing injury-related support and advice, we:

- Analysed data on Healthline and injury-related services to understand service use, non-use and equity of access.
- Completed data matching with ProCare’s primary healthcare data, ED data and ACC data to estimate the proportion of Healthline and injury-related service users who follow through on advice received.
- Completed two case studies in areas of high (Porirua) and low use (Whanganui) of Healthline to understand the user journey, their experience and pathways in the context of their lives, communities and local health services. We also identified barriers and reasons for not using Healthline and other NTS injury services and explored alternative services used. The samples achieved are in Table 2 and Table 3.
- Completed costing and cost-effectiveness analyses to assess value for money by comparing the option of providing Healthline and NTS injury with having no NTS.
- Interviewed stakeholders about the delivery of Healthline and NTS injury-related services and their integration with the health system.

Table 1: Achieved sample for key stakeholder interviews in Phase 2

Stakeholder type	Method	Number
Ministry of Health	Interviews	6
Other government funders	Interviews	6
Wider sector stakeholders	Interviews	8
Homecare Medical	Interviews	16
Homecare Medical (frontline staff)	Mini-groups	2 groups

Table 2: Purposive sample frame for user and non-users in case studies

Users and non-users		Porirua n=19	Whanganui n=21
Healthline	Users	13	12
	Non-users	6	9
Life stage	Families with the youngest child under 5	12	10
	Young people	1	5
	Older people 60 plus	6	6
Ethnicity⁶	Non-Māori and non-Pacific peoples	6	12
	Māori	9	10
	Pacific peoples	9	2

Table 3: Purposive sample frame for health and other providers

Stakeholder type	Porirua n=6	Whanganui n=8
District Health Board	1	2
Primary Health Organisations	1	1
Emergency department/Accident and Medical Clinic	1	1
General Practice	3	2
Māori and Pacific Health Providers	0	1
Pharmacists	0	1

More details of the evaluation activities are in the NTS Evaluation Plan (Litmus & Sapere 2018a).

The Phase 2 evaluation has some limitations

The ability to draw from multiple data sources strengthens the evaluation findings. However, the evaluation has some limitations.

NTS's data quality is moderate and under review

Homecare Medical is currently working with Ernst & Young (EY) to review its data processes to improve data availability and quality. As this work is currently in progress, data accessibility and quality continue to be an issue. Homecare Medical staff have supported access to data and have checked data accuracy. Since the last evaluation phase, Homecare

⁶ Ethnicity total does not equal total number as some people identified with more than one ethnicity.

Medical has been able to provide details for each contact, such as time of day, service line, presenting symptom and outcome. This level of detail allowed us to undertake more analysis.

Inaccuracies in the time-sequencing of events created assumptions about event order

We need to create a time-sequence of events to check whether people follow through on advice received. The accuracy of time-sequencing relies on the date and time of each interaction being available (ie, we want to see what happens after the contact). The ProCare dataset we received for our data matching analysis did not include the time of consultation, only the date. This means that, where a consultation occurs on the same date as a daytime NTS call, we cannot be certain which interaction occurred first. The ACC claim dataset included the date of lodgement, which may not be the day of the actual interaction with the healthcare provider that lodged it. This means that in some cases we may have incorrectly assumed that a primary care interaction occurred subsequent to a Healthline call.

The data does not capture all injury-related calls

Our analysis of injury-related NTS interactions is based on those calls where an injury question set is opened during a clinical triage. Matching to ACC data shows that where a claim was lodged within a few days of a contact, around 30 percent had not been identified as injury-related (ie, had an injury question set opened). Similarly, where an ED recorded an accident within 24 hours of an NTS contact, 29 percent had not been identified as an injury. This means the analysis did not capture all injury-related calls, but it aligned to the reporting convention between Homecare Medical and ACC. The issue warrants investigation by Homecare Medical into the validity and use of injury question sets for monitoring and reporting purposes.

Data quality was a significant limitation in our costing analysis

While we were able to provide an estimate of the cost per contact to each of the NTS service lines, there is considerable uncertainty. One source of uncertainty is how much of the funding for NTS goes into running each of the NTS service lines (eg, how much is spent on Healthline compared with depression line). Another source of uncertainty is how to count 'contact' (eg, all inbound calls to Healthline are counted as contacts). However, there are some outbound calls that are initiated by Healthline staff and should be included as contacts. Data on the number of this type of outbound call was not provided due to difficulties in data collection.

Homecare Medical asked us to include several caveats on the costing analysis (refer to page 51).

Changes to call flow affected user experience recall

In 2017, Homecare Medical changed Healthline's call answering process to be more user-centric. Interviews with users of Healthline were a mix of those who called before and after this change. We have taken this change into consideration in our analysis.

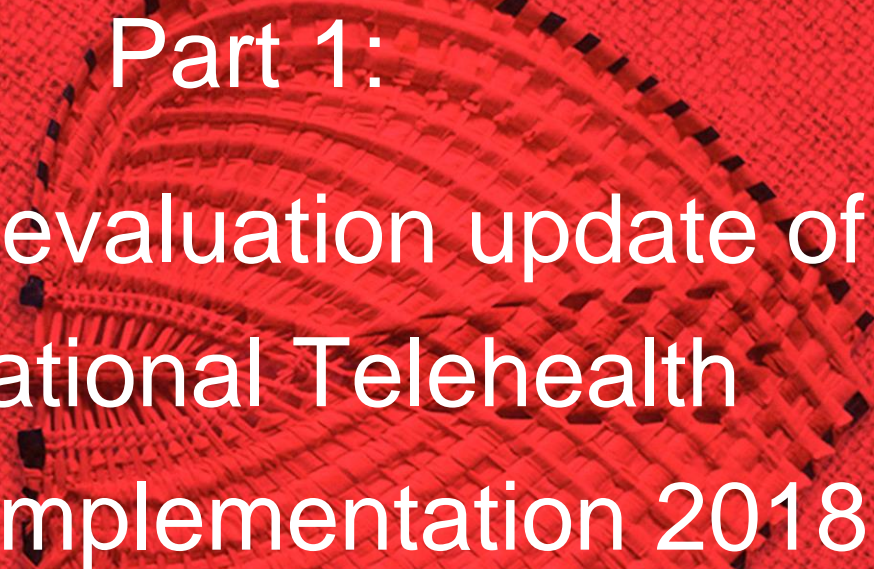
Report structure

Part 1 provides an update of the usage trend data and follow-up investigation areas identified in the post-implementation review report (Litmus & Sapere 2017a,b).

Part 2 presents findings from the process and outcomes evaluation of Healthline and NTS services providing injury-related support and advice.

Part 3 presents the recommendations for the ongoing NTS implementation and targeted recommendations for Healthline and injury-related services.

The report addresses the evaluation questions at a strategic thematic level, drawing across the data streams. The technical appendices report includes detailed findings on the data matching analysis, costing analysis and value for money analysis for Healthline and NTS injury-related services (Litmus & Sapere 2018b).



Part 1:
Process evaluation update of
the National Telehealth
Service Implementation 2018

LITMUS

4. Update on the NTS implementation

This section provides an update of the ongoing implementation of the NTS (at a whole-of-service level). Following the post-implementation review report (Litmus & Sapere 2017a,b), the section provides:

- Stakeholder reflections on the ongoing implementation of the NTS between November 2017 and May 2018, and follow-up investigation areas: partnership model, equity-led approach, and Quitline.
- Key findings from the usage trend data for NTS from November 2015 to March 2018. The technical appendices report contains the detailed analysis (Litmus & Sapere 2018b).

The findings draw on NTS trend data, key stakeholder interviews, user and non-user interviews and document review.

Evaluation assessment in 2018

Since October 2016, NTS has continued to evolve and strengthen. The partnership with the Ministry and other funders continues to be effective at a senior manager level. A performance framework has been developed that, together with the review to improve data, may offer greater reassurance to funders on NTS delivery. Homecare Medical has strengthened the equity-led approach for NTS. System integration and innovation of NTS continues.

Evaluation findings in 2018

The NTS partnership model is an ongoing learning journey

The NTS partnership model is a shift from the traditional funder and provider contract. Over the next ten years, NTS will evolve to meet changing users' needs, respond to technological advances, and enhance NTS's integration with the health system. The partnership model is a key mechanism to achieve the NTS's vision. The 2017 review recommended strengthening the Ministry's and Homecare Medical's partnership.

In 2018, differing perspectives exist on the partnership relationship

Since the 2017 report, the Ministry and Homecare Medical have worked to strengthen their partnership. However, differing opinions exist about the strength and effectiveness of the partnership. Senior managers across the funding partners and Homecare Medical describe their NTS relationships as positive, strategic, and focused on a shared vision. Senior managers described the NTS partnership as one based on trust, where challenges and uncertainties are freely discussed.

At an operational level, the partnership shifted away from being relationship-based towards a greater focus on compliance-based monitoring. NTS partners had differing standards of what good looked like for NTS. For funders, data quality issues have contributed to seeking more clarity on performance. The shift to compliance monitoring is seen by some as inhibiting an open two-way dialogue to enable learning and adaptation of NTS.

Work to negotiate the inherent tensions of a partnership-based model is ongoing

Accountability: The Ministry has recently developed a draft performance framework with set and flexible components. The performance framework will set the collective agreement for NTS's service delivery standard. The agreed success criterion should offer more clarity and assurance for funding partners.

Capacity to work in partnership: Working in partnership requires the Ministry, Homecare Medical, and other funding partners to allocate time and resources to develop an effective working relationship. There is a perception that the Ministry lacks the capacity to manage the complexity of the contract. Some feedback suggested Homecare Medical can be slow to respond to data requests, potentially indicating capacity limitations or ongoing data challenges.

NTS is strengthening as an equity-led service

Since the 2017 report, Homecare Medical has strengthened the equity-led approach of the NTS across the domains of leadership, knowledge and commitment. These domains are central to the Ministry's framework Equity of Health Care for Māori (Ministry of Health 2014).

Māori lead the equity approach for NTS

Homecare Medical has made significant progress in ensuring equity strategies and approaches are guided by Māori at governance, clinical and management levels. A Māori community iwi leader sits on the Homecare Medical Board to provide leadership at a governance level. A cultural advisor works with the clinical team to increase understanding of cultural safety and practice. A Māori equity advocate was appointed in November 2017 and reports to the Chief Executive Officer.

The Māori equity advocate is leading the development of a telehealth equity strategy

No equity framework exists for telehealth services. The Māori equity advocate is leading an equity committee of NTS staff to define health equity in telehealth. The focus is on marginalised communities, social determinants of health and understanding who, how and why some populations disengage from telehealth. Central to this work is determining how to

facilitate whakawhanaungatanga when engaging with health consumers via phone and other electronic media.

Work is underway to enhance the existing cultural competency programme

Staff continue to receive training on tikanga and te reo Māori and have ongoing access to e-learning on cultural competency. The Māori equity advocate is starting to revitalise the cultural competency training by focusing on quality relationships based on Māori values. In the mental health and addiction service, an external provider is revising and customising internally developed modules. Human resource policies were changed to facilitate employing more Māori and Pacific peoples in NTS.

Work is progressing on embedding cultural protocols within Homecare Medical

Homecare Medical is working towards a vision where the values of equity and cultural competency are ingrained in the organisation. Steps taken towards this vision are opening staff meetings with karakia, welcoming new staff with a mihi whakataua, and using te reo Māori in consumer letters.

The development of Kupe showcases the application of an equity approach

Homecare Medical is applying equity principles in designing new services for NTS. In 2018, Kupe was launched by the Ministry to help men decide whether a prostate check is right for them. Homecare Medical had input into the design of Kupe with a guiding focus on addressing existing inequities for Māori men in testing and life expectancy.⁷ Kupe was designed together with iwi and uses a whānau-centred approach.

Quitline changes implemented to address declining contacts

Quitline was being impacted by the growing societal trend of vaping and the uncertainty of its role in smoking cessation. In 2018, the Ministry clarified its support for stop smoking services to be 'vaping friendly'.⁸

⁷ <https://www.health.govt.nz/our-work/populations/maori-health/tatau-kahukura-maori-health-statistics/nga-mana-hauora-tutohu-health-status-indicators/cancer> accessed 4 October 2018.

⁸ <https://www.health.govt.nz/system/files/documents/pages/vaping-information-for-stop-smoking-services-june-2018.pdf> accessed 4 October 2018.

In 2017, Homecare Medical implemented a strategy to strengthen the delivery of the Quit programme following a joint review with the Ministry. Actions taken included:

- Revising the Quit programme design from a 12-month focus to a four-week focus.
- Implementing a new system to schedule outbound calling and enable measurement of Quit success at four weeks.
- Moving the Quit team to the mental health team and ensuring all team members receive motivational interviewing training.
- Introducing a new 'text to Quit' service where texters can enter a dialogue and not simply receive an automated response.
- Trialling the front-loading of marketing in the final quarter of the year targeting 30-35-year-old men, Māori and Pacific peoples, and mothers.
- Supporting the use of vaping as a quit tool together with Quitline's other supports.

