Stroke FOUNDATION

Submission

Australian Government Regional Telecommunications Review 2018

Overview

The Australians Government can harness telecommunications technology to transform emergency stroke treatment for regional and rural Australians.

This year, more than 56,000 Australians will suffer a stroke – many of these strokes will be experienced by regional and rural Australians.[1] In fact, regional and rural Australians are 19 percent more likely to suffer a stroke than their city counterparts[2].

Regional and rural Australians are also more likely to die from stroke or be left with a serious disability because they do not have access to best-practice stroke services and specialists who are mostly located in metropolitan areas.

Strokes impact on regional and rural Australia is predicted to increase. By 2050 it is estimated the number of strokes in Australia will more than double to 132,500[3].

Telecommunications technology and more specifically telehealth will remove geographical barriers to emergency stroke treatment. It will help ensure all Australians, no matter where they live will have access to better health care.

As the voice of stroke in Australia, the Stroke Foundation welcomes the Australian Government's Regional Telecommunications Review for 2018.

This submission outlines the future of emergency stroke treatment, and potentially emergency medicine in general, for regional and rural Australians. It details the proposed Australian Telestroke Network (ATN) and enablers to harness telecommunications technology to deliver it.

1 Deloitte Access Economics. 2017. Stroke in Australia – No postcode untouched.

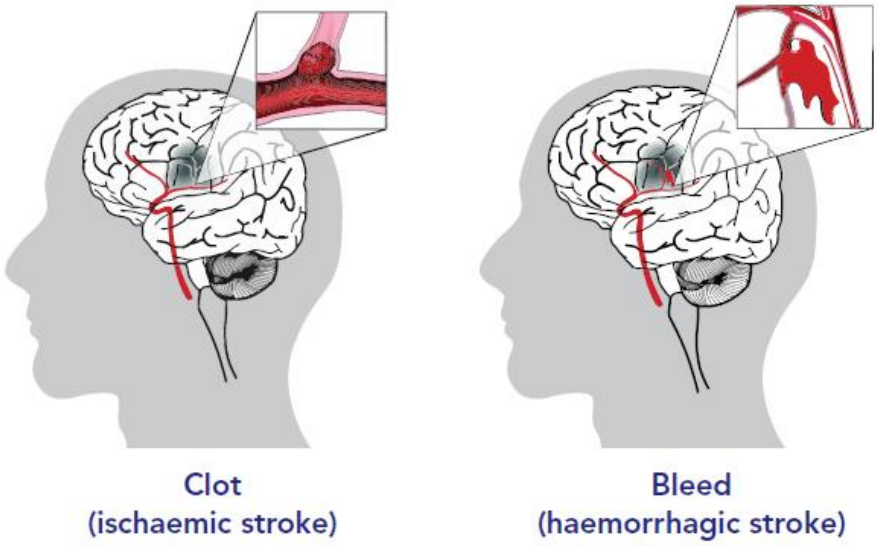
2 Ibid.

3 Ibid.

What is a stroke?

Stroke attacks the brain – our most vital organ. A stroke occurs when blood supply to the brain is cut off because of a clot blocking an artery (an ischaemic stroke) or due to a burst artery (haemorrhagic stroke). When blood supply to the brain is blocked brain cells begin to die at a rate of 1.9 million a minute.[4]

Every stroke is different depending on where in the brain it strikes and how severe it is. What is common is the devastation it can cause the survivor, their carer and family.



The impact of stroke

Stroke is a leading cause of disability for Australians, placing a significant burden on the community, health system and economy. Consequences of stroke can include:

- Weakness or paralysis of the face, arm or leg.
- Blurred vision or loss of vision.
- Difficulties communicating, speaking or understanding.
- Difficulty with memory and thinking.
- Problems completing everyday activities such as dressing and eating.

