

## Main Article

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# Primary contact physiotherapy for patients with suggested vestibulopathy for an Australian ENT clinic: a retrospective cohort study

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## Abstract

**Objective.** To examine the newly established role of a primary contact physiotherapist in an ENT clinic, in an Australian cohort and context, over two phases of development.

**Methods.** A retrospective cohort study was conducted with data collected from a medical record audit. Over the study duration, the primary contact physiotherapist completed initial appointments with patients; follow-up appointments were subsequently conducted by medical staff.

**Results.** There was a 46 per cent reduction in patients with suggested vestibulopathy requiring an ENT medical review. This reduction could hypothetically increase to 71 per cent with follow-up primary contact physiotherapist appointments. Improvements in the service delivery model and a primary contact physiotherapist arranging diagnostic assessments could improve waitlist times and facilitate better utilisation of medical staff time.

**Conclusion.** The primary contact physiotherapist can help in the management of patients with suspected vestibulopathy on an ENT waitlist. This is achieved through: a reduction of patients requiring ENT review, improvements to waitlist time and improved utilisation of medical specialists' time.

## Introduction

Individuals experiencing vestibular syndromes may experience a number of symptoms, including vertigo, dizziness, and vestibulo-visual and postural balance disturbances.<sup>1</sup> It has been proposed that vestibular presentations can be classified according to three distinct syndrome categories: acute vestibular syndrome, episodic vestibular syndrome and chronic vestibular syndrome.<sup>2</sup> Peripheral otological and/or central neurological vestibular pathologies can cause any of these syndromes, either in isolation or combination.<sup>3</sup> Furthermore, there are other medical and psychiatric aetiologies for vestibular symptoms that present an interdisciplinary and cross-specialty conundrum.<sup>4</sup> This indicates that estimates of the prevalence of vestibular disorders may vary significantly. Yang *et al.*<sup>5</sup> suggest this may arise from study designs, inherent study biases, differing diagnostic criteria and access to healthcare; they reported a one-year prevalence rate of 2.83 per cent in their Taiwanese cohort. By contrast, in a German study, the one-year prevalence rate was noted to be 1.6 per cent; however, a further 4.8 per cent were diagnosed as having non-specific vertigo and dizziness.<sup>6</sup>

The lifetime prevalence of developing moderate-to-severe vertigo and dizziness is estimated to be much higher, at 30 per cent.<sup>7</sup> In a German ENT setting, approximately 6 per cent of patients were reported to have a primary dizziness and vertigo-related diagnosis.<sup>8</sup> In addition, 80–95 per cent of aetiologies for vestibular symptoms were found to be of peripheral or otological origin.<sup>9,10</sup> This has formed the basis of most current care models that result in a referral to an ENT specialist. However, ENT specialist services are among those specialties with longer-than-preferred waiting lists, and patients may be subject to inappropriate referrals because of undifferentiated symptoms.<sup>11–14</sup>

Over the last decade, there has been a growing interest in the development of physiotherapy-led models of care; in these models, the physiotherapist conducts the initial appointment, with the objective of reducing unnecessary appointments with the ENT specialist.<sup>15–19</sup> In the UK, Kasbekar *et al.*<sup>16</sup> and Burrows *et al.*<sup>17</sup> demonstrated the effectiveness of physiotherapy-based models of care, where 22 per cent and 3 per cent of patients, respectively, avoided the need to see an ENT specialist.

Within an Australian healthcare context, Payten *et al.*<sup>19</sup> demonstrated that the physiotherapy-based clinic resulted in only 26 per cent of patients requiring an ENT specialist appointment. The effectiveness of the multidisciplinary team (MDT) primary

contact approach on ENT specialist review waitlist times was further improved when speech pathology and audiology were also included. Stute *et al.*<sup>15</sup> and Távora-Vieira *et al.*<sup>20</sup> demonstrated that speech pathology and audiology services can reduce the need to see an ENT specialist. Barnes<sup>18</sup> further confirmed the benefits of this MDT approach, reporting that ultimately only 10 per cent of patients required a consultation with an ENT specialist or neurologist for vestibular symptoms.

