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# Audiology's Third Pillar: Comprehensive Follow-Up Care and Counseling for Those Who Choose to Self-Direct Their Care

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## Abstract

Given the anticipated changes to hearing aid distribution, it is imperative for hearing care professionals to identify new approaches to providing services for persons with hearing loss. One of the primary challenges associated with over-the-counter and self-fitting hearing aids is that all of the control is placed into the hands of the consumer. Although a considerable number of aging Baby-boomers prefer to self-direct their healthcare, when provided that option, a relatively small number of persons with hearing loss are likely to successfully complete the entire process of self-assessment, and self-fitting of hearing aids. Building on the two cornerstones of clinical audiology: diagnosis in the medical arena and rehabilitation in the delivery of services for individuals with chronic conditions, this chapter proposes the new, third pillar of audiology is the provision of comprehensive follow-up and counseling. Moving beyond simply instructing persons with hearing loss on how to use their hearing aids, this chapter lays the groundwork on guiding individuals on becoming independent self-managers of their condition and how these services can be provided in an ethical and profitable manner in a typical clinic.

**Keywords:** self-directed care, patient decision aids, patient centered communication, self-fitting hearing aids, shared goal setting, device mastery skills, self-management skills, service packages

## 1. Introduction

By most standards, audiology is a relatively young profession, burgeoning in North America and Western Europe following World War II. Cutting its teeth by managing the needs of soldiers returning from the war, audiology centered on two distinct practices: (1) Diagnostics, particularly the identification of ear diseases using an evolving battery of site of lesion testing. This battery of tests included, air and bone conduction pure tone threshold testing, speech audiometry, tympanometry, and acoustic reflex thresholds. Eventually, electrophysiologic assessment of the auditory and balance system including auditory brainstem response (ABR) and otoacoustic emissions (OAE) assessment were added to armamentarium of audiologists involved in diagnostic assessments. (2) Treatment and rehabilitation, specifically the selection and fitting of hearing aids for individuals with

benign forms of hearing loss. Aural rehabilitation, with its emphasis on exercises to improve communication skills, should remain an important part of the second pillar. Beyond these traditional components of Audiology, changes in the market are likely to provide opportunities to provide different types of services to individuals with hearing loss.

Managing adults with hearing loss is by far the most fundamental aspect of audiology practice making this the bread and butter of our profession. Both pillars of clinical audiology, diagnostics and treatment/rehabilitation, will remain integral components of care for persons with hearing loss, however, technological progress, driven mainly by Moore's Law and the evolving consumer demands of the Baby-boomer generation are expected to change how Audiology is practiced. Over the next decade, self-fitting hearing aids and other amplification devices purchased over the counter, without the assistance of a licensed professional, will likely enable persons with hearing loss to self-direct or self-manage their own care. The availability of self-directed care, which includes self-administered hearing testing and self-fitting hearing aids, will enable persons with hearing loss to select and fit hearing aids without intervention of an audiologist. The ability of persons with hearing loss to self-direct their care warrants the development of a third pillar in Audiology. One devoted to comprehensive care and well-being of the person with hearing loss that is not dependent on the purchase of hearing aids directly from a licensed professional.

**Self-directed or self-managed care** is defined as a patient's or customer's ability to identify and treat a perceived condition without the assistance, guidance or input of a credentialed expert. The purchase of medication, such as pain relievers for a headache is perhaps the simplest type of self-directed care. Smartphone-enabled apps that collect and analyze bodily functions are allowing more opportunities for people to self-direct their own care. Self-fitting hearing aids may soon be a viable option for individuals opting to self-direct their hearing care. If these types of devices are purchased on-line, a growing number of individuals could seek services from an audiologist *after* they have purchased hearing aids elsewhere.

## **2. Self-fitted hybrid hearing devices**

Hearing aid technology has never been better, yet a surprisingly large number of persons with hearing loss fail to embrace it. Fortunately, as smartphone-enabled apps, Bluetooth streaming and voice-activated algorithms find their way into traditional hearing aids, it increased the chances that this technology can be successfully selected and fitted without the guidance of an audiologist. Exactly who can benefit from this newer technology has not been firmly established, nevertheless, audiologists must be ready to practice in a future where some people can self-fit their hearing aids, referred to in this chapter as self-fitted, hybrid devices.

The combination of changing demands within the market, led by an aging Baby-boomer population and rapidly evolving hearing aid technology, has paved the way for new ear worn products. These products combine the advantages of traditional hearing aids, such as stable gain without feedback and sophisticated noise reduction technology with consumer audio products that interface with smartphone-enabled apps and allow their users to easily adjust them, often with voice-activated technology. Commonly referred to as hybrid hearing devices, there are a range of products that exist on a continuum. Some of these products are classified as traditional hearing aids, while others are conventional consumer audio products that happen to provide some nominal amount of amplification.

Importantly, both hearing aid manufacturers and consumer electronics companies are bringing products to market today that are considered, multi-tasking hybrid devices. Some, of course, have as their core function amplification with direct audio streaming via Bluetooth or biometrics as a secondary function. On the other hand, consumer electronics companies are bringing a wide range of ear worn devices to market that have customizable amplification as one of many features for the wearer to use. As technology continues to evolve, especially in the emerging era of voice activated algorithms (e.g., Siri and Alexa), these hybrid devices are likely to become easier to use for a wider range of the population.

As we move into this brave new world of multi-tasking audio gadgets, here are a few key points to remember about these hybrid devices: (1) These are true multi-tasking products that provide the wearer with a core function, which could be amplification, phone and music streaming, language translation or biometrics, and whatever feature from this list not deemed by the wearer as the core feature becomes a secondary function for the wearer. (2) Many of these devices are self-fitting in nature. This, in theory, enables their wearer to purchase the device, fine-tune and wear it without ever seeing an audiologist. (3) Some, yet to be determined number of individuals, who are interested in these hybrid devices will need help navigating the myriad choices, or after they have purchased a hybrid device will need some expert help and attention on maximizing their use—this final point is the third pillar of Audiology.

### **3. The third pillar: comprehensive follow-up care and counseling**

The ability to self-direct hearing care means that a potentially large number of individuals with hearing loss may not have to see an audiologist for care until *after* they have purchased hearing device. Given that most hearing aid purchases today are completed in a bundled manner (hearing aids and services are sold together as one “package”), the advent of self-fitting hearing devices will present Audiologists with the challenges of offering more unbundled professional services to individuals with hearing loss that purchased devices elsewhere, but now need counseling or device management support.

Some Audiologists are already offering “unbundled” or “itemized” hearing care services. This may be to cope with the constantly changing needs of individuals with hearing loss and to differentiate themselves in an evolving healthcare marketplace. Such an approach may bring opportunities for Audiologists to increase market share by assisting persons who may have purchased hearing devices online without the audiological services or support. However, little has been written about the ways in which Audiologists can effectively offer decoupled audiological services. The purpose of this chapter is to provide guidance and insights on how a third pillar of Audiology, one firmly centered on comprehensive follow-up care and counseling, unbundled from the sale of hearing aids, can be used to better serve the community and generate revenue for practice owners. Before offering specific comprehensive follow-up care and counseling strategies, let us take a closer look at how audiological services have been customarily delivered and how that is likely to change.

