

Provision of Services for Adults with Tinnitus

A Good Practice Guide

Provision of Services for Adults with Tinnitus

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Contents

Foreword	3
Executive summary	4
Part One: Delivering the vision for services for people with Tinnitus	6
Systems and processes	8
Understanding the scale of the challenge: identifying local demand	9
Planning capacity	10
Clear referral criteria	10
Managing waiting lists	11
Technology	13
Workforce	13
Part Two: Good practice commissioning pathway for adults with Tinnitus	16
Patient self-management	17
Primary care	17
The first level of care: community based audiology service	18
The second level of care: the specialist centre	19
The third level of care: the supra-specialist centre	23
Annex 1: Suggested components of the tinnitus network	25
Annex 2: Third sector patient support groups	34
Annex 3: References	35
Annex 4: Acknowledgements	37

Foreword

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Improving Access to Audiology Services in England was published by the Department of Health in March 2007. It set out the vision for services for people with hearing and tinnitus problems, and how the NHS needed to respond to the challenge.

Tinnitus or perception of a sound either in one or both ears may be reported as the primary complaint or it may be a symptom of one or more underlying pathologies. Competent assessment and appropriate triage is critical to ensure identification of any underlying conditions and their prompt management. We recommend that tinnitus which lasts for more than 5 minutes or is there most of the time increases not only with deterioration of hearing but also with age and in some form or another affects large numbers of people in the population. There are ways in which the condition can be managed which prevents or helps to alleviate its troublesome and in some instances disabling nature. However, for many patients the pathways for effective care are not always streamlined or as efficient as they could be.

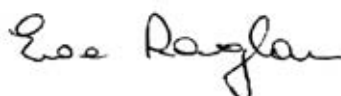
This good practice guide provides practical evidence-based advice on how to improve people's access to, and experience of, tinnitus services. It suggests how to reduce waits and unnecessary steps in care, so that people with tinnitus receive high quality specialist services as quickly as possible. We recommend that tinnitus services should be delivered in networks, so that as much care as possible is provided close to the patient's home, with efficient access to high quality specialist and supra-specialist skills and facilities as required. The guide is intended to support commissioners and service providers in tackling service capacity constraints to deliver sustainable low waits and transformed services to deliver improved access and high quality care.

It is the result of input from a large number of dedicated practitioners working in the health and social care system, with input from patient representatives and was brought together by the tremendous efforts of Professor Maggie Pearson. We are very grateful for all of their input and endeavours.

We do hope this guide will make a difference to patients who suffer from this condition. Please use it widely to inform local dialogue and decision making and in doing so improve the patient experience.



Professor Sue Hill



Dr Ewa Raglan

Executive Summary

The vision for services for people with tinnitus disorders

1. The vision for adults with tinnitus is for them to receive high quality, efficient services as close as possible to home, which respond well to the needs of individuals, have low waiting times, and are free at the point of access.¹
2. The problem of long waiting lists for audiology services has been recognised by the Government.² Its framework to address these problems through the transformation of audiology services is defined in *Improving Access to Audiology Services in England*.³ This set out the key goal of a radical reduction in waiting times, so that by December 2008 and beyond, even patients with the most complex presentation would receive specialist treatment within 18 weeks of referral by their GP. The key means of transforming audiology services are better commissioning and care pathway redesign to eliminate all avoidable waits and unnecessary steps in services.
3. This is one of three guides on good practice for the provision and organisation of adult audiology services.⁴ It sets out the vision of a network of services providing care for patients with tinnitus. While patients may present

with both tinnitus and hearing difficulty, it is important to recognize that some patients present with tinnitus alone.

4. Based on examples of good practice and peer-reviewed literature, this document sets out a good practice commissioning pathway for tinnitus services and provides practical guidance for commissioners and service managers on how to reduce waits and steps in services. Patients with hearing difficulty and/or balance disorders in addition to tinnitus will need to follow pathways simultaneously for their other symptoms. In such cases, this document should be read in conjunction with the relevant other good practice guides and published 18 week pathways for tinnitus and reduced hearing.⁵
5. Good practice in providing care for people with tinnitus, as outlined in this document and the proposed care pathway, will:
 - challenge existing practice and pathways so that patient outcomes and experiences are improved;
 - maximise opportunities within provider units to transform services so that they

1 The focus of this document is services for people with tinnitus, who may or may not also have hearing difficulty.

2 House of Commons Health Committee, 2007

3 Department of Health, 2007a

4 The others are: Transforming Adult Hearing Services for Patients with Hearing Difficulty; and Transforming Adult Services for People with Balance Disorders. Both available at: <http://www.18weeks.nhs.uk/content.aspx?path=/achieve-and-sustain/Specialty-focussed-areas/Audiology>

5 See: <http://www.18weeks.nhs.uk/Content.aspx?path=/achieve-and-sustain/Specialty-focussed-areas/Audiology/audiology#29666>

meet patients' needs, and remove unnecessary tiers and steps in services;

- minimise risk to patients in taking forward change;
- use service improvement techniques to make systems and processes more lean and efficient and to improve working practices; and
- support commissioners to deliver the target of a maximum patient wait of 18 weeks from GP referral to initiation of consultant-led treatment.

6. The document is in two parts:

- the first sets out the vision, context and principles for the organisation and delivery of services for people with tinnitus. It focuses on the benefits which can be gained from getting the systems and processes right, using the best technology available and planning an effective, well equipped workforce;⁶
- the second recommends a new good practice commissioning pathway for the majority of people with tinnitus. It offers suggestions about an effective way to deliver each stage of care, and gives more practical detail of the vision and principles set out in Part One.

6 This Good Practice Guide to the delivery of services is not, and does not aim to be, an evidence-based guideline for clinical practice with individual patients.

Part One: Delivering the vision for services for people with Tinnitus

7. Tinnitus can be described as the perception of a sound such as ringing, buzzing, shooshing, or whistling, either in one or both ears, or in the head, in the absence of a concurrent external noise which might explain the perception.⁷ It may indicate a disorder in the functioning of the auditory pathway, and may or may not be associated with other auditory symptoms, including hearing difficulty and/or hyperacusis. It may also indicate the existence of other medical conditions which require medical, surgical or clinical management.

