



# The O.P.E.N. Survey: outreach projects in Ear, Nose and Throat (ENT) in New South Wales

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**Background:** This study aims to map the coverage of Ear, Nose and Throat (ENT) outreach clinics in New South Wales (NSW) over a 5-year period [2012–2016]. It also aims to determine the extent of engagement in outreach work among NSW and ACT-based ENT surgeons over this period.

**Methods:** Online and telephone survey of ENT surgeons practising in NSW and ACT conducted between December 2016 and May 2017. The survey was designed to identify the location, frequency and the number of ENT surgeons providing outreach services in NSW. A secondary outcome of the survey was the current and future rates of participation in outreach projects by NSW and ACT-based ENT surgeons.

**Results:** Eighteen surgeons provided at least one ENT outreach service in NSW between 2012 and 2016. The average yearly commitment was 5.5 days (SD 4.2 days). Eighteen distinct towns in NSW received an outreach service. In the majority of cases, a visiting surgeon provided outreach services to the same town for at least three consecutive years. Surgeons who obtained their Fellowship of the Royal Australasian College of Surgeons (FRACS) after 2005 had the highest interest in future participation.

**Conclusions:** Approximately 1 in 5 NSW and ACT-based ENT surgeons perform outreach activities. The data suggests that many remote and rural towns within NSW are not receiving outreach services. Better coordination of services and a commitment to regular and well-constructed outreach programs could redress this imbalance. The expressed intention to become involved in future outreach programs, particularly among the younger surgeons, needs to be encouraged and supported for this to be realised.

**Keywords:** Otitis media; rural health; indigenous health; outreach; otolaryngology; ear

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## Introduction

Outreach clinics are an important means of providing direct face-to-face access to specialist care for those residing in remote areas. Otolaryngologists have been involved in Ear, Nose and Throat (ENT) outreach clinics for many years across Australia. The coordination of such services has generally been poor. In many circumstances, towns rely on the goodwill of volunteer surgeons who journey out to remote communities to conduct clinics. A better understanding of which surgeons travel to which towns and how frequently would benefit the efficient delivery of ENT care and avoid areas being neglected.

In New South Wales (NSW), three quarters of otolaryngologists live and practice in the four main metropolitan areas of NSW (Sydney, Newcastle, Gosford and Wollongong). Outside of these areas, only about ten regional towns in NSW have access to a locally-based ENT surgeon. For rural and remote patients, outreach services overcome the huge geographic divide and many of the associated financial costs and disruptions to family, community and work commitments often incurred when accessing urban-based care.

Outreach ENT services are particularly important for Australia's Indigenous and Torres Strait Islander people (hereafter Aboriginal people). For Aboriginal people, barriers to care can include factors such as the geographic remoteness of the community, socioeconomic status and the cultural appropriateness of provided services (1). NSW has the largest Aboriginal population of any state in Australia, estimated to be 216,000 in the recent census (2). The Aboriginal population is widely distributed across NSW as seen in *Figure 1*, with 55% living outside of the major cities (4).

Aboriginal people also experience a disproportionate burden of ENT-related conditions, most notably middle ear disease, but also head and neck cancer (5). Aboriginal children experience higher rates of chronic tympanic membrane perforation and chronic suppurative otitis media with prevalence of the latter in the range of 10.5–30.3% (6). These conditions require timely review by an ENT surgeon to avoid long-term hearing impairment and its consequent impact on speech and language development and educational attainment (7).

Previous health workforce surveys suggest Australian ENT surgeons have relatively high rates of outreach participation relative to colleagues from other specialties. National cross-sectional studies in 1997 and 2014 reported

participation rates of 29% (8) and 33% respectively (9). Both studies indicated continuity of care was high with many surgeons providing long-term care.

The current study examined in more depth the situation in NSW, focusing on where and how frequently outreach programs run in order to map the coverage across the state. Secondary outcomes included analysis of which bodies have funded these projects and also insights into what proportion of surgeons, not currently involved in outreach, might be interested in pursuing this in the future. We present the following article in accordance with the STROBE reporting checklist (available at <http://dx.doi.org/10.21037/ajo.2019.04.01>).

