Geographic variation in referral practices for patients with suspected head and neck cancer: A survey of general practitioners using a clinical vignette

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Abstract

Introduction: General practitioners (GPs) play a crucial role in cancer care and GPs are often the first doctor that patients with symptoms suggestive of cancer will encounter. Head and neck cancer (HNC) is a relatively uncommon presentation in primary care, and evidence suggests that times to diagnosis and treatment of HNC vary based on geographical location of patients. This may be due to barriers to referral faced by regional or rural GPs as compared to those in metropolitan cities in Australia.

Objective: To investigate the effect of geographical location of GPs on management of patients with symptoms suggestive of HNC.

Design: This was a descriptive, analytical, cross-sectional survey. Surveys were sent to GPs at practices in two primary health care networks in New South Wales, Australia (Mid North Coast Primary Healthcare Network and the Central and Eastern Sydney Primary Healthcare Network) between February and May 2020. Main outcome measures were perceived time from referral to specialist appointment, factors affecting timeliness of patient help-seeking, and awareness and use of clinical guidelines.

Findings: A total of 1803 GPs were sampled, of which 196 responded (45 regional GPs and 151 metropolitan GPs). Less than half (48%) of regional GPs reported patients could expect to be seen by a specialist within 2 weeks of referral, compared to 70% of metropolitan GPs (p = 0.001). Most metropolitan GPs stated they would refer a patient with suspected HNC to a surgeon subspecialising in HNC. Regional GPs were split between ear, nose, and throat (ENT) and general surgeons. Availability of services was the most common factor influencing referral practices for regional GPs, whereas for metropolitan GPs, this was the patient's symptoms. Awareness of government resources for cancer referrals was generally low.
INTRODUCTION

Cancer is a leading cause of death in Australia, estimated to cause three in every 10 deaths. Early detection and timely treatment are crucial to optimising cancer survival. In Australia, general practitioners (GPs) are medical specialists with a broad remit, and analogous to family or primary care physicians in other countries. GPs play an important role in cancer care, from screening and diagnosis, coordinating care, management of side effects of cancer treatment, to survivorship and palliative care. GPs are often the first doctor a patient with symptoms suggestive of cancer will encounter. The GP then refers the patient for further diagnosis and treatment, but are frequently involved in coordinating ongoing care. Consequently, GPs are said to have a ‘gatekeeper’ role, which is critical to achieving well-coordinated, person-centred care and optimising patient outcomes.

Australian GPs are estimated to see only four new serious cancer diagnoses each year and among adults aged 45–64 years, an average of 3.4 patients are managed each year with malignant cancer as a chronic condition. Head and neck cancer (HNC) is particularly uncommon in Australia, accounting for 3.6% of new cancer diagnoses annually. HNC also demonstrates significant geographic variation in terms of stage at diagnosis and survival. The Cancer Australia Optimal Care Pathways for People with Head and Neck Cancers (OCP-HNC) suggest that patients with suspected HNC should be referred to a specialist associated with a multidisciplinary team within 2 weeks. This standard is mirrored internationally, particularly in the United Kingdom where the 2-week wait (2WW) fast-track referral system has been implemented since 2000 to improve early detection and management of HNC. However, delays in referrals still occur. Vedsted and Olesen suggest that this may be due to GPs’ reluctance to arrange

Discussion: Regional GPs report patients with HNC are less likely to be seen by a specialist within optimal time frames compared to metropolitan GPs. Respondents reported different barriers to early referral of patients with suspected HNC, with regional GPs more often citing system-level factors while metropolitan GPs more often cited patient-level factors.

Conclusion: Evaluating service provision and uptake with respect to community need, and addressing of barriers to implementation, may minimise unwarranted clinical variation.

KEYWORDS
access, disparities, general practice, head neck cancer, health services, variation

What is already known on this subject:
- There are significant rural–urban disparities in health services in Australia, including timeliness and stage of cancer diagnosis, and cancer survival rates. General practitioners are often the first port of call for patients experiencing symptoms suggestive of cancer.
- Head and neck cancer is an uncommon cancer in Australia, which may contribute to delayed diagnosis and referral of cases to specialist care.
- Drivers of referral practices for head and neck cancer by Australian general practitioners have been under-researched.