It is too early to assess the impact of the changes on contacts to Quitline. However, successful quit attempts at four weeks are improving (Homecare Medical 2018c). Some stakeholders believe the Quit brand is losing relevancy and requires revitalising to reflect the changing societal context.

NTS continues to innovate

Innovation is a key objective of NTS. The Ministry wants NTS to be adaptable and flexible to respond to New Zealanders' changing needs and new technologies (Ministry of Health 2015). The Ministry expects other government agencies may use the NTS platform for other public sector services.

Homecare Medical excels at customer and whānau-centred innovation

Adaptability and flexibility are guiding principles for Homecare Medical and continuous improvement is a strong organisational focus (Homecare Medical 2017). Stakeholders describe Homecare Medical as adept at working in an agile way. Homecare Medical is proactive in identifying and exploring opportunities to maximise the use of the NTS platform to enable better health, wellbeing and other outcomes for New Zealanders.

Homecare Medical is customer and whānau-centred in seeking to improve and innovate NTS. Homecare Medical established the [Co.Discover](#) community. This private Facebook group enables New Zealanders to be involved in designing services and giving feedback on all aspects of NTS. Homecare Medical is working with iwi and whānau to develop equity-led services (such as Kupe). NTS staff receive regular consumer feedback from the 'feel-o-meter' to identify service improvements.

NTS innovation is occurring at multiple levels

Innovation is defined as executing new ideas to create value. NTS innovations can be mapped against:

- New services for existing users: the 1737 text service for people trying to quit smoking.
- New services for new users: Kupe, Elder Abuse Response Service.
- Existing services for existing users: Healthline's new call process, sending notes to general practice, and internal transfers across NTS services.
- Existing services for new users: the 1737 RecoveRing, Earlier Mental Health Response.

Other government agencies are using the NTS platform for other consumer services. For example, the Elder Abuse Response Service is a Ministry of Social Development service.

Perceptions of the rate and impact of innovations for NTS vary

A common innovation tension is balancing the allocation of resources and attention on innovation with managing core business. For NTS, some funding partners believe too much focus is placed on innovation at the expense of managing core services. Other senior managers are happy with the focus and pace of change.

Some funding partners perceive the innovations occurring as small-scale with minimal potential impact on the health system. These managers would prefer more work with DHBs to identify how NTS can support DHB challenges and create broader system change.

Mental health and addiction services are seen to offer high innovation potential

Stakeholders believe mental health and addiction services have the potential for further innovation. This belief reflects the high level of unmet need and growing evidence on the potential effectiveness of digital therapy in mental health and addiction (Te Pou 2014; Superu 2016).

Assumptions about shifting users to digital channels were incorrect

Lessons from NTS's mental health and addiction services have shown that introducing new digital channels brings new people to the service. Existing users of NTS services are not moving from phone to digital channels. As a result, Homecare Medical and the Ministry have realised the five percent cost saving expected through channel shifting is unlikely to occur.

NTS's role in the health and social system is evolving

Homecare Medical is working with some DHBs and PHOs

Homecare Medical is engaging with DHBs and PHOs via a range of mechanisms to create awareness of NTS. Seventeen DHBs are contracting services off the NTS platform. Homecare Medical is positioning to work together with DHBs and PHOs on common problems. Homecare Medical and its clinical experts are being invited to some regional meetings to create joined-up solutions (eg, planning for winter flu). However, engagement with DHBs and PHOs varies across New Zealand.

DHBs are seeking clarity on the role of NTS in the health system

Feedback from DHBs highlighted disappointment not to be involved in the design and contracting process for NTS. The DHBs interviewed believe this oversight resulted in a lack of definition of how NTS fits into the health system. Some DHBs interviewed want clarity on what services are core to NTS and what are additional services.

DHBs are seeking evidence of how NTS contributes to reducing acute demand

DHBs acknowledge NTS has an important system role to reduce acute demand on their services. Currently, DHBs interviewed believe Healthline is overly risk-averse and advises too many people to go to ED. NTS's current reports to DHBs are described as useful. However, the reports do not contain data linking from NTS to the DHB services, or detailed information to explore equity of access. Distribution of these reports may be limited as some senior managers did not recall seeing them.

PHOs are positive about NTS's role due to Healthline's accessibility

PHOs value NTS as Healthline enables people to access clinical health advice after hours. Healthline is also perceived as making health advice more accessible for people living in rural locations or unable to go to their general practice. Like DHBs, PHOs do not have evidence to demonstrate this benefit to their enrolled population.

Some PHOs want to work more closely with Homecare Medical to ensure consistent health promotion messages on actions to take during the winter flu season.

New NTS services create linkages between health and other social services

The Earlier Mental Health Response and RecoveRing, while relatively small services, demonstrate Homecare Medical's ability to use the NTS platform to develop a service to address a problem.

NTS can scale up in public health emergencies

Examples include working at short notice with the Ministry, ESR and other partners to support people affected by the Havelock North *Campylobacter* outbreak (August 2016) and the Kaikoura earthquake (November 2016). In 2018, Homecare Medical offered support to the Mental Health Enquiry through the promotion of its mental health services.

NTS partners with other agencies to create a seamless experience for consumers

For example, parents concerned about their under five-year-old child can receive 'well child' and 'sick child' advice in the same call. Poisons line advises callers on the steps to take (and not take) relating to the poison and whether further health advice or action is required.

5. NTS user trends from November 2015 to March 2018

This section provides an update of the trend analysis for NTS. In Phase 1 of this evaluation, we provided statistics on NTS, including how the service changed in the first 18 months of operation. In Phase 2, we updated this analysis. We present below the significant changes in the delivery of NTS.

Evaluation assessment in 2018

The total contacts to NTS remain relatively steady. In 2017, about one in ten New Zealanders contacted NTS (420,000 people). Healthline continues to account for most contacts. The number of contacts changed in three services: increased in mental health and addiction and ambulance secondary triage and decreased in Quitline.

Evaluation findings in 2018

One in ten New Zealanders contact NTS

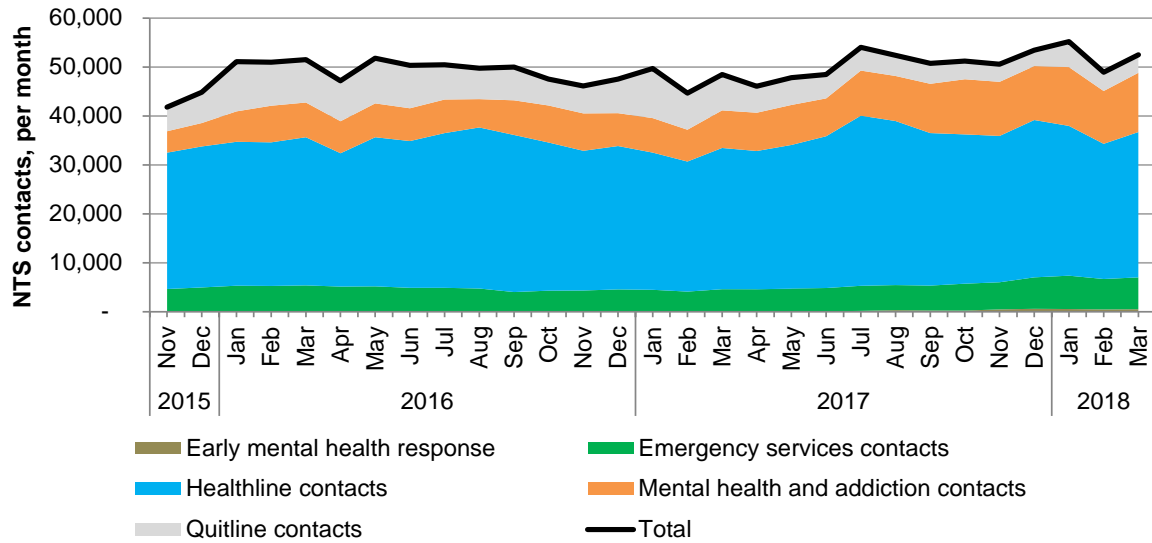
In 2017, about one in ten New Zealanders contacted NTS (420,000 people). Some people contact NTS more than once – NTS users made 1.4 contacts each on average.

Parents or caregivers calling on behalf of children under five accounted for 23 percent of calls. NTS use was highest for infants under one – on average there was one contact for every infant in New Zealand. These high contact rates for the younger population are predominantly for contact made to Healthline and Poisons line.

NTS contacts remain steady

The number of contacts to NTS has averaged approximately 50,000 per month since the service was launched in November 2015. Healthline continues to account for most contacts, with 62 percent of contacts in the year ending March 2018 (Figure 1).

Figure 1: NTS contacts by service per month, November 2015–March 2018



Source: Homecare Medical data, Sapere graph

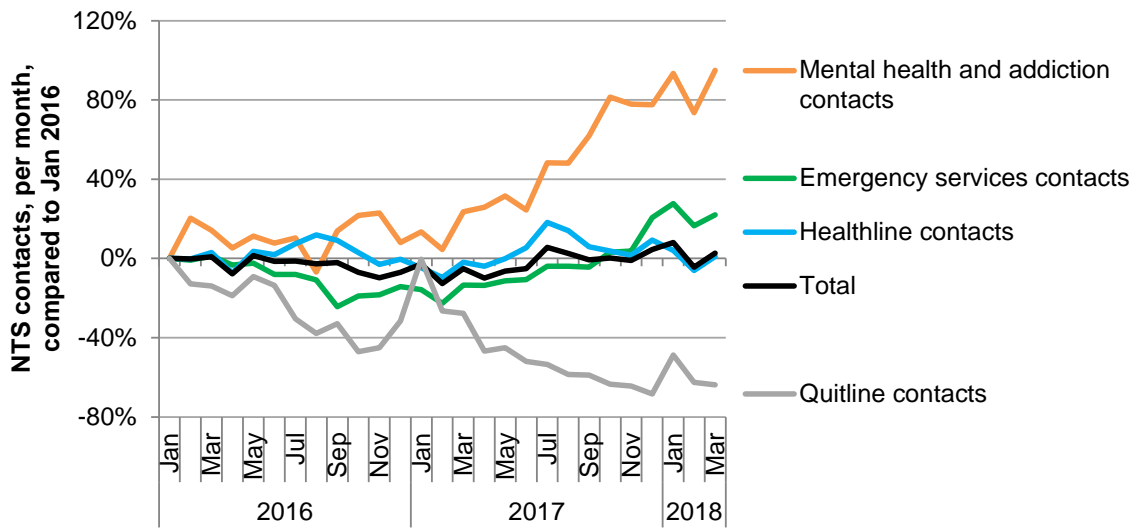
Significant changes in contact within the mix of services

Significant changes in the number of contacts have occurred in three of the NTS lines (Figure 2). The changes in the year ending March 2018 were:

- **Quitline – 45 percent decrease**
 - an average of 3,100 fewer contacts each month, trending down.
- **Depression line – 63 percent increase**
 - an average of 3,000 more contacts each month, trending up
 - increase due to the promotion of the new 1737 number.
- **Ambulance secondary triage – 43 percent increase**
 - an average of 1,100 more contacts each month, trending up
 - increase due to national roll-out (previously just in Auckland).

The increase in mental health and addictions contacts is due to increases in contacts to the Depression line. Contacts to the gambling and alcohol services remained steady. The increase in emergency services contacts is due to increased contacts to the ambulance secondary triage. Contacts to the Poisons line remained steady.

Figure 2: Percentage change in NTS contacts by service, January 2016–March 2018

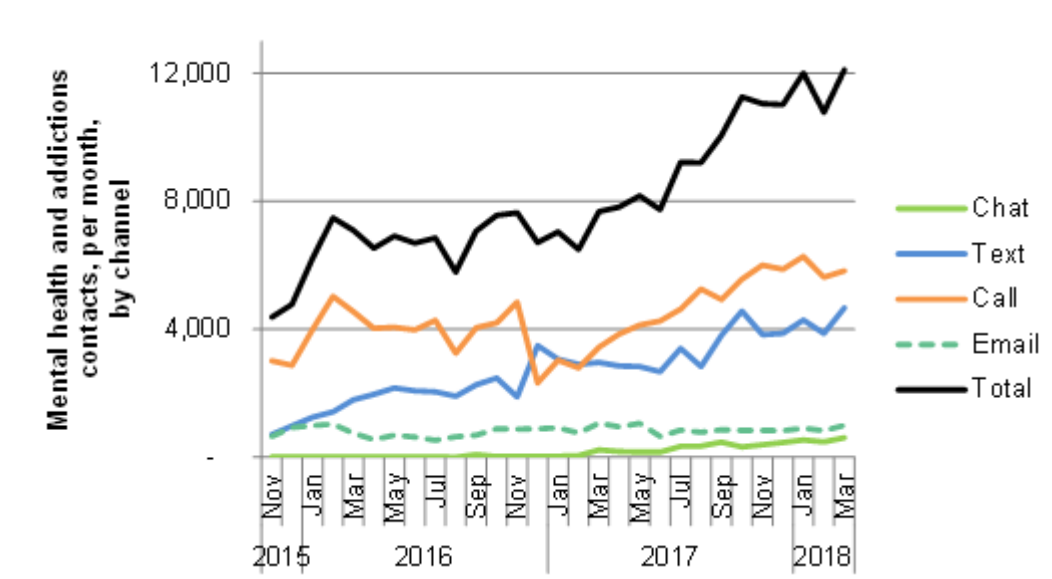


Source: Homecare Medical data, Sapere graph

Text messaging in mental health and addiction lines is increasing

In the year ending March 2018, seven percent of all NTS contacts were made via text messaging, a two percent increase from the previous year. Text messaging is done through the mental health and addiction lines. Within these lines, text messages account for nearly as many contacts as calls (Figure 3). Contact for calls and text messages are counted differently. Each call represents a single contact whereas each text conversation represents a single contact.