4 Saver JL. Time is brain – quantified. Stroke. 2006; 37(1): 263-6

The economic impact of stroke in Australia

A Deloitte Access Economics study commissioned by the Stroke Foundation to investigate the economic impact of stroke in Australia, estimated that the total financial costs of stroke in Australia were $5 billion in 2012.[5] It is important to note that at this time Australians experienced 49,000 strokes per year and there were around 420,000 stroke survivors in the community, this number has since increased. The largest cost component was productivity costs ($3 billion), while health costs also presented a significant cost at $881 million. Carer costs were estimated to be $222 million.[6]

Largely reflecting productivity costs, individuals bear the greatest financial burden of stroke ($2.2 billion in 2012).[7] The Federal Government bore $1.5 billion of the costs, or $3,507 per person, while State Governments bore $233 million, families and friends bore $67 million, and employers bore $407 million.[8]

There are currently approximately 142,500 Australian stroke survivors who are of working age (between 18 and 65 years) and increasing rates of young or working age stroke have been observed internationally[9]. This increased incidence of stroke in younger people is thought to be due to - at least in part - an increase in modifiable risk factors such as hypertension, diabetes and obesity. Importantly, health and social care services are not well set up to deal with younger stroke survivors. Therefore, many are returning home without the necessary follow-up therapy and support needed to resume everyday life, including returning to work.

This comes at a significant cost, not only to the individual but to their family, health and social care services, and the economy.

It was estimated that in 2012, the cost of lost earnings caused by reduced employment due to stroke in people of working age in Australia was $975 million.[10] In addition, the cost of absenteeism and lost home production due to stroke was estimated to be $1.14 billion, while the cost of presenteeism (lower productivity while at work) was estimated to be $0.7 billion.[11]

5 Deloitte Access Economics. 2013. The economic impact of stroke in Australia.

6 Ibid.

7 Ibid.

8 Ibid.

9 Feigin VL, Forouzanfar MH, Krishnamurthi R, et al; Global Burden of Diseases, Injuries, and Risk Factors Study 2010 (GBD 2010) and the GBD Stroke Experts Group. Global and regional burden of stroke during 1990-2010: findings from the Global Burden of Disease Study 2010. Lancet. 2014 Jan 18; 383(9913):245-54.

10 Deloitte Access Economics. 2013. The economic impact of stroke in Australia.

11 Ibid.

Treating stroke

Stroke is a serious medical emergency requiring urgent medical attention, but with the right treatment at the right time many people can recover from stroke.

‘Time is brain’ therapies

Approximately 80 percent of strokes are caused by a blood clot that blocks a blood vessel in the brain (ischaemic stroke).[12] There have been significant advances in stroke treatment that have improved survival and reduced disability. These treatments are time critical and can only be provided within the first few hours of a stroke. The earlier treatment is delivered, the better the outcomes for patients.

- Thrombolysis (clot dissolving treatment) must occur within the first 4.5 hours of stroke symptoms occurring. Thrombolysis involves administering a drug which can break down and disperse a clot that is preventing blood from reaching the brain.[13]
- Endovascular thrombectomy (removal of a clot by retractable mechanical device) is generally administered within six hours of stroke symptoms occurring.[14] A large clot blocking a vessel is removed via an artery (intra-arterial approach) and has been shown to be highly effective. New research now entering stroke guidelines has shown this treatment is also beneficial up to 24 hours after symptom onset in selected patients.[15, 16] Endovascular thrombectomy requires highly specialised teams and is restricted to major metropolitan hospitals. However, the expanded time window increases the potential access to this therapy for regional and rural patients.

  Endovascular thrombectomy was pioneered by Australian researchers; however, access to this breakthrough treatment remains limited.

Stroke unit care

Building on time critical treatment, access to a stroke unit is proven to save lives and reduce disability caused by stroke. Stroke unit care is characterised by provision of care in one location by an interdisciplinary team including medical, nursing and allied health professionals (occupational therapists, physiotherapists, speech therapists, speech pathologists, social workers and dieticians) with expertise in stroke.

12 Feigin VL, Lawes CM, Bennett DA, et al. Stroke epidemiology: a review of population-based studies of incidence, prevalence, and case-fatality in the late 20th century. Lancet Neurol. 2003; 2(1):43-53.

13 Emberson J, Lees KR, Lyden P, et al; Stroke Thrombolysis Trialists' Collaborative Group. Effect of treatment delay, age, and stroke severity on the effects of intravenous thrombolysis with alteplase for acute ischaemic stroke: a meta-analysis of individual patient data from randomised trials. Lancet. 2014; 384(9958):1929-35.

14 Goyal M, Menon BK, van Zwam WH, et al; HERMES collaborators. Endovascular thrombectomy after large-vessel ischaemic stroke: a meta-analysis of individual patient data from five randomised trials. Lancet. 2016; 387(10029):1723-31.