## Methods

The O.P.E.N Survey (Outreach Projects in ENT in NSW) was conducted between December 2016 and May 2017 using an 11-question survey administered online or over the phone.

Study design was completed with the consultation of ENT surgeons, Aboriginal medical practitioners, Allied Health professionals and public health academics and approved by the Aboriginal Health and Medical Research Committee (AHMRC) Ethics Committee (174/16).

### *Survey period*

Five-year period: January 1<sup>st</sup> 2012 to December 31<sup>st</sup> 2016.

### *Inclusion criteria for study cohort*

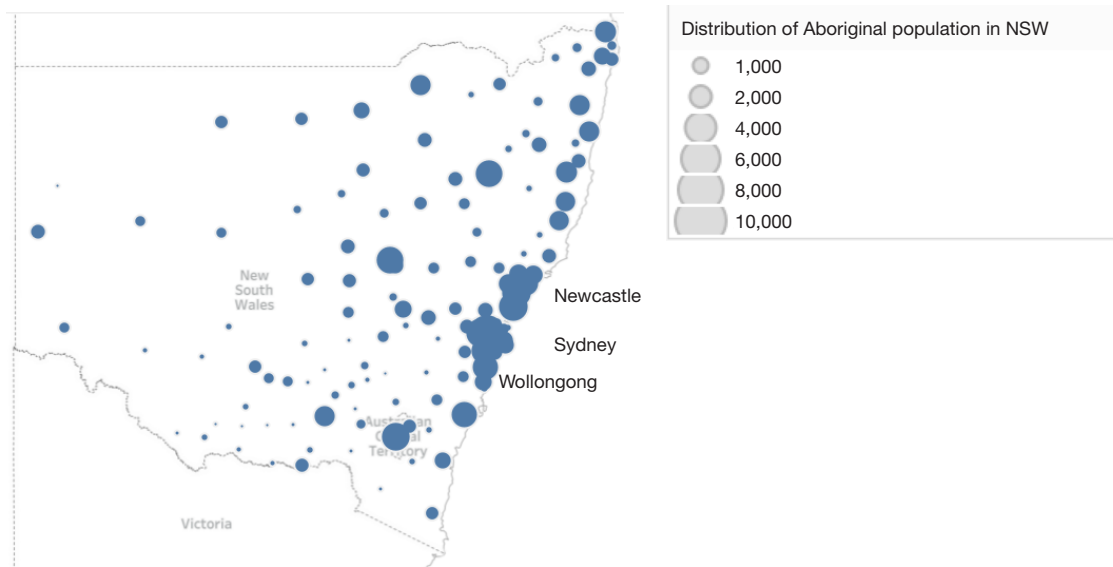
- ❖ Current practicing member of the Australian Society for Otolaryngology, Head and Neck Surgery (ASOHNS);
- ❖ Primary place of practice (as recorded in the ASOHNS membership directory) in NSW or ACT.

### *Exclusion criteria for study cohort*

Responses from retired surgeons or ENT surgical trainees.

### *The O.P.E.N. Survey (Table 1)*

The survey was conducted in two stages. A hyperlink to an online questionnaire was distributed to all active NSW/ACT members of ASOHNS via 3 emails over a 3-month