This retrospective audit aimed to build on the evidence that physiotherapy-based models are an acceptable way for patients with vestibular symptoms to be managed, diverting from ENT specialist consultation. It will also establish the prevalence of specific diagnoses within this clinical setting and hypothesise why there may be a divergence from the published literature. This description of the development of the clinical role is intended to serve as a guide for other health professionals and services looking to implement a similar service.

## Materials and methods

This retrospective observational study reports the results of an audit examining patients seen by a primary contact physiotherapist in the ENT department at a metropolitan tertiary hospital in Perth, Western Australia.

Standard procedure prior to the current study required referred patients to be sent directly to the ENT medical outpatient clinic. The majority of referrals are generated by the patient's general practitioner, though additional referrals are also received from medical specialties within the same tertiary hospital. Waitlist audits were also used to identify suitable patients. Referred patients then undergo triage by an ENT rotating registrar. Those deemed suitable for physiotherapy review are forwarded on to the physiotherapist according to the criteria based on the work of Burrows *et al.*<sup>17</sup> (Table 1). Once this triage process was complete, patients were booked and assessed by the vestibular physiotherapist, to determine

whether further clinical evaluation was required by the ENT doctor, or if their symptoms could be diagnosed and managed by a physiotherapist.

There were two phases of service development of the role included in this audit (Figure 1). During the first phase of the service development (June 2020 until the end of November 2020), patients saw the physiotherapist for their initial appointment; if an ENT appointment was required, they were placed back on the ENT waitlist without any further investigations.

During the second phase of the service development (December 2020 until December 2021), all patients underwent a screening pure tone audiogram and tympanometry at their initial physiotherapy appointment. If an ENT appointment was required, further diagnostic testing was completed prior to that appointment. When episodic vestibular syndrome or unclear chronic vestibular syndrome was suspected, vestibular functional testing was performed. Where hearing results on the tone audiogram (10 dB at two levels or 15 dB at one level) were asymmetric, patients were referred for magnetic resonance imaging (MRI). When indicated, the patient would be referred for computed tomography (CT) of the temporal bones. All imaging decisions were made in consultation with the ENT consultant or with input from the otology fellow. For the duration of this retrospective audit, the physiotherapist conducted the initial appointments, and all follow-up appointments were conducted by the ENT medical team.

The retrospective audit was conducted from July to September 2022, and included patients from the inception of the clinic in July 2020 through to January 2022. De-identified data were entered into a Microsoft Excel spreadsheet using a password-protected data management system, before being exported to SPSS statistical software (version 28.0.1.1) for further analysis.

## Results

The medical records of 79 patients (59 females and 20 males, aged 56.59 years (standard deviation (SD) = 15.60)) were retrieved and reviewed. Most of the referrals were generated by general practitioners ( $n = 59$ ), with the remaining referrals generated by medical specialties within the same hospital. A summary of symptoms, suspected diagnoses and the referrers' diagnostic investigations are presented in Figures 2–4, respectively.

Of the medical records reviewed, 67 individuals attended their initial appointment, 3 cancelled or rescheduled their appointment, 8 did not attend (3 of these were subsequently seen), and 1 declined further input or investigation. Of those patients who were triaged directly and initially to physiotherapy ( $n = 32$ ), the average wait time for the initial appointment was 63 days (SD = 37 days). The remaining 47 patients were identified through audits; it would be unreasonable to include their data for analysis owing to the referral in some cases pre-dating the clinic's inception.

There were 25 patients evaluated in phase one and 54 patients in phase two. Over the course of both phases of this retrospective audit, 37 patients (46.8 per cent) did not require assessment by an ENT specialist after their initial physiotherapy appointment. Of those patients who were assessed by ENT, it is suggested that a further 19 patients could have avoided ENT specialist input entirely, as their suggested diagnosis did not warrant ongoing ENT input (Table 2). From the

**Table 1.** Criteria for primary contact vestibular physiotherapist

Suggested pathology
– Benign positional paroxysmal vertigo
– Vestibular neuritis
– Presbyvestibulopathy
– Concussion with vertigo
– Vestibular migraines
– Ménière's disease
Symptoms described
– Vertigo or dizziness
– Disequilibrium
– Falls
Red flags warranting ENT investigation rather than physiotherapy
– Any neurological signs or symptoms
– Otorrhoea
– Otagia
– Syncope
– Obvious non-vestibular symptoms or cause indicated on referral form or imaging
– Solely asymmetrical hearing changes