#### **3.1 Units based versus time-based business models**

For more than 30 years, regardless of practice setting, most audiologists have generated much of their practice revenue from the dispensing of hearing aids. The generation of this revenue is predicated on the number of hearing aid units sold over any given time frame. Given the large profit margins historically associated



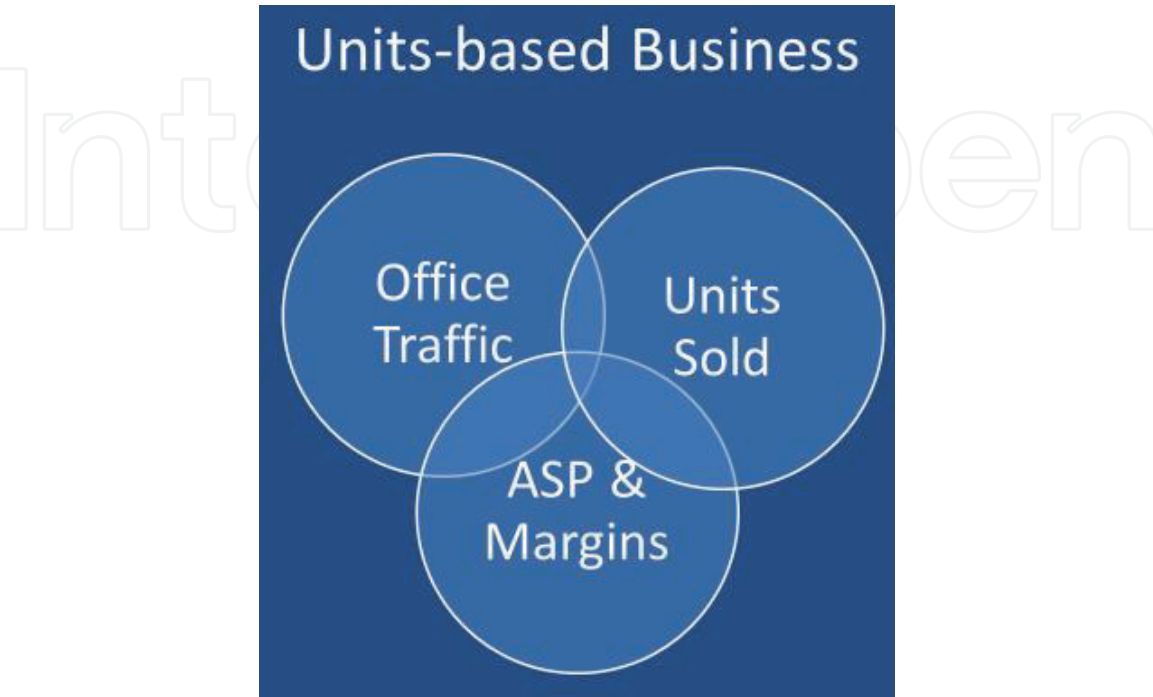
with the commercial sale of hearing aids, a relatively few number of hearing aid units could be dispensed within a month for a practice to remain profitable. For example, survey data collected from reputable sources, such as MarkeTrak 9 [1] that for every full time licensed professional working with a practice, 15–20 hearing aids per month are dispensed.

A relatively few hearing aids dispensed per month to maintain profitability is a basic descriptor of a units based business. In a units based business, marketing plans and operational strategies are implemented in the clinic with one primary objective: Reach a “units sold” target which covers all costs and generates a marginal profit for the practice. Stated differently, it does not matter too much how many patients you see in your clinic, if the hearing aid units sold number is sustained, the business goals are achieved.

The units based business model is summarized in **Figure 1**. The schematic shows the three key drivers of a productive hearing aid dispensing practice. Office traffic, which is a primary function of marketing and branding, is designed to bring enough people to the clinic that pre-defined number of units sold (hearing aids) can be achieved at a retail price (ASP = average selling price) that is appealing to patients and dispensed at a per unit margin that is profitable for the practice.

The prior statements are not intended to denigrate the unit-based business model. Unit-based business models are beneficial to consumers and clinicians. The high margin associated with the dispensing of hearing aids is largely a by-product of the number of hours it takes to select, fit and fine tune hearing aids, along with the substantial amount of face-to-face counseling time need to orientate and educate patients in the routine use of hearing aids.

The downside to the units based business model, however, is that it is inefficient. Because the primary objective of a units based business is to achieve a specific “unit sold” target each week or month, the model tends to view all patients in the same binary way: The patient is either a hearing aid sale opportunity today or a hearing aid sales opportunity in the future. And, revenue is generated only on those that are sales opportunities today. This binary view of patients—either the patient is a sales opportunity today or in the future—is at the heart of the inefficiency of



**Figure 1.**  
*The three key components of a units based audiology or hearing care business. ASP = average selling price.*

the units based business. It can take an inordinate amount of time to determine which category a patient falls into and when that determination is finally made, only the patients who agree to purchase hearing aids today generate revenue for the practice. Oftentimes many of the patients seen in a clinic, who might be candidates for hearing aids, generate zero revenue if they do not purchase hearing aids—even though a clinician spent an hour or more with the patient conducting a hearing test or hearing aid consultation.

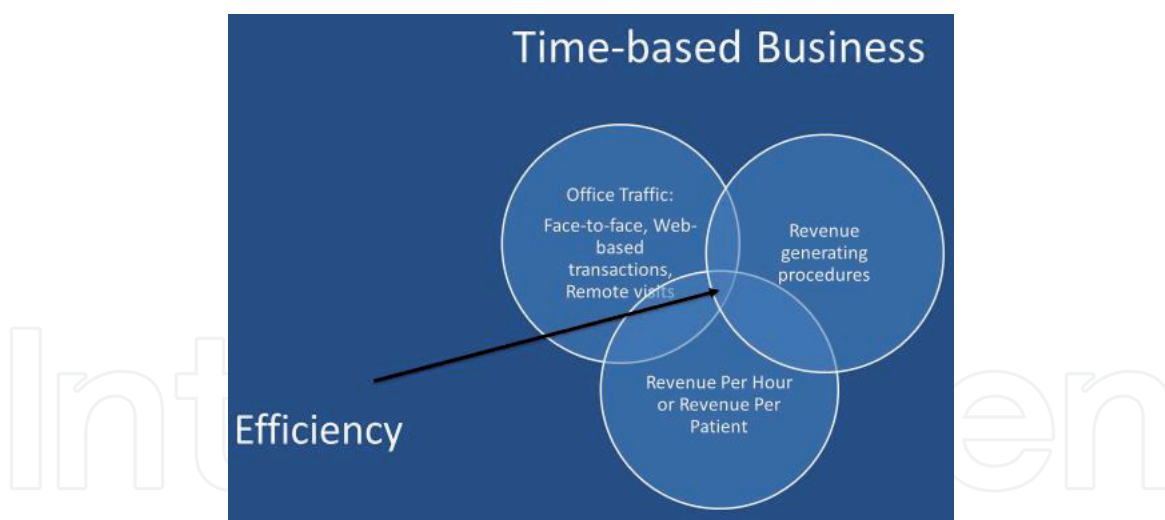
Additionally, the binary units based business model in which revenue is generated only when hearing aids are sold contradicts a lot of what we know about the psychosocial aspects of hearing loss in adults. A relatively large subsegment of persons with hearing loss seek the advice of audiologists even though they may not be ready to move ahead with a treatment plan that includes hearing aids. Although these patients likely benefit from a professional encounter with a clinician who helps them sort through the psychosocial aspects of hearing loss, it is common practice for these patients to *not* be billed for time spent with the audiologist *unless* hearing aids are purchased.

### 3.2 Unbundling and Itemizing

Unlike many technical terms in the profession of audiology, these two terms are not officially defined, so they are a little fuzzy. Here is one common way to differentiate these two terms: Itemizing refers to a list of all the services and procedures completed by a professional. Even though a charge might be associated with each procedure that is itemized, the patient typically pays a single fee that is bundled with the service. On the other hand, unbundling refers to separate fees associated with various services delivered during an appointment. For example, it is becoming more common in the United States for audiologists to charge one fee for the hearing aids and another fee for professional services associated with provision of those devices. Most audiologists would consider this example an unbundled service model.