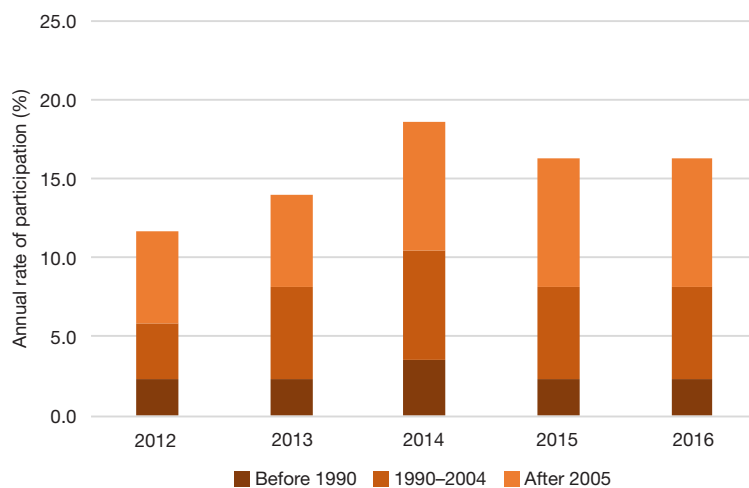


**Figure 1** Distribution of Aboriginal population in New South Wales (3).

**Table 1** O.P.E.N. survey questions

Question	Response options (where applicable)
In which year did you become a member of the Fellowship of Royal Australasian College of Surgeons (FRACS) in Otolaryngology?	–
In which state is your primary place of practice?	ACT; NSW; QLD; VIC; TAS; NT; WA; SA
Since January 1, 2012 have you been involved in at least one ENT outreach clinic in Australia but outside of NSW?	Yes; no
Since January 1, 2012 have you been involved in at least one ENT outreach clinic in rural or remote NSW?	Yes; no
Over the past 5 years, on average, how many full days of outreach ENT clinical work have you conducted per year in NSW?	–
When did your most recent outreach clinic in NSW take place?	In the last 3 months; in last 6 months; in the last year; in last 5 years; prior to 2012
Which of the following government or non-government organisations provides the majority of financial support for your outreach ENT clinical work in NSW?	Rural Doctors’ Network (RDN); Royal Flying Doctor Service (RFDS); Local Health District (LHD); Primary Health Network (PHN); Rotary Australia; The Poche Centre; self-funded; philanthropic individual or organisation; other
List the names of the NSW towns in which you have conducted ENT clinics since January 2012.	–
For each of the towns you listed what is the main source of financial support for your outreach work?	–
Would you like to conduct ENT outreach clinical work in Australia over the next 5 years (2017–2021)?	Yes; no
Do you have any general comments regarding outreach ENT service delivery?	–

ENT, Ear, Nose and Throat.



**Figure 2** Annual participation in ENT outreach service provision, 2012–2016. ENT, Ear, Nose and Throat.

period (December 2016 to February 2017). In May 2017, structured telephone calls were made to survey non-responders by 1 of 3 study investigators (G Shein, AJ Saxby and S Tobin). Telephone correspondence adhered to the same questions as found on the online questionnaire. Survey responses were collected and managed using the REDCap (Research Electronic Data Capture) online platform.

For the purposes of the study, an “outreach service” was defined as an ENT service delivered outside of an ENT surgeon’s contracted hospital commitments with NSW Health, ACT Health or other private healthcare providers. Responses were reviewed by three study investigators (AJ Saxby, G Shein and K Gwynne) and consensus reached regarding whether a surgeon’s reported activities constituted an “outreach service”.

Continuity of care was analysed by considering “surgeon-town relationships”, defined as one specific surgeon’s connection to a specific town, enabling evaluation of duration of any given relationship. A surgeon-town relationship might be one visit or continue for 5 years.

Responding surgeons were categorized according to the year of their fellowship conferral and grouped into 3 periods “Before 1990”, “1990–2004” and “After 2004” to compare differing levels of professional seniority.

The relative remoteness and socioeconomic status of each town were assessed using the Australian Standard Geographical Classification—Remoteness Area Category (10) and Index of Relative Socioeconomic Disadvantage decile (11) respectively.

### Data analysis

Statistical analysis was performed using Microsoft® Excel® Version 12.0 (California, 2008) and SPSS version 25 for Mac (Armonk, NY, USA).

### Results

The survey was sent to 141 ENTs, of whom 86 responded (30 in online format and 56 by telephone call), giving an overall response rate of 61.0%.