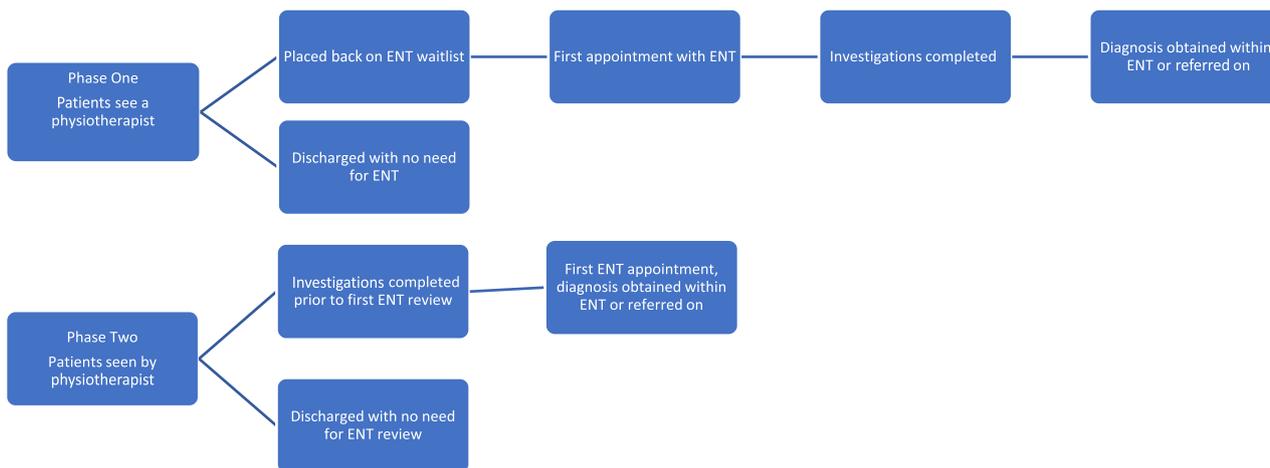


Figure 1. Phases one and two referral pathways.

total sample of 79 patients, 56 (70.8 per cent) could have potentially been diverted from ENT. Of those patients who attended a physiotherapy assessment, six had incomplete investigations and as a result their diagnoses could not be established. Table 3 lists the suggested primary and secondary diagnoses. Of the phase two patients, 35 were referred for vestibular functional testing, 4 underwent CT and 20 had an MRI scan.

There were no adverse events noted across phases one and two of the project. All ENT-appropriate patients were returned to ENT (including those with a tegmen defect and a meningioma) and there were no adverse incidents discovered as a result of undergoing preliminary physiotherapy assessment.

Discussion

This study builds upon the growing evidence that physiotherapists can be effective as a primary contact practitioner for individuals with vestibular symptoms in a tertiary hospital ENT setting.<sup>16-20</sup> In this study, 46.8 per cent of patients did not need to see an ENT specialist after the initial physiotherapy appointment, which is a similar rate to that reported by Kasbekar *et al.*,<sup>16</sup> of 51 per cent.

Although there was no physiotherapy follow up in this model, if one were to examine those patients who could have avoided an ENT appointment by including those patients who were discharged following their first ENT appointment, the percentage of patients who did not need to see an ENT specialist would be 70.8 per cent. This rate is lower than those published by other studies, but several potential factors may explain this difference. Firstly, the rate of referred benign

paroxysmal positional vertigo (BPPV) in our study, of 20 per cent, was lower than in other models, with the highest reported rate of 30 per cent in the Kasbekar *et al.*<sup>16</sup> cohort. This could be attributed to the availability of other clinicians treating BPPV within the private sector or the input of trained staff in the acute setting of the study hospital.