Figure 3: Contacts to mental health and addiction services – by channel



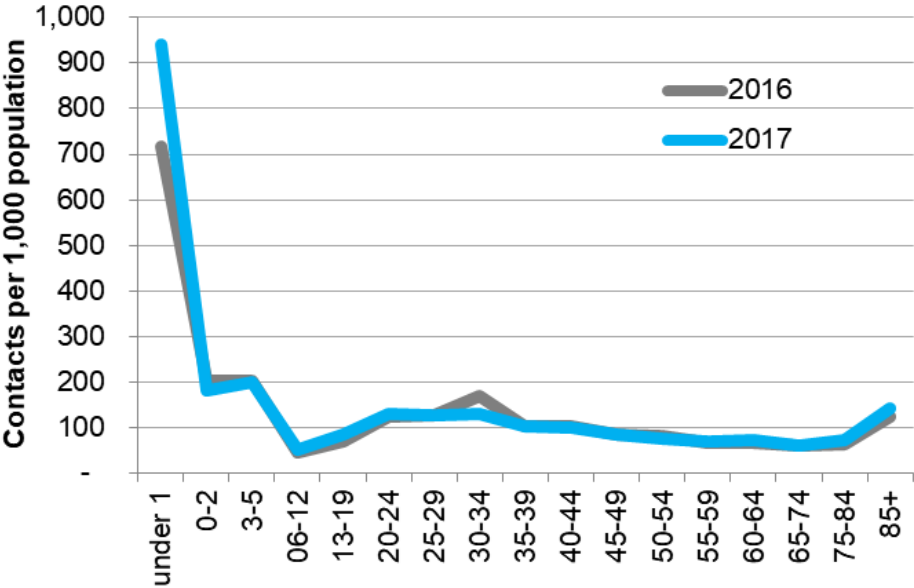
Source: Homecare Medical data, Sapere graph

A high contact rate relating to children

The rate of contacts relating to children under six is the highest across all age-groups. This age group accounts for a quarter of NTS contacts.

The age profile of people contacting NTS was similar between 2016 and 2017 (Figure 4). The major difference was in contacts related to infants under one—increasing from 43,000 contacts in 2016 to 57,000 in 2017.

Figure 4: Age profile of NTS users, 2016 and 2017



Source: Homecare Medical data, Sapere graph

Note: User age was not recorded for 17 percent of contacts. These contacts are not included.

6. Clinical governance processes

This section presents our assessment of the clinical governance processes. We reviewed the clinical and quality management systems of the whole-of-NTS with a focus on Healthline. We completed the following review activities:

- documented the clinical governance structure and roles
- interviewed the Chair and two members of the Clinical Governance Committee (CGC)
- interviewed the Clinical Director and staff
- reviewed systems and process, and committee meeting notes.

Evaluative assessment

NTS and Healthline have rigorous clinical governance processes. The CGC structure and processes are robust. A review of CGC papers highlighted ongoing monitoring, deep quality review dives, and recommendations and actions to improve clinical quality.

Evaluation findings

The clinical governance committee structure and processes are robust

The clinical governance framework was set out in a framework paper in 2016. This paper outlines seven essential structural elements:

1. Structure and advisory groups: being the Clinical Effectiveness and Improvement Team providing guidance and oversight to operational teams; the Clinical Governance Committee comprising external clinicians; the Service and Clinical Quality Group being senior clinicians, quality managers and operations managers; and Quality Improvement and Service Excellence Committee led by the Clinical Director to bring a front-line perspective.
2. 3. and 4: being documentation in procedures, performance monitoring and reporting, and measurement.
5. Clinical activities: being several hands-on staff activities. These activities include mentoring on employment, competency sign-off before going solo, early call review and coaching, ongoing performance review and management (including the use of decision support tools), ongoing professional development, consumer experience activities. The framework anticipates monitoring of complaints, clinical quality review and full engagement by staff.
6. Evidence-based service development.
7. Recognition of the importance of culture, particularly of engagement in clinical excellence.

Call reviews are a core quality assurance process

The call review process is the centrepiece of Healthline and other services' activity quality assurance. Each month, frontline staff self-review two calls, one call is peer-reviewed and their manager reviews two calls. Managers have monthly one-on-ones with frontline staff.

It's a rotating system so you're not always doing the same peer. We review any calls back flagged as a concern or a question, as well as any complaints calls.

Managers are undertaking close to 100 call reviews per month. New staff have two calls per shift randomly reviewed, usually for four weeks depending on the person and their confidence.

The role of the Clinical Governance Committee is pivotal

The CGC has an extensive job description. The scope of CGC is broad. The Terms of Reference describe the role as:

- Having a 'solid line' to the Board with one clinical board director being on the committee. There is also one clinical representative from ProCare and Pegasus.
- Responsibilities are clinical oversight, promoting patient safety, clinical guidance of continuous improvement and service innovation, and advice to the board and management on *"how services ... can be clinically safe, effective, patient-centric, culturally sensitive, equitable, timely, economically and resource efficient"*.
- Advising and supporting a culture of clinical excellence and monitoring implementation of the clinical framework, including a review of quarterly operational reporting on significant clinical events, complaints, compliments and adverse event management.
- Overseeing clinical safety and performance of proposals and transition of new service offerings and service innovations.

The CGC meets frequently – five to six times a year. The chair of Homecare Medical is required to meet at least once every six months with the CGC chair and Homecare Medical's CEO.

A review of CGC papers highlighted ongoing monitoring and deep quality review dives

We reviewed CGC papers for the past year. The review demonstrated a great deal of activity in the CGC, particularly as the mental health line was being established and monitored. Other than CGC formalities, the meeting is structured around standing reports, items for discussion and items for background information. For example, we reviewed the papers from the CGC meeting of 28 March 2018, held at Pegasus Health, Christchurch.

These papers included an audit of Healthline to 111 Ambulance transfers that we note as evidence of review of practice and uses of Odyssey, the Healthline decision support tool. The primary review question was “*why are nurses transferring to 111 thus triggering an ambulance call?*” The rate of transfer to 111 from Healthline was stable at five percent of all calls. The commissioned in-house review:

- looked at data for 2017
- identified the presenting symptom and associated Odyssey question set of the top 20 presenting symptoms
- opened the question set for the highest acuity set, those that nurses are trained to ask, and recorded the answer set that may trigger a Purple or Red code (a code that would trigger a 111 transfer)
- subjectively assessed the probability of an ambiguous outcome
- listened to eight closed calls with 111 transfer as the patient outcome, on 12 March 2018, each with one of the top 20 symptoms
- examined upgrade calls for November 2017 in some detail.

The review found three themes contributing to too many transfers to 111, namely:

- ambiguous interpretation of an answer (eg, postural dizziness)
- a guideline taken as a literal direction
- context for New Zealand ambulances (eg, someone could take the patient to hospital).

The review states that call taker behaviour varies. “*This [that nurses misinterpret patient symptoms] has not been consistently observed in the phone calls reviewed.*” The report goes on to note, “*Some clinicians see Odyssey as a diagnostic tool, rather it is a clinical decision support tool*”. The suggested responses to all findings were:

- education targeted at the first three Odyssey questions
- tips to the questions
- a data request from St John to examine the ‘see and treat’ options and geographic specific instructions around ‘see and treat’.

We have secondary questions about this review. Should only eight calls have been reviewed? What was the result of a transfer back to 111? Our primary observation is that a review was conducted with enough detail to allow the CGC to recommend areas of improvement and action.

Other papers indicated broad review and monitoring across NTS services

Other material topic papers reported to the CGC agenda for 28 March 2018 were:

- The content of the general practitioner consultation summary, which is sent automatically via the health system messaging standard HL7. This short review recommended including only the clinical comment and removing unneeded information (such as the Odyssey question set).
- Recent quality changes to Quitline, including introducing a behavioural change model. The paper also referenced analysis of a complaint (ie, not being able to access further nicotine replacement therapy), resulting in an investigation and a change in practice to allow access to the therapy.
- Learning and development and its uptake. Homecare Medical implemented an online learning management system. This system hosts online learning activities and provides completion rates. The completion target is 90 percent. Reporting showed average completion rates at 78 percent, with a range for each workgroup of just under 60 percent to 91 percent. Feedback on the Clinical Communication 101 module notes, *“Learners are feeling more confident in managing clinical handovers and in managing challenging conversations”*.

Standard reports highlight volumes of activity and staffing, and complaints and issues

A standing section in the agenda reviews reporting on general issues including activity levels, complaints and incident reporting, and the quarterly DHB report. The DHB report described activity levels, by ethnicity, in tables and flow maps. Complaints and serious incidents are reported (eg, investigation of a suicide). This set of reports allows CGC to identify key areas of risk (such as call drop-off rates) as well as, to some extent, view other business indicators. The March 2018 CGC meeting considered a six monthly *‘break glass events’* report, resulting in referral to Police.

Other CGC meeting agendas are as full, if not as broad ranging

We reviewed a (non-systematic) sample of five CGC agendas and papers for one year. A range of important issues came through CGC for comment, including:

- results of the ISO 9001 Telarc report (November 2017)
- a (high level) review of Plunket line, including an unexpected large overflow to Healthline
- a review of the National Poisons Centre
- an internal investigation report
- results of a trial of interactive voice response for General Practitioner (GP) after hours (September 2017)

- sector concerns about the quality of service of the alcohol and drug helpline
- updates on the Earlier Mental Health Response
- service user experience surveys (March 2017)
- a mental health eTalk Canterbury evaluation
- an abdominal pain review terms of reference (May 2018)
- benchmarking against other health lines.

Based on the minutes, CGC members are active participants in discussing the agenda topics. For instance, CGC suggests adding the patient portal as an option for patients on the after-hours service. In the same meeting, CGC questioned the reasons for not achieving the learning target of 100 percent.

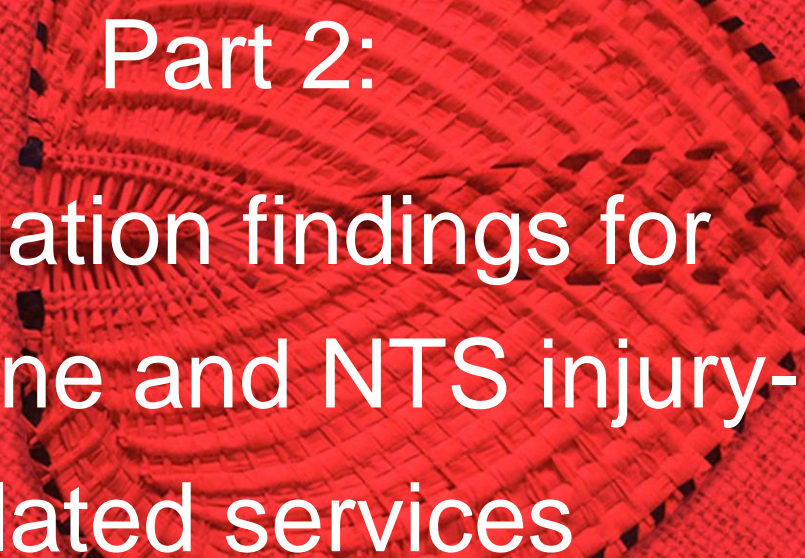
All new services for Homecare Medical come through the CGC for review. Those identified in the papers include the prostate cancer decision support tool, the national bowel cancer programme coordination centre, and the sexual harm helpline (Safe to Talk).

CGC members are actively engaged in reviewing NTS and Healthline

We interviewed three CGC members who were engaged and constructively critical of the clinical governance arrangements. These interviews generally supported the document review, with a few additions:

- At the staff level, the need for deeper analysis on the complaints received, especially if material or significant issues.
- Clinical call review was, at the time, not systematic across the whole system due to roster issues creating capacity issues.

Really helpful. Really good to be able to see where you could do better. You review your own calls and the team leader also reviews a call. The feedback is interesting. You learn your good points and bad points. (Healthline nurse)



Part 2:
Evaluation findings for
Healthline and NTS injury-
related services

LITMUS

7. Ongoing Healthline implementation

This section presents stakeholder feedback on the ongoing implementation of Healthline.

Evaluation assessment

Homecare Medical has continued to improve Healthline. Changes have strengthened systems to improve workforce capability and create a more seamless user experience.

Evaluation findings

Homecare Medical uses continuous improvement to strengthen Healthline

Since 1 November 2015, Homecare Medical has strengthened Healthline's systems and processes to improve the user experience. Caller experience is regularly monitored, and feedback is shared with Healthline staff to identify areas for ongoing service improvement.