### Surgeon involvement

Between January 1 2012 and December 31 2016, 18 surgeons conducted at least one ENT outreach service in NSW. However, in any given year, the rate of participation was lower, averaging 13 surgeons (15%), as seen in *Figure 2*. A total of 498 days of clinical outreach were provided over the 5 years. Younger fellows (FRACS achieved post 2005) represented the largest subgroup, with nine surgeons responsible for 283 outreach days.

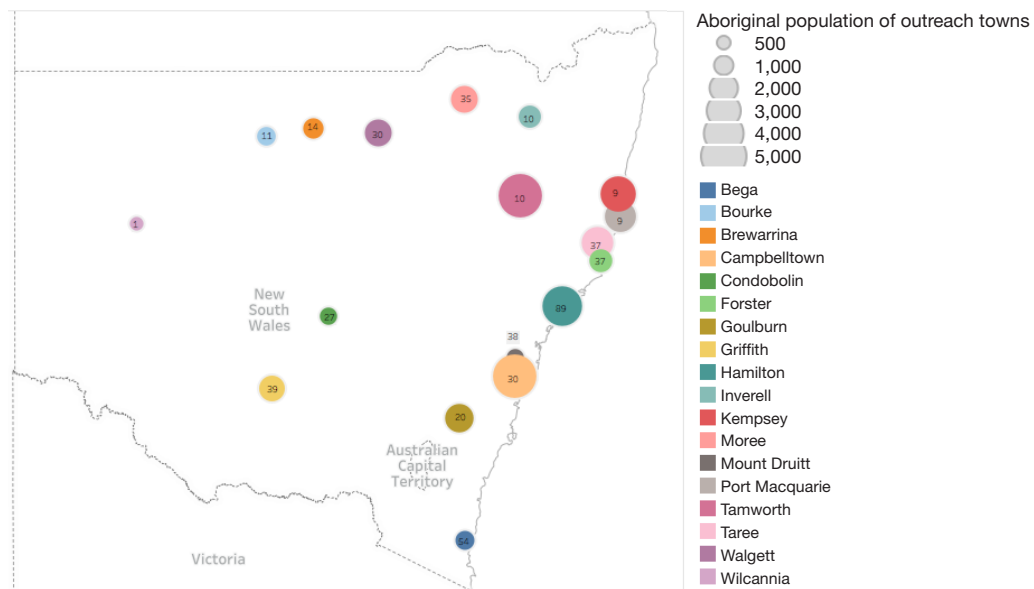
### Locations of outreach

Outreach ENT services were provided in 18 distinct towns in NSW over the 5-year period. A mean of 5.5 days (SD 4.2 days) of outreach ENT services per year was provided to each of these towns. *Table 2* shows the characteristics of the towns visited and the extent of outreach ENT service

**Table 2** Characteristics of towns receiving outreach ENT services 2012–2016 (n=18)

Town	Degree of rurality	Index of socioeconomic disadvantage (decile)	Surgeons providing outreach (n)	Total days outreach received, 2012–2016 (days)
Bega	Outer regional	4	2	54
Bourke	Remote	2	1	11
Brewarrina	Remote	1	2	14
Campbelltown	Major city	3	1	30
Condobolin	Outer regional	2	2	27
Forster	Inner regional	2	4	36.5
Goulburn	Inner regional	3	1	20
Griffith	Outer regional	4	2	39
Hamilton	Major city	4	4	89
Inverell	Outer regional	2	3	9.5
Kempsey	Inner regional	1	1	9
Moree	Outer regional	2	5	35
Mount Druitt	Major city	1	1	38
Port Macquarie	Inner regional	4	1	9
Tamworth	Inner regional	4	3	9.5
Taree	Inner regional	2	4	36.5
Walgett	Remote	1	1	30
Wilcannia	Very remote	1	1	1

ENT, Ear, Nose and Throat.