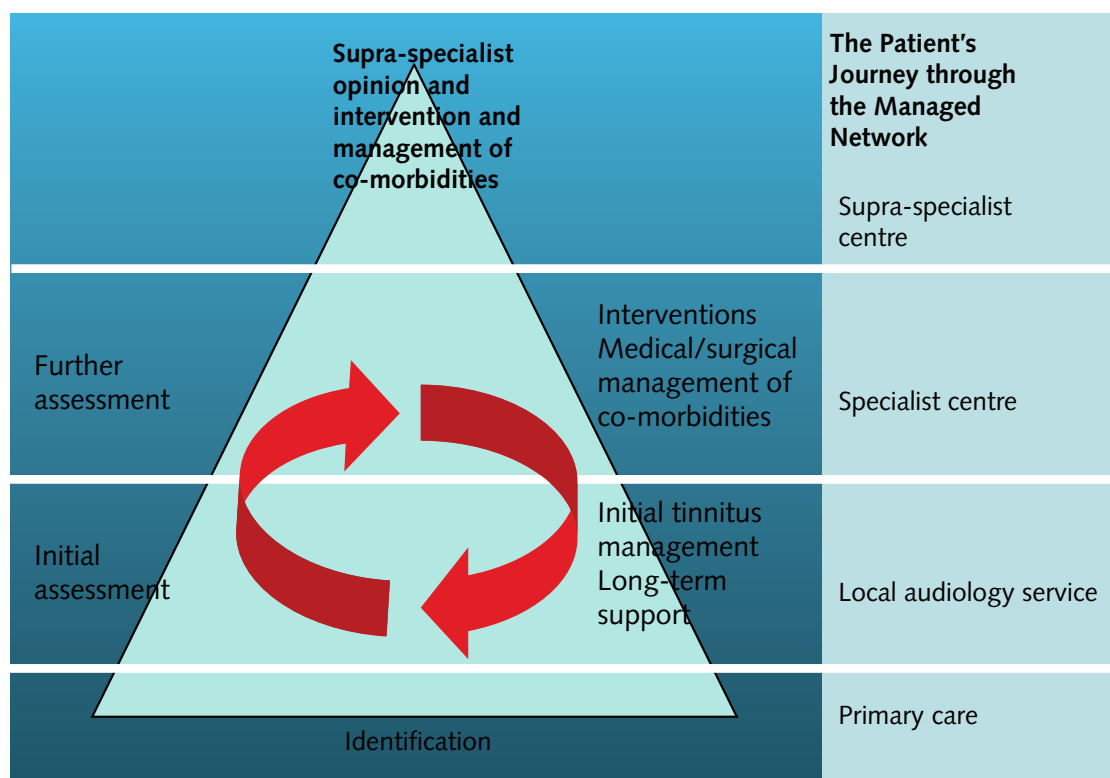
8. Tinnitus is a symptom. It may be reported as the primary complaint or it may be a symptom of one or more underlying pathologies. The sounds experienced in tinnitus therefore need to be clearly differentiated from sounds arising outside the auditory system which could indicate other, potentially life-threatening, problems. It is important to distinguish 'musical tinnitus' and 'tinnitus voices' from auditory hallucinations such as those that occur in psychotic disorders. Unlike psychotic auditory hallucinations, tinnitus sounds do not have an intrinsic meaningful content.

9. Occasionally, people with tinnitus describe a musical theme or the sound of voices; however the content is incomplete and indistinct, eg a repetition of a single bar of music or a sound like indistinct voices coming from another room. Tinnitus sounds occur in the absence of other psychotic symptoms. Auditory hallucinations can also occur secondary to damage of the central auditory nervous system, without associated mental illness. Triage and differential diagnosis at an early stage of presenting symptoms is therefore critical to ensure that underlying conditions are identified and assessed quickly and receive prompt and appropriate treatment.

10. The vision for services for people with tinnitus is for a stepped approach to care across different levels of a network, based on high quality local audiology services, which triage patients and refer them on efficient referral pathways to specialist and supra-specialist care. Dedicated care pathways will allow the early differentiation of tinnitus from underlying medical conditions.

7 Tyler 2008

Figure 1

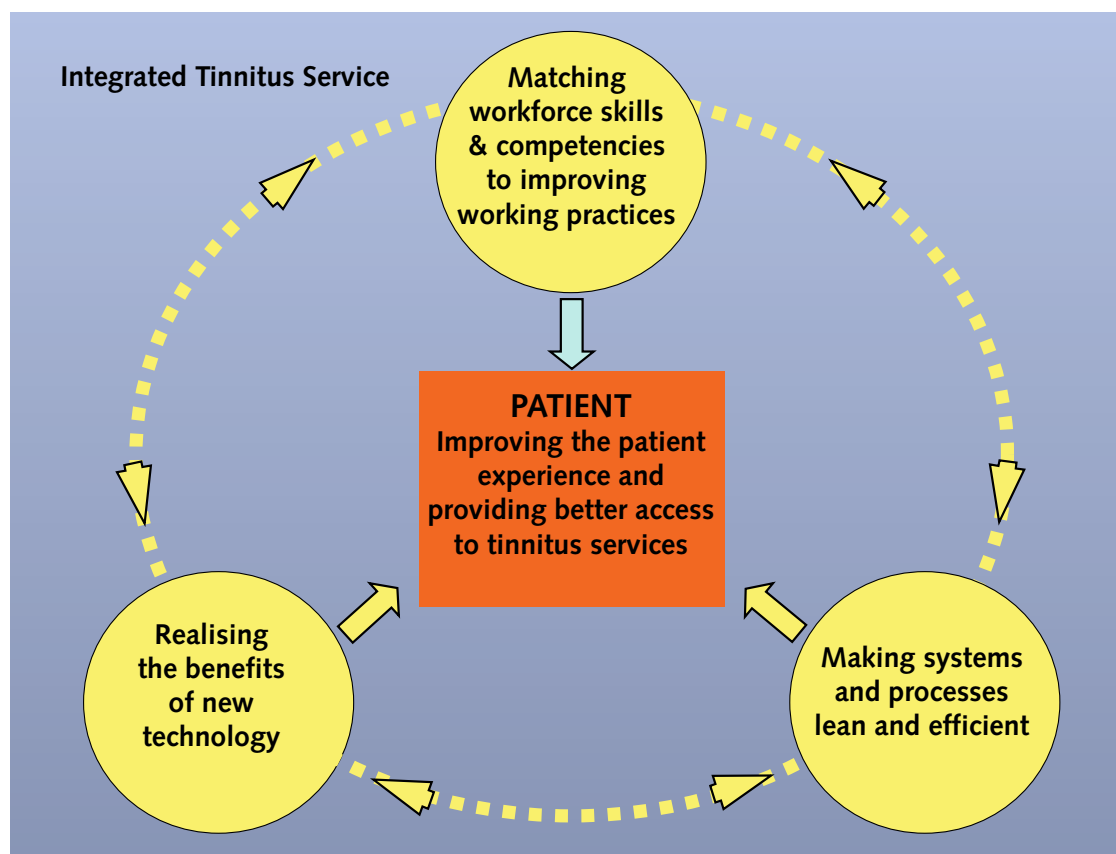


11. Audiology services have been commonly commissioned from the acute hospital sector, with wide ranges in access, waits for appointments and outcomes. A recent study found that only a third of people with persistent tinnitus had an audiological assessment and a third had reported it to their GP, but were not referred on to any other services.⁸

12. Services can be transformed to deliver the vision of accessible, high quality services closer to the patient's home, by applying what is already known about how to:

- improve NHS **systems and processes**;
- draw on innovative **technology**;
- plan and train a competent and productive **workforce** with a rich mix of skills and some new roles, to deliver the right processes and interventions at the right skill level.

Figure 2



Systems and processes

13. Waiting times for adults with tinnitus can be reduced significantly by getting the basic systems and processes right, through:

- understanding the scale of the local challenge, and collecting robust local data to plan service capacity;
- clarifying and improving referral criteria, and ensuring that they are consistently applied by well informed primary care practitioners, who refer patients quickly to high quality local audiology services based in the community;
- better waiting list management and efficient scheduling of patient appointments in the different levels and steps of care, including managing patients who do not attend (DNAs);
- managing variation in capacity and demand and maximising the added clinical value of steps in the patient pathway, so that several tests and assessments can be done in one appointment;
- using all the benefits of the Patient Management Systems and linking where possible with broader NHS Patient Management Systems;

- adopting lean processes and other service improvement methodologies through a systematic approach to understanding and delivering local services.