In contrast to a unit-based business, a time-based business places monetary value on virtually all encounters between the patient and the provider. Revenue is generated in a time-based business even when hearing aids are not dispensed to the patient receiving the services. There are several forces dictating that audiologists move from a units based to more of a time-base business model. The root cause of these market forces is the rapidly aging senior population. It is believed approximately 10,000 aging baby-boomers are turning 65 years of age each day. Given the size of their demographic and the prevalence of hearing loss associated with age, third party health insurance companies (Medicare Advantage programs), big-box retail chains and start-up consumer electronics companies are poised to tap into this growing demand for novel approaches to hearing care. The opportunity looks even riper when low hearing aid ownership rates among older Americans with hearing loss is considered.

**Figure 2** shows an example of the underpinnings of a time-based business. Notice office traffic is still a primary driver of revenue-generating activity; however, as tele-health becomes a reimbursable option of service delivery, some of types of face-to-face encounters could be replaced by it. Also, notice in the time-based model, “units sold” is replaced with “revenue generating procedures.” As more third party payers and direct to consumer hearing aid options come to market, clinicians can expect a growing number of patients to bring an already-purchased hearing aid that require some type of service. Additionally, in the future, it is plausible that clinicians, after a careful triaging process, could recommend patients purchase self-fitting hearing aids at a lower cost. Patients that opt to self-fit could then purchase services from the audiologist.



**Figure 2.**  
The key characteristics of a time-based business model.

It is unlikely the time-based business model will completely supplant the units based model. After all, a substantial number of patients will still seek to purchase their hearing devices from a licensed professional. For rank and file clinicians, however, working in a units based business model that generates most of their revenue through the sale of hearing aid units, a substantial amount of money could be left on the table when a growing number of older Americans might purchase hearing aids directly from a Medicare Advantage program, a big-box retail center or on-line. Thus, the ability to offer a service of value—one that stands apart from the delivery of a product—is imperative to the financial viability of the practice in the emerging era of consumer-driven hearing care. Given the importance of time in the revenue generating process, combined by the fact that the number of available clinical hour is restricted to six or seven patient appointments per day, efficiency is of paramount importance.

A cornerstone of any time-based business is filling the audiologist's schedule with as many revenue generating opportunities as possible. This requires careful management of the schedule to ensure there is ample time to see new patients without them having to wait more than a few weeks to see the professional for an appointment. In an audiology business, the necessary follow-up service needs of existing patients always threaten to overtake the time of the professional who needs to have new revenue-generating opportunities on their schedule. By following the three-step approach below, licensed providers can embrace a time-based business model without compromising the profitability of the units based business model.

In a time-based business model, it is the amount of time needed—not the number of procedures you conduct, or the number of hearing aids (units) dispensed—to optimize patient outcomes that matters the most. If you are moving from a units based business model to one that is primarily time-based, there are two important considerations. Each consideration warrants careful attention and planning on the part of the clinical manager.

### 3.2.1 Determine revenue per hour

In a time-based business, it is critical to know how much to charge for time spent with patients. This requires calculating revenue per hour (RPH) of the practice. The main elements of the RPH equation are gross profit requirements and available productive hours. To determine RPH, the numerator of the equation is gross profit requirements, which are generally considered to be gross revenue, cost

Tasks	Responsible Person	Time / CPT Code
Check-in devices (pre-appointment) and prep for appointment	Tech	20 minutes
Check physical fit	Audiologist	5 minutes
Fine tuning, Verification with PMM	Audiologist	15 minutes V5090
Establish expectations, Review goals	Audiologist	15 minutes V5190
Orientation: demonstrate how to use, Review instruction booklet	Tech	15 minutes
Review care and usage, batteries, answer questions	Tech	10 minutes

**Figure 3.**  
*An example of how the labor required to meet the needs of one person with hearing loss is divided between the audiologist and the technician/assistant.*

of goods of hearing aids and an expected profit margin. The denominator of the equation is available productive hours, which are the total number of hours calculated over an entire year for one full time audiologist to see patients. Typically, this number is based on a full-time clinician seeing patients for 6 hours per work day. Once you have gathered all those numbers, the RPH calculation is simple. In many cases, the RPH number is around \$200–250 (American dollar) per hour.

The RPH number that is calculated for a practice is used to determine time-based pricing. For example, if the RPH number is \$200, then a 30-minute appointment needs to have a fixed price of around \$100. Just as important as determining pricing for time-based service appointments, the RPH value helps determine if your practice should sign-up for a third party insurance contract. For example, let us say, there is a Medicare Advantage program willing to pay you an \$800 fitting fee for a pair of hearing aids with standard, mid-level technology. As part of the service contract, your practice is expected to provide three visits, which includes the initial fitting. If your RPH is \$200, this is a profitable transaction because the fitting fee of \$800 exceeds the minimum amount of time required to spend with the patient. The challenge, of course, with this type of time-based service agreement is that some patients require considerably more time if their needs are more complex.

3.2.2 Define service packages

Once revenue per hour (RPH) has been calculated, the next step is to determine what tests and procedures will be included in various service packages. Before we delve into the details of service packages that can be offered in a typical audiology practice, later in this chapter, it is important to note that whatever service package is defined and created by a practice must stand alone from the delivery of a device. That is, one purpose of the service package is to offer something of value to the individual who purchased devices elsewhere but needs additional intervention or assistance. **Figure 3** shows how time spent with a person with hearing loss can be divided between the licensed audiologist and a technician who assists the audiologist in the delivery of care. Note how labor is divided between the two professionals.

4. Two types of help seekers

To better appreciate the delivery of an unbundled service package, let us examine two different types of help seekers who are apt to find their way into an



audiology clinic in an era in which persons with hearing loss can choose to self-direct their care. In a marketplace where individuals have the option to self-direct their care, audiologists must be prepared to offer services to two distinct types of patients: (1) help seeking individuals who do not own hearing devices and (2) individuals who own hearing devices seeking help from a professional. Additionally, it is worth acknowledging there will be some patients who will choose to self-direct their care who will not ever see an audiologist, either because they are successful in the self-fitting process and do not need the help audiologists provide or have been unsuccessful and have given up on the process.

For help seeking individuals who do not currently own hearing devices, a primary objective of the communication assessment, which is conducted by audiologists, is to separate patients who view their condition of low importance from those who view their condition to be of high importance. A basic tenet of patient-centric care is ensuring persons with hearing loss have a choice as to when they desire to begin treatment. Knowing if the person with hearing loss believes the condition is important enough to begin treatment is a critical initial step. Thus, during an initial appointment in which communication needs are assessed, it is critical to ask about the importance (or urgency) to treat their communicatively significant hearing loss.

#### **4.1 Help seekers without devices: importance to treat is a touchstone**

In a world where people can choose to self-direct their care, their pathway to the audiology clinic is likely to be different than how individuals currently receive hearing care services. Historically, individuals with hearing loss completed all the tasks related to hearing aid purchase and use from a single clinic. Today, it is becoming apparent that hearing devices can be purchased without the assistance of a licensed hearing care professional from one entity (e.g., Amazon or Hearing Planet) and fitted and adjusted elsewhere, if the buyer of the hearing device seeks additional help. It stands to reason that many of these individuals seeking help for their hearing loss that do not own hearing aids, could independently visit a clinic, retail shop or even a website and evaluate a range of hybrid products. (A hybrid device combines features of a traditional hearing aid [e.g., customizable gain settings, frequency shaping] with features commonly found in a consumer electronic device [e.g., voice-activated algorithms, music streaming]).

Moreover, over-the-counter (OTC) hearing aids are expected to become a regulated medical device by the U.S. Food and Drug Administration (FDA) by the end of 2020. Thus, a growing number of American consumers could purchase amplification devices without first seeking input or guidance from a state licensed hearing care professional and for various reasons eventually consult a licensed professional with hearing devices in hand. To prepare for a future where OTC hearing device exist as an officially regulated medical device, and to remain an integral part of providing professional services in a marketplace filled with hybrid devices, audiologists need to become well-versed in helping people choose the hybrid product that is right for them.