What this study adds:
- This study utilised a clinical vignette to quantify general practitioners perceptions of times from referral to specialist appointments for people with suspected head and neck cancer.
- General practitioners in regional New South Wales reported their patients would wait longer for an appointment with a head and neck cancer specialist, compared to general practitioners in metropolitan New South Wales.
- Factors influencing referral practices varied based on remoteness of general practitioner practice, with availability of services reported as a primary driving factor for regional general practitioners compared to patient symptoms for metropolitan general practitioners.
- Interventions to improve referral and diagnosis of suspected head and neck cancer may vary based on patient location, and availability of services should be accounted for when designing cancer care policy in regional areas.
appropriate diagnostic investigations. This question has been broached for colorectal, lung and ovarian cancers; however, there is a paucity of research relating to referral practices for HNC.

The English National Audit of Cancer Diagnosis in Primary Care has shown that patients with oropharyngeal and laryngeal cancer have some of the longest patient and primary care intervals. Several factors could contribute to these disparities, such as the non-specific symptom signatures of oropharyngeal cancer and laryngeal cancer. Times to diagnosis and treatment of oral and oropharyngeal cancer vary by remoteness of residence in Australia. Understanding referral patterns of GPs in different locations may provide insight into the effect that timely referral has on stage and survival outcomes. The aim of this study was to investigate geographical variation in self-reported management of patients with symptoms suggestive of HNC by GPs in New South Wales (NSW). The specific hypotheses were that the proportion of GPs who report being able to refer a patient in accordance with the OCP-HNC timelines will be lower in regional NSW, and regional GPs will be more likely to refer a patient with suspected HNC to a general or ear, nose and throat (ENT) surgeon rather than a surgeon subspecialising in HNC.

2 | METHOD

2.1 | Study design and setting

This study was a mailed cross-sectional survey of GPs using a study-specific questionnaire, and reporting of this study follows the Strengthening the reporting of observational studies in epidemiology (STROBE) guidelines. The survey was administered in Central and Eastern Sydney and the Mid North Coast of New South Wales, the most populous state in Australia, between February 2020 and May 2020.

2.2 | Questionnaire development

The project team, composed of an academic GP, HNC specialists and health services researchers, developed a study-specific questionnaire, which was piloted among a small group of academic GPs. Where possible, closed-ended questions were used over open-ended questions, as closed-ended questions are associated with higher response rates. The questionnaire consisted of four sections:

2.2.1 | Section 1: Clinical scenario

The clinical scenario depicted a fictional patient presenting to their GP with ‘red-flag’ upper aerodigestive tract symptoms suggestive of HNC (sore throat and mild unilateral earache) and re-presenting with a new lump in the upper neck without resolution of symptoms (Box 1). The participants were asked:

- To indicate which specialist they would refer to the patient to and why.
- Whether and how they would facilitate making the appointment.
- An estimate of how long the patient would wait for the appointment.
- Any actions they may take to facilitate a fast-track appointment.

2.2.2 | Section 2: Factors affecting timeliness of patient help-seeking

Participants were asked to rate the perceived importance of several health system, patient and tumour factors on timeliness of a patients’ attendance for symptoms suggestive of HNC. A six-point Likert scale was used consisting...
of the following options: not important, low importance, slightly important, moderately important, very important or extremely important. Health system factors included difficulty obtaining appointments and distance to services; patient factors included patient demographics and co-morbidities, health insurance status and previous experience with the health system; and tumour factors included the wide variation in the symptom profile of HNC and what constitutes a red-flag symptom.

2.2.3 | Section 3: Guidelines for clinical practice

Participants were asked to indicate their awareness of clinical guidelines or resources available in NSW that may facilitate referral of patients with symptoms suggestive of HNC. These included the OCP-HNC, eviQ (a freely available online resource of cancer treatment protocols), Canrefer (an online directory of cancer specialists associated with a multidisciplinary cancer care team in NSW, designed to assist GPs refer patients with suspected cancer) and guidance in published literature or medical magazines. If participants were aware of the resources, they were asked to rate their perceived usefulness (not useful, somewhat useful or very useful). Participants were also offered the opportunity to list any additional guidelines or resources that were not listed on the questionnaire.

2.2.4 | Section 4: Participant demographics and practice information

The following demographic and practice information was collected: gender, location of practice (metropolitan or regional NSW), size of practice, years in practice, clinical workload, ‘bulk-billing’ practices (the practise of accepting the rebated component of the consultation fee as the total fee, to eliminate out of pocket expenses for patients), number of patients in previous 12 months referred for investigation of HNC and number of patients referred in last 12 months diagnosed with HNC.