Understanding the scale of the challenge: identifying local demand

14. The MRC study of ENT symptoms in the UK demonstrated that 36 percent of adults had tinnitus at the time of study.⁹ In 13.2 percent it lasts for more than five minutes and in 4 percent is there most of the time. 30 percent of adults whose hearing is ≥ 25 dBHL in the better ear have prolonged spontaneous tinnitus, which occurs without any obvious temporary cause such as noise exposure or drugs, and lasts for more than five minutes. For those whose hearing is ≥ 35 dBHL the number with tinnitus rises to 36 percent and for ≥ 45 dBHL it is 42 percent. Seven percent of adults experience sleep disturbance attributable to tinnitus. The prevalence of severely annoying tinnitus is 2.6 percent overall, ranging from 2.3 percent in those aged from 41 to 50 to 4 percent in those aged 71 to 80.¹⁰

15. The prevalence of tinnitus which lasts for more than 5 minutes or is there most of the time increases not only with deterioration of hearing but also with age. The MRC study in UK reported 7.9 percent of adults aged 41-50 years old had tinnitus, and

14.3 percent of those aged 71-80.¹¹ With an ageing population, therefore, there will be an increased demand for services to diagnose, assess and manage tinnitus. About 20-30 percent of people who report tinnitus have normal hearing,¹² but people with hearing loss are at particular risk, with three quarters experiencing tinnitus.¹³

16. The experience of tinnitus may lead to a complex set of complaints. Some tinnitus patients have concurrent psychological distress and may require the input of appropriate health professional. In response to the question: 'make a list of difficulties you have as a result of your tinnitus', patients referred to a tinnitus clinic had the following comments: 15 percent reported distress or upset, 9 percent irritability, 6 percent helplessness or frustration.¹⁴ Depressive episodes often precede the onset of tinnitus.¹⁵ A large proportion of tinnitus patients complain of sleep disturbance and a high number complain of problems with concentration. In a small proportion of sufferers (0.5 percent to 1 percent of the adult population), tinnitus is chronically disabling and a good outcome may be achieved only in the long term with highly specialised care. Tinnitus may also be associated with a range of medical and otological conditions which require appropriate investigations and management.

9 Coles 1984

10 Coles 1984; Davis and Rafaie 2000

11 Coles 1984

12 Spoendlin 1987

13 Coles et al 1990

14 Sanchez and Stephens 1997

15 Harropp-Griffiths et al 1987

Planning capacity

17. In planning service capacity for the management of tinnitus, local commissioners will need to take account of the age profile of their populations, presence of industries where noise may be a hazard, and the prevalence of psychological disorders with which tinnitus may be associated. As there is strong evidence that only a third of people with tinnitus receive an assessment, there is likely to be a large pool of unmet need locally. With the transformation of audiology services, local GPs need to be made aware of the potential for the positive treatment of tinnitus, and to be encouraged to refer patients for triage, differential diagnosis and assessment. It is envisaged that additional capacity can be created by improving systems and processes to ensure that assessment and management can be undertaken with a minimum number of appointments, and possibly a single one.

18. As local services are transformed, increased referrals from primary care, patient pathways and service workloads should be mapped and constantly monitored. Data comprising referral source, attendance record, and waiting times for appointments need to be kept. The need for counselling services should also be mapped. This information should provide data that can identify if, or where, service redesign or any change in models of provision are required. This will be used to balance demand for the service and available capacity in terms of the workforce, clinical accommodation and equipment.

Clear referral criteria

19. The initial screening/triaging of tinnitus patients can be carried out by a specifically trained primary care health professional with an appropriate documented level of competency such as a GP with special interest in Audiology/ENT. Further triaging, if required, could take place in the first level community based audiology service by a specifically trained audiologist, according to TTSA guidelines.¹⁶

20. The primary care physician (eg GP with special interest in audiology/ENT) should be able to recognise and manage patients with bilateral, non-troublesome tinnitus without hearing difficulties, who require only reassurance and education relating to tinnitus. Such patients are likely to present with low levels of distress.

21. The primary care physician's triage should allocate patients to two major categories:

- if tinnitus persists and provokes mild to moderate distress despite reassurance from the GP, and/or is associated with a reported or suspected bilateral hearing loss, the patient could be referred to the local (first level) community-based audiology service. This service will provide assessment and support (including hearing aid fitting if necessary);
- to maximise efficiency and reduce waiting times, patients with distressing tinnitus and those needing referral for a full medical/

¹⁶ TTSA 1989

clinical audiological assessment could be referred directly by the GP to the secondary level specialist centre.

22. The following patients should be referred to the specialist centre:

- patients who complain of distressing tinnitus which is associated with symptoms of anxiety or depression. Sleep disturbance is a common feature of this presentation;
- patients with unilateral and/or pulsatile tinnitus;
- patients with tinnitus and any of the following symptoms:
 - unilateral hearing impairment
 - sudden or fluctuating hearing loss (beyond colds)
 - sudden deterioration of existing hearing
 - dizziness, vertigo or/and imbalance
 - asymmetrical hearing loss as documented on initial audiometric assessment;¹⁷
- patients with tinnitus who have other abnormalities of auditory perception (eg dysacusis, hyperacusis) as a consequence of underlying disorder in the auditory pathway;

- patients with tinnitus and normal peripheral hearing, but difficulty hearing in noisy backgrounds, or with sound localisation, or difficulty following complex auditory directions;
- patients with tinnitus associated with non-otological conditions:
 - systemic, eg cardiovascular, endocrine or metabolic disorders
 - neurological, eg multiple sclerosis, head injury, whiplash.

23. It is therefore critical that there are clear guidelines and criteria for referral from primary care and local audiology services to more specialist care. Patients with tinnitus resulting from non-otological disorders will need to be referred to appropriate speciality clinics. Tinnitus may persist, however, in spite of appropriate treatment for the other disorder. Such cases should also be seen in specialist audiovestibular medicine/ENT clinics for ongoing management.

Managing waiting lists

24. Appropriate triage of patients at the primary assessment level (whether by GP or by the first level audiology service care) and an efficient booking and appointments system, will ensure that a patient needing extensive investigation and highly specialised medical, surgical or rehabilitative therapy in the specialist

17 TTSA 1989

or supra-specialist centre will receive it within a short waiting time. This should include specific psychological treatment or specific surgical management such as the fitting of cochlear implants where appropriate. The ability to triage patients efficiently from the first level assessment service will depend on the quality of referral information from the GP, including the results of any prior investigations.

25. To ensure best practice in delivering efficient and effective patient flows, the systems and processes used in delivering the pathway should be changed or adapted according to the service improvement strategies developed and advocated by the NHS Institute for Improvement and Innovation.¹⁸ Recent experience from the DH *Transforming Audiology Services* initiative¹⁹ shows that waiting list validation, adoption of choice, and the introduction of a primary targeting list of priority conditions, will achieve shorter waits for patients and assurance that the patient with most urgent needs continues to be a priority.