The bottom line is clinicians must realize individuals with hearing loss can purchase amplification devices directly without the assistance of a licensed professional. As these devices become more readily available (and likely more user friendly with better sound quality), clinicians must identify consumer “pain points” where they can add value. The next section examines ways clinicians can add value, decoupled from the sale of a product.

#### **4.2 Use of decision aids**

Clinicians are encouraged to use easy to read decision aids that depict a range of hearing devices and treatments, from personal sound amplification products

(PSAPs) to hearing aids with direct streaming. The role of the audiologist is to summarize the pros and cons of each category of treatment in relation to the needs and test results of the individual in need of services.

Let us examine a more traditional example of a person in need of help from an audiologist and how patient centric tools can be applied to the process of guiding patients through the process of improving their communication ability. Most clinicians probably encounter the following situation more than a few times per year: A older adult with a moderate, bilateral hearing loss—an audiogram crying for help, who perceives the problem to be “no big deal” or believes his hearing is near-normal. Even for the patient with significant hearing loss who is a hearing aid candidate, if the problem is considered by that patient to be of low importance to treat, spending an hour convincing them to try hearing aids is usually an ineffective tactic. On the other hand, for patients who view their condition to be of high importance to treat, spending an hour or more with that patient is more likely to result in a set of well-planned treatment goals and the purchase of hearing devices. To separate patients of low importance from those that consider their condition to be of high importance, the use of a simple scaling question, “On a scale of 1–10, 10 being the most important priority for you today and 1 not important at all, how important is getting help for your hearing loss?” is extremely helpful. It is important to remember patients with a chronic condition need to buy-in to the treatment process for it to be effective, therefore, understanding the patient’s perspective is paramount. Asking about how convinced they are that their condition is important to treat is a useful starting point.

For the “importance to treat” question, if the patient provides a number lower than, say, six, it is an indication that the patient’s awareness of their condition and its impact on daily activities needs to be raised. When patients who view their condition to be of low importance to treat it does not make sense to convince them to accept a recommendation of hearing aids—even when significant hearing loss is present. Rather, the focus of the initial appointment with the audiologist should be to increase patient awareness of the consequences of their condition on daily communication.

This process begins at the initial appointment, but treatment may not begin for some time later when the patient is ready to move forward with treatment because their communication deficit becomes more important for them to treat. Thus, patients who view their condition to be of low importance to treat usually require less face-to-face time with the clinician at the initial appointment and should be encouraged to schedule another appointment later (perhaps 3–6 weeks) to monitor the patient’s perception of the condition and their willingness to move ahead with goal setting and treatment planning.

For patients who view their condition to be of low importance to treat, rather than discussing treatment options, such as hearing aids, the audiologist can ask the patient to thinking about places where communication is becoming a burden. Part of this dialog can be a discussion of the emotions associated with an inability to communicate effectively. The communication partner, typically a spouse, should also be involved in this conversation. The goal of the conversation between patient, communication partner and audiologist are to raise awareness of the impact their condition has on communication.

One tactic to consider employing with patients who view their condition to be of low importance to treat is the use of a journal or log. **Figure 4** is an example of a check list that can be used to raise awareness of the consequences of untreated hearing loss and its effect on mood and behavior. The idea is to provide this checklist to the patient and communication partner at the end of their first appointment and ask them to complete the check list within the next 3 weeks and return for a second,

Communication Situations	Emotions Associated with Hearing Challenges
<input type="checkbox"/> Watching TV	<input type="checkbox"/> Frustration
<input type="checkbox"/> Riding in the Car	<input type="checkbox"/> Embarrassment
<input type="checkbox"/> At the Dining Room Table	<input type="checkbox"/> Annoyance
<input type="checkbox"/> Quiet Time with Family	<input type="checkbox"/> Anger or Agitation
<input type="checkbox"/> Grandchildren	<input type="checkbox"/> Withdrawal
<input type="checkbox"/> Social Gatherings	<input type="checkbox"/> Anxiety or Worry
<input type="checkbox"/> Restaurants	<input type="checkbox"/> Uneasiness
<input type="checkbox"/> Religious Ceremonies	<input type="checkbox"/> Uncomfortable
<input type="checkbox"/> Telephone	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Movies/Theatre/Lectures	
<input type="checkbox"/> Meetings at Work	
<input type="checkbox"/> Doctor's Appointments	
Other: _____	

Secondary Functions
<input type="checkbox"/> Tired or Fatigued
<input type="checkbox"/> Low Attention Span
<input type="checkbox"/> Hard to Remember
<input type="checkbox"/> Unsteady on My Feet

**Figure 4.** *An example of a simple checklist that helps raise awareness of consequences of untreated hearing loss. With guidance from the audiologist, a patient along with a communication partner completes this prior to a second appointment.*

exploratory appointment to discuss the results and the need to move forward with treatment.

Much is still to be learned about the best approaches to working with persons with hearing loss who view their condition to be of low importance to treat. Currently, in the units based business model in which revenue is generated only when hearing aids are dispensed and services are bundled into the price of each sale, persons with hearing loss who view their condition as low importance to treat receive professional services, but often receive those services for free. For first time help seekers without hearing aids, when this initial appointment is viewed as “counseling time” in which the clinician is guiding the patient through the self-discovery process using effective information gathering tactics and exploratory dialog, it might be perceived by patients as a high value service that warrants a nominal fee. Additionally, it is possible that patients who perceive their condition to be of low importance to treat might be amenable to a use of low cost PSAP as a low-risk starter device. In a recent University of Iowa study that used realistic listening conditions, the researchers found that while three the PSAPs evaluated in the study did not outperform professionally fitted hearing aids, the PSAPs did offer significant improvement compared with the unaided condition, and thus could serve as a budget-friendly option for those who cannot afford or do not want to try traditional hearing aids.

Contrast individuals with low importance to treat with those who consider their hearing loss to be of high importance to treat. It is likely these patients would provide a much higher rating on the scaling questions posed above, say a seven or higher on the scale, and therefore require more time with the audiologist during an initial appointment. During this initial appointment treatment goals could be targeted, and agreement could be reached on a treatment plan, usually involving hearing aids. **Figure 4** is an example of a goal planning sheet, called the patient expectation worksheet (PEW). Note there is space to customize five specific treatment goals. Additionally, the goal planning sheet can be used to compare the pre-treatment expectations of the patient to the pre-treatment expectations of



the audiologist. The dialog generated from the tactic of comparing views on pre-treatment expectation is a great example of how a patient, who is an expert on their own personal needs and lifestyle demands and an audiologist, who is an expert on hearing disorders and treatment options, work together to arrive at a workable solution. The PEW is also used following treatment to gauge the success of treatment.

Regardless of a patient's self-rating on the importance to treat scale, the time spent with the patient by the audiologist warrants a fee. For the patient who self-rates low on the importance to treat scale, a 30-minute appointment might be sufficient, while the patient who self-rates higher on the importance to treat scale is apt to require one full hour of time during which time several variables such as speech understanding in noise ability, motivation, family support, self-efficacy, and other factors are assessed.

Besides using the importance to treat scaling question to guide the flow of an appointment, audiologists need to identify mechanisms that accurately identify patients who might be able to successfully self-fit hearing aids. Many of the controls used by audiologists to program and fine tune hearing devices will be handed over to patients via a smartphone app. Thus, in the future, audiologists need mechanisms in place that help them separate who are good candidates for self-fitting hearing aids from candidates for audiologist-driven, conventional hearing aids.