2.3 | Survey administration

The survey was administered by mail rather than email as email addresses were not available for all GPs. Strategies shown to improve responses to mailed surveys were utilised for the survey administration, including advance notification, a non-conditional and non-monetary incentive, hand-signed letters, sending reminders and using university sponsorship. The incentive provided to the potential participants was a tea bag and a sachet of coffee included in the survey pack, to encourage participants to take 5 min to complete the survey while enjoying a cup of tea or coffee. All participants received a one-page advance notification flyer promoting the survey in advance of the actual survey notifying them that a questionnaire would follow within 1 week. The flyer also outlined the purpose of the questionnaire that it would survey their views on referral pathways for patients with symptoms suggestive of HNC. The survey was accompanied by an invitation letter from the study coordinator, a participant information sheet (PIS) and a reply-paid envelope. Up to three reminders were sent to non-respondents, commencing 2 weeks after the first mail out of the survey, at two-weekly intervals. The reminders included another copy of the survey, PIS, reply-paid envelope and a reminder letter from the study coordinator. Data were entered into and managed using an online survey tool hosted by Research Electronic Data Capture (REDCap), hosted securely by the Sydney Local Health District Information and Communication Technology (SLHD ICT) services.

2.4 | Study sample

2.4.1 | Participants

The questionnaire was mailed to all GPs on the mailing lists of the Central and Eastern Sydney Primary Healthcare Network (CESPHN) (n = 1556), a metropolitan area, and the North Coast Primary Health Care Network (NCPHN) (n = 319), a regional area. PHNs are Australian Government funded services established in 2015 that cover geographic regions of varying sizes and populations across Australia. Their roles include improving medical services for patients in their region, improving links between local health services and hospitals and guiding government health funding to reach areas most in need. There are 31 PHNs in Australia, 10 of which are in NSW. Invitees were considered ineligible if they were not working as a GP, had died, retired or were on extended leave for more than 6 weeks.

2.4.2 | Sample size determination

The sample size calculation was based upon the difference in proportion of GPs in metropolitan and regional NSW who believed that their patients with symptoms suggestive of HNC would be seen by a specialist affiliated with a multidisciplinary team within 2 weeks of referral, based on recommendations in the OCP-HNC. To detect a 20% difference, with 80% power, a 5% significance level (alpha) and a 2:1 allocation ratio of metropolitan to regional GPs, a minimum of 228 responses was required.
2.5 | Statistical analysis

Demographic and practice factors were assessed using descriptive statistics and are presented as number and percentage (%). Categorical data were analysed using Pearson’s chi-square statistics or Fisher’s exact test to determine differences among respondents based on location of practice (metropolitan or regional NSW). For the analysis of GP-rated importance of patient and health system factors, Likert scale response options were dichotomised into either important (very or extremely important) or not important (not important, low importance, slightly or moderately important). Missing data were not imputed. Open-ended questions were coded by one author (Author 1) into groups using thematic analysis to ensure that the meaning of responses was not lost during the coding process. All tests were two-sided, and significance was taken at $p < 0.05$. Analyses were conducted using IBM SPSS Statistics Version 25.0 for Windows.

3 | RESULTS

3.1 | Participant characteristics

Of the 1875 GPs sampled, 72 were ineligible (Figure 1). Of the remaining 1803 eligible GPs, 196 completed the survey (overall response rate 10.8%). The response rate was higher among regional GPs (45/301, 15.0%) compared to metropolitan GPs (151/1501; 10.1%). Metropolitan GPs reported more years in practice (84.1% with >15 years in general practice) compared to regional GPs (62.2% with >15 years in general practice; $p = 0.003$; Table 1). Some 21.2% of metropolitan GPs were in solo-practice compared to 4.4% of regional GPs ($p = 0.026$). Fewer regional GPs reported offering bulk-billing to all patients (24.4%) compared to metropolitan GPs (45.7%; $p = 0.021$).

3.2 | Clinical scenario—referral practices

Most metropolitan GPs indicated they would refer to a surgeon subspecialising in HNC (Table 2). Regional GPs’ referrals were split between ENT and general surgeons. Most metropolitan GPs (70%) indicated that their patient would be seen by a specialist within 2 weeks, compared to 42% of regional GPs ($p = 0.001$). The proportion of GPs who had referred a patient with red-flag symptoms over the preceding year was similar for regional and metropolitan GPs (80% among regional GPs vs 86% among metropolitan GPs). The factors influencing specialist choice for regional GPs were availability of services (62%), followed by need for further investigations (either by a specialist or organised by the GP; 44%), and a rapid pathway or appointment (24%). The predominant factor for metropolitan GPs was the symptoms the patient was experiencing (46%), with accessibility of services only reported in 17% of responses. Both metropolitan