26. Experience of service transformation has shown²⁰ that the employment of administrative and clerical staff empowered to actively manage appointments can improve the efficiency of clinics significantly, particularly if patients are contacted close to an appointment to check that they will be attending. This can be done by text message from computerised

systems to mobile phones. Such measures have been shown to reduce the number of DNAs. Contacting new referrals by phone to arrange an appointment at a time convenient for them can improve first attendance rates.

27. The workflow through audiology clinics can be improved by teams of practitioners being well prepared and ensuring that all equipment is to hand, to prevent delays or repeat attendances. All assessment tests (see Part Two) need to be undertaken in one visit if possible. This will:

- minimise inconvenience for the patient (and thereby ensure maximum attendance);
- maximise workflow through-put; and
- minimise wait times.

28. However, some patients may have very complex needs, for which more than one assessment visit is required. Streaming cases according to complexity and underlying medical or otological conditions can improve the efficiency and effectiveness of clinics. Comprehensive referral information and results of prior investigations will assist members of the team to work to their maximum skill and competency levels.

29. Information Technology (IT) needs to be recognised as integral to the efficient management of referrals, bookings and

¹⁸ <http://www.institute.nhs.uk/>

¹⁹ DH 2007b

²⁰ 'Transforming Adult Hearing Services for Patients with Hearing Difficulty' available at <http://www.18weeks.nhs.uk/content.aspx?path=/achieve-and-sustain/Specialty-focussed-areas/Audiology>

appointments along the patient pathways. The audiology service business manager should ensure that the clinic record system is integrated with the patient management system, and that there is a link between the referring and assessment centres. Staff need to be trained adequately in its use. The networked service (from local, community based through specialist and supra-specialist and reverse for follow-ups and shared care options) supporting the patient pathway should be linked by a user-friendly, well working IT system.

Technology

30. New hearing aid technology should be made available for patients with bilateral, mild/moderate tinnitus who also have bilateral hearing impairment. The new technology includes digital signal processing hearing aids, open ear/comply tips as well as audiometry/tympanometry equipment, as specified in *Transforming Adult Hearing Services for Patients with Hearing Difficulty*²¹. The range of sound enrichment generators as well as assistive listening devices should be available, free at the point of delivery, to these patients, who will be seen by skilled staff at the first level community based audiology clinic.

31. The specialist and supra-specialist centres should be equipped with a full range of basic and complex audiometric, electrophysiological and vestibular equipment. These centres should also have easy access, preferably on the same

secondary care site, to radiological investigative techniques, a full range of medical, biochemical and haematological investigations (see Good Practice Commissioning Pathway in Part Two) and rehabilitative treatment methods.

Workforce

32. A properly trained workforce is crucial to delivery of an efficient, high quality pathway for patients with tinnitus. Some roles need to be redesigned, and new roles may need to emerge, to provide the right skill mix to support the seamless flow of the pathway, and maximise the efficiency of every patient contact. The DH Modernising Scientific Careers programme will play an important role in the development of education and training pathways for the non medical scientific workforce (eg audiologists and clinical scientists). The consultation document can be found on the Department of Health website.²²

33. The various components of the service for patients with tinnitus will be provided by a multi-professional team. At the first level of care, this will comprise of a primary care physician, assistant audiologist, audiologist or hearing aid practitioner, nurse, administrative staff (secretary, clinic co-ordinator, and clerk), audiologist with hearing rehabilitation skills, and at the second and third levels of care also an audiovestibular physician, ENT surgeon, clinical psychologist and possibly psychiatrist.

21 DH 2007b

22 'The future of the healthcare science workforce. Modernising scientific careers, the next steps: a consultation' http://www.dh.gov.uk/en/Consultations/Liveconsultations/DH_091137

34. The more specialist skills will be deployed at the specialist and supra-specialist centres. To maintain integration of the different health care professionals who deliver service for tinnitus patients, they should have regular meetings to discuss patient pathways, referral criteria and audit of the outcomes. Within the team, some roles would be expanded or redesigned, supported by training, allowing practitioners to reach appropriate levels of skill and competences, so that optimal efficiency and efficacy is achieved at each level of care. In particular, all members of teams working with patients with tinnitus need to be competent in counselling and psychological support skills. Some members of the team (particularly the clinical psychologist) need to be competent in cognitive behavioural therapy (CBT). In order to comply with codes of good practice, appropriate supervision needs to be available for those offering psychological treatment and/or counselling and should be specified as part of the commissioned service.

35. Some expanded and redesigned roles described at the NHS development sites for the adult hearing pathway²³ could also be used, or the principles used to develop new and expanded workforce roles in specialist services for people with tinnitus, including:

- an expanded role for the audiologist in wax removal thereby reducing the number of visits which patients have to make;
- a co-ordinator in an efficient administrative hub within the first level audiology assessment centre, to improve efficient scheduling of patients directly to appointments on the most appropriate list;
- new associate practitioner roles focussing on specific procedures and tasks with routine patients. In the case of the NHS development sites for the adult hearing pathway, these were dedicated to assessing and fitting digital hearing aids for patients with mild/moderate bilateral hearing impairment;
- assistant audiologist/ear mould technician, taking impressions for the earmoulds for tinnitus patients with hearing impairment. People in this role could work across the tinnitus and adult hearing difficulty pathway, which some patients will follow in parallel;
- an expanded role for administrative staff in telephone follow-up, assessing the benefit of hearing aid fitting for those who have them, and its effect on tinnitus. However, telephone follow-up should not exclude face-to-face follow-up if it is indicated, eg when patients are distressed;

23 See DH 2007b

- an expanded role for the assistant audiologist in maintenance and repair of hearing aids, where they are fitted;
- expanding the role of the audiologist with hearing rehabilitation expertise into the use of counselling. Where clinical psychologists are available, they should be employed, and recent government guidance²⁴ is that 'talking therapies' will have an increased role to play in NHS care generally. Where psychologists are not available, the audiologist's role should extend to offering psychological treatment through CBT or other appropriate counselling techniques. This will involve clear inclusion criteria, and specialised and focused CBT for patients distressed by tinnitus or associated psychological disorders such as mild depression or anxiety. Audiologists involved in this role should be given additional specialised training and supervised by psychologists or others well qualified in CBT.