15 Nogueira RG, Jadhav AP, Haussen DC, et al; DAWN Trial Investigators. Thrombectomy 6 to 24 Hours after Stroke with a Mismatch between Deficit and Infarct. N Engl J Med. 2018; 378(1):11-21.

16 Albers GW, Marks MP, Kemp S, et al; DEFUSE 3 Investigators. Thrombectomy for Stroke at 6 to 16 Hours with Selection by Perfusion Imaging. N Engl J Med. 2018; 378(8):708-718.

The over representation of stroke in regional Australia

Regional Australians are 19 percent more likely to suffer a stroke than those in metropolitan areas and are also more likely to die or be left with significant disability as a result of stroke.[17]

Roughly one-third of Australia's population live in rural, regional and remote areas of the country, which equates to approximately 7 million people. Statistics have shown the further people live from major Australian cities, the poorer their health and the lower their life expectancy.[18] Communities in regional areas are over represented in part, due to an aging population.

These figures are disturbing yet echo a widespread issue of health inequality across Australia.

Hospitals with specialist staff and stroke units are proven to deliver improved outcomes for survivors, but due to the small numbers of patients treated for stroke, many rural hospitals do not have stroke units or specialist treatment and care teams.

Many stroke specialists, who play an essential role in diagnosing and treating stroke, work predominantly in metropolitan areas.

Regional inequality of access to best-practice stroke treatment

Surviving and living well after stroke does not need to be determined by your postcode.

Currently, regional and rural Australians have limited access to 'time is brain' therapies and it is costing lives and devastating families.

The 2017 Stroke Foundation Acute Audit found that among the 127 Australian hospitals that participated (including 45 regional and one rural)[19]:

- 53 percent of regional hospitals offered thrombolysis as an acute stroke treatment 24/7, compared with 83 percent of metropolitan hospitals. This discrepancy is an underestimate as regional hospitals participating in the audit process are more likely to have stroke-interested clinicians.
- 47 percent of patients in regional areas received stroke unit care compared to 77 percent of metropolitan patients.

It is not practical to expect all hospitals to have dedicated onsite stroke specialist services 24/7. Some may only have a small number of stroke admissions per year.

The Acute Stroke Clinical Care Standard recommends all patients with suspected stroke are offered treatment in a stroke unit as defined in the Acute Stroke Services Framework 2015. Smaller hospitals need appropriate systems to rapidly screen and transfer patients with stroke to the nearest dedicated stroke unit or where access to time critical treatments is available.

Harnessing telecommunications technology through the Australian Telestroke Network (ATN) will remove access barriers to best-practice emergency stroke treatment. It also has the potential to pave the way for improved access to best-practice emergency treatment for a range of other emergency health conditions.

17 Deloitte Access Economics. 2017. Stroke in Australia – No postcode untouched.

18 http://myhealthycommunities.gov.au/our-reports/Life-expectancy-and-PAD/september-2106/view-the-data

19 Stroke Foundation. National Stroke Audit Acute Services Report 2017. Melbourne, Australia.

The reality of stroke in regional and rural Australia

Stephen and Tracey Ward, regional New South Wales

Stephen Ward is a well-regarded member, and councillor, in the Muswellbrook community. Stephen suffered a stroke when he was 48.

When Stephen lost his speech and could not lift his right arm his wife Tracey immediately knew it was serious. Fortunately, Tracey recognised the signs of stroke and didn't waste a second in dialling triple zero (000).

However, despite Tracey's advocacy that Stephen was having a stroke, the attending paramedics transported Stephen to the nearest local hospital. The hospital was small and not equipped to treat stroke.

The team at the local hospital knew Stephen was suffering a strok they needed (a CT brain scanner) or the expertise to safely diagnc

Time was ticking, and brain cells were dying.

A helicopter was called to transfer Stephen to a larger regional hospital for specialist stroke treatment.

But again, Stephen continued to wait – more time, more brain.

By the time Stephen arrived at the regional hospital, it was too late for emergency clot dissolving therapy to be administered.

Consequently, Stephen has been left with physical, communication and some cognitive deficits (fatigue and memory). Stephen is mainly confined to a wheelchair, however can walk with a cane for short distances. Prior to his stroke, Stephen was an engineer and active member of the local council. Today, he is learning to read and write again by sharing books with his young son Patrick, aged 6.

"The one thing I always remember is the doctor in charge of intensive care saying it took us too long to get to the stroke unit," Tracey said.

"How are rural patients supposed to get to hospital in time.