The local triage model was also based upon the rotating training registrars completing this process, compared to allied health-based triage.<sup>16,17,19</sup> This required ongoing education for registrars, which led to variability in the rate of referral to the physiotherapist. The lack of follow-up appointments by the physiotherapist also encouraged a conservative approach, with referrals back to ENT for those cases in which there may have been some indecision by the physiotherapist. Some of these cases may have benefitted from a second appointment, to better establish the temporal nature of their pathology or to conduct further investigations prior to their return to ENT. Another factor influencing the return to the ENT waitlist was the scope of clinicians in other established clinics; particularly relevant are the prescribing rights in the UK, as reported by Burrows *et al.*<sup>17</sup>

There was a collective decision by the ENT medical team and primary contact physiotherapist that, during the second phase of establishing this role, patients requiring ENT review should have investigations completed prior to their ENT appointment. This naturally led to a lower number of patients needing to see the ENT specialist. However, the benefits to the patient and interdisciplinary team outweighed any perceived negative outcome. Furthermore, the number of patients not requiring referral to the ENT medical team remained

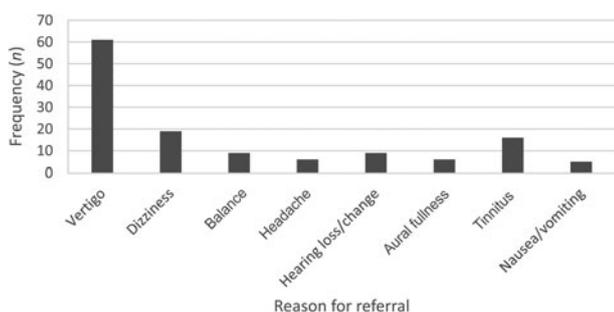


Figure 2. Reasons for referral. Note that multiple symptoms were documented in some referrals received.

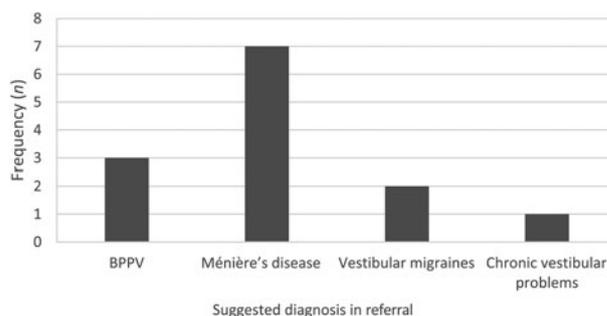
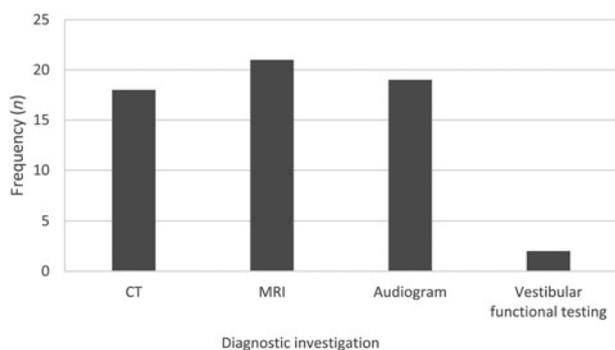


Figure 3. Suggested diagnosis in referral. Approximately 16 per cent of referrals had a suggested diagnosis. BPPV = benign paroxysmal positional vertigo



**Figure 4.** Diagnostic investigations requested by general practitioner and completed prior to initial physiotherapy appointment. CT = computed tomography; MRI = magnetic resonance imaging

consistent, at 46 per cent, throughout both phases of service development.

Further patient benefit in this study was observed by the reduced wait time to see the ENT specialist, following physiotherapy intervention, by those patients who had been referred for investigations prior to their ENT appointment. This resulted in a reduction in the associated cost of obtaining a diagnosis, owing to physiotherapy appointments incurring lower costs than ENT, while removing one ENT appointment, when compared with phase one.

This clinic has received widespread support from the ENT and physiotherapy departments and the local hospital executive since its inception. Harnessing support from local administrators is, in our opinion, a key component to establishing these clinics successfully. Teams considering the implementation of primary contact models, with the view to developing the role in an advanced scope position, should be encouraged that support for these models extends beyond their local hospital network. The Australian Physiotherapy Association<sup>21</sup> supports the development of advanced practice roles as one of the solutions to building workforce capability and addressing efficiencies in healthcare system design.