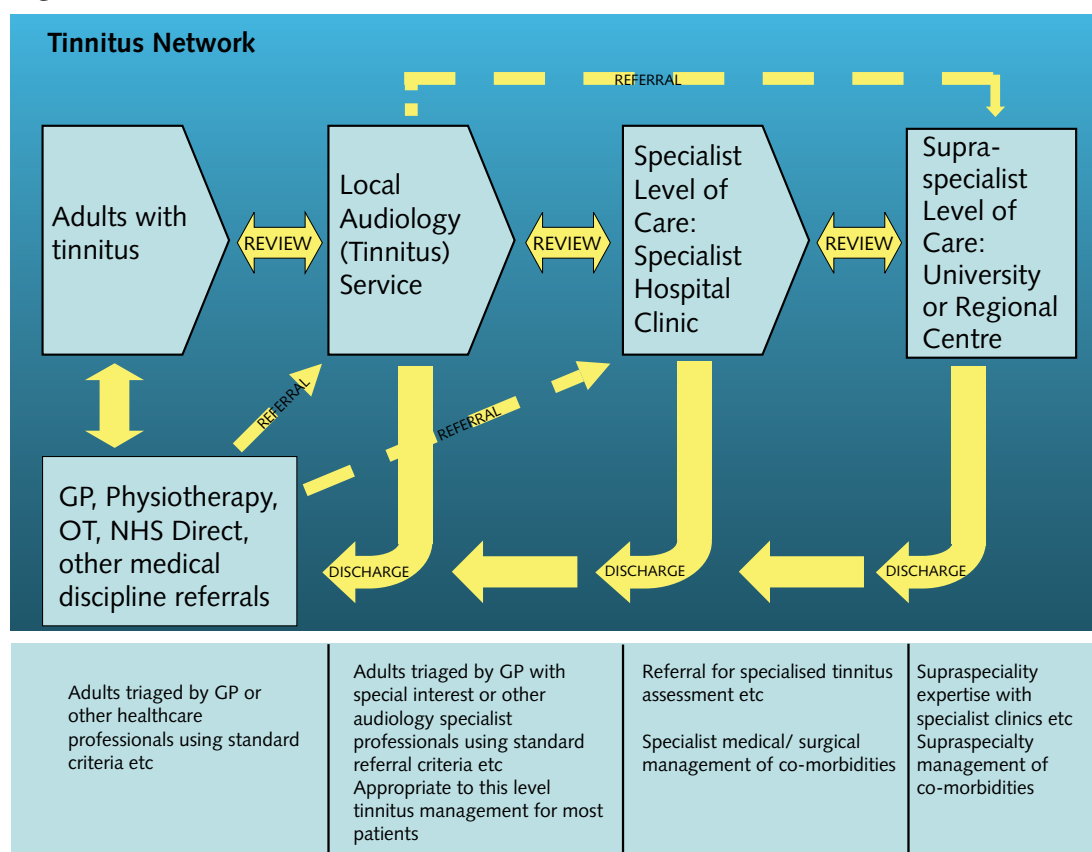
24 <http://nds.coi.gov.uk/environment/fullDetail.asp?ReleaseID=321341&NewsAreaID=2&NavigatedFromDepartment=False>

Part two: Good practice commissioning pathway for adults with Tinnitus

36. In this section, the commissioning pathway for adults with tinnitus which was outlined in Figure 1 is presented in more detail and should be read in conjunction with 18 week commissioning pathway for tinnitus²⁵. Its sub-components (shown in figure 3) may be commissioned separately, depending upon local needs and service configurations²⁶. The detail in this section is summarised in table form in Annex 1.

37. In commissioning tinnitus services in response to their local population's needs, PCT commissioners should ensure that they have identified and addressed the diverse range of patients' circumstances, in terms of race, first language and other cultural considerations for example age, gender and disability, in order to promote equal access to services and reduce health inequalities. They should consider the impact of any proposed changes in terms of

Figure 3



25 Audiology commissioning pathways – 18 weeks patient pathway <http://www.18weeks.nhs.uk/Content.aspx?path=/achieve-and-sustain/Specialty-focussed-areas/Audiology/audiology>

26 Further information on pathway development is available in: Department of Health. 18 Week Patient pathway delivery resource pack. London: DH, 2006. See: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4134668 and Do Once and Share Care Pathways. University of Manchester for DH Connecting for Health 2006. See: <http://www.mrchear.info/cms/Resources.aspx?Action=Folder&ResourceID=180>

whether they will have a different impact on different groups, and whether there might be an unexpected negative effect. The nature and diversity of the hearing service workforce may need to be addressed to ensure that all service users' needs and requirements, including language spoken, can be met. In line with government policy, all staff should have diversity and equality training.

38. The tinnitus pathway/network has several stages:

- patient self management;
- primary care;
- first level audiology assessment centre;
- second level specialist care;
- third level supra-specialist care.

Patient self-management

39. The patient with tinnitus, with or without hearing difficulties, needs to take some responsibility for their tinnitus and hearing condition²⁷ by:

- increasing their own knowledge of their condition, eg by contacting the British Tinnitus Association, reading appropriate self-help booklets, consulting the internet or the RNID to provide advice on the first line of support;²⁸

- ensuring that their hearing aid system, if they use one, is well and hygienically maintained;
- consulting their GP to have a hearing screen.

40. The first line of support comprises:

- understanding that there are many ways to manage the tinnitus;
- advice that the patient should visit their GP as the tinnitus may be caused by conditions which the GP can treat. These would include wax, infections, general medical conditions such as hypertension, medication which may predispose to tinnitus;
- information on measures which can be taken to ease the tinnitus while the patient is waiting to see the GP or specialist.

Primary care

41. There is considerable scope for the greater involvement of primary care in the management of patients with tinnitus, but most GPs and their colleagues in primary care may need a specific programme of updating, education and training. A well trained primary care team could provide initial advice, exclude the existence of wax or external ear infections or other conditions which may contribute to patient's perceptions of tinnitus and give the necessary treatment.

²⁷ Tyler et al 2008

²⁸ See Annex 2 for a list of useful websites

42. Patients presenting with bilateral non-troublesome tinnitus without hearing difficulties may not need to be referred for further assessment or treatment, and any such referral risks focusing the patient's attention further onto their symptoms.

43. The specifically trained primary health care professional with an appropriate documented level of competency in audiology (eg GP with special interest in Audiology/ENT) will be able to manage these patients and will triage the others according to agreed criteria.

44. The majority of patients with non-troublesome tinnitus and those with additional hearing difficulty will be managed by the first level of audiology services. Others will be referred directly to specialist and supra-specialist audiology centres (the second and third levels of care). Those patients with distressing or unilateral pulsatile tinnitus or tinnitus associated with an underlying disorder of medical, otological or psychological aetiology should be referred to the second level specialist tinnitus centre and other specialist clinical services, depending on suspicions as to aetiology and underlying conditions.

45. Patients should then be triaged into two major categories, as set out above:

- the majority of patients with mildly troublesome, persistent tinnitus without hearing loss who can be managed by the first level audiology service. The majority of patients with non-troublesome tinnitus

with mild to moderate hearing impairment can also be managed at this level;

- those patients with troublesome tinnitus and with or without other hearing difficulty or symptoms, needing referral to a specialist or supra-specialist centre for a full clinical audiological assessment. The timely referral of patients to the most specialised level of care which they need, particularly for tinnitus with sudden hearing loss, is especially important for their well being.

The first level of care: community based audiology service

46. A patient with bilateral tinnitus who also has hearing difficulties may appropriately be referred to this service by their GP or by self referral.

47. Ear wax should have been removed in primary care if there are no contraindications for wax removal by syringing, but if not, this should be done by a competent, appropriately trained audiologist, prior to any assessments and diagnostic tests. This would be an extension of the audiologist's role. The audiologist (depending upon local agreement) may refer the self referred patient back to the GP for wax removal by syringing. In the case of a patient with impacted hard wax, the patient should be re-referred to the specialist care for the appropriate procedure (microsuction).

48. At this level, care is provided by audiologists with basic audiology diagnostic skills and skills in issuing hearing aids. The

audiologist with special hearing therapy skills will provide the required rehabilitative treatment. The assessment of each patient will require basic history taking in relation to the character of the tinnitus, concurrent audio-vestibular, otological symptoms as well as the history of noise exposure, ear infections and medication.