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**FIGURE 1** Flow chart of participant eligibility and exclusions for the survey

Examined for eligibility
N=1875

Excluded
N=54

Reasons:
- Deceased n=1
- Duplicate n=1
- Moved out of area n=13
- Moved and unable to trace new address n=10
- No longer a GP n=3
- Opted out n=9
- Practice closed n=2
- Retired n=14
- Unable to deliver n=1

Metropolitan GPs
N=1556

Regional GPs
N=319

Metropolitan GPs
N=1501

Regional GPs
N=301

Metropolitan GPs
N=151 (10.1%)

Regional GPs
N=45 (15.0%)

Exclusions

Eligible

ANALYSED

Reasons:
- Moved out of area n=2
- Moved and unable to trace new address n=7
- No longer a GP n=2
- Opted out n=3
- Retired n=4

Metropolitan GPs
N=18

Regional GPs
N=18
and regional GPs used personal phone calls directly to the specialist as a strategy to fast-track an urgent appointment.

### 3.3 Influence of patient and health system factors on timeliness of help-seeking and diagnosis

Both metropolitan and regional GPs rated patient awareness of the significance of symptoms as the most important factor influencing timeliness of initial attendance and diagnosis (Table 3). Health system factors including availability of local services, appointment availability and costs associated with services were rated as more influential than patient factors, particularly among regional GPs. Distance required to travel to specialists, which in Australia tend to be centralised in major cities, was rated more important among regional GPs ($p = 0.013$).

### 3.4 Usefulness of resources

GPs in both metropolitan and regional NSW reported that clinical updates in journal publications and medical

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**Table 1 Personal and practice characteristics of 196 study respondents to a questionnaire regarding a hypothetical clinical scenario of a patient with symptoms suggestive of head and neck cancer**

| Characteristic | Metropolitan GPs ($N = 151$) | Regional GPs ($N = 45$) | $\chi^2$; df; $p$ |
|---------------|-------------------------------|-------------------------|------------------|
| **Sex**       |                               |                         |                  |
| Male          | 69 (45.7)                     | 24 (53)                 | 0.81; 1;         |
| Female        | 82 (54.3)                     | 21 (47)                 | $p = 0.37$       |
| **Years in general practice** |                           |                         |                  |
| <6 years      | 5 (3.3)                       | 6 (13)                  | 10.68; 2;        |
| 6–15 years    | 19 (12.6)                     | 11 (24)                 | $p = 0.003^a$   |
| >15 years     | 127 (84.1)                    | 28 (62)                 |                  |
| **Size of general practice** |                           |                         |                  |
| Solo practice | 32 (21.2)                     | 2 (4)                   | 7.34; 2;         |
| Practice with 2–5 GPs | 46 (30.5)                | 14 (31)                 | $p = 0.026$      |
| Practice with ≥6 GPs | 73 (48.3)                 | 29 (64)                 |                  |
| **Full-time or part-time** |                           |                         |                  |
| Full-time     | 84 (55.6)                     | 24 (53)                 | 0.07; 1;         |
| Part-time     | 67 (44.4)                     | 21 (47)                 | $p = 0.79$       |
| **Bulk billing** |                           |                         |                  |
| Bulk bills all patients | 69 (45.7)               | 11 (24)                 | 6.85; 2;         |
| Bulk bills some patients | 79 (52.3)              | 33 (73)                 | $p = 0.021^a$   |
| Do not bulk bill | 3 (2.0)                         | 1 (2)                   |                  |
| **How many of your patients have you referred for investigation of possible head and neck cancer in the last year?** | | | |
| 0             | 21 (13.9)                     | 9 (20)                  | 2.47; 3;         |
| 1–5           | 118 (78.1)                    | 32 (71)                 | $p = 0.44^a$    |
| 6–10          | 11 (7.3)                      | 3 (7)                   |                  |
| >10           | 1 (0.7)                       | 1 (2)                   |                  |
| **How many of these patients have been diagnosed with head and neck cancer?** | | | |
| Not applicable (0 referred for investigation) | 21 (13.9) | 9 (20) | 3.78; 4; | $p = 0.44^a$ |
| 0             | 28 (18.5)                     | 5 (11)                  |                  |
| 1             | 61 (40.4)                     | 22 (49)                 |                  |
| 2–4           | 36 (23.8)                     | 7 (16)                  |                  |
| >5            | 5 (3.3)                       | 2 (4)                   |                  |

Abbreviation: GP, general practitioner.