System enhancements have strengthened Healthline staff capability

Improvements to the Standard Operating Procedures have offered staff greater clarity on procedures and policies. Consent process changes have given staff greater confidence when talking with support people. Homecare Medical has introduced a simple mechanism (dialling 5309) for frontline staff to access senior nurses and discuss queries arising from a call, while the caller is on hold.

Enhancements to Healthline are creating a more seamless user experience

Homecare Medical has made the call flow process more caller-centric. The Healthpoint website was adopted, and is being actively updated, to help call-takers direct users to face-to-face services. Warm transfers across NTS services offer callers a more holistic service. With caller permission, their GP receives a summary of the Healthline interaction.

Homecare Medical is working to manage caller demand

Healthline is a demand-driven service. Working with PHOs and general practice, Homecare Medical reduced the administrative calls to Healthline (eg, general practices forwarding their phones to Healthline). Homecare Medical is reviewing the Healthline staff roster to ensure all staff have the capacity to complete their call reviews while meeting periods of high call demand.

Introducing digital services to Healthline is a work in progress

Homecare Medical is developing a digital strategy around how to digitalise user experience within Healthline.

8. Healthline use and equity

This section assesses Healthline use, non-use and user experience. This section responds to the following key evaluation question:

- To what extent is NTS meeting the needs of New Zealanders, particularly Māori, Pacific and other priority populations?

The evaluation findings draw on Healthline data and interviews with users and non-users of Healthline living in Porirua and Whanganui. The technical appendices report contains the detailed Healthline usage data.

Evaluation assessment

Healthline was accessed by around six percent of New Zealanders, with higher contact rates in urban centres compared to rural areas. Calls relating to children represent more than one-quarter of all Healthline calls, with disproportionately high use by European/Other and higher socio-economic areas. Given the significant health disparities for Māori, Pacific and children living in deprivation, this represents an area for a more targeted approach.

Where demographic information was recorded for adults, Māori and those living in higher deprivation areas had higher rates of Healthline use. Pacific and Asian use was low. Pacific non-users of Healthline indicated they were reluctant to use services where they struggle to be understood or have no relationship.

Users of Healthline value having a free 24/7 nurse-led health advice service. They valued the availability and reassurance gained to take the appropriate health action. Most users have a positive service experience. Cultural competency is important for Māori and Pacific users. Healthline nurses demonstrate cultural competency when they let users talk, listen, say names correctly, and understand user needs and choices, and reduce barriers to face-to-face services.

Evaluation findings

Healthline is likely to have high public recognition

Healthline has been part of the health system for the last 16 years. We suspect public awareness of Healthline is high. However, we found no population-based measure to confirm the level of awareness or differences in awareness across population groups. Most (but not all) non-users interviewed were aware of Healthline. Those users and non-users interviewed had heard about Healthline through Plunket and the Plunket book, general practice including handing out fridge magnets, advertisements and online searches.

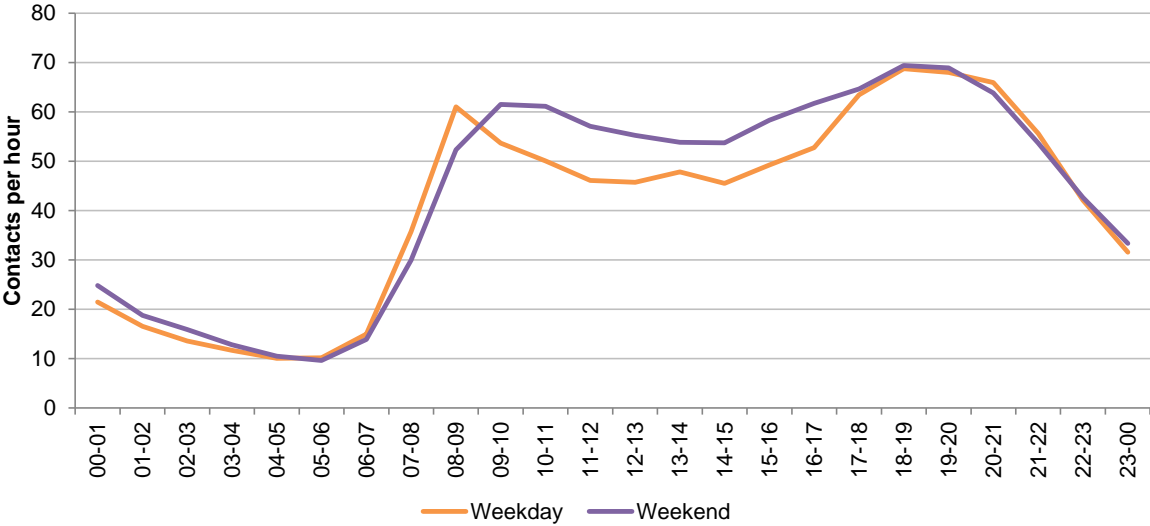
Around six percent of New Zealanders use Healthline

Over the last two years, Healthline use was stable. In 2017, around six percent of the population used Healthline. One-quarter of all contacts were for children aged under six. Healthline use varies by ethnicity, deprivation and geographic location.

The majority of Healthline contacts are outside of business hours

Peak times for calls to Healthline are 7–9am and 5–9pm, with a peak of about 70 calls per hour at 8pm. The pattern is similar on weekdays and weekends, although there are more calls during 10am–6pm at the weekend. Three-quarters of calls are made outside of business hours (ie, outside of 9am–5pm Monday to Friday). The pattern of time of day is similar between 2016 and 2017. Figure 5 shows the contact patterns for 2017.

Figure 5: Calls made to Healthline by time of day, weekdays and weekends, 2017



Source: Homecare Medical data, Sapere graph

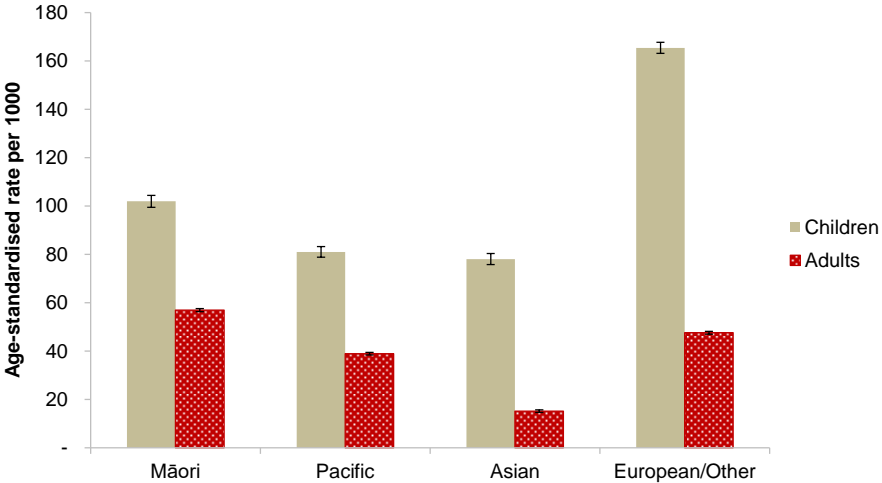
Healthline use in rural areas is lower than in urban areas

The age-standardised rate of Healthline use for people living in rural areas is lower than for urban areas. The rural rate was 15 percent lower than the urban rate. An after-hours telephone service is funded separately in several rural areas. As a result, the messaging and practice of calling your usual general practice 24/7, rather than Healthline, may be more common in rural than in urban areas.

A different equity picture exists for children compared to adults

Figure 6 shows 2017 age-standardised contact rates by ethnicity, for contacts with ethnicity recorded. For children, ethnicity capture was relatively high at 94 percent. For adults, ethnicity capture was much lower at 69 percent.

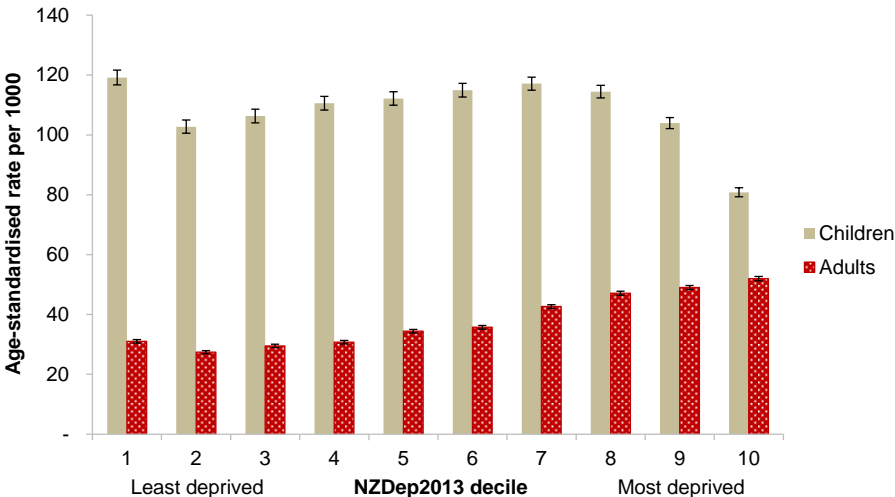
Figure 6: Age-standardised Healthline contact rates by ethnicity, 2017



Source: Homecare Medical and Statistics New Zealand data, Sapere graph

Figure 7 shows 2017 age-standardised contact rates by deprivation, for the sub-set of Healthline calls where NHI was recorded; just over two-thirds of total calls. We describe the main features below.

Figure 7: Age-standardised Healthline contact rates by deprivation, 2017



Source: Homecare Medical and Statistics New Zealand data, Sapere graph

Pacific, Asian and Māori children have significantly lower Healthline use than European/Other

Children (0–14 years) of European/Other ethnicity had the highest use of Healthline; twice that of Pacific and Asian children, and 62 percent higher than Māori children.

Children in the least deprived areas of New Zealand had the highest Healthline contact rate and children in the most deprived areas had the lowest. The rate for those in the most deprived areas (decile 10) was 32 percent lower than the rate for the least deprived areas (decile 1).

More equitable for some adults but low use by Pacific and Asian adults

Adult use of Healthline appeared more equitable, although ethnicity was not known for a large number of contacts. Māori adults had a 20 percent higher contact rate compared to European/Other. A deprivation gradient existed among adults, with increasing rates of Healthline use as deprivation increased. However, Pacific and Asian contact rates were particularly low. Lower need and general health service use among Asian may account in part for the low rate. Health literacy and language barriers may also contribute to lower uptake for both these groups.

Users interviewed contacted Healthline for low-level concerns and due to barriers to face-to-face care

Users and non-users interviewed accessed a range of services for health advice. Multiple factors influenced the health services people used. These factors include individual or whānau situation, geographic location, past experiences, connection to other health services, and the urgency of health issue and time of day.

Users interviewed contacted Healthline for low-level concerns, which they believed did not merit face-to-face advice. Users interviewed also contacted Healthline rather than other health services due to access barriers, specifically:

- face-to-face services were closed because it was outside normal working hours
- face-to-face services (either GP or Accident and Medical (A&M) services) were not affordable
- unable to easily leave the house to see face-to-face health providers (eg, they were caring for children, or had a chronic health condition that limited their mobility)
- transport was not available to access face-to-face services

- appointments were not available at their GP (people interviewed in Whanganui stated they waited between two to three weeks for an appointment at their GP)
- an expectation of a long wait time at A&M and ED.

Users also contacted Healthline when unable to access other trusted but informal advice such as whānau members. Some called Healthline to confirm whānau advice. These users usually considered their health need low urgency but concerning.

Some users interviewed contacted Healthline as they were seeking anonymity to discuss sensitive health issues (such as sexual health advice or following a suicide attempt).

Users value Healthline

Healthline is free and accessible any time and any place

Users interviewed value Healthline being free and always available. Families with young children or people with chronic conditions particularly value the accessibility of Healthline. Users that live in more isolated areas liked being able to access health advice from home. Users who struggled to access their general practices because of cost, location, or waiting times liked calling Healthline to confirm whether a visit was necessary.

Healthline offered reassurance and reduced anxiety

Healthline is a trusted 'safety net' for health advice. Most users interviewed described Healthline nurses as helpful, calm, and non-judgemental about their health needs or questions. Engagement with Healthline nurses tended to reduce users' stress.

Healthline provided clear direction on what to do next

Users interviewed valued the advice as it was given by a nurse – a trusted health professional. The guidance helped users decide or confirm the level of care they needed, either to seek face-to-face care immediately, see a doctor later, or self-care.

I've used Healthline quite often when I'm unsure if I should go to the hospital or make a doctor's appointment and it's after hours. (Whanganui user)

Healthline is confidential and anonymous when users want it to be

Some users valued the anonymity offered by Healthline. Users seeking confidential advice can become concerned when Healthline nurses ask for their personal details. They worried their information would be passed on to their GP or other health professionals.

Calling Healthline for confidential advice (Whanganui user)

Grace⁹ called Healthline for confidential advice when she had alcohol poisoning earlier this year. Healthline nurses advised her to go to ED, which she did. She was confident in their advice and felt the nurses were not judging her behaviour.