"We need to make it better for regional and rural people because we deserve the same treatment as those in the city."

An Australian Telestroke Network (ATN)

The Australians Government can harness telecommunications technology to transform emergency stroke treatment for regional and rural Australians.

All Australians need and deserve access to world-class stroke treatment. Where you live should not determine if and how well you live after stroke. Treatment available to people living in regional and rural Australia should be equivalent to that accessible by their metropolitan counterparts.

Innovative telecommunications technologies provide an opportunity to ensure regional and rural Australians have the same access to evidence-based stroke treatment and care as those living in the city.

Telemedicine for stroke (telestroke)

Telemedicine for stroke (telestroke), in which patient-practitioner consultations are undertaken using audio-visual technology rather than face-to-face interactions, has been in use since the 1990s. Extensive telestroke networks, typically consisting of a stroke centre 'hub' servicing several 'spoke' hospitals, have been established (and are working well) in Europe and North America.

There is now strong evidence to show that this model of care increases timely access to clot dissolving treatment[20, 21, 22], and the identification of patients eligible for clot removal treatment. Therefore, patients assessed by stroke telemedicine are more likely to survive and return home without significant disability.

International studies have indicated telestroke networks are cost-effective from a long-term, societal perspective[23, 24, 25], with the initial costs required to establish the service balanced over the longer term by the reduced need for rehabilitation and advanced nursing care when there is increased use of thrombolysis.

In Australia, several state jurisdictions have implemented telestroke pilots to evaluate the merits of this digitally-enabled model of care. These projects have identified telecommunications enablers to delivering telehealth services to regional and rural Australia.

20 Emberson J, Lees KR, Lyden P, et al; Stroke Thrombolysis Trialists' Collaborative Group. Effect of treatment delay, age, and stroke severity on the effects of intravenous thrombolysis with alteplase for acute ischaemic stroke: a meta-analysis of individual patient data from randomised trials. Lancet. 2014; 384(9958):1929-35.

21 Bladin CF, Cadilhac DA. Effect of telestroke on emergent stroke care and stroke outcomes. Stroke. 2014; 45(6):1876-80.

22 Ickenstein GW, Horn M, Schenkel J, et al. The use of telemedicine in combination with a new stroke-code-box significantly increases t-PA use in rural communities. Neurocrit Care. 2005; 3(1):27-32.

23 Nelson RE, Saltzman GM, Skalabrin EJ, Demaerschalk BM, Majersik JJ. The cost-effectiveness of telestroke in the treatment of acute ischemic stroke. Neurology. 2011; 77(17):1590-8.

24 Switzer JA, Demaerschalk BM, Xie J, et al. Cost-effectiveness of hub-and spoke telestroke networks for the management of acute ischemic stroke from the hospitals' perspectives. Circ Cardiovasc Qual Outcomes. 2013; 6(1):18-26.

25 Ehlers L, Müskens WM, Jensen LG, et al. National use of thrombolysis with alteplase for acute ischaemic stroke via telemedicine in Denmark: a model of budgetary impact and cost effectiveness. CNS Drugs. 2008; 22(1):73-81.

Victorian Stroke Telemedicine Program

A comprehensive telestroke service has been successfully delivering stroke care in Victoria since 2010 and is showing encouraging results.

The first of its kind in Australia, the Victorian Stroke Telemedicine (VST) Program began as a single-site 12-month pilot project. The objective of the Program was to develop an effective and sustainable model of stroke telemedicine for regional hospitals in Victoria, providing them with access to a network of neurologists 24 hours per day, seven days a week, 365 days a year. The Program was successfully scaled up, initially to four sites, and eventually to 17 sites. In April 2018, the program delivered a record 150 consultations during the month.

The VST Program has demonstrated the ability to facilitate rapid clinical decision-making and treatment of stroke by seamlessly connecting regional emergency departments to a roster of metropolitan-based neurologists all day, every day.

The technology utilised has been purpose built for telemedicine and is fully integrated. It facilitates the examination of patients, review of patient CT brain images and completion of clinical notes to be included in a patient's medical record, allowing stroke specialists to be able to provide rapid clinical support remotely.