**Figure 3** Total outreach days relative to Aboriginal population of town, 2012–2016 (n) (3). \*, The number inside each circle represents the total number of days of outreach received for each town over the 5-year period surveyed.



Figure 4 Surgeon-town relationships, 2012–2016. \*, The bracketed number represents the total number surgeons that visited each town.

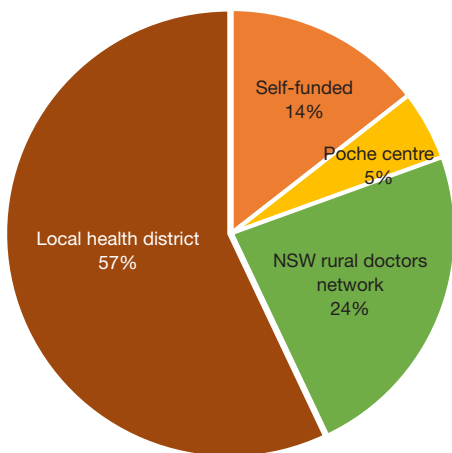


Figure 5 Funding of ENT outreach services, 2012–2016 (%). ENT, Ear, Nose and Throat.

received. In terms of geographic location, three towns were located in “Major cities” of NSW, six were in “Inner regional” locations, five were “Outer regional” and three were delivered in “Remote” NSW and one was delivered in a “Very remote” area within NSW. All outreach services

occurred in towns with an Index of Relative Socio-economic Disadvantage that fell within the lowest five deciles. The total days of outreach received by each town from 2012 to 2016 and the size of its Aboriginal population is represented in Figure 3.

**Continuity of care**

There were 39 distinct surgeon-town relationships over the 5 years, of which 31 were maintained for 2 years and 24 were maintained for at least 3 years. As Figure 4 shows, 11 towns received visits by more than one surgeon over the study period, with Moree receiving outreach services from five surgeons; the most of any town. The number of locations to which a given surgeon provided outreach ranged from 1 to 6, but the majority of surgeons visited just one location. Fifteen respondents involved in outreach work reported their last outreach activity occurred within the last 12 months.

**Funding**

The funders of surgeons’ reported outreach ENT services

**Table 3** Intended future involvement in ENT outreach, 2017–2021

Year awarded FRACS	Yes (n)		Total yes (n)	Total yes (% of cohort)	Possibly (n)	Potential pool of outreach surgeons (n)	No (n)	Total respondents
	Currently providing outreach (n)	No current outreach (n)						
Before 1990	2	6	8	42.1	1	9	10	19
1990–2014	5	9	14	56.0	2	16	9	25
After 2005	9	20	29	76.3	0	29	9	38
Total	16	35	51	62.2	3	54	28	82

ENT, Ear, Nose and Throat; FRACS, Fellowship of the Royal Australasian College of Surgeons.

in NSW is shown in *Figure 5*. A total 284 days were funded by the Local Health District (LHD), representing 57% of outreach days delivered. The NSW Rural Doctors Network (RDN) and the University of Sydney Poche Centre for Indigenous Health (Poche Centre) funded a further 117 days (23.5%) and 25 days (5%) respectively. Seventy-two days of outreach services (14.5%) were self-funded.

### *The future of ENT outreach*

A total of 51 surgeons (62.2%) were interested in providing an ENT outreach service over the next 5 years. Sixteen of these surgeons have been involved in outreach ENT service delivery between 2012 and 2016, whilst twice that number (n=35) who expressed interest have not been involved to date (*Table 3*). Only two surgeons currently involved in ENT outreach did not intend to continue their participation.

Surgeons who obtained their FRACS after 2005 recorded the highest rates of interest in future outreach work, 76.3% (n=29). By comparison, 56.0% (n=14) and 42.1% (n=8) of surgeons who were awarded FRACS between 1990 and 2004 and before 1990 respectively were interested in future outreach work.

Female surgeons reported a proportionately higher rate of interest in future outreach participation of 71.4% (10/14 respondents), compared with 60.3% of their male colleagues (41/68).