49. During otoscopy, abnormal landmarks of the drum and external auditory canal should be identified, and audiometric evaluation undertaken, comprising pure tone audiometry and tympanometry. The TTSA criteria²⁹ need to be applied, which would identify patients who need to be referred by the audiologist to the specialist centre (the second level of care) for a more comprehensive evaluation and treatment package.

50. Patient management at this level should consist of reassurance and information, explanation and advice on tinnitus, use of counselling skills and CBT, information on using relaxation and hearing tactics if necessary, and fitting of hearing aids and referral for assistive listening devices. Sound enrichment may be successful with some tinnitus patients, additionally there is evidence that sound therapy is more effective for patients with hyperacusis.³⁰ The patient can be reviewed at this level, if s/he reports failure to improve and a cycle of reassessment and further advice and

treatment should be routine for patients with troublesome tinnitus.

GOOD PRACTICE EXAMPLE

Some audiology departments invite patients to a **group tinnitus information session** initially run by hearing therapists, following which they can request individual therapy if they wish. Initial experience suggests that a number of patients find the group session alone adequate, which considerably reduces waiting times (St George's Hospital London)

The second level of care: the specialist centre

51. Patients should be referred to the specialist centre according to specific locally agreed referral criteria as discussed on page 10.

52. In the specialist centre, care should be provided by well trained members of a multi-disciplinary team with appropriate levels of competence. They should have access to medical opinion and evaluation in a range of relevant specialties, specific audiometric, electrophysiological or vestibular assessment, radiological and psychological assessment, and all forms of therapy potentially needed: medical, surgical, rehabilitative, psychological and psychiatric. The members of the team are: audiologist, hearing therapist or rehabilitative audiologist, clinical psychologist, audio-vestibular physician, ENT surgeon, consultant audiologist scientist, nurse and

29 TTSA 1989

30 Tyler 2005

administrative staff, with access to all other medical specialities and other diagnostic and therapeutic departments.

53. The assessment of each patient requires the following:

- clinical history taking, including information about the subjective experience of tinnitus, its character, site, mode of onset, progress, variation over time, its annoyance, and its impact on daytime and night time behaviour including sleep, and the presence of associated audio-vestibular symptoms.
- identification of underlying otological, medical conditions (including haematological, cardio-vascular, renal, metabolic, auto-immune disease, endocrine disease);
- identification of psychological and psychiatric conditions, history of noise exposure, drug intake, level of stress and anxiety which may be precipitants or aggravators of tinnitus and a psychosocial history aimed at identifying external factors which may have a bearing on the onset and persistence of their symptoms and/or response to them;
- full neuro-otological evaluation;
- audiometric or electrophysiological assessment to identify the site of a lesion within the auditory system and to underpin the development of a targeted management programme for each individual.

54. These assessments include:

- pure tone audiometry, tympanometry and stapedia reflex evaluation, oto-acoustic emission and if required, auditory evoked responses;
- tinnitus measures such as minimum masking levels and measure of tinnitus loudness. These measures except in cases of nonorganic exaggeration, have little diagnostic relevance but they are useful from the therapeutic standpoint, especially when the patient returns reporting that their tinnitus is much worse. If it can be shown that tinnitus is of the same level they may be more likely to accept psychological explanations. Residual inhibition measures could be applied in patients who use noise devices to damp down their tinnitus before going to sleep;
- vestibular assessment, which may provide additional information as certain common pathologies may affect both vestibular and cochlear systems, eg vestibular schwannoma, endolymphatic hydrops;
- further neuro imaging, which may include CT, CTA, MRI, MRA or Doppler US, if examination raises suspicion of a retro-cochlear abnormality.

55. Psychological assessment (ie screening for anxiety and depression) of the patient is important, as tinnitus frequently occurs with other psychological conditions and specific professional clinical psychological intervention is required in a high proportion

of patients.³¹ Pre-existing psychopathology may be a predictor of the severity of tinnitus perception.³²

56. For patients with depression or anxiety, an instrument such as the Beck Depression/Anxiety Inventories or the Hospital Anxiety and Depression Scale (HADS) should be used to assess the level of psychological disorder.

57. Assessment of severity of tinnitus has been carried out by use of subjective questionnaire³³ and it is frequently based on subjective self-rated tinnitus scales such as the Tinnitus Handicap Inventory,³⁴ the Tinnitus Questionnaire, or a grading system based on self assessment of tinnitus, maskability, interference with sleep and daily activities.³⁵

58. At this specialist centre level, if there is a diagnosis of tinnitus with sudden, rapidly progressing, fluctuating hearing impairment, or discharging ears, or of an underlying medical or psychological condition, the appropriate management may be medical, pharmacological, surgical, psychological and/or rehabilitative. This may include amplification, supported by a programme of auditory rehabilitation. In some patients, especially those presenting with tinnitus with depression and suicidal thoughts, (with or without hearing difficulty) psychiatric care may be required.

59. Tinnitus therapy comprises a number of components but psychological elements of treatment appear to be particularly important. There is some (but mixed) evidence that sound therapy can be helpful for tinnitus patients,³⁶ but this is probably through the mediation of psychological factors rather than through the effects of sensory stimulation on neuronal reorganisation.

60. Tinnitus patients will be given, as appropriate, the following forms of management:

- information/education;
- hearing aids;
- counselling & psychological support;
- relaxation therapy;
- cognitive behavioural therapy (CBT) with the requisite professional supervision;
- sleep management (including supervised CBT);
- sound enrichment therapy;
- tinnitus retraining therapy.

61. The goal is to break the link between aberrant patterns of neural discharge which have escalated minor abnormal contrasts into emotionally disturbing perceptions of tinnitus,

31 Wilson and Henry 2000

32 Harrop Griffiths et al 1987; Attias 1993

33 Holgers et al 2000

34 Vernon 1987; Newman et al 1997

35 McCombe et al 2001 ; McKenna and Irwin 2008

36 McKenna and Irwin 2008

GOOD PRACTICE EXAMPLES

- **A One-stop clinic for tinnitus patients at St George's Hospital, London.**³⁷ The clinic is run by a team of audio-vestibular physician, hearing therapist and an audiologist. This allows the new patient to be seen at a one stop clinic, allowing the history to be taken, clinical examination to be done, audiometric assessment to be completed and the initial hearing therapy care to be given. This enables on the same day:
 - consultation with the consultant;
 - hearing assessment tests;
 - decision to be taken as to possible management of patient;
 - initial information and advice to be given, which enables patient to have immediate strategies to alleviate tinnitus;
 - the possibility for a hearing therapist to have further discussion of management with the patient;
- **The Cambridge Tinnitus Service** is an example of how otological and audiological colleagues can provide a multidisciplinary service.
- Patient enters the service through either audiology or otological consultation, then undergo required investigations (radiological, audiological, blood tests) prior to receiving therapy, which utilises modern management techniques.
- A monthly multidisciplinary tinnitus team meeting, reviews cases with radiological and other investigations to hand, intervention and progress are discussed.
- The unit provides an effective multidisciplinary service where there is a need for a leader of service, there are clear clinical governance arrangements and a forum for multidisciplinary discussion.
- The unit provides diagnostic and therapeutic services for tinnitus patients in a timely and efficient manner in a multidisciplinary clinical setting.
- Many patients are enrolled in research studies both assessing the efficacy of therapeutic interventions and promoting the development of more effective solutions to tinnitus management.