One of the central tenets of patient centered care is that the patient and provider collaborate in the goal setting and treatment planning process. Both parties bring something important to the help seeking appointment and it is the responsibility of the audiologist to articulate the valuable role both parties play during this process: The patient is the expert on their condition and the audiologist is the expert on hearing loss and treatment options. This partnership comes to fruition during the goal setting process. As noted in **Figure 5**, the Patient Expectations Worksheet (PEW) allows the patient to articulate treatment goals and to self-rate their ability to communicate in those areas targeted for improvement on a 1 (hardly ever) to 5 (almost always) scale. This is noted by the letter 'C' on the PEW. Next, the patient is asked to self-rate on the same 1–5 scale where they expect to communicate post treatment. This is signified on **Figure 5** with the letter 'E'. After the patient has provided these two self-ratings, the audiologist then provides, based on their interpretation of the patient information gathered during the assessment process, their prognosis for realistic improvement following treatment. This is signified on **Figure 5** with the checkmark. Finally, the letter 'I' is used to connote the actual level of improvement 3–6 weeks following intervention.

PEW – post-treatment

I am successful in this situation...

Goal (list in order of priority)	Hardly Ever	Occasionally	Half the Time	Most of the Time	Almost Always
1. To hear my adult children on the telephone.		C		E I ✓	
2. To enjoy television while I m sitting at my table.	C				✓ E I
3.					
4.					
5.					

C = how the patient functions currently (pretreatment or with current technology/strategies)  
E = how the patient expects to function postintervention (HA, ALD, strategies, etc.)  
✓ = level of success that the audiologist realistically targets  
I = how the patient actually perceives level of success postintervention

**Figure 5.**  
*The patient expectation worksheet (PEW) used to target individualized treatment goals and expectations.*



**Figure 6** shows an alternative shared goal setting approach involving input from the patient’s communication partner. Developed by Jill Preminger and others associated with the Ida Institute, The GPS (Goal sharing for Partner S) is a step-by-step guide designed to facilitate discussions between the person with hearing loss and their communication partner to establish common communication goals. As stated on the Ida Institute website, the purpose of GPS is to help the person with hearing loss and the communication partner to: (1) acknowledge the hearing loss and the activity limitations and participation restrictions placed on each by the hearing loss and the resulting emotional impact; (2) recognize their communication partnership and accept their shared responsibility to work together to improve communication; and (3) establish realistic communication goals and determine the steps necessary to achieve these goals.

The GPS allows the person with hearing loss and communication partner to first identify areas of daily life when communication may be easier. Next, both parties identify communication problems each experiences and then each person is invited to take the perspective of the other person and identify communication areas each thinks the other person is finding to be a problem. Finally, each party is invited to collaborate on some shared goals.

4.3 Individuals with hearing devices seeking help

Unlike help seekers who do not own hearing devices, the second category of patients, help seekers who own hearing devices, is not commonly seen in clinics today, but their numbers are expected to grow. With the expected launch of self-fitting hearing aids (SFHAs) and other direct to consumer hearing devices, this second category of patients could benefit from service provided by an audiologist—after they have already purchased SFHAs or another type of amplification device purchased over the counter. The type of help they are seeking could take many forms, however, a couple of recently published studies might shed some light on the role audiologists play in providing services directly to individuals who choose to self-direct their hearing care.

Humes et al. [2] used conventional multichannel hearing aids in a randomized, blinded study that compared the device across three different conditions:

GPS: Developing Shared Goals	
Step 1	Easy Communication
Step 2	PHL: Problems I Experience
	PHL: Problems my CP experiences
Step 2	CP: Problems I Experience
	CP: Problems my CP experiences
Step 3	What problems do you both experience?
Steps 4 & 5	Shared Goals & Strategies to Achieve Goals
	Order of Importance
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>

Notes: CP = Communication Partner; PHL = Person with Hearing loss

**Figure 6.**  
The goal sharing for partners–S, developed by the Ida Institute.

(1) Hearing aids pre-set to mimic devices sold over the counter, (2) Professionally fitted devices that matched a prescriptive target and included face-to-face guidance and support from a clinician, and (3) A placebo control in which the hearing aids were set to match the characteristics of the open ear canal. Among the key findings was that 20% of those fitted with the OTC-like devices benefited from help by the audiologist during the evaluation period. Following the intervention by the audiologist, of the patients who requested help with their OTC-like fitting, approximately half of this group wanted to keep their hearing aids at the end of the evaluation period. These results indicate that a substantial number of individuals, approximately 20% according to this study, who first opt to self-direct their care by purchasing OTC hearing aids would benefit from the assistance of an audiologist during the initial 30–60 days of device use.

In another recent study examining factors associated with self-fitting hearing aids, Keidser and Convery [3] asked a group of 60 middle-aged to older adults to follow a 9-step task to self-fit a pair of hearing aids. The self-fit hearing aids used in the study were receiver in the canal devices programmed and adjusted with a smartphone app. Additionally, part of the self-fitting task involved an in-situ hearing test.

Several variables, including cognitive status, self-efficacy, problem solving ability, and locus of control that could have impacted participants' success with the self-fitting hearing aid process were evaluated. Results showed that 68% of the study participants were able to successfully complete the entire self-fitting process either independently or with the assistance of a trained non-audiologist. Of the group that could successfully self-fit, 37% of them did so independently, while 63% sought help from the non-audiologist assistant. Two variables, locus of control and problem-solving ability had some limited predictive value, suggesting that both traits should be evaluated before someone purchases self-fitting hearing aids. More interestingly, study participants who did not use a smartphone were more likely to need assistance with the self-fitting process, suggesting that smartphone use is a lead indicator of SFHA candidacy. Finally, those that did need assistance with the self-fitting process received effective help from a non-audiologist assistance.

Together, these two studies, even though they used slightly different over the counter (OTC) hearing aid delivery models, indicate a self-fitting device should provide access to trained support personnel that can assist the patient with the self-fitting process. And, this support service can be provided successfully by non-audiologist either in a face-to-face manner or using video conferencing tools, such as Skype.

#### **4.4 Who might fail at self-fitting hearing aids?**

Assuming self-fitting hearing aids will be purchased over the counter soon, it is important to think about individuals who might try and fail. One group that comes to mind is older adults who have concerned children or grandchildren that buy devices on-line. Audiologist need to provide a valued service to this group who already has hearing aids and needs additional service.

Help seeking individuals who have already purchased hearing devices elsewhere could need follow-up care that can be placed into one of two categories: device mastery skills and self-management skills. Each category of service requires the audiologist (or a trained non-audiology assistant) to customize the fitting, counseling or educational support of the person in need of help. Let us examine these two categories of service, mindful that each can be delivered unbundled from the sale of hearing aids.

## **4.5 Device mastery skills**

Any service delivered by an audiologists that depends on the patient's interaction with their hearing devices can be placed in the device mastery skills category, including:

- Customization of device performance using real ear measures to ensure a prescriptive target is being matched
- Insert and removal of hearing aids from ears
- Basic orientation—how to use features and accessories of devices
- Care and maintenance of devices
- Expectations of initial use of devices
- Pairing device to mobile device and adjustment of SFHAs with app
- Auditory training exercises that include use of hearing devices during the training

Note that many of the components of device mastery are addressed in the user manual of the hearing device. In addition, many of these device mastery skills can be taught via YouTube videos or a smartphone-enabled app.

Once a device mastery plan has been customized for the individual (and when permitted by state regulations) audiologists should consider the use of a well-trained, competent non-audiology assistant to deliver all or part of the patient support of these device mastery skills.

As we peer into the future, SFHAs are likely to become easier to use for a larger segment of the population. As SFHA technology becomes easier to use and meshes seamlessly with smartphones and Bluetooth-enabled devices, it is also likely that the user instruction manual will become more interactive. It is safe to assume that many of the device mastery skills listed above could be replaced by smartphone-enabled apps that help a patient troubleshoot problems associated with their hearing devices. Thus, audiologists should be poised to provide device mastery services to individuals that require face-to-face intervention, perhaps scheduled across several service appointments.

## **4.6 Self-management skills**

Hearing loss self-management skills refer to the knowledge and skills people use to manage—as independently as possible—the effects of hearing loss on all aspects of their lives. Moving beyond device mastery skills, teaching individuals to actively identify challenges and solve problems associated with their hearing loss describes the term self-management. For audiologists, providing self-management skills training could be an opportunity to offer a tangible service that stands apart from the delivery of a device.