[The nurse] wasn't judging because of the alcohol poisoning. I have a lot of sense of pride and that was something I didn't want to admit, that I had alcohol poisoning. [...] So they made me feel like it was ok, and that someone cares, and someone is worrying. They were good.

Most users had a positive caller experience

Over 90 percent of Healthline callers are extremely satisfied or satisfied with the service received.¹⁰ Healthline users interviewed also reported positive caller experiences. Users thought the nurses were friendly, sympathetic and non-judgemental and built rapport by actively listening.

A few users interviewed had negative experiences over the last two years. These users felt the nurses had not listened or not given them time to explain what was wrong. Negative experiences affected trust in the service and willingness to follow advice.

People interviewed identified factors influencing their non-use of Healthline

Some non-users were not aware of Healthline

A few non-users had not heard or had limited knowledge of Healthline. Some thought Healthline was answered by volunteers and not registered nurses.

Whānau members were their first contact for health-related advice

High reliance on and confidence in whānau reduced some non-users' need for Healthline. They preferred to ask whānau before contacting other health services because whānau were accessible, familiar with their health, and experienced in caring for their children. People who had whānau members with health expertise had increased trust in their whānau member's advice.

⁹ All names have been changed.

¹⁰ Homecare Medical (2018) *Feel-o-meter reports*. Unpublished document. See Jan, Feb, Mar, Apr, May 2018 reports.

Non-users trusted, were able to access and valued continuity of care from their GPs

Non-users tended to have a long-term and trusting relationship with their GP or other primary health provider. If they had an urgent health enquiry, they contacted their GP, attended A&M, or went to ED. These people were able to get an appointment with their GP.

Non-users, who were connected to and able to access their GP, valued the continuity of care. These non-users often had long-term chronic conditions or cared for young children. They preferred to access health professionals who were familiar with their care and believed this resulted in better care.

Some non-users did not like using phone services

Some non-users were uncomfortable talking on the phone to strangers. They had difficulty explaining their health issues and understanding instructions given over the phone. These people preferred face-to-face consultations. For these non-users, trusting relationships were key to expressing themselves.

Non-users self-triaged to emergency or primary care

Some non-users interviewed were confident in self-triaging in urgent and emergency health situations to their GP, A&M or ED. These people felt Healthline would not advise them differently to what they had planned. For them, calling Healthline was an unnecessary additional step in accessing healthcare.

Māori and Pacific users reinforced the importance of cultural competency

Previous negative health experiences influenced interactions with Healthline

Most Māori and Pacific users of Healthline had positive experiences. However, previous negative experience influenced how they interacted with Healthline. Interviews with Māori users of Healthline highlighted previous negative experiences accessing and using health services in general. They spoke of not being listened to and feeling judged. Pacific peoples also highlighted negative health experiences (eg, not being listened to, advice being tailored to their ethnicity rather than their needs).

Māori and Pacific callers interviewed consciously assessed the nurse's interactions

Māori and Pacific users listened to determine whether Healthline nurses respected them and heard their concerns. They listened to the tone of the nurse's voice and reaction to their health issues. Māori callers interviewed noted the importance of pronouncing their names properly. Pacific peoples interviewed also noted the importance of saying their names

correctly and preferred being asked to spell their name. Pacific peoples were also sensitive and to some extent offended when challenged about their food preferences.

The nurses' interactions influenced whether Māori and Pacific users followed their advice. Changes to Healthline's call flow process, with a more flexible focus on user need, has created a more culturally appropriate process.

Talking to a Healthline nurse who is Māori ensured a positive experience

Some Māori users preferred to talk to a Māori nurse when they called Healthline. These users considered Māori nurses were better able to understand their needs and improved their Healthline experience. In contrast, some Māori users interviewed considered cultural responsiveness by Healthline nurses a lower priority when they were anxious, or the situation was urgent.

*Because if you think about Māori ethnicity, where they come from ... they can range from different socio-economic backgrounds and have no access to hospitals or anything like that. Being able to just have access to a phone and reaching out to the Healthline and then coming across a Māori [nurse], it's going to [be better].
(Whanganui user)*

Pacific peoples interviewed wanted to be heard and understood

Some Pacific Healthline users were aware of ethnically-based vulnerability to different diseases. They recognised this knowledge can help with triage. However, some of these users were concerned that health professionals pre-judged their symptom based on their ethnicity. These users needed reassurance they were being triaged accurately by Healthline.

For Pacific callers with English as another language, access to Pacific language speakers was important. Pacific non-users of Healthline indicated they were reluctant to use services where they struggle to be understood or have no relationship. Some Pacific Healthline users used Google to prepare before they called Healthline.

Cultural competence of Healthline staff can be further improved

Māori and Pacific users noted Healthline nurses created trust and a positive relationship (whakawhanaungatanga) when they:

- let users talk and listened
- said names correctly
- understood user needs and choices
- affirmed them
- used simple language and terms
- ensured users could understand the advice
- used words or terms from their culture, such as kia ora or kai (food).

9. Following advice to see a health service

This section presents findings from data matching with ProCare's primary healthcare data, ED data and ACC data to estimate the proportion of Healthline and injury-related service users who follow advice from Healthline. We also present our analysis of service user behaviour from qualitative interviews.

This section responds to the key evaluation question:

- How well does NTS improve the ability of New Zealanders, particularly Māori, Pacific and other priority populations, to take appropriate health action?

Evaluation assessment

Healthline supports New Zealanders to take appropriate health action. However, many people appear not to follow through on the advice received.

- The number of people following through on advice to see a GP appeared low. The relatively minimal variation between ethnic and deprivation groups suggests other factors drive GP compliance, such as appointment availability.
- Overall, more than half followed Healthline advice to attend ED when advised. However, Māori, Pacific and people living in deprived areas were significantly less likely to attend ED when advised.
- Very few people self-refer to ED when advised by Healthline to self-care or seek a lower level of care such as general practice. However, Māori and people living in deprived areas were more likely to self-refer to ED.
- Triage away from ED to an A&M or urgent care clinic appears to be less successful, with almost one in six presenting to an ED almost immediately.

Qualitative interviews identified a range of factors influencing service user ability to follow advice. People who experienced barriers accessing healthcare or did not trust Healthline advice tended not to do as advised by Healthline.

Evaluation findings

In 2017, 21 percent of Healthline calls resulted in advice to see a GP, 16 percent were advised to attend A&M and 15 percent were given self-care advice. Nine percent of callers were advised to attend ED. The proportion of calls resulting in self-care advice was higher for children than for adults.

Compliance with Healthline advice to see a GP appeared low

A third advised to see a GP visited their usual general practice within three days

Our study of Healthline users enrolled in a practice belonging to the ProCare network in the Auckland region, suggested the majority (around two-thirds) of people advised to see a GP do not attend their usual practice within the next three days. They may visit their GP at a later date if they are unable to get an appointment within three days.

Some people advised to see a GP may have visited an A&M clinic, although we did not have that data.

GP compliance rates varied little between different groups

GP compliance was higher for children than for young and middle-aged adults (although not always significant). There is no fee for children aged under 13 years to attend their GP, so this may influence behaviour.

Interestingly, there was practically no difference in compliance rates by ethnicity and little by deprivation. The fee barrier may not be the main driver in behaviour. Other factors, such as availability of appointments, may be more likely to affect compliance.

GP compliance in New Zealand appears low compared to the international experience

Comparisons with overseas studies are difficult as methodology and definitions, service configurations, patient fees and/or access policies differ. Purc-Stephenson & Thrasher (2012) undertook a meta-analysis of 13 studies (mostly from the United States and Canada) that measured patient compliance with telephone triage recommendations. They found a primary care compliance rate of 44 percent (data was pooled across all studies).

Blank et al. (2012) reviewed 54 papers on appropriateness and compliance with telephone triage. Almost half the studies were conducted in the United States, with 14 from the UK and several from other countries, including Australia and New Zealand. Nineteen papers considered compliance across different triage outcomes. They found a median primary care compliance rate of 66 percent (with a range from 25 percent to 91 percent).

An Australian study of adults aged 45+ years who used a telephone triage service (Tran et al. 2017) found that around 65 percent of callers complied with advice to see a doctor. However, their definition of compliance included the presence of an ED or hospital record within 24 hours of the call (as well as primary care claims).

Just over half of people followed advice to attend ED

In 2016 and 2017, 57 percent of Healthline callers advised to attend ED presented in the next 24-hour period.

Children, Māori, Pacific and those in deprived areas were less likely to go to ED when advised

- Children aged 0–4 years were significantly **less likely** to present to ED than most other age groups.
- People aged 65+ years were significantly **more likely** to comply with advice to attend ED than any other age group.
- Māori and Pacific peoples were significantly **less likely** to comply with advice to attend ED than European/Other.
- People living in the most deprived areas (quintile 5) were significantly **less likely** than others to comply with advice to attend ED.
- No difference exists in compliance rates between people living in urban and rural areas.
- Callers to Healthline during business hours, when other services are open, were significantly **less likely** to follow advice to attend ED.

ED compliance rates varied by DHB

The reasons for the variations in ED compliance across DHBs is unclear. In many cases, the ranking of compliance rates followed the order of ED attendance rates in general. This suggests Healthline does not overcome the usual factors that drive ED use in general among different DHB populations.

Compliance rates to attend ED do not vary by symptoms

For calls related to children, little difference exists between most symptoms in complying with advice to attend ED. Calls about unsettled or unwell babies, or related to immunisations, had lower compliance rates than calls for other symptoms. Caregivers may perceive these to be less serious symptoms despite Healthline's advice to attend ED. Similarly, there was little significant difference between most symptoms for adults. Women callers with symptoms related to pregnancy, or possible pregnancy, were less likely to follow advice to attend ED.

ED compliance in New Zealand is probably similar to the international experience

Tran et al. (2017) reported ED compliance of 69 percent among adults aged 45+ years in the Australian study. We found compliance rates between 59 and 70 percent for age groups 45+ years. Purc-Stephenson & Thrasher (2012) estimated ED compliance of 63 percent (pooled data across studies). Blank et al. (2012) reported a mean compliance of 75 percent across studies they reviewed. In a further study, Navratil-Strawn et al. (2014) found 57 percent of callers were compliant with nurse recommendations.

Given the uncertainty comparing estimates, actual ED compliance in New Zealand is probably similar to international experience.

Self-referral to ED following a Healthline call is small overall

Self-referral to higher levels of care is of interest when considering Healthline's role in acute demand management across the system. A large proportion of callers are advised to self-care at home (15 percent), or to see a GP (21 percent) or other providers. However, we do not know their original intention before calling Healthline. A proportion may have intended to go to ED, but others would not have. In 2016 and 2017, just five percent of Healthline callers with one of these outcomes presented to an ED within three hours.

Older people, Māori and those in deprived areas were more likely to self-refer to ED

- Calls relating to children were significantly less likely to result in self-referral to ED than calls relating to adults. Young adults (15–24 years) and older adults (80+ years) were more likely to self-refer to ED than others.
- Māori were significantly more likely to self-refer to ED compared to European/Other, whereas Pacific and Asian were significantly less likely.
- A general deprivation gradient exists in self-referral rates with people in more deprived areas having higher self-referral rates.
- No difference in self-referral rates exists between people living in urban and rural areas.
- People were significantly less likely to self-refer to ED after calls made during business hours when other services are open.

Self-referral to ED following a Healthline call varies by DHB

Lakes, Tairāwhiti and Whanganui DHBs had lower self-referral rates following a Healthline call compared with several other DHBs. Given these DHBs have high rates of ED attendance in general, and high proportions of Māori who were more likely to self-refer in the national analysis, we might have expected higher rates of self-referral to ED. The reasons for the variations may be due to:

- self-care advice or signposting to other services by Healthline are more effective
- alternatives to ED are more accessible (or accessed in different ways) in these areas
- other perceptions or factors influence behaviour (eg, in Whanganui the A&M is co-located with the ED and has a single triage point).

ED self-referrals in New Zealand are similar to the international experience

Looking at the literature, ED self-referral rates ranged from one to nine percent (Tran et al. 2017).

ED self-referral is more common following Healthline advice to attend an A&M

The ProCare analysis tells us more about self-referral to ED after signposting to different primary care services. For ProCare users, seven percent of Healthline callers advised to see a GP self-referred to ED within three hours.

One in six Healthline callers advised to attend A&M self-referred to ED within three hours

We did not have A&M data to estimate compliance with advice to attend A&M. Importantly though, we looked at the proportion of ProCare callers that attended an ED almost immediately or visited their general practice instead. The ProCare case study allows us to assess the patterns of activity following advice to attend A&M. In some parts of the country, the ED is the only provider open after hours and the expectation is people will seek non-emergency care there. In other more urban areas, such as Auckland, A&M clinics provide primary care after hours. Some A&M clinics provide additional services such as x-ray and plastering and/or are also open during the day.

Nearly one in six Healthline callers advised to attend A&M (16 percent) self-referred to ED within three hours. A small proportion (five percent) visited their usual general practice on the same day as the call.