37 DH 2002

to achieve habituation to symptoms and to minimise distress. This may need varying durations of treatment, necessitating multiple follow-up appointments for some patients.

The third level of care: the supra-specialist centre

62. Some patients will require referral to the third level, supra-specialist centre (university, regional) for much more specialised assessment and treatment by the multi-disciplinary team, which may include an audio-vestibular physician, ENT surgeon, audiologist, psychologist, speech and language therapist and hearing therapist as required.

63. These include patients with extremely distressing tinnitus, patients with tinnitus suspected of having intracranial pathology and patients with tinnitus occurring in association with specific audiological conditions and requiring appropriate management of these conditions in addition to tinnitus.

64. Such patients may have:

- suspected auditory processing disorders (APD);
- auditory neuropathy (AN);
- profound sensory neural hearing loss requiring cochlear implants;
- audiovestibular pathologies requiring specialist neuro-otological interventions inclusive of skull base surgery and

specialised innovative rehabilitative approaches;

- dysacusis requiring some very specialised audiometric assessment (complex auditory function measurements such as phase audiometry)³⁸ and management techniques.

65. Patients with tinnitus and with suspected APD (dysfunction in the way the central auditory nervous system handles and processes sounds) require:

- thorough otological/neurological assessment/neuro otological assessment
- neuropsychological assessment;
- identification of co-morbid conditions including speech/language disorders, learning disabilities, processing disorders (eg dyslexia, dyspraxia), neurological disorders, neuropsychological deficits, emotional disorders and social behavioural problems. Identification of these disorders is essential to the overall programme of management;
- full audiometric/electrophysiological and other complex investigations such as binaural interaction tests, dichotic speech tests, temporal patterning tests, middle and late latency auditory evoked response, all of which are designed to identify the specific processing deficit;

- neuro-imaging (CT, CTA, MRI, MRA or US);
- use of tinnitus measures as at the second level of care.

66. The adult tinnitus patients with bilateral profound hearing loss who will benefit from cochlear implantation are those who present with sudden deafness due to trauma or illness or those with progressive hearing loss who will require monitoring over a long period of time as well as provision of amplification at the second level of care. They may be referred on to the third level for cochlear implantation when their hearing aids are no longer useful.

67. Initial follow-up appointments will need to be offered by the supra-specialist team (third level of care), but later follow up could be provided in the second or first level care centre with advice (shared care) if needed, from the supra-specialist centre.

Conclusion

68. It is proposed that this outlined tinnitus network should provide the tinnitus patient with a timely and accurate diagnosis and appropriate therapy within the right setting. It provides an outline for the best use of available resources to provide high quality services and should be used to both stimulate and facilitate discussions at a local level between commissioners and providers .

Annex 1: Suggested components of the Tinnitus network

Local configurations may vary, depending on population density and service history

PRIMARY CARE	LOCAL TINNITUS SERVICE (1st level)	SPECIALIST CENTRE (2nd level)	SUPRA-SPECIALIST CENTRE (3rd level)
<p>Presenting casemix</p> <ul style="list-style-type: none"> All patients presenting with tinnitus <p>Casemix managed in primary care</p> <ul style="list-style-type: none"> Bilateral mild, non troublesome tinnitus without hearing difficulties 	<p>Casemix</p> <ul style="list-style-type: none"> Bilateral mild, non-troublesome persistent tinnitus without reported hearing difficulties Bilateral tinnitus with bilateral hearing loss suspected at initial assessment Persistence of mild tinnitus in absence of associated pathology Bilateral mild/moderate non-troublesome tinnitus with hearing impairment 	<p>Casemix</p> <ul style="list-style-type: none"> Troublesome tinnitus +/- other hearing difficulties and symptoms Troublesome distressing tinnitus with symptoms of anxiety and depression +/- sleep disturbance Unilateral, asymmetric or pulsatile tinnitus Tinnitus and any of: <ul style="list-style-type: none"> Unilateral hearing impairment Asymmetrical hearing loss Sudden or fluctuating hearing loss Sudden deterioration of existing hearing Dizziness, vertigo and imbalance With abnormal auditory perception (dysacusis, hyperacusis) With normal peripheral hearing but difficulty hearing in noisy environment With otological, neurological +/- general medical conditions Tinnitus unresponsive to earlier interventions 	<p>Casemix</p> <p>Tinnitus associated with:</p> <ul style="list-style-type: none"> Suspected intracranial pathology Suspected auditory processing disorders Profound hearing loss requiring cochlear implants Audiovestibular pathologies requiring specialist neuro-otological interventions Dysacusis requiring very specialised audiometric assessment Extreme distress (not psychiatric disorder)

PRIMARY CARE	LOCAL TINNITUS SERVICE (1st level)	SPECIALIST CENTRE (2nd level)	SUPRA-SPECIALIST CENTRE (3rd level)
Assessment <i>History</i> <ul style="list-style-type: none"> • Onset • Progression • Site, side • Nature (eg pulsatile) • Preceding events • Noise exposure • Trauma • Air travel • Medication • Associated audiovestibular or general medical symptoms <i>Examination</i> <ul style="list-style-type: none"> • Otoscopy • Tuning fork tests • Upper respiratory tract • Cranial nerves • CVS • General medical 	Assessment <i>History</i> <ul style="list-style-type: none"> • Onset • Progression • Site, side • Nature (eg pulsatile) • Impact of tinnitus • Associated hearing loss • Hyperacusis • Dysacusis • Vestibular symptoms <i>Examination</i> <ul style="list-style-type: none"> • Otoscopy 	Assessment <i>History</i> <ul style="list-style-type: none"> • Clarification and expansion of history as in primary assessment with additional emphasis on co-morbidities and psychosocial factors <i>Examination</i> <ul style="list-style-type: none"> • Clinical examination of ears, nose & throat; neurological & general clinical/ medical examination as required 	Assessment <i>History</i> <ul style="list-style-type: none"> • Further clarification & expansion of history • Specialist assessment for specific conditions • Assessment of requirement for complex investigations • Risk/benefit analysis for otological, neuro-otological/neurological surgical interventions • Further evaluation of effect of co-morbidities and psychosocial factors <i>Examination</i> <ul style="list-style-type: none"> • More detailed ENT, neurological, neuro-otological examination, as required

PRIMARY CARE	LOCAL TINNITUS SERVICE (1st level)	SPECIALIST CENTRE (2nd level)	SUPRA-SPECIALIST CENTRE (3rd level)
	<p><i>Audiometric assessment</i></p> <ul style="list-style-type: none"> • PTA (AC@BC) • Tympanometry • LDL if required 	<p><i>Audiometric assessment</i></p> <ul style="list-style-type: none"> • Audiological assessment <ul style="list-style-type: none"> – Behavioural – Electrophysiological • Vestibular assessment as required • Tinnitus measures <p><i>Ancillary investigations</i></p> <ul style="list-style-type: none"> • Imaging: MRI, CT, MRA, US as indicated • Blood tests 	<p><i>Complex audiological assessments</i></p> <ul style="list-style-type: none"> • Behavioural and electrophysiological assessments for: <ul style="list-style-type: none"> – APD – AN – Implantable aids: CI, BAHA, Middle ear implants • Tinnitus measures • Vestibular assessment as clinically indicated <p><i>Ancillary investigations</i></p> <ul style="list-style-type: none"> • Imaging: MRI, CT, MRA, US, Angiography • Blood tests (if not previously taken)