Given the movement toward more over-the-counter purchases of hybrid hearing devices, it is imperative that audiologists have some tangible services, valued by the marketplace, that fall under the rubric of hearing loss self-management skills. Beyond successfully using hearing aids, hearing loss self-management skills

encompass maintaining physical and emotional well-being, active monitoring of changes in hearing loss or hearing device effectiveness, and taking an active role in long-term care and decision making. In a paradigm that focuses on improving self-management skills, it is the responsibility of the audiologist to help patients acquire these skills.

## **5. Helping patients become better self-managers of their condition**

Self-management skills for adults with hearing loss is defined as the patient independently demonstrating the following behaviors: (1) Active participation in the goal setting and treatment planning process, (2) Adherence to an agreed upon treatment plan, (3) Ability to recognize and manage changes in condition or treatment plan, and (4) Use of proactive coping strategies when communication becomes challenging or treatment plan falls short of expectations. When audiological rehabilitative is viewed through the lens of improving hearing loss self-management skills, the provision of a hearing device from the audiologist is not necessarily needed.

When audiologists improve the self-management skills of adults with hearing loss, several benefits are likely to occur: Individuals, who can effectively self-manage their condition, are less likely to show up unannounced in the clinic looking for additional help, they are more likely to keep their scheduled appointments and to experience improved outcomes. All of which help a practice operate more efficiently.

It is likely that many adults with hearing loss, regardless of where they purchased hearing devices, will benefit from becoming better self-managers of their condition. If a primary role of audiology is to guide patients through the process of becoming better self-managers, the necessary services provided by the audiologists can probably be placed into one of these three categories: (1) Information gathering and exploratory dialog, (2) Goal setting and treatment planning, and (3) Monitoring progress and assessing outcomes. The foundational skills needed to perform that services are motivational interviewing, shared decision making, and other types of skills directly related to communication and counseling. It is a positive development, for example, to see collaborations between audiology and psychology that are encouraging the use of these skills.

To customize a hearing loss self-management plan for these individuals, Convery et al. [4] developed a self-management interview process centered around assessing the patient's knowledge of their condition and treatment options, actions that can be taken to improve or cope with their condition and coping strategies for difficult communication challenges. In their iteration of a self-management in-take process, they asked patients and audiologist to work together to complete a self-management interview. In this process, the audiologist asks the following questions to the patient:

1. Overall, what do you know about your hearing loss?
2. In general, what do you know about your treatment/management options?
3. How likely are you to manage my hearing loss as asked by your hearing care provider?
4. How likely are you to attend appointments as asked by your hearing care provider?



- 5. How likely are you to keep track of changes in your condition (e.g., sudden change in hearing, pain, hearing aids stop working)?
- 6. How likely are you to work with your hearing care provider to get the services you need?
- 7. How do you manage the effect of your hearing loss on how you feel (e.g., emotions, well-being)?
- 8. How do you manage the effects of your hearing loss on your social life (e.g., participate in activities, mix with other people)?
- 9. How confident are you that you can self-manage your condition effectively?

In addition to asking for responses from patients, the audiologist rated on a 1–8 scale their professional judgment as to patient’s ability to complete these tasks. The purpose of the rating and the interview was to individualize the self-management plan. Clinicians should be cautious about utilizing this interview format, as research is still being gathered on how it might apply to persons with hearing loss, especially those who have attempted to self-direct their care. However, responses to these interview questions could form the basis for a customized self-management treatment plan used with anyone in need of help, regardless of where they purchased their devices or what type of devices they are using.

The patient’s responses to the interview can be used to create a plan with the goal of assisting the patient become an independent self-manager of his condition. The plan can focus on improving one of the three components of self-management: (1) Knowledge of condition and treatment options, (2) Actions that improve the patient’s condition, and (3) Psychosocial issues resulting from the hearing loss that need to be overcome or addressed.

6. The self-management plan

The results of the self-management interview can be used to create a customized self-management plan for the patient. The objective of the self-management plan is to guide the patient toward becoming an independent communicator. **Figure 5** shows one example of a self-management plan for one older adult.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

The change I want to make happen is: \_\_\_\_\_

Become an independent communicator

My goal for the next month is: \_\_\_\_\_

Reduce frustration in group conversations

Action plan

The specific steps I will take to achieve my goal are: (include what, when, how, where, and how often)

Identify specific places where I become frustrated with my hearing loss.

Develop some strategies for reducing this frustration

The things that could make it difficult to achieve my goal include:

Not-using hearing aids correctly, not being assertive with my friends

My plan for overcoming these challenges includes:

Learn more about proper use of hearing aids, Ask friends to speak more clearly, go to quiet restaurants

Support and resources I will need to achieve my goal include:

Spouse, website, instruction materials

My confidence that I can achieve my goal is: (scale of zero to 10, with zero being not confident at all and 10 being extremely confident) 4

Review date: \_\_\_\_\_

With: \_\_\_\_\_

**Figure 7.**  
*An example of a customized self-management plan, which is an iterative process.*

The self-management plan, depicted in **Figure 7**, is an iterative process, which means that it is likely to change over time. Therefore, at least once a year the audiologist and patient sit down together and update the plan by modified goals and communication strategies. The main point is that a major focus is on the individual with hearing loss and not the mastery of devices, thus any patient who purchased their devices elsewhere are still a prime candidates to benefit from the provision of self-management skills training from an audiologist.

## 7. More on hearing aid follow up care

As experienced audiologists know, a substantial number of patients struggle with “getting used to hearing aids.” The term, “getting used to hearing aids” can mean many different things, but for our purposes, it refers to a patient’s ability to become a successful hearing aid user, which typically entails a bit of a learning curve as patients learn how to both use the hearing aids and listen to new sounds for the first in several years. If we all agree that successful use involves full time hearing aid use, as well as some combination of good satisfaction and benefit in real-world listening situations, it is incumbent upon audiologists to help patients get the most from their purchase of hearing aids.

Dawes et al. [5] examined some of the factors associated with getting used to hearing aids. According to their work, there are seven factors that moderate a patient’s ability to get used to their devices, which include:

- Acceptance of hearing loss
- Consistent use of hearing aids
- Gradually build up to full time use
- Determination to become a successful user
- Encouragement from others
- Good relationship with the audiologist
- Provision of information about how hearing aids works and the self-management process

Clinical audiologists can use this list of moderators to build a treatment plan that result in a patients becoming a successful wearer. By evaluating each of the seven components and devising a plan to improve shortcomings, the audiologist is directly contributing to an outcome that is more likely to be successful.

### 7.1 Customizing a “Getting Used to It” treatment plan

For each of the seven factors that moderate successful hearing aid use listed above, the audiologist can customize a plan. This process starts by asking one or two questions about each of these factors and devising a strategy for improving it. For example, for the factor of determination to be a successful user, the audiologist could ask some frank questions about exactly how determined a patient is to do what it takes to be successful. For those lacking determination, a strategy could be developed that addresses this gap.

Nearly every patient fitted with hearing aids in a clinic returns for several hours of additional follow-up care. Spread over the course of four or more years, these face-to-face visits with the clinician gobble up a lot of precious clinical time, but the additional time does not always result in favorable patient outcomes. For example, Bennett et al. [6] suggest the needs of adult hearing aid owners are not being adequately addressed during their follow-up appointments with an audiologist. According to their work, 90% of hearing aid owners demonstrated difficulty with basic hearing aid management tasks, such as inserting the device into the ear or properly cleaning it. They also reported that almost one-half of hearing aid owners did not receive enough practical help about their hearing aid use. Obviously, insufficient training and support can lead to poor outcomes and non-use of hearing aids. But just how widespread of a problem this poses is a question that warrants further analysis.