*Fisher’s exact test.

Bold values signified where $p < 0.05$. 

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magazines were the most useful resources for the management of cancer in general practice (Figure 2). Government resources were considered less useful, with half of GPs unaware of the listed government resources, although more metropolitan GPs described them as useful compared to regional GPs.

### TABLE 2 Reported referral processes by 196 GPs responding to questionnaire regarding a hypothetical clinical scenario of a patient with symptoms suggestive of head and neck cancer

|                      | Metropolitan GPs (N = 151) | Regional GPs (N = 45) | χ²; df; p |
|----------------------|-----------------------------|-----------------------|---------|
| **Which specialist would you refer the patient to?**<sup>a</sup> |                             |                       |         |
| Head and neck surgeon | 78 (52.0)                   | 9 (20)                | 40.31; 3; p < 0.001 |
| Ear, nose and throat surgeon | 42 (28.0)                | 14 (31)               |         |
| General surgeon      | 1 (0.7)                     | 11 (24)               |         |
| Other (descriptions below) | 29 (19.3)                | 11 (24)               |         |
| Further investigations (eg send to radiology) | 26 (17.3)               | 11 (24)               |         |
| Haematologist        | 2 (1.3)                     | –                     |         |
| Multidisciplinary team | 1 (0.7)                   | –                     |         |
| **Would you request the patient make the appointment themselves?**<sup>a</sup> |                             |                       |         |
| No, I would ask my practice staff to make an appointment with the patient | 37 (24.7)               | 16 (36)               | 13.31; 2; p = 0.001 |
| No, I would personally make the appointment with the patient | 25 (16.7)               | 16 (36)               |         |
| Yes, I would request the patient make the appointment themselves | 88 (58.7)               | 13 (29)               |         |
| **How long does it usually take for a patient to be seen by a specialist?**<sup>b</sup> |                             |                       |         |
| <1 week               | 32 (21.5)                   | 6 (13)                | 19.54; 4; p = 0.001<sup>c</sup> |
| 1–2 weeks             | 74 (49.7)                   | 13 (29)               |         |
| 2–4 weeks             | 33 (22.1)                   | 17 (38)               |         |
| 1–3 months            | 10 (6.7)                    | 6 (13)                |         |
| >3 months             | –                           | 3 (7)                 |         |

**Abbreviation:** GP, general practitioner.

<sup>a</sup>n=1 missing.

<sup>b</sup>n=2 missing.

<sup>c</sup>Fisher’s exact test.

Bold values signified where p < 0.05.

4 | **DISCUSSION**

This is the first study to show important variation in intentions to refer practices with symptoms suggestive of HNC based on location of practice in Australia. While it is not surprising that these differences exist, what is concerning
is that these differences remain evident despite increased investment in NSW regional cancer services, telehealth and outreach clinics over the past decade. The most striking difference was that 48% of regional GPs reported that patients could expect to be seen by a specialist within 2 weeks compared to 70% of metropolitan GPs. This suggests that strategies aiming to increase access to specialist services in regional NSW are either being underutilised or there are insufficient services to address the needs of regional patients.

Awareness of resources and guidance for management and referral of cancer patients was generally low

| Factor | Metropolitan GPs | Regional GPs | χ²; df; p |
|--------|-----------------|--------------|-----------|
| N      | N (%)           | N (%)        |           |
| Patient awareness of significance of signs/symptoms | 193 | 109 (73.6) | 29 (64) | 1.44; 1; 0.23 |
| Availability of specialist services locally | 195 | 73 (48.7) | 28 (62) | 2.55; 1; 0.11 |
| Difficulty getting appointments with specialists | 192 | 67 (45.6) | 27 (60) | 2.87; 1; 0.09 |
| Costs associated with services | 195 | 68 (45.3) | 23 (51) | 0.46; 1; 0.50 |
| Health professionals unsure of what constitutes red-flag symptoms | 191 | 61 (41.8) | 12 (27) | 3.33; 1; 0.07 |
|Wide variation in the symptom profile of head and neck cancer | 193 | 60 (40.5) | 16 (36) | 0.36; 1; 0.55 |
| Patient co-morbidities | 191 | 51 (34.5) | 11 (26) | 1.20; 1; 0.27 |
| Previous experience with the health care system | 195 | 44 (29.3) | 16 (36) | 0.63; 1; 0.43 |
| Patients’ health insurance status | 194 | 40 (26.8) | 8 (18) | 1.53; 1; 0.22 |
| Patient demographics | 193 | 33 (22.3) | 12 (27) | 0.37; 1; 0.54 |
| Distance required to travel to specialist services | 195 | 27 (18.0) | 16 (36) | 6.21; 1; 0.013 |
| Difficulty getting appointments with GPs | 192 | 23 (15.6) | 8 (18) | 0.12; 1; 0.73 |
| Distance required to travel to GP services | 193 | 21 (14.1) | 6 (14) | 0.01; 1; 0.94 |

Bold values signified where p < 0.05.