PRIMARY CARE	LOCAL TINNITUS SERVICE (1st level)	SPECIALIST CENTRE (2nd level)	SUPRA-SPECIALIST CENTRE (3rd level)
Management <ul style="list-style-type: none"> • Remove wax • Treat ear infections • Monitor/treat BP and other CVS pathology • Investigate and treat or refer associated medical pathology • Review medication • Antidepressants or anxiolytics • Nocturnal sedation as required • Advice and reassurance • Triage as appropriate 	Management <ul style="list-style-type: none"> • Reassurance • Information, explanation • Relaxation therapy • Basic counselling/CBT • Fitting with hearing aids • Hearing tactics • Sound enrichment • Assistive listening devices 	Management <ul style="list-style-type: none"> • Reassurance • Information, explanation of tinnitus and underlying condition • Specific tinnitus management: • Tinnitus tactics and strategies • Sound enrichment therapy • Relaxation therapy • Physical treatments: • Hearing aid fitting • Sound enrichment devices • Assistive listening devices • Counselling/ CBT • Hearing tactics & strategies • Review medication • Antidepressants/anxiolytics • Nocturnal sedation as required 	Management <ul style="list-style-type: none"> • Reassurance • More detailed explanations of symptoms, tests, diagnosis • Information and support re tinnitus and underlying condition • Condition specific monitoring • Consider off label prescriptions after assessment and discussion of risk/benefit and patient expectation • Surgical intervention (with pre-op assessment) <ul style="list-style-type: none"> – Otological – Neuro-otological – Neurological – Neuro-radiological – Radiotherapy

PRIMARY CARE	LOCAL TINNITUS SERVICE (1st level)	SPECIALIST CENTRE (2nd level)	SUPRA-SPECIALIST CENTRE (3rd level)
			<p>Treatments as in 2nd level if not already undertaken, including:</p> <ul style="list-style-type: none"> • Specific tinnitus management: <ul style="list-style-type: none"> – Tinnitus tactics and strategies – Sound enrichment therapy • Relaxation therapy • Physical treatments: <ul style="list-style-type: none"> – Hearing aid fitting – Sound enrichment devices – Assistive listening devices – Tinnitus Retraining Therapy – Hearing tactics & strategies • Review medication • Antidepressants/anxiolytics • Nocturnal sedation as required • Psychological treatments <ul style="list-style-type: none"> – CBT for very distressed patients +/- mental health services – Sleep management techniques

PRIMARY CARE	LOCAL TINNITUS SERVICE (1st level)	SPECIALIST CENTRE (2nd level)	SUPRA-SPECIALIST CENTRE (3rd level)
<p>Triage (after initial assessment)</p> <p><i>To local tinnitus service (1st level)</i></p> <ul style="list-style-type: none"> Bilateral mild, non-troublesome tinnitus without reported hearing difficulties Bilateral tinnitus with bilateral hearing loss suspected at initial assessment Persistence of mild tinnitus in absence of associated pathology 	<p>Triage</p> <p><i>To specialist centre (2nd level)</i></p> <p>Red flags/urgent referral for:</p> <ul style="list-style-type: none"> Sudden/rapidly progressive hearing loss Pulsatile tinnitus Neurological signs and symptoms Significant distress 	<p>Triage</p> <p><i>To supra-specialist centre</i></p> <p>Red flags/urgent referral for:</p> <ul style="list-style-type: none"> Suspicion of intracranial pathology Extreme distress (not psychiatric disorder) 	

PRIMARY CARE	LOCAL TINNITUS SERVICE (1st level)	SPECIALIST CENTRE (2nd level)	SUPRA-SPECIALIST CENTRE (3rd level)
<p><i>To specialist centre (2nd level)</i></p> <p>Red flags/urgent referral for:</p> <ul style="list-style-type: none"> • Sudden/rapidly progressive hearing loss • Pulsatile tinnitus • Neurological signs and symptoms • Significant distress <p>Routine referral for:</p> <ul style="list-style-type: none"> • Unilateral/asymmetric/fluctuant hearing loss • Unilateral/asymmetric tinnitus • Aural pathology requiring specialist opinion • Neurological signs and symptoms • Troublesome/intrusive tinnitus • Failure to respond to treatment <p><i>To supra-specialist centre</i></p> <ul style="list-style-type: none"> • Red flags: • Urgent referral for suspected intracranial pathology 	<p>Routine referral for:</p> <ul style="list-style-type: none"> • As per updated TTSA guidelines • Persistence despite early interventions • Unilateral/asymmetric/fluctuant hearing loss • Unilateral/asymmetric tinnitus • Aural pathology requiring specialist opinion • Neurological signs and symptoms • Troublesome/intrusive tinnitus • Failure to respond to treatment in absence of associated pathology • Lack of diagnosis • Persistence despite early interventions • Extreme distress <p><i>To supra-specialist centre</i></p> <p>Red flags/urgent referral for:</p> <ul style="list-style-type: none"> • Suspected intra-cranial pathology • Extreme distress 	<p>Routine referral for:</p> <ul style="list-style-type: none"> • Lack of diagnosis • No or poor response to earlier interventions 	

PRIMARY CARE	LOCAL TINNITUS SERVICE (1st level)	SPECIALIST CENTRE (2nd level)	SUPRA-SPECIALIST CENTRE (3rd level)
Workforce <ul style="list-style-type: none"> GP with or without special interest in audiology 	Workforce <ul style="list-style-type: none"> Audiologists +/- hearing rehabilitation expertise 	Workforce <p>MDT comprising:</p> <ul style="list-style-type: none"> Consultant AVP ENT surgeon Audiological Scientist Audiologists Hearing therapist Clinical psychologist Nurse Admin and clerical staff Access to other medical specialties 	Workforce <p>MDT comprising:</p> <ul style="list-style-type: none"> Consultant AVP ENT surgeon Audiological Scientist Audiologists Hearing therapist Clinical psychologist Nurse Admin and clerical staff Access to other medical specialties

Annex 2: Third sector patient support groups

The British Tinnitus Association, a registered charity, provides information and support for people with tinnitus. It provides a helpline, information leaflets as well as quarterly magazines and help to set up local support groups. The BTA website provides e-mail addresses of international tinnitus organisations worldwide and a list of tinnitus/hyperacusis centres, UK tinnitus self help groups and sites for younger people.

Useful websites

Tinnitus support groups: www.dailystrength.org and <http://www.medhelp.org/medical-information/show/150/Tinnitus>.

Tinnitus information and support: www.tuneouttinnitus.org.uk

BTA: www.tinnitus.org.uk

RNID: www.rnid.org.uk

Hyperacusis information and support: www.hyperacusis.net

Preventing hearing loss: www.dontlosethemusic.com

British Society of Audiology: www.thebsa.org.uk

Institute of Hearing Research: www.ihr.mrc.ac.uk/research/

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