Rebecca Bennett of the Ear Sciences Centre at The University of Western Australia and her colleagues have addressed these apparent gaps in the informational and training needs of adults fitted with hearing aids. Using a research method called concept mapping, an approach previously used to study help seeking behaviors in adults with hearing loss, Bennett and her colleagues evaluated the opinions of both hearing aid owners and clinicians about their knowledge, skills and tasks required to use, handle, care and maintain hearing aids. Described by the researchers as hearing aid self-management skills, the main objective of their work is to better understand the key skills and attributes of adult hearing aid users, so that clinicians can deliver a better quality of care to individuals after they have been fitted with hearing aids.

In studies published in the peer reviewed journals, *American Journal of Audiology* and *Ear and Hearing*, Bennett and her colleagues identified more than 100 unique descriptors of the hearing aid management process that could be broken down into 6 separate concepts that influenced hearing aid use and quality of follow-up care: (1) working with your clinician, (2) communication strategies, (3) learning to come to terms with hearing aids, (4) hearing aid maintenance and repairs, (5) daily hearing aid use, and (6) advanced hearing aid knowledge.

Items 1–3 were classified as person-centered attributes, while items 4–6 were classified by the researchers as device-centered attributes. Hearing aid owners (24 of them participated in the study) indicated that all six concepts were similarly important, whereas clinicians (22 participated in the study) indicated that advanced hearing aid knowledge was less important to long-term success of the patient than the other five concepts.

Despite the on-going support offered to clients after they acquire hearing aids, they are often hesitant to seek help from their clinician, and instead engage in a myriad of helpful and unhelpful behaviors in response to problems that arise with their hearing aids. Previous positive and negative experiences with the clinic, clinician and significant other influenced these actions, highlighting the influential role of these individuals' in the success of the rehabilitation process. This data suggests that clinicians could improve hearing aid problem resolution by providing technical and emotional support, including to significant others by promoting client empowerment and self-management.

## **8. The importance of a therapeutic relationship during follow-up care**

Hearing aid wearers who participated in the study noted the importance of an effective working relationship between hearing aid wearer and audiologist. Traits of a good therapeutic relationship with their audiologist, such as awareness,

understanding, knowledge and a willingness to help were valued by hearing aid owners. On the other hand, patient traits, like proactive, help seeking behavior, knowing when to ask questions to the clinician, being comfortable divulging personal information, and asking for help contributed to a strong working relationship between patient and clinician.

The work of Bennett and colleagues cited previously serves as a reminder that successful long-term hearing aid use by patients has two distinct components: mastery of the device and independent problem-solving, self-management skills. To teach patients about these two components require audiologists possess both effective technical skills and interpersonal counseling skills. A careful reading of Bennett's work suggests clinicians need to excel at both: many clinicians focus too much of their attention on the technical aspects of the device at the expense of building a strong therapeutic relationship with the person.

Finally, it should be apparent that a clinician's role is much more than providing verbal instructions on how to handle and maintain hearing aids—one of the main topics covered during hearing aid follow-up appointments. It is equally important to establish whether patients have learned skills that allow for mastery of their device and self-managed problem-solving skills. Clinicians who are proficient at teaching patients both skills, especially in a changing market where patients might purchase hearing aids on-line, and then seek professional guidance, offer a professional service that cannot be duplicated by lower skilled technicians or machine learning algorithms.

Using Bennett et al.'s [6] work as a foundation, here are five tasks audiologists can do during routine follow-up appointments to ensure patients are getting the most from their hearing aids over the next several years:

1. **Empowerment.** Help patients recognize and independently solve communication problems. The process of empowerment can be facilitated by getting patients involved in decision making and supporting their treatment choices. The use of easy-to-understand, visually appealing decision aids that present patients with a range of treatment options and tips for independently solving common communication breakdowns can be used to help patient's feel empowered. We know, see <https://www.ncbi.nlm.nih.gov/pubmed/21841487>, for one example, that individuals who are given a range of treatment and hearing loss management choices are more likely to actively participate in the rehabilitation process.
2. **Avoid Information dumping.** Convey technical information in ways that are easy for patients to understand. Provide them with concise printed materials that they can refer to after the appointment. Be sure that the instructional materials are easy to read, use pictures to reinforce key points and are branded to your clinic.
3. **Considering breaking appointments into smaller chunks.** To ensure patients understand all aspects of successful hearing aid use, consider bringing the patient back more often for follow-up appointments, or better yet, use Skype and other forms of video conferencing to relay information to the patient in smaller chunks. Utilize support personnel whenever possible in the follow-up care and support process to ensure your clinic operates efficiently. Allowing an audiology assistant to participate in the follow-up process is an effective way to break the monotony some patients experience when trying to learn from one instructor over a lengthy period. By getting an assistant involved in teaching patients some of the routine aspects of follow-up care, it frees the audiologist's schedule to see new patients.



4. Break the hearing aid check and other similar follow-up appointments into “knowing how” and “knowing when” buckets. “Knowing how” refers to physical, hands-on skills patients must acquire to be successful hearing aid users. “Knowing when” skills are more abstract and require clinicians teach patients more complex tasks that require higher level cognitive awareness and skill, such as knowing when to use a remote microphone, knowing when to recognize a challenging listening situation that requires some modification of listening behavior, or knowing when know how to be a more assertive, proactive listener. Tailor instructional materials to help patients identify when they need to modify a behavior to be a more effective communicator.
5. Encourage patients to keep a diary of their initial listening experiences. This enables patients to keep more directly involved in their follow-up. Ask patients to spend a couple minutes at the end of the day to reflect on their listening experiences, how they feel about each of them and what they did in reaction to their feelings. By keeping a diary for the first month or so of hearing aid use facilitates activity involvement on the part of the patient as a problem solver and fosters their ability to be an independent communicator.

Beyond adjusting the acoustic parameters of hearing aids and assisting patients with the hands-on skills needed to use their hearing aids, there are an abundance of person-centered skills that are too often overlooked by clinicians, but desired by patients. The work of Bennett and her colleagues lays the groundwork for how knowledge, skills and tasks can be conveyed to patients in a meaningful way, thus enabling them to be independent, self-managers of their communication.

While clinical audiologists to shed light on new approaches to care, there are some things we can do to add value to the follow-up process.

In summary, the following types of services could be offered to help seekers who already own hearing devices:

- Diagnostic audiological assessment to identify possible underlying medical complication that requires a physician referral
- A quality control check of their devices to ensure they are meeting a validated standard, either in the ear with probe microphone measures or in the coupler with a hearing aid test box.
- Basic communication assessment to identify extent of problem followed by one of the following services:
  - Device customization and/or device mastery training, possibly delivered by a non-audiologist
  - Hearing loss self-management skills training
  - Customized treatment plan that focuses on “getting used to hearing aids”

## **9. Beneficiaries of self-directed care**

Considering the low update of hearing aids, the advent of self-directed care and self-fitting hearing aids has the potential to expand the market for services. Below are four underserved segments of the hearing care market that could benefit from

systematic follow-up care that is decoupled from the sale of devices. Audiologist can expect a growing number of these individuals coming to their clinic for guidance, support or service *after* hearing aids have been purchased.

## 10. Four underserved patient categories

There are at least four types of individuals, currently underserved by hearing aids that are candidates for these alternative devices. Three of the four categories are commonly encountered in the clinic, while the fourth category are in great abundance, but rarely find their way to a clinic for reasons we will discuss later. **Table 1** is a summary of these four underserved patient categories. Here are some added details on each one.