## **Discussion**

Outreach ENT services improve equity in access to this specialised care for Australians residing in rural and remote areas. They play a particularly important role in addressing the inequity in access to ENT care for Aboriginal people (12). Aboriginal children experience a higher prevalence of otitis media (13), middle ear disease-related

complications (14) and hospitalisation for ear disease. This burden of ear disease is greatest amongst Aboriginal people living in remote Australia (15) who, are also least able to access metropolitan-based ENT care and therefore most likely to benefit from an outreach service.

Specific data on the precise ENT needs of rural and remote communities in NSW and the extent to which they can be addressed through outreach services is not available. However, national data on access to consultations by ENT specialists suggest the needs of the NSW's Aboriginal population are not being met by current services. The Darwin Guidelines for management of otitis media recommend ENT specialist assessment within 6 months of referral by the primary care physician (16). In a survey of Aboriginal Medical Service General Practitioners in rural and urban practices, Gunasekera *et al.* found waiting times to see an ENT specialist exceeded 6 months in about 1 in 7 cases (14%). Similar unmet needs exist when considering access to ENT surgeries for Aboriginal people in NSW (17). Despite experiencing a much higher prevalence of otitis media, Aboriginal children in NSW experience lower rates of surgical treatment for this condition compared with their non-Aboriginal peers. This is mainly due to “differences in socioeconomic status and geographical remoteness” with rates of surgery lowest among children living in a remote community (18). Improved outreach services to deliver consultations and operations is therefore one important way in which these unmet assessments and surgical problems could be addressed.

Our survey found just 18 independent locations for outreach services, suggesting outreach coverage is sparse at best. Among these locations the remote and very remote towns (Bourke, Brewarrina, Moree, Walgett and Wilcannia) are most reliant on outreach services to overcome the barriers of accessing metropolitan-based ENT care. Given the socioeconomic disadvantage (shown in *Table 2*) and

relatively high burden of Aboriginal ear disease that exists in these remote towns there is, in fact, a need for higher than average levels of ENT services. We found, however, that these rural and remote towns appear to receive far less than their equitable share of ENT services. Across NSW there exists approximately one ENT surgeon per 50,000 population (19). Considering the example of Bourke, its population of 2,867 should ideally afford it about 69 days of outreach over a 5-year period, assuming all ENT services are equitably distributed across the state and ENT surgeons work 240 days per year. We found it received only 11 days of ENT outreach over this period, representing just 16.0% of this ideal standard. Similarly, the remote and very remote towns of Walgett, Moree, Brewarrina and Wilcannia all received far fewer days of outreach than would be equitable, ranging from 6.9–33.0% of the ideal standard. While some of the shortfall may be overcome by patients travelling to metropolitan centres it is unlikely to compensate for the degree of underservicing. Follow-up research will examine the extent to which patients from these areas are able to access outreach or permanent ENT services in larger towns. Linking outreach provision to the current and predicted population distribution would facilitate improved accessibility across the state.

The importance of regular and reliable outreach service delivery to communities is well-established. Several definitions of sustainability in the context of outreach medical specialist service delivery have been proposed (1) each of which emphasizes the importance of services being delivered on a regular basis, integrated with local services and supported by stable funding sources. It is reassuring to note that the study found approximately two-thirds of surgeon-town relationships spanned at least 3 years. This is significant as regular follow-up visits may positively impact on success rates of ENT procedures performed remotely (20).

Our study found that over half of the towns in receipt of outreach services were visited by more than one ENT surgeon over the 5-year period. Whilst assisting in the prevention of gaps in service provision, this can also lead to poor continuity of care. Building trust in the community with a regular surgeon, who shows regular commitment, is crucial for the success of the clinic and likely to lead to better participation and engagement.