No difference exists in ED self-referral rates between different groups

Generally, no significant difference exists in ED self-referral rates between different groups, following advice to attend A&M. The self-referral rate was highest for Māori, although smaller numbers at the regional level mean it was not significantly higher than for European/Other.

Although there is little difference in self-referral to ED after advice to attend A&M, we do not know how many people did nothing, how that varies between population groups and whether it led to poorer outcomes or not.

Most users interviewed followed Healthline advice¹¹

Users interviewed were advised to attend ED in an ambulance or in their own transport, attend A&M, see a GP, or to self-care. Nineteen of the 25 users interviewed reported that they followed the Healthline triage advice.

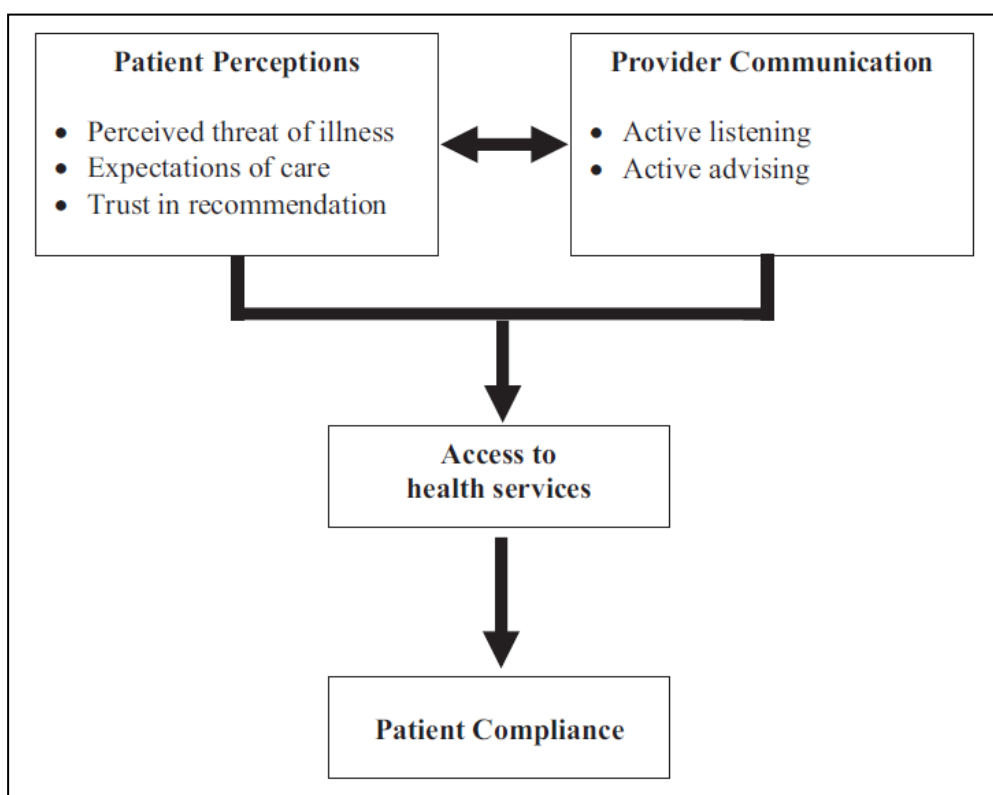
¹¹ Our interview sample differs in this respect to the quantitative data.

Health behaviour models help us to explain tele-triage behaviour

Purc-Stephenson & Thrasher (2012) describe telephone triage compliance as the result of caller perceptions (threat of illness, expectations of care, and trust in recommendations) and provider communication. These factors are mediated by the ability to access services (Figure 8). They found reasons for non-compliance included people reporting to have heard a different disposition, people's original intentions and health beliefs (Purc-Stephenson & Thrasher 2012).

Healthline user interviews supported this behavioural model and demonstrated the interconnected factors that influence health behaviour (Sallis, Owen & Fisher 2008).

Figure 8: The factors influencing compliance to telephone triage recommendations (Purc-Stephenson & Thrasher 2012)



Users followed advice when the health issues were high-risk

Some Healthline users were reluctant to call 111 or go to A&M even in potentially life-threatening or high-risk situations. They needed Healthline's reassurance this was the right thing to do (eg, uncertainty about when to take a child with a high fever to ED or GP). These users under-estimated the seriousness of their condition and called Healthline rather than an ambulance.

Users followed advice when it aligned with their original intention

Users interviewed tended to follow advice when their perception of their health issue and action matched the Healthline nurse's recommendation. For example, people who called to find out if they should see their GP followed advice when Healthline also recommended this. International literature shows prior intention before calling tele-triage services influences behaviour after calling (Purc-Stephenson & Thrasher 2012).

Confidence and trust determined whether users followed Healthline advice

When the Healthline nurse triaged higher or lower than their expectations, users would follow advice if they were confident in the triage process and the nurse. These users tended to be confident in their ability to communicate clearly and be understood. As a result, they were more likely to trust Healthline advice and follow it.

Some examples are:

- A Healthline user who thought she had appendicitis. Following the triage process, she trusted the nurse's recommendation that it was not. She followed advice and stayed home rather than attending ED.
- A Healthline user with an infected ingrown toenail. He followed Healthline triage advice to attend ED where he was admitted to hospital for surgery.

Users interviewed who had low confidence in their ability to accurately explain their health issues tended to not follow Healthline triage advice. They thought they had not communicated adequately and therefore believed the triage advice was wrong. Some users with language barriers (such as English as another language) or low health literacy felt the Healthline nurse had not understood the severity of the issue or they had not understood the nurse. These users tended to triage up (ie, attend ED when advised to see a GP or attend a GP when advised to self-care).

Purc-Stephenson & Thrasher (2012) noted that changing provider behaviour is easier than changing health user behaviour. Healthline nurses need to demonstrate to callers they have heard their concerns and have a proven process to decide the right course of action. This was particularly important for Māori and Pacific users who valued a whakawhanaungatanga process.

**People do not follow advice when they do not trust the communication
(Porirua user)**

Maria called Healthline when her 22-year-old son was experiencing severe stomach pain and vomiting overnight. She was told to keep an eye on him and take him to the GP in the morning. Instead, Maria took him to ED.

Maria did not follow Healthline advice because she thought the triage nurse had underestimated the seriousness of her son's condition. Maria felt she had failed to communicate his symptoms accurately.

Users interviewed faced barriers to following Healthline advice

The barriers identified by users included: the cost of accessing A&M, a lack of transport, or other family circumstances (eg, having to wake other children to go to ED). Users were most able to follow advice when Healthline nurses worked to overcome the barriers. For example, when Healthline nurses called an ambulance to take the user to the hospital, or when Healthline provided low-cost self-care advice.

**Multiple factors affect users' ED attendance following Healthline advice
(Whanganui user)**

Ripeka lived with her elderly mum and was the sole caregiver. She called Healthline last year because her mum was unwell, and she did not know what was wrong. Ripeka knew her mum would struggle to get to the GP and was not sure it was necessary.

It's a big thing to take her, to get her in the car and then convince her to get out, and get her in a wheelchair, and take her in. If you don't get seen quickly at the doctor's, then she gets agitated. It's like "gosh do we have to sit here? Might as well go home".

Healthline advised her to take her mum to the hospital. Ripeka knew A&M and ED had long wait times and her mum would not cope. She explained the situation to the Healthline nurse who called an ambulance for them.

I thought she just wasn't well. I rang them [Healthline] up and told them all the symptoms. And they said, "do you think she should go to the hospital?" I said, yes but I don't want to take her because she'd have to wait and she wouldn't last. They said, "oh no we can ring an ambulance and you can just go straight in."

10. Cost per contact

In this section, we estimate the average cost per contact to inform our value for money (VFM) analysis. In this evaluation phase, our focus is on Healthline and injury-related contacts. We have estimated the average cost for these contacts to enable separate VFM estimates for Healthline and injury-related contacts. We will use these estimates to:

- combine our VFM findings from this evaluation phase with the next phase to provide an overall view on VFM of NTS
- compare VFM analysis across the different services of NTS.

Further details on our cost per contact analysis are in the technical appendices report.

Evaluation assessment

Healthline's cost per contact is relatively expensive compared to other health services such as general practice. A Healthline contact does have the benefit of being free to the user and easier to access. However, the value Healthline offers is significantly less than a general practice consult, which gets funded at about the same cost.

Evaluation findings

We estimate the average cost per **Healthline contact to be** ■■■, based on 364,000 contacts in 2017 at a cost to the funders of ■■■ million.

We estimate the average cost per **injury-related contact to be** ■■■, based on 58,000 contacts in 2017 at a cost to the funders of ■■■ million. Section 11 contains detailed costs for injury-related NTS contacts.

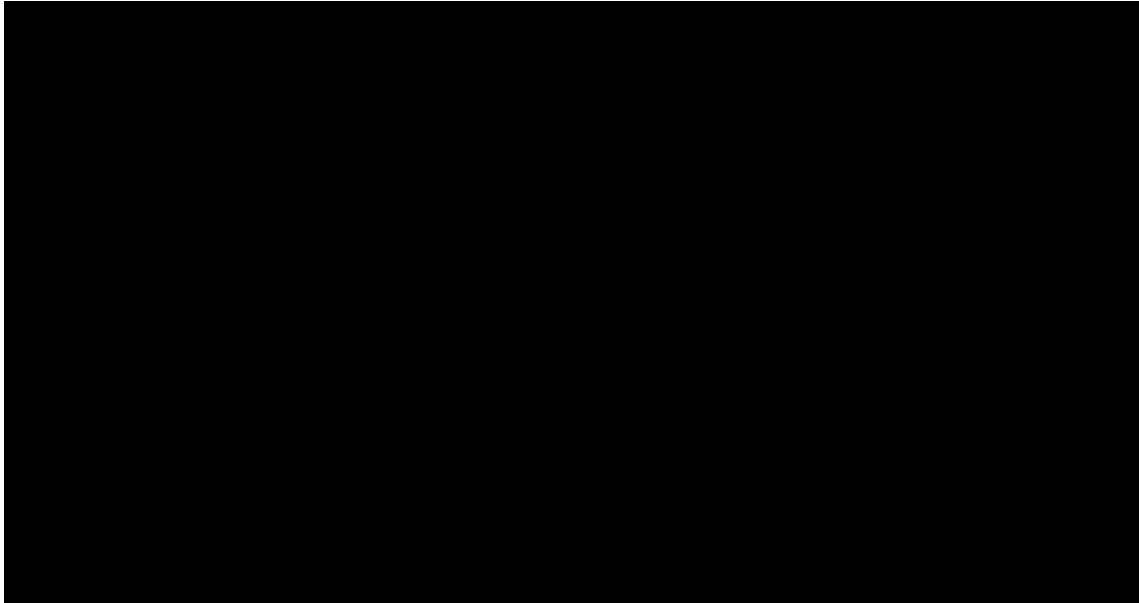
Putting costs into perspective

We compare the cost and volumes of general practice consultations and ED visits with the average cost of Healthline contacts (Figure 9). Clearly, significant differences exist in both the average costs and scale of activity between the service types.

The cost of a Healthline contact is significantly lower than general practice or ED; ■■■ compared with ■■■ or ■■■. The cost to the Government of general practice consultation is similar to that of Healthline or injury-related NTS contact. However, the overall cost per consultation is much higher for general practice due to patient fees (an estimated 40 percent of the cost is covered by patient fees). ED average cost per visit is approximately seven times the cost of a Healthline or injury-related NTS contact.

General practice accounts for vastly more consultations and cost than the other services. For each Healthline or injury-related NTS contacts, there are 40 general practice consultations (0.4 million compared with 16 million). ED visits are three times more common than Healthline or injury-related NTS contacts (1.2 million compared with 0.4 million).

Figure 9: Comparison of costs and volumes of NTS Healthline and Injury, GP and ED



Source: Homecare Medical and Ministry of Health data, Sapere graph

Average versus marginal cost

The figures [redacted] and [redacted] per contact represent the average cost. These figures are useful for considering the value for money of Healthline and injury-related services as they were delivered in 2017.

Another question we want to address is '*what would be the cost implications of changing the volumes of contacts?*' This takes into account that some costs such as governance and rent are fixed and do not change unless there is a big change in volumes. To answer this, we estimate the marginal cost per contact. We asked Homecare Medical what proportion of its costs are marginal, assuming a [redacted] percent change in volume. It estimated [redacted] percent of its costs are marginal. These costs include frontline staff, software licenses (purchased on a per call taker basis) and call taking equipment costs.

We estimated the marginal cost per contact to be [redacted] for Healthline and [redacted] for NTS injury-related contacts.

Uncertainty in data provided by Homecare Medical

We have based the cost per contact calculations on data supplied by Homecare Medical. When we presented our estimates to Homecare Medical, it thought the estimates looked inaccurate as in some cases they are greater than the costing models used to cost new services. We worked with Homecare Medical to get a more accurate estimate of cost per contact. However, Homecare Medical was unable to provide more accurate data for the costing analysis.

Homecare Medical asked us to include the following caveats. Homecare Medical notes the constraints of the available data and the limitations of the current analytic environment.