Major achievements of the VST Program include:

- More than 3000 initial consultations performed.
- More than 450 patients identified as meeting the criteria to receive thrombolysis (clot dissolving therapy).
- More than 120 patients referred and transferred to metropolitan comprehensive stroke centres for endovascular clot retrieval.
- 30 minute reduction in door-to-needle time (the crucial timeframe from emergency department arrival to administration of thrombolysis and/or commencement of endovascular clot retrieval that is directly linked to improved patient outcomes).
- 23 percent increase in patients with acute stroke treated with thrombolysis within 4.5 hours of symptom onset.
- One in three VST calls (1,000 calls) is not a stroke (ie. other diagnoses are made) thus proving the wider benefits of the telehealth service
- Delivery of thrombolysis to appropriate patients in 2017 was 19%[26], up on the national average of 13%Stroke Foundation Audit data showed thrombolysis rates in Victoria increased from 13% in 2015 to 19% in 2017 (national average

Recognition of the patient benefits of the VST has seen the Victorian Government commit ongoing funding for the Program which is now run by Ambulance Victoria as an emergency clinical service, providing regional hospitals with 24/7 access to stroke specialists.

[26] Stroke Foundation National Acute Stroke Audit 2017

Damian O’Brien, regional Victorian[27]

Damian O’Brien, a diesel mechanic from Traralgon in the West Gippsland region of Victoria, had his stroke at the age of 22.

The ruckman for Hill End was coming towards the end of an evening training session when a friend noticed that his face had dropped and his speech was slurred. Recognising the F.A.S.T. (Face, Arms, Speech, Time) signs of stroke, his friends at the club dialled tipple zero (000).

Unable to feel the left side of his body, he arrived at the Latrobe Regional Hospital, a VST site, underwent a CT scan and was assessed by a neurologist in Melbourne via videoconference, before being administered a clot-busting drug.

Within 24 hours, Damien had regained movement in his left side. Within one month of the stroke, Damian was back at work and driving.

27 Charalambous S. From strength to strength. Latrobe Valley Express. 2016, 9 June.

Western Australia Country Health Service (WACHS) Acute TeleStroke Service

In Western Australia, the Western Australian Government WACHS Acute TeleStroke Service links country emergency department teams with Perth-based stroke specialists using mobile wireless telecarts in Bunbury, Albany and Busselton emergency departments. This service operates Monday to Friday between 8am and 5pm, and is focused on improving the quality of, and equity of access to, acute stroke care for those in regional and rural areas of the state.

Major achievements of the WAHS Acute TeleStroke Service include:

- 52 percent increase in stroke neurologist emergency department consultations (from 13 percent in 2015-16 to 65 percent in 2017-18).
- 200 acute stroke patients received a telestroke consultation in 2017-18.
- Increase from one patient receiving thrombolysis in 2016-17 to nine in 2017-18 (July).
- Patients receiving endovascular thrombectomy increased from 18 in 2016-17 to 26 in 2017-18 (July).
- Dramatic improvements in clinical outcomes and reduced disability for patients assessed via telestroke.
- 300 telestroke consultations occurred for non-stroke patients in 2017-18, proving the wider benefits of the telehealth system.

The demonstrated success of the Acute telestroke services has led to plans to expand the Acute TeleStroke Service in the future to provide 24/7 access to consultations for WACHS healthcare sites.

Kate Haddrill, regional Western Australian

Bunbury senior Kate Haddrill was at home when she suffered her stroke. Kate had been making the bed and fell twice.

On their way to the hospital the paramedics notified Bunbury Regional Hospital they suspected Kate had suffered a stroke. By the time Kate arrived at the hospital an emergency department doctor was waiting by the door with the hospital's portable wireless videoconferencing telecart. On the other end of the line was a neurologist at Perth's Fiona Stanley Hospital (FSH).

From his desk at FSH, the stroke specialist was able to examine Kate via the telecart, observing her speech loss and facial droop on the right side. Following conversations with Kate's husband Ivan, and her treating doctor at Bunbury Regional Hospital, the specialist recommended a course of action.

Kate was immediately transported by helicopter to the Neurological Intervention and Imaging Service of WA (NIISWA) unit at FSH, and underwent an endovascular clot retrieval procedure four hours later.

A few days after her surgery, Kate was transferred back to Bunbury Regional Hospital. After two weeks of high intensity stroke rehabilitation, including physiotherapy and speech and occupational therapy, Kate was able to return home.