**Figure 2** Awareness and usefulness of Australian guidelines and resources for management of cancer among respondents
among survey participants. Even among participants aware of resources, their perceived usefulness in practice were not high. This highlights an area which may require further investigation as it is not clear whether guidelines were not considered useful due to barriers to implementation such as lack of resources. As resources and guidelines aim to address inequities in cancer outcomes, it is interesting that awareness and perceived usefulness was slightly lower among regional GPs in this study. While there have been successful implementation projects of the Optimal Care Pathways in Victoria, Queensland and the Northern Territory in Australia, the communication and implementation strategies in NSW may be worth revisiting to increase awareness and use in practice.

4.1 | Strengths and limitations

One of the strengths of this study was the use of a study-specific questionnaire, which was developed and piloted among academic GPs. This is also the first study, to our knowledge, to compare referral practices of GPs based on geographic region of practice, which fills a key gap in the literature. We also implemented several strategies to improve response rates to mailed surveys. Despite this, there was a low response rate (10.8%), which limits the generalisability of the findings. GPs are an over-surveyed group and it is possible that the survey topic was not considered relevant to most GPs, given HNC is a rare presentation in primary care. However, the COVID-19 pandemic likely contributed significantly to the low response rate, with the administration of the survey coinciding with the peak of infections seen in NSW (March to April 2020) that may have directed GPs’ attention away from a survey. Despite this, our response rate was not much lower than the reported response rate of a similar survey published in 2015, in which 11.3% of NSW GPs surveyed responded to the survey. Further, we sampled GPs in two of the 10 PHNs in NSW, and therefore practices may not be representative of those across NSW or Australia. Additionally, we used only one clinical scenario in this questionnaire, and it is possible that if we had used additional scenarios with different symptom combinations, results may have differed. During pilot testing, the decision was made to include only one scenario to reduce respondent burden.

4.2 | Comparison to existing literature

In a qualitative study of health professionals’ views of access to cancer care in Australia, regional GPs reported that travel, poor communication within the health system and a limited subspecialty surgeon workforce were the principal barriers to cancer care in regional Australia. These findings are consistent with the sentiments in the current survey, with regional GPs citing availability of services as the main factor driving their selection of specialist to refer to. These factors have also been identified as barriers to effective coordination of care and appear to be persisting in Australia despite increased investment in regional cancer care. Availability of services, and in particular practitioners, is an ongoing issue, with cancer services that depend on specialist medical practitioners a significant service gap in remote Australia. In a survey of ENT surgeons, Shein et al. found that just one in five surgeons conducted an outreach service in the preceding year, with an average of 5.5 outreach days per year. Promisingly, three in five ENT surgeons surveyed reported an intention to perform outreach services in the future.

5 | CONCLUSIONS AND IMPLICATIONS

This study provides some evidence that strategies and investment to improve access to HNC services in regional NSW still have a way to go to adequately meet the needs of GPs and their patients. HNC services remain centralised in major cities in NSW, with telehealth services and outreach clinics aiming to fill the service gap. Evaluating the current outreach services and telehealth for ENT/head and neck in relation to community need, as well as the barriers to implementation, will generate a clearer picture of how to optimise outreach services.

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CONFLICT OF INTEREST

None.

AUTHOR CONTRIBUTIONS

RLV: conceptualization; data curation; formal analysis; funding acquisition; methodology; project administration; writing – original draft; writing – review & editing. MT: conceptualization; methodology; supervision; writing – review & editing. JRC: conceptualization; funding acquisition; methodology; supervision; writing – review
& editing. CEP: conceptualization; funding acquisition; methodology; supervision; writing – review & editing. JMY: conceptualization; funding acquisition; methodology; supervision; writing – review & editing.

ETHICS APPROVAL

Ethical and governance approval was granted by the Sydney Local Health District Human Research Ethics Committee (Protocol No X19-0366 & 2019/ETH00449).

INFORMED CONSENT

All participants were provided with a PIS, and informed consent was taken as return of a competed questionnaire (implied consent).

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