This analysis does not fully account for:

- The portion of the funder costs expended on automated contact activity. For example, the automated Quit outbound behaviour change programme, and the maintenance of both informational and self-help websites.
- The evolution towards outbound calls used to manage complex regular callers. These calls replace the previous high volume of unstructured (and often short) inbound contacts with a smaller number of longer and more clinically effective outbound calls. Current reporting is unable to separate these calls from non-contact outbound calls.
- The increasing use of digital channels, and the appropriate accounting for workload associated with web chat, SMS, and e-mail interactions.
- The transfer of callers between services within NTS that create another inbound contact to another team.
- The appropriate funding split between the services. Homecare Medical believes that over time there has been a move of volume away from physical health into mental health and addictions services. The funding allocation model will need an update to reflect that move. Currently, Homecare Medical does not have agreed cost allocation drivers that accurately capture that shift.

Homecare Medical and the Ministry are currently considering the implementation of a data infrastructure capable of providing insight at this level of detail, over and above the contractual requirement to provide regular standardised reporting. Until that time, Homecare Medical recommends caution in using the analysis contained in this report for decision-making or comparison purposes, given the likely different assumptions and analysis that underpin the data points from other parts of the health sector.

11. Value for money

This section addresses the evaluation question on Healthline's value for money. Further details on our value for money analysis are included in the technical appendices.

Evaluation assessment

We are unable to determine value for money due to difficulties quantifying benefits. The main uncertainty is what would happen in the absence of Healthline.

Evaluation findings

Uncertain value for money

The value for money of Healthline is uncertain due to difficulties in quantifying Healthline's benefits. We expect there to be little to no benefit in cases where users do not follow Healthline advice. From our data matching analysis, we estimated approximately half of users do not follow advice. When advice is followed, we have identified a range of potential benefits. Uncertainties exist in quantifying each benefit. However, the main uncertainty across the range of benefits is what would happen in the absence of Healthline.

Potential benefits are difficult to quantify

Healthline may create savings by directing users to less expensive healthcare or avoiding the need for other healthcare services by providing self-care advice. Alternatively, there may be increased costs to the other healthcare services when users are advised to seek a face-to-face consultation when they would not have if they had not called Healthline. While these cases may lead to increased cost, they may also lead to improved health outcomes.

Another benefit of Healthline is creating a 'safety net' where anyone can free-phone a nurse for health advice 24 hours a day. A flow-on benefit is the potential to help reduce inequities in access to healthcare. However, utilisation rates show that Māori and Pacific children, and children living in deprived areas were significantly less likely to use Healthline than others.

Not much to benchmark against

The lack of a value for money estimate for Healthline is not surprising. This reflects the lack of estimates for established health interventions and for general telephone triage services.

Healthline may provide comparable value for money to overseas services

The most comparable aspect of value for money, comparing Healthline with overseas services, is the cost per call. Healthline cost per call is less than the cost per call of nurse triage telephone services in Australia and Canada.

The UK service uses 'advisors' rather than nurses to answer calls and has a much lower cost per contact. Based solely on the cost per call, Healthline seems to be relatively good value for money. However, neither the benefits of Healthline nor the overseas services have been quantified.

We are unable to make definitive statements regarding how Healthline's value for money compares against overseas services.

12. Healthline's health system impact

This section assesses the impact of Healthline on other parts of the health system. The section addresses the following key evaluation question:

- How and to what extent is NTS impacting on other parts of the health and social system?

The analysis draws on Healthline data matching and interviews with Healthline users, primary and secondary care stakeholders.

Evaluation assessment

We are uncertain what impact Healthline has on the demand for other health services. However, the impact will be relatively small compared to the scale of general practice and ED. Healthline's future role in a rapidly changing health system needs to be defined. A discussion is needed with sector stakeholders and users, particularly Māori and Pacific peoples, on how Healthline can evolve to meet the health advice and support needs of New Zealanders.

Evaluation findings

Healthline's capacity limits the extent to which it can impact the health system

In 2017, around six percent of the population used Healthline. This represents a small proportion of New Zealanders compared to the number accessing general practice and ED. For every Healthline or injury-related NTS contact, there are 40 general practice consultations and three ED attendances. In this context and recognising service capacity, the extent to which Healthline can impact the wider health system is limited.

Healthline may be meeting some of New Zealand's unmet health needs but some high need groups have low use

In the 2016/17 New Zealand Health Survey (Ministry of Health 2017), more than one in four adults (28 percent) reported they experienced an unmet need for primary healthcare in the past year. Availability of urgent appointments was the most common reason given (18 percent) followed by GP cost (14 percent). Caregivers of one in five children reported an unmet need for primary healthcare with availability of urgent appointments the largest factor (16 percent).

Māori, Pacific children, and adults living in the most deprived areas were more likely to experience this unmet need, and it varied across DHBs (from 24 percent to 39 percent, in the three-year period 2014–2017). Unmet need contributes to the significant differences between groups, in avoidable hospitalisation rates for those conditions sensitive to treatment in a primary or community setting.

The evaluation findings suggest Healthline may be meeting some of the unmet health need, but that there are still significant differences in Healthline use. Māori adults and adults living in areas of higher deprivation use Healthline more than other adults, but Pacific and Asian have significantly lower use. Calls related to children represent a large proportion of Healthline’s work but the highest use is among European/Other and children in areas of low deprivation.

PHOs and general practices interviewed, value Healthline as their patients can access clinical health advice after hours. Some general practices in areas of high deprivation actively promote Healthline to ensure low-income families can easily access health advice after hours.

Around 14 percent¹² of the New Zealand population lives in a rural area, with some remote communities located a long distance from physical health services. Many more people may travel up to an hour to reach an after-hours provider. PHOs and general practice believe Healthline is making health advice more accessible for people living in rural locations or unable to come to their general practice. However, we found that the age-standardised contact rate was significantly lower for rural areas compared to urban areas.

Healthline has a limited impact on reducing acute demand

DHBs believe Healthline has an important system role to reduce acute demand on their services. However, DHBs interviewed believe Healthline is overly risk-averse and advises too many people to go to ED. We were unable to estimate the impact Healthline has on general practice and ED services, but the impact is likely to be small compared to the total number of GP consultations and ED attendances.

In 2017, Healthline advised 31,600 people to attend ED – an average of 87 people each day, spread across 20 DHBs. Around 3,300 people present to EDs across the country each day and, given that our data matching analysis suggested that up to half do not follow through on Healthline’s advice, it is unlikely to represent a significant burden on EDs.

¹² Statistics New Zealand Estimated Resident Population as at 30 June 2017.

We assume Healthline diverts some people away from ED, although we cannot quantify this as callers' original intentions are unknown. Some of these people may have been advised to see a GP instead, and the proportion that present to ED within the next three hours is low. The ProCare analysis suggests diversion away from an ED through Healthline advice to visit an A&M clinic is less likely to be successful, with nearly one in six still presenting to an ED almost immediately.

An early evaluation of the Healthline pilot (BRC Marketing & Social Research 2002) undertook a survey of 450 users. It found that a substantial proportion of people who intended to see a GP immediately were instead given self-care advice or told they could delay the GP visit by a few days.

We do not have current data to compare call outcomes against pre-intentions. If this pattern continues, it suggests Healthline has a role to play in managing demand for urgent appointments at stretched general practices. Healthline's ability to have a material impact is small. It provides self-care advice to an average of around 150 people per day, in the context of around 44,000 general practice consultations per day.

Healthline does provide a safety net for people who are not able to access an appointment for some time and meets the needs of people with less serious symptoms or concerns.

User interviews and the review of the literature demonstrated that wider factors, including existing health system barriers, influence user behaviour. Users interviewed indicated if Healthline did not exist they would go to other health services (such as their GP, A&M or ED). However, existing barriers to accessing these services may impede action, resulting in further unmet need and increasing inequities of access for Māori and those in high deprivation areas.

Healthline's potential in a rapidly changing health system needs to be defined

The health system is rapidly changing and alternatives to Healthline are emerging (eg, patient portals, GP triage in practices, Health Navigator, iMoko). Users interviewed are seeking online health advice and using health-related apps. Currently, online health advice (ie, 'Dr Google') has low trust and often increases user anxiety.

Healthline is a 16-year-old nurse-led phone advice service. Homecare Medical is working to continually improve service quality and user experience. Based on the findings of this evaluation, further discussion is needed with sector stakeholders and users, particularly Māori and Pacific peoples, on how Healthline can evolve to meet the health advice and support needs of New Zealanders.

13. NTS injury-related services

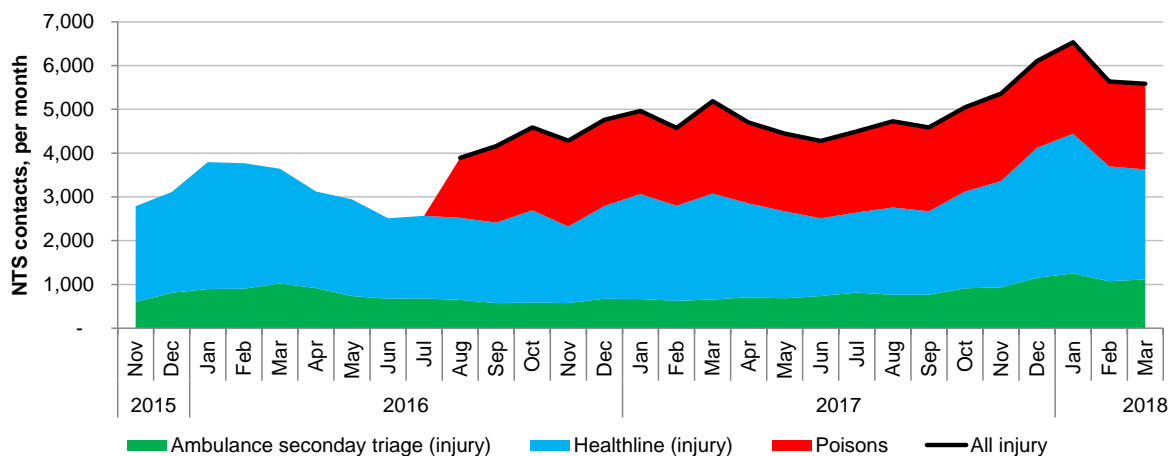
This section presents the evaluation findings for NTS injury-related services. The section provides an overview of stakeholder feedback and usage data on ambulance secondary triage and Poisons line. It presents key findings from data matching with ACC data and the injury-specific value for money analysis.

Defining injury-related services

Injury-related contacts include all contacts to the Poisons line and injury-related contacts to Healthline and ambulance secondary triage. Homecare Medical identifies injury-related contacts by checking if an injury question set was opened during clinical triage. Reporting for the Poisons line started in August 2016. For the first year of NTS, we cannot report the number of contacts to the Poisons line or the total injury-related contacts.

NTS has roughly 5,000 injury-related contacts each month (Figure 10). Healthline and the Poisons line have a similar number of injury-related contacts. Healthline injury-related contacts increased at the start of 2018. We suspect this reflects a change in the way injury contacts are identified as the number of non-injury-related contacts to Healthline decreased over this period. Ambulance secondary triage contacts increased in late 2017 due to the national roll-out. After the increase, they accounted for 20 percent of injury-related contacts.

Figure 10: Injury-related contacts



Source: Homecare Medical data, Sapere graph

Evaluation assessment

NTS injury-related services are continuing to improve their services and to enhance links with the wider health system. However, it is difficult to draw robust conclusions from analysis of injury-related NTS service use. Our data matching analysis suggested identification of injury-related calls to Healthline and ambulance triage was inaccurate and the injury question sets have not been validated.

Identified injuries account for nine percent of Healthline calls but it is difficult to determine Healthline's impact on subsequent service use. More than two-thirds are advised to seek medical treatment, but only 38 percent of injury-related calls are followed by an ACC claim. Many people do not comply with the advice given (similar to Healthline overall).

From the data available, we estimated the average cost per injury-related contact to be [REDACTED], higher than a Healthline contact (due to higher costs for contacts to Poisons line), based on 58,000 contacts in 2017 at a cost to the funder of [REDACTED] million.

An evaluation of the ambulance secondary triage pilot demonstrated cost savings. However, value for money for Healthline contacts (both injury and non-injury) is uncertain. Based on international reports (Harrison et al. 1996; Blizzard et al. 2008; Ponampalam & Loh 2010), we expect the Poisons line offers relatively good value for money.

We were unable to estimate the return on investment for ACC. We had planned to estimate the value from avoiding ACC claims and users accessing timely care. However, we were unable to estimate either of these benefits due to a lack of data.

Evaluation findings – stakeholder feedback

Ambulance secondary triage

In 2017, the national roll-out of the ambulance secondary triage was completed.

The relationship between St John, Wellington Free Ambulance and Homecare Medical works well

Homecare Medical nurses, located at St John and Wellington Free Ambulance, are integrated into their teams. The call review process occurs as intended with around 100 call reviews per month.

Providers are working to improve the service

A key challenge is managing caller expectations from expecting an ambulance to be sent to being informed a nurse will call them within 30 minutes. As the service was rolled out, advertising occurred to highlight this change. Providers are exploring the possibility of warm

transfers from 111 to ambulance secondary triage. Making such a change is complex due to balancing technical and workforce capacity within the current funding envelope. Changes are also being made to the exit message to ensure callers are more informed.