New South Wales Northern Sector Telestroke Proof of Concept

The New South Wales (NSW) Northern Sector Telestroke Proof of Concept, led by the state government's eHealth NSW and the Agency for Clinical Innovation, is breaking down barriers to time-critical treatments for stroke sufferers in regional NSW. The project aims to ensure timely access to neurological assessment, treatment and management of hyper-acute stroke patients across regional sites within three Local Health Districts (LHDs).

Regional hospitals are connected to a virtual team of neurologists at the John Hunter Hospital Comprehensive Stroke Centre who can provide rapid treatment advice for patients who present to the emergency department with stroke symptoms. The initial phase of this project is underway in the Mid North Coast LHD, linking hospitals at Coffs Harbour and Port Macquarie.

Between January and June 2018:

- 50 patients received telestroke consultations.
- 17 patients received thrombolysis.
- 10 patients were transferred and received endovascular clot retrieval.

While these results are preliminary, they demonstrate the impact telehealth can have, and the project is already making a difference to the delivery of stroke services on NSW's Mid North Coast.

There are plans for the service to be expanded to include hospitals in the Hunter New England (Tamworth, Taree and Armidale) and Central Coast (Wyong and Gosford) LHDs ahead of potential statewide implementation.

Country Health South Australia (CHSA) Telestroke Pilot

A telestroke pilot project is also currently underway in South Australia. The pilot is being led the South Australian Government's CHSA.

Neurologists at metropolitan stroke units (Royal Adelaide Hospital and Flinders Medical Centre) support stroke patients at the state's 61 country hospitals 24 hours a day, seven days a week, via phone and videoconference.

Adelaide-based neurologists are able to examine patients remotely and support the local care team to determine the most appropriate care pathway for the patient. This could include accessing specialised stroke care close to home, or transfer of the patient to Adelaide for thrombolysis or endovascular clot retrieval.

During the first five weeks of operation of the service, there have been:

- 14 telestroke consultations.
- One patient who received thrombolysis.
- One patient who received endovascular clot retrieval.
- Two patients who received thrombolysis and endovascular clot retrieval.

An Australian Telestroke Network

An Australian Telestroke Network (ATN) will harmonise emergency stroke telehealth models currently in operation or being piloted across Australia, it will leverage existing assets and capabilities to benefit patients and the community. It will harness technology to bring governments, consumers, clinicians and industry together to support high-quality sustainable health and care for all, today and into the future.

Utilising telecommunications technology, the National Broadband Network (NBN) and tapping into My Health Record, the ATN will create a national, cohesive and integrated digital health ecosystem.

The benefits for Australians and the Australian health care system are:

- Ensuring rapid assessment and diagnosis of suspected stroke patients in regional areas by metropolitan-based stroke specialists.
- Ensuring regionally-based clinicians are supported 24/7 to administer thrombolysis (clot busting) treatment and/or arrange a transfer to a comprehensive stroke centre for endovascular thrombectomy (clot removal).
- Enabling more stroke patients in regional areas to survive, avoid significant disability and live well after stroke, reducing the burden on individuals, their families, the community and the health system, thus increasing productivity and strengthening our economy.
- Improving stroke care coordination within regional hospitals.
- Building capacity of regional clinicians and hospitals.
- Increasing awareness of the F.A.S.T. (Face. Arms. Speech. Time) signs and symptoms of stroke in regional communities.

Enablers for the delivery of an Australian Telehealth Network

1. Internet bandwidth and speed

Telecommunications technology and suboptimal internet connectivity are current barriers to the effective utilisation of digitally-enabled models of care such as telestroke, widening the 'digital divide' between the city and the country.

A 2016 'Rural Health Issues Survey' of rural doctors conducted by the Australian Medical Association, identified access to reliable, high-speed broadband internet services as a critical factor for improving healthcare delivery in regional, rural and remote areas of Australia.[28]

Approximately 89 percent of Australians living capital cities have an internet connection at home compared with 80 percent of those living in non-urban areas.[29]

In addition, for many of those living in rural and remote communities, mobile coverage can be variable or absent, with internet use via mobile phone significantly higher in capital cities (60 percent) compared with non-urban areas (37 percent).[30]

For people living in rural and remote areas of Australia, telecommunications services lag behind those in urban centres in terms of speed and download limits, largely because of the challenges associated with establishing broadband infrastructure in these areas. For example, due to factors such as the distance from urban areas, low population density and difficulties posed by the terrain, the installation of data cables in rural and remote areas can be costly.[31]

To maximise their investment in digital health technologies, and innovative, enhanced models of care such as telestroke, quality, reliable, high-speed broadband internet services must be available to all Australians. The Government's NBN, the roll out of which is due for completion in 2020, will play a critical role in making this a reality.