1. *The Older Old*. Prone to cognitive decline and physical limitations, this group, which also tends to be socially isolated, is susceptible to losing their hearing aids. Additionally, they are often unlikely have the physical or cognitive capacity to wear hearing aids consistently. Thus, many in this group become non-hearing aid users. Neckband multi-tasker PSAPs or other devices for situational use may be a viable alternative for this group.
2. *The Contemplator*. The Stages of Change model, which describes the behaviors and attitudes of people with chronic conditions over a period of time, suggests that individuals in the early contemplation stages are still working through the burdens their hearing loss places on daily life. Thus, they are not ready to act with respect to addressing their condition. Allowing a patient to dabble in a low-risk way from the comforts of home, has the potential to enable the contemplator to act sooner, on their own terms. In this scenario, the initial use of a non-custom product is a gateway product that culminates in the future with full time hearing aid use.
3. *The Patient with Cochlear Distortion*. The cochlea, for a small number of individuals, fails to carry information to higher regions of the auditory system. Researchers have surmised that these cases can be identified by measuring word recognition at a low intensity level and comparing the results at a higher intensity. (A poor result on the Quick SIN also might be an indicator of this condition.) Unlike the typical performance-intensity function that shows improvement in word recognition ability as audibility of speech is increased, patients with cochlear distortion issues fail to show improvement in word recognition ability. Because the patient with cochlear distortion fails to experience the same improvement in speech understanding when audibility is restored with hearing aids, it is presumed non-custom devices might be a more cost-effective choice for these cases, as a fully featured set of hearing aids could be considered technological overkill.

The three previously mentioned groups of patients are likely to seek the services of an audiologist for testing or guidance. The final category, because they often have normal or near-normal hearing aid and do not consider their hearing to be a “problem,” are unlikely to seek help from an audiologist. Therefore, this group must be reached in other ways.

*Tech Savvy Overshoots*: There are many adults, often between the ages of 50 and 65, that experience occasional difficulty with their hearing, but do not think they have a problem that warrants a visit with an audiologist. Because they are younger,

Group	Red flag characteristics	How to identify	Non-custom solution to consider
Older old	Chronological age > 85	Poor scores on cognitive and haptic screen	Ear-level neckband PSAP, ALD or non-custom headset amplifier
Contemplator	During interview blame other people or the environment for their hearing problem	During interview process	Ear-level PSAP, ALD, or smartphone-enabled app + wired earbuds
Cochlear distortion	Poor word recognition score at PB max	No change in word recognition between 45 and 75 dB presentation levels, poor QSiN score	Ear-level wireless, neck-band PSAP or traditional hearing aid
Tech savvy middle agers	Struggle in with their hearing in one or two challenging listening situations	Self-assessment tools on a clinic-branded website	Ear-level wireless or neck-band PSAP with multi-tasking capability

*ALD = assistive listening device, PSAP = personal sound amplification product, QSiN = quick speech in noise test.*

**Table 1.**  
*A summary of the four groups, possibly under-served in today’s marketplace, who may be receptive to the use of non-custom devices.*

tech savvy individuals they might be open to a do-it-yourself approach to finding help in situations where hearing is a challenge. In the past, if these individuals were to find their way to an audiology clinic, they were offered a \$3000 solution for a problem they perceive to be worth fixing for less than \$500. By combining amplification with other features that they find useful in their busy lives, the middle aged, tech savvy individual could address their communication challenges with any number of high quality ear-level PSAPs. Because many of these individuals will not seek the services of the audiologist in a clinic, we can use tools like the internet or a well-designed website to reach them. Although traditional hearing aids would be appropriate choices from a prescriptive fitting target standpoint, the style or function of traditional hearing aids may negate the trial and use of amplification as a treatment option.

Considering less than 30% of adults with hearing loss use hearing aids, a primary challenge for a medical clinic is attracting individuals that need help with their hearing into your practice. One approach to broadening the market for audiology is to recommend high quality non-custom amplifiers to adults who are not viable candidates for traditional hearing aids. Although traditional hearing aids are likely to remain the gold standard for adults with benign cases of hearing loss, clinicians should embrace vetted non-custom amplifiers as a solution for the appropriate candidate.

11. Overcoming the tyranny of free tests and unit margins

Ultimately, the onus of addressing the unmet needs of those with hearing loss falls to the profession. It is incumbent upon all of us to find innovative approaches to service device provision that get more individuals coping with the ill-effects of untreated hearing loss involved in the process of improving their own hearing and communication. This, after all, is the essence of the chronic care model: To help these patients become better, more effective self-managers of their own condition.

	Help seekers without hearing devices	Help seekers with hearing devices
Information gathering and exploratory dialog	1. Assess “importance to treat” (low or high) 2. Determine potential to self-fit their own hearing aids 3. Collect audiological and non-audiological information about patient following ICF model	1. Gather objective information on current hearing devices 2. Collect audiological and non-audiological information about patient following ICF model 3. Conduct objective assessment of current hearing devices, using PMM
Goal setting and treatment planning	1. Target areas of improvement 2. Option talk 3. Choice talk 4. Align goals and expectations with treatment options (pre-treatment)	1. Conduct self-management interview 2. Target areas of improvement 3. Align goals and expectations with current treatment (or recommend new treatment plan)
Assessing outcomes and monitoring progress	1. Align goals and expectations with treatment option (post-treatment) 2. Look for areas of improvement: device mastery and/or self-management skills 3. One-year post fitting: conduct self-management interview	1. Align goals and expectations with treatment option (post-treatment) 2. Look for areas of improvement: device mastery and/or self-management skills

ICF = international classification of functioning, PMM = probe microphone measures.

**Table 2.**  
*A summary of various clinical procedures that could be offered to two different types of patients that audiologists can expect to see once OTC and self-fitting products are widely available.*

For decades, it was sustainable business practice to provide free hearing tests and dispense, on average, 15–20 hearing aids per month to be profitable. Even if you provide the very best patient care, the units based business model is unlikely to be sustainable over the long haul in a profession that will see shrinking margins resulting from the availability of OTC device, third-party insurance contracts and other innovations that appeal to persons with hearing loss.

By focusing on the emotional, psychosocial and functional impact that hearing loss has on the person’s ability to self-manage their condition, audiologists can provide a full range of counseling and customization services—beyond the traditional bundled approach to delivering audiologist-driven care. These new services could be appealing to a broader range of persons with hearing loss who choose to self-direct their care and could complement current clinical practice.

A primary focus of this chapter was to provide some practical insight on how self-fitting hearing aids and other amplification devices purchased over the counter (OTC), might change the way patients interact or connect with audiologists in their clinic. Although no one can predict the future, it is safe to say the availability of self-fitting hearing aids as well as other OTC devices that allow people to self-direct their care will have an impact. It is likely individuals who have already purchased a hearing device over the counter will seek the services of an audiologist. Thus, audiologists must be prepared to offer them a service of value.

To summarize, three different clinical tasks used during the Communication Assessment are outlined in **Table 2**: information gathering & exploratory dialog, goal setting and treatment planning, and assessing outcomes and monitoring progress. Along with the three clinical tasks, **Table 2** summarizes the key work of audiologist for those three dimensions of care for two types of help seekers. As we move into a future sure to be filled with self-fitting hearing aids, automated hearing testing and other consumer-driven healthcare initiatives, audiologists will serve



as advisors and consultants. When patients have questions or concerns, no matter where they purchased their hearing devices (or if they own them at all), they will seek the services of audiologists. Rather than limiting the role of audiology to selecting, fitting and tweaking hearing aids, **Table 2** demonstrates that in the emerging era of self-directed care, the potential value of audiology is evaluating the entire person and offering solutions, many of which are not device-related, that help patients become better, more effective self-managers of their condition.

Audiologists must anticipate a future filled with several options that allow patients to self-direct their care. From the point of view the massive numbers of people with untreated hearing loss, the provision of new direct to consumer choices is a positive development. Rather than scoff at this change, audiologist would be wise to embrace it and identify ways they can add value for those who opt to self-direct their care and then find they need some additional support or guidance from an expert. The objective of this chapter was to spur thinking on novel approaches to service and review some of these approaches that can be implemented in a clinic today. Now is the time for audiologists to create the future—a future less dependent on the sale of a device.

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