Providers are working to decrease the return rate to 111

The quarterly report ending March 2018 noted 43 percent of callers did not require ambulance services and nearly 8,000 people were diverted from ED (Homecare Medical et al. 2018b). Over half (57 percent) of incidents sent to ambulance secondary triage were returned to 111 dispatch. Questions were raised by the Ministry about the return rate to 111 from ambulance secondary triage. The providers are exploring ways to improve the current 43 percent effectiveness (Homecare Medical et al. 2018b).

Providers are exploring ways to strengthen their system integration

Providers are developing new pathways for callers to access the right care in their community beyond general practice and ED (such as district nurses). Work is underway to strengthen connections with Healthline and Poisons line.

Poisons line

The National Poisons Centre is described as a centre of excellence

Primary and secondary care providers interviewed value the National Poisons Centre and appreciate being able to draw on this specialist expertise. This sentiment was reflected in interviews with Healthline users and non-users. Most (but not all) were aware of the Poisons line due to the placement of contact information on household poisons. All of the general public interviewed believed the line was an important health safety net to ensure the right action was taken to save lives. Those who called found the service supportive, knowledgeable and reassuring.

Example of Poisons line use by the public

Timoti is a father of five children living provincially with his partner. Timoti's daughter, aged under five, spilt soap powder concentrate over her face. She was extremely distressed and screaming. Timoti and his partner tried to remove the soap powder by rinsing with water. Timoti called the Poisons line to confirm they were doing the right thing. Timoti was told they were taking the right action. He was reassured as Poisons line demonstrated an understanding of the product.

The National Poisons Centre has a dual-layered peer review process

All calls are peer reviewed on the following shift by a poisons information officer. The review assesses the clinical quality of the advice, calculations and coding. The calls are then reviewed by the medical toxicologist or the National Poisons Centre Director. This process is resource intensive. Questions have been raised on whether every call needs to be assessed, as many calls are straightforward. Not assessing every call would free up senior level resource.

Call data from the Poisons line requires strengthening

Demographic data, particularly ethnicity data, is limited. Only 21 percent of calls have ethnicity recorded (Homecare Medical 2018a). The bulk of calls are from a third party (eg, family member, GP or ED) and patient demographic data is not recorded. The National Poisons Centre is working to improve data collection through process mapping and reviewing privacy considerations. The National Poisons Centre wants to maximise the use of data collected (eg, assessing the outcomes for callers at a patient and health system level).

The National Poisons Centre has a positive relationship with Homecare Medical

Homecare Medical and the National Poisons Centre are working to strengthen links between Healthline and the Poisons line. Healthline transfers between 300 and 500 calls per month to Poisons line. A review was undertaken to strengthen the links between these services and with mental health and addictions services (Clinical Governance Committee November 2017).

The National Poisons Centre is strengthening its system integration

The National Poisons Centre is strengthening its links in offering clinical advice to improve patient outcomes and reduce system burden. The Director of the Centre holds a quarterly webinar with emergency physicians on toxicology topics. The Centre is working with injury prevention experts at Otago University to increase its injury prevention contribution. The Director has facilitated meetings with the New Zealand Hospital Pharmacist Association to create links with medicines information services across larger DHBs.

Evaluation findings – use and signposting

In 2017, NTS had 58,000 injury-related contacts

Injury-related contacts include all contacts to Poisons line and injury-related contacts to Healthline and ambulance secondary triage line. Homecare Medical identifies injury-related contacts by checking whether an injury question set was opened during clinical triage. In 2017, there were 58,000 injury-related contacts to Healthline (26,000), Poisons line (23,000), or Ambulance secondary triage (9,000).

Overall, nine percent of Healthline calls were identified as being injury-related (ie, had an injury question set opened). The age profile for these calls was similar to Healthline overall, with around one-third of calls for injuries in children under five years. Head injury was the most common injury in this age-group (27 percent) followed by falls and bites or stings. For older age-groups, bites/stings were the most common injury with head injuries second.

Healthline

Just over one-third of injury-related Healthline calls were followed by an ACC claim in the next four days

More than two-thirds of injury-related Healthline calls resulted in advice to seek medical assessment or treatment at either a general practice, A&M or ED. Under half (38 percent) of these calls were followed by an ACC claim. Of the Healthline contacts not identified as injury-related, three percent were followed by an ACC claim.

Figure 11 shows that calls with more acute triage outcomes such as 111, ED or A&M were most likely to be followed by an ACC claim. However, a large proportion did not have a claim lodged within four days. This may be partly due to the non-lodgement or lag in claims. For instance, an ED may not lodge a claim as acute hospital treatment for accidents is not funded on a fee-for-service basis, or they may not lodge the claim until more than four days after the ED attendance.

Over half of Healthline injury-related callers complied with advice to attend ED

Of all Healthline calls with an outcome of attending ED, those related to injuries had a compliance rate of 56 percent, close to the rate of 57 percent for non-injury calls. Overall, 51 percent of these calls resulted in an ACC claim (Figure 11). Most calls where advice was not followed do not result in a claim. Around one-third did have an ACC claim lodged within four days, mostly by GPs (93 percent).

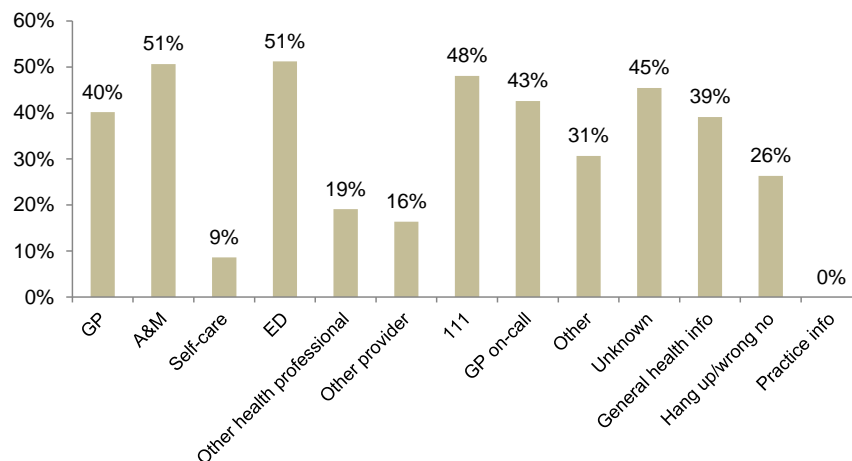
Compliance with advice to see a GP is relatively low

For injury-related calls with a triage outcome of seeing a GP, nine percent self-referred to ED within the next three hours – a slightly higher self-referral rate than all ProCare calls to Healthline. Overall, 40 percent of these injury calls resulted in a claim (Figure 11). Most callers did not self-refer to ED, and just over one-third had an ACC claim lodged within four days, mostly by GPs (95 percent). This suggests compliance with advice to see a GP is relatively low but comparable to the rate for all ProCare calls to Healthline.

A small proportion self-referred to ED after receiving self-care advice for their injury

A small proportion of people given self-care advice for an injury self-referred to ED within the next three hours (one percent) and just nine percent resulted in an ACC claim overall, mostly lodged by GPs (91 percent). Visiting a provider in the days following a Healthline call may be appropriate if symptoms have worsened.

Figure 11: Proportion of injury-related Healthline calls with an ACC claim in the next four days, January 2016–December 2017



Source: Homecare Medical and ACC data, Sapere graph

Poisons line

Only three percent of Poisons line calls were followed by a claim in the next four days

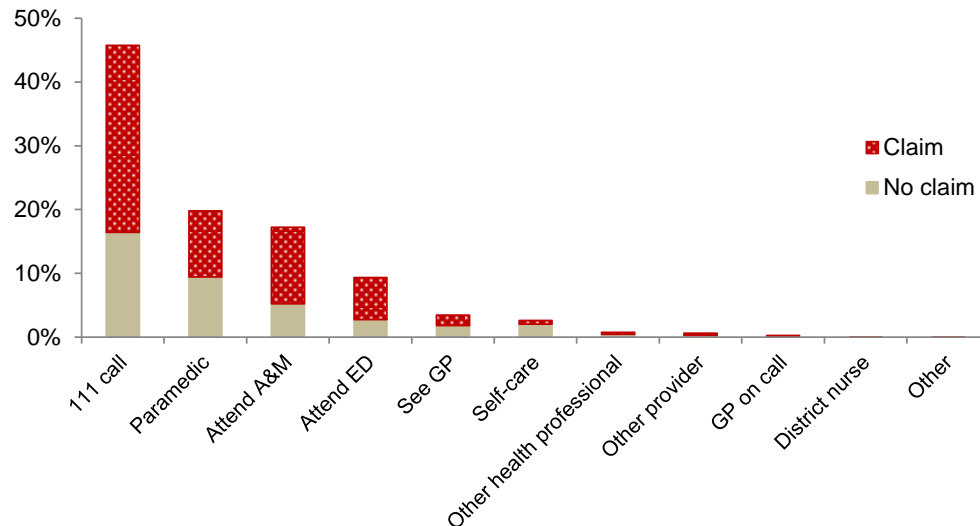
A medical referral was made for 12 percent of calls to Poisons line. The vast majority of calls to Poisons line did not require a medical referral; 41 percent had an outcome of no treatment and another 41 percent of self-treatment. Only three percent of Poisons line calls were followed by a claim in the next four days.

Ambulance secondary triage

Around one-quarter of ambulance triage calls were injury-related

Figure 12 shows the nurse triage outcomes of these calls.

Figure 12: Outcomes of injury-related ambulance triage calls, January 2016–December 2017



Source: Homecare Medical and ACC data, Sapere graph

Sixty-one percent of injury-related ambulance triage calls were followed by an ACC claim in the next four days

- Nearly half of all calls were transferred back to 111. A claim was lodged for most of these people within four days.
- Around one in five calls have an outcome of 'paramedic'. There is a claim for around half of these people within four days.
- Most people advised to attend ED comply (79 percent). We would expect compliance to be high, given someone has originally called 111.
- When ambulance secondary triage directed people to an A&M, around one-quarter self-referred to ED within three hours.

Evaluation findings – value for money

Cost per contact

We estimated the average cost per **injury-related contact to be** [REDACTED], based on [REDACTED] contacts in 2017 at a cost to the funders of [REDACTED] million. The cost per injury-related contact is higher than the Healthline cost, largely due to the higher cost per contact to the Poisons line (Table 4)

Table 4: Cost per injury-related contact in 2017

Line	Contacts	Cost	Cost per contact
Ambulance triage	9,000	██████	████
Healthline	26,000	██████	████
Poisons line	23,000	██████	████
Total	58,000	██████	████

Value for money

We focus on the value for money of the Poisons line as it makes up the biggest component of injury-related spending in the NTS, █████m in 2017.

Poisons line

We have not explicitly assessed the value for money of the Poisons line. However, we expect that the Poisons line offers relatively good value for money based on how we observe the service in New Zealand and reports of overseas Poisons lines being good value for money.

The Poisons line runs a robust process with its advice. For example, each call is reviewed by two other staff to ensure a high level of advice is given. The Poisons line is also a specialist service. Both the public and health specialists contact the Poisons line for advice. This high level of specialisation leads to a high rate of calls (70 percent) not being referred on to other health services.

Internationally, there is strong support for National Poison Centres. The World Health Organization (WHO) endorses Poison Centres (WHO no date) and the European Union members are mandated to have a Poisons Centre (European Commission no date).

The cost per contact per Poisons line call seems high, at █████. However, we are uncertain whether this cost is reasonable or not. First, the Poisons team does more than take calls. It is involved in updating the poisons database for New Zealand and it educates and supports clinicians. We have not attributed costs to this activity. Second, we were unable to identify and thus compare the costs of running Poison centres in other countries.

Healthline

When we assessed the value for money for all Healthline contacts, both injury and non-injury, we concluded the value for money is uncertain.

Ambulance secondary triage

The value for money of ambulance triage has previously been assessed by Sapere, on behalf of St John ambulance service (Moore, Loan & He 2015). The key finding was that the pilot resulted in a reduction in ambulances dispatched thus creating savings that more than covered the cost of running the triage service; hence the pilot service was estimated to be cost-saving.



Part 3:
Recommendations

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14. Recommendations

We make the following recommendations based on the Phase 2 evaluation.

NTS whole-of-service

- Continue to improve data collection, quality and access.
- Demonstrate the value of the NTS to the wider health sector, particularly to DHBs.
- Continue to strengthen NTS as an equity-led service.

Healthline

- Work with the wider health sector, including users, to determine the future potential for Healthline in a rapidly changing health system.
- Continue to work with DHBs to identify how Healthline can best support their services, given its scale and function.
- Develop a more targeted approach to promote and deliver Healthline to ensure its limited capacity is used to service the populations with the greatest unmet need.

NTS injury-related service

- Determine the validity and investigate the use of clinical triage injury question sets to provide a more accurate view of injury-related service use and outcomes.
- Continue to fund ambulance secondary triage and Poisons line to support and reassure people with injuries and direct them to the correct care.

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