Experience in South Australia

In South Australia, many smaller hospitals have bandwidth limitations. Therefore, these hospitals are only able to have a single videoconference call operating at any one time. Accordingly, the network has to be configured in such a way that if a second videoconference call attempts to launch from these locations it is blocked. While these restrictions maintain a consistent user experience it puts patient safety at risk. Priority is automatically given to the call that was launched first, irrespective of clinical urgency.

Upgrade bandwidth to smaller hospitals will provide a solution benefiting not only stroke patients, but all patients requiring telehealth consultations.

28 Australian Medical Association. 2016. Position statement on 'Better access to high speed broadband for rural and remote health care'.

29 Australian Communications and Media Authority. 2016. Regional Australians Online.

30 Ibid.

31 Steele R, Lo A. Telehealth and ubiquitous computing for bandwidth-constrained rural and remote areas. Personal Ubiquitous Comput 2013; 17: 533–543.

Experience in Western Australia

The WACHS delivers the Acute Telestroke Service and a community neurological nursing service via telehealth (TeleNeuroCare) to the central Wheatbelt population. TeleNeuroCare provides clinical services to telehealth-enabled clients in their homes, as well as neurological education sessions via telehealth to patients, their carers and families.

There have been several examples of impaired internet connections in regional Western Australian Wheatbelt areas during rainy or windy weather, and during peak usage periods (3pm to 6pm).

This has impacted the effectiveness of clinical telehealth sessions in patients' homes. Connections involving patients' mobile devices are worse affected than connections involving desktop computers. In approximately five to 10 percent of TeleNeuroCare appointments, internet connection issues prevent the successful completion of appointments in a patient's own home.

Importantly, variable mobile device connections have even been observed within larger regional towns.

2. Affordability of internet services and telehealth equipment

For people living outside of Australia's major cities, whose income on average is 15 percent lower than those in the city, a major barrier to access to quality internet services is a lack of affordability. This, coupled with the cost of telehealth hardware (computers, videos, or cameras) and software, can make it unaffordable for those patients in rural and remote areas wishing to participate in telehealth sessions from their own homes.

Another important consideration in rural and remote areas is the reliability of telecommunications technology, and the risk of equipment failure due to wear and tear or extreme weather conditions causing power outages. This can often present more problems in these areas, due to a lack of readily available expertise to repair and service equipment, and the expense of such expertise which is greater than in urban areas.

For regional, rural and remote hospitals and other health services to take full advantage of digitally-enabled services such as telestroke, affordable internet connectivity is essential. The Government must work with the telecommunications industry to ensure that high-speed broadband internet services are available in these areas at a reasonable cost.

Experience in Western Australia

In Western Australia, it has been observed that Telstra mobile device data costs are high relative to other providers; however, there is limited choice in some regional areas, with Telstra being the only available network.

In the TeleNeuroCare community neurological nursing service, the need for patients to use their own devices to participate in in-home telehealth sessions has limited the uptake of this service. Importantly however, there are several financial and logistical barriers to health services providing patients with loan devices for telehealth appointments.

3. Health literacy and digital ability

In comparison to people living in urban areas, those living in rural and remote areas of Australia have lower incomes, literacy levels (including health literacy) and educational attainment.

For those living in rural and remote areas health literacy is one of the factors that impacts significantly on their ability to effectively utilise digital health technologies. Health literacy refers to the degree to which an individual has the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.

Similarly, the digital ability of those living in rural and remote communities is generally much lower than in urban areas, and they often do not understand the benefits of telehealth services[32].

Government investment in community-based digital health education will help address the health literacy and digital ability needs of rural and remote Australians and increase the awareness and acceptance of telehealth services in these areas.

Experience in Western Australia

The patients who are eligible to participate in the TeleNeuroCare community neurological nursing service via telehealth are predominantly older, rural patients with varying levels of digital ability.

The success of telehealth appointments in patients' homes is dependent on each patient's ability to overcome technical issues, with approximately 15 to 20 percent of consultations involving technical issues related to device usage.

The WA State Telehealth Service (STS) is available to support patients Monday to Friday from 8am to 5pm, and they have had variable success depending on the patient's digital ability.