Internationally, the recently developed vestibular medicine curriculum, endorsed by the Bárány Society, has enabled

**Table 2.** Waitlist data

Parameter	Values
Returned to waiting list for ENT review? (n (%))	
- After physiotherapy appointment, patient no longer needed to see ENT specialist	37 (46.8)
- ENT specialist appointment still required	42 (53.2)
- Patients attended ENT, but were discharged after 1 ENT appointment	19 (24)
Referral & appointment time intervals (mean (SD); days)	
<i>Phases one and two</i>	
- Time between referral & initial physiotherapy appointment	63 (37.5)
<i>Phase one</i>	
- Time between referral & ENT appointment	868 (443)
- Time between physiotherapy & ENT appointments	315 (273)
<i>Phase two</i>	
- Time between referral & ENT appointment	226 (213)
- Time between physiotherapy & ENT appointments	95 (91)

SD = standard deviation

**Table 3.** Patient diagnosis

Suggested primary diagnosis	Cases (n (%))
- Benign paroxysmal positional vertigo	16 (20.3)
- Persistent postural perceptual dizziness	3 (3.8)
- 3rd window pathology	2 (2.5)
- Bilateral vestibular loss	1 (1.3)
- Cervicogenic dizziness	2 (2.5)
- Encephalocele & tegmen dehiscence	1 (1.3)
- Mal de débarquement (diagnosis prior to public appointment)	1 (1.3)
- Ménière's disease	7 (8.9)
- Meningioma	1 (1.3)
- Vestibular migraine	10 (13)
- Ototoxicity (diagnosis prior to public appointment)	1 (1.3)
- Post-surgical complications	1 (1.3)
- Primary torsional nystagmus	1 (1.3)
- Recurrent middle-ear effusions or infections	1 (1.3)
- Central neurological vestibular pathology; patient referred on	2 (2.5)
- No clear cause established	6 (7.6)
- Unilateral vestibular loss	10 (12.7)
- Patient declined input	1 (1.3)
- Inappropriate referral (solely pulsative tinnitus symptoms; patient returned to ENT)	1 (1.3)
- Patient still being investigated	2 (2.5)
- Patient discharged because of multiple non-attendance	5 (6.3)
- Patient lost to follow up	4 (5.1)
<i>Suggested secondary diagnosis</i>	
- Unilateral vestibular loss	2 (2.5)
- Vestibular migraine	1 (1)
- Persistent postural perceptual dizziness	4 (5.1)

multiple professions, including physiotherapy clinicians, to improve their skills and knowledge to diagnose vestibular disorders.<sup>22</sup>

Within the Western Australia Health system, and following publication of the Sustainable Health Review,<sup>23</sup> the Western Australia Department of Health has endorsed primary contact practitioner roles such as the one described in this paper. It is hoped that, in due course, there will exist similar support at a national level.

- Primary contact physiotherapy is safe and effective when assessing patients with vestibular symptoms
- A service delivery model that encompasses diagnostic testing reduces patients' wait time and has associated cost-saving benefits
- The description of this service delivery model and its results add to the established literature, while demonstrating another novel model of care

Despite the reported benefits of this model of care, a number of weaknesses have been identified. Firstly, data were collected retrospectively, and were recorded from a predominantly paper-based medical record system. Secondly, because of local issues related to the storage of medical records, and the requirement for them to be transported across two hospital

sites, not all records were available for audit. However, despite limitations of the reviewed medical records, there was a degree of consistency across the records, as assessment documentation was prepared by a sole physiotherapist and recorded on a standardised document.

## Conclusion

This retrospective cohort study adds to the growing body of research into the role of allied health within the ENT outpatient clinic setting. Future research will explore the role of physiotherapy within an ENT clinic. This proposed study will include prospective data collection and will aim to determine whether the number of patients needing ENT appointments can be further reduced by the introduction of follow-up physiotherapy appointments. The authors also intend to examine whether a patient's self-reported degree of impairment can be influenced by the duration of their symptoms or time to eventual diagnosis. This may assist in guiding waitlist management in the future, particularly with regard to the prioritisation of referrals.

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**Competing interests.** None declared

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