Outreach specialist service delivery, including ENT services, has been a long-standing feature of healthcare in Australia. This was facilitated in 2000 by the introduction of a national health policy of subsidising specialist outreach

activities. At present Commonwealth Government funds ENT services in NSW through the Department of Health's Rural Health Outreach Fund and its NSW-based fund-holders NSW Health and the Rural Doctors' Network. The recently-established "Health Ears—Better Hearing Better Listening Program" also provides funding for certain ENT outreach activities. Outreach service delivery is also indirectly facilitated by the "Indigenous Ear and Eye Surgical Program" which support a range of activities that overcome barriers to surgical care. However, a significant proportion of outreach remains self-funded by ENT surgeons or philanthropic donation. While such altruism is commendable, it may lead to lower rates of sustained service delivery over the longer term. Greater efforts must be made to ensure surgeons interested in outreach work are connected with available funding sources and are prepared to make a long-term commitment to communities.

Overall, we found approximately one in five ENT surgeons from NSW and ACT have conducted outreach ENT activities in the last 5 years. This translates to a yearly commitment of approximately 5 days per surgeon, equating to an average of just under 100 outreach days per year. The enthusiasm for outreach evident in both younger fellows and more established surgeons must be drawn upon, creating more opportunities for all to become involved.

Charting of proportional outreach involvement over the last 5 years (*Figure 1*) shows a fairly steady rate of involvement at around 15%. It is reassuring that this rate is not decreasing, but translation of intentional involvement into actual outreach participation is critical to the success of future programs. Comments expressed within the survey regarding barriers to future involvement included: lack of awareness of how to get involved; lack of organization or coordination of clinics; lack of resources for establishing new clinics; poor patient participation; time constraints and family commitments; and funding concerns for time and travel involved.

A more unified approach to outreach care across the state and country could help address some of these concerns. While this survey focuses predominantly on fly-in fly-out services, these must be integrated with wheel-and-spoke and telehealth models of service delivery.

Compulsory outreach engagement during the training stage of ENT specialization could be another key step in improving knowledge of the extent of the problem, and exposure to the way such clinics can be successful in promoting ear health in rural communities and the benefits,



fulfilment and enjoyment that come from working in rural and remote communities. Hopefully, this would lead to an increased engagement in outreach services throughout their careers.

### *Limitations of our study*

Surveys of this nature rely on accurate reporting of involvement by the surgeons involved. Retrospective recollection of such data may have inaccuracies and has not been independently verified. Despite its respectable response rate of over sixty per cent of ASOHNS members, the survey is likely to have underestimated the full extent of outreach services delivered in NSW. Surgeons providing outreach may have failed to complete the questionnaire or be among the few surgeons without ASOHNS membership who were not surveyed. Overall, proportional involvement may have been overestimated as non-participants are less likely to have responded.

There are also problems with top-down approach to capturing all outreach work. By sampling only NSW/ACT surgeons the survey misses data from interstate surgeons travelling across the border. For example, while not surveyed in this study South Australia and Victorian-based ENT surgeons are known to provide outreach services to towns on the western border and southern borders of NSW respectively. A bottom up approach, assessing each individual town in NSW and the outreach services it receives would be an alternative but more challenging methodology.

### **Conclusions**

Approximately 1 in 5 surveyed NSW/ACT ENT surgeons are currently engaged in outreach ENT work. However, there is a significant pool of ENT surgeons, particularly younger surgeons, who intend to perform outreach work in the future. The skills and expertise of these surgeons must be channeled into well-coordinated and well-funded outreach programs. The delivery of outreach ENT services has, to date, often been piecemeal, ad-hoc and supply-driven. A more centrally-coordinated but needs driven approach should be considered to improve equity in access to ENT care and begin closure of the Ear Health Gap.

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### **Footnote**

*Reporting Checklist:* The authors have completed the STROBE reporting checklist. Available at <http://dx.doi.org/10.21037/ajo.2019.04.01>

*Conflicts of Interest:* All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/ajo.2019.04.01>). The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. This study was approved by the Aboriginal Health and Medical Research Committee (AHMRC) Ethics Committee (174/16). The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). Informed consent was obtained.

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