There is some capacity for the WA STS to connect to a client's computer 'back end' in order to address issues such as sound and vision quality, or to undertake an operating system upgrade.

32 Winterton R, Warburton J. Models of care for socially isolated older rural carers: Barriers and implications. Rural Remote Health 2011; 11:1678.

Conclusion

The Australians Government can harness telecommunications technology to transform emergency stroke treatment for regional and rural Australians.

Telecommunications technology and more specifically telehealth will remove geographical barriers to emergency stroke treatment. It will help ensure all Australians, no matter where they live will have access to better health care.

To ensure all Australians benefit from this innovation we must first ensure we have the enablers right. We must improve bandwidth and coverage for our regional and rural communities, we must ensure equipment is affordable and people are equipped with the skills and supports to maximise its benefits.

The National Broadband Network is a vital first step to addressing these challenges and the establishment of a National Digital Health Agency furthers that commitment, but we must go further.

In 2018 more than 56,000 Australians will suffer a stroke, many will be experienced by regional and rural Australians. Many of these regional and rural Australians will die or be left with significant disability from their stroke, but they do not have to.

Stroke can be prevented, it can be treated, and it can be beaten. Telecommunications and more specifically telehealth provides the key to stemming the tide of strokes impact on our regional and rural communities.

The Australian Government can make life better for regional and rural Australians, we welcome the Commission and its Regional Telecommunications Review.

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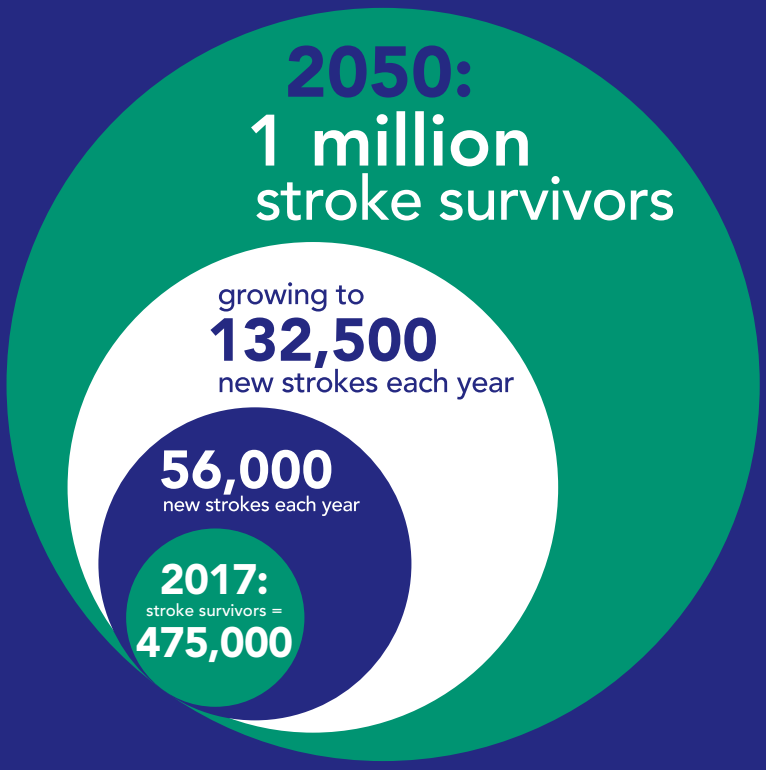
Stroke in Australia



Five stroke facts

- Stroke kills more women than breast cancer and more men than prostate cancer.
- One in six people will have a stroke in their lifetime.
- In 2017 an estimated 56,000 strokes occurred – one every nine minutes.
- One in three stroke survivors are of working age.
- Sixty-five percent of those living with stroke also suffer a disability that impedes their ability to carry out daily living activities unassisted.

About the Stroke Foundation

The Stroke Foundation is a national charity that partners with the community to prevent, treat and beat stroke. We stand alongside stroke survivors and their families, healthcare professionals and researchers. We build community awareness and foster new thinking. We support survivors on their journey to live the best possible life after stroke.

Stroke FOUNDATION

How to get more involved

- **Give time** – become a volunteer.
- **Raise funds** – donate or hold a fundraising event.
- **Speak up** – join our advocacy team.
- **Leave a lasting legacy** – include a gift in your Will.
- **Know your numbers** – check your health regularly.
- **Stay informed** – keep up-to-date and share our message.

Contact us

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