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Global ENT medical device market size

According to Acumen Research & Intelligence, the global ENT devices market is expected to grow at significant CAGR of around 8% between 2018-2026, and will reach around US$ 26 billion during the forecasted period.

Key factors fueling the growth of the ENT device market across the globe include:
- Rising incorporation of advancing technology
- Growing awareness about health-related issues
- Increasing healthcare costs
- The favourable regulatory backdrop for ENT devices
- Increasing geriatric population
- User-friendly ENT devices changing lifestyle patterns

A recent report by Mordor Intelligence describes North America as the largest market for ENT devices. It expects the region to show a similar trend over the forecast period (2016-2024), without significant fluctuations. Most of the market players are based in North America, and there is awareness about the advantages of using ENT devices solutions. Favourable reimbursement policies, better healthcare infrastructure, high cases of chronic sinusitis and other ENT disorders are the reasons for the high market share of the United States (US). Meanwhile, the Asia-Pacific region is predicted to be the fastest-growing market during the forecast period.
Audiology

Market size
The global audiology devices market is set to exceed US$ 10 billion by 2024, according to new research by GM Insights. The increasing geriatric population vulnerable to hearing loss and different hearing disorders will augment the global audiology devices market growth over the forecast timeframe.

According to the GM Insights report, hearing aids accounted for the largest market share in 2016 and will continue to dominate the audiology devices industry forecast period. Amongst the different types of hearing aids, the ‘Receiver-In-Canal’ (RIC) segment is poised to grow at a robust CAGR. The rapid growth can be attributed to a wide range of benefits including the comfort of the device. However, disadvantages such as high costs compared with the other types of hearing aids and frequent maintenance required are predicted to impede adoption rates to some extent.

Key growth drivers
The American Speech-Language-Hearing Association highlights the following key growth drivers for the audiology device market:

- **Older Populations** - Because hearing loss is strongly associated with ageing, rapid growth in older population groups will cause the number of persons with hearing and balance impairments to increase markedly.
- **Baby Boomers** - Members of the baby boom generation are now entering middle age, when the possibility of neurological disorders and associated hearing impairments increases.
- **Retirees** - Demand may be greater in areas with large numbers of retirees, so audiologists who are willing to relocate may have the best job prospects.
- **Improved Survival Rates** - Medical advances are improving the survival rate of premature infants and trauma and stroke victims, who then need assessment and possible treatment.
- **Early Identification and Diagnosis** - Greater awareness of the importance of early identification and diagnosis of hearing disorders in infants will increase employment. Most states in the US now require that all newborns be screened for hearing impairment and receive appropriate early intervention services.
- **Increased School Enrollments** - Employment in educational services will increase along with growth in elementary and secondary school enrollments, including the enrollment of special education students. US federal law guarantees special education and related services to all eligible children with disabilities.
Cochlear implants

Where are we now?
The National Institute on Deafness and Other Communication Disorders estimates a growing need for hearing assistance, especially among people who are profoundly deaf. The institute estimates more than 324,200 people worldwide have cochlear implants; and that about 96,000 of them are in the US, including an estimated 38,000 children.

Since the mid-1980s, the cochlear implant has been used to treat deafness via an electrode array that is placed in a bony spiral—a snail-shaped bone—in the ear, called the cochlea, to stimulate the auditory nerve. And while the implant has revolutionised sound perception for people worldwide, it does not provide hearing at lower frequencies.

Now, a new international effort aims to develop a new type of implant that will produce a keener, more natural form of hearing. Scientists at the Feinstein Institute for Medical Research in Manhasset, fueled by a US$ 9.7 million federal grant, are part of a global initiative that involves physicians, surgeons, engineers and neuroscientists. Within five years, they will not only develop a device that will achieve a sound resolution that covers a wide range of frequencies, but a form of surgery to place the implant in the auditory nerve, which communicates directly with the brain.

The importance of regulatory changes
While new technologies mean that cochlear implants will continue to improve, governments across the world are also adopting new regulatory changes to allow more people to benefit from cochlear implant technology.

The BBC recently reported that new regulatory guidelines in the United Kingdom mean that hundreds more children and adults with severe to profound hearing loss will be given the option of having cochlear implants. It comes as the NHS watchdog NICE revised its definition of severe deafness - extending the number of people who could benefit. The National Institute of Health and Clinical Excellence estimates that 2,150 people in England will be eligible for cochlear implants each year by 2025, an increase from the 1,260 people who currently receive them.

This news comes as experts urge early cochlear implantation of deaf infants as a public policy priority. Researchers from Ann & Robert H. Lurie Children’s Hospital of Chicago present further evidence that deaf children who received cochlear implants (implanted electronic hearing device) before 12 months of age learn to understand spoken language more rapidly and are more likely to develop spoken language as their exclusive form of communication. In their study, published in Otology and Neurotology, this was true even for children with additional conditions often associated with language delay, such as significantly premature birth. Researchers also showed that implantation surgery and anaesthesia were safe in young children, including infants.

Unfortunately, not everyone who could benefit from a cochlear implant gets one. According to Dr Shelly Chadha, who heads the World Health Organisation’s (WHO) work on the prevention of deafness and hearing loss, there are several reasons for this, the most obvious being their cost. A cochlear implant, including the cost of implant surgery, can be as high as US$ 50,000 in high-income countries, while the external components (transmitter and speech processor) can cost around US$ 9,000.

No generic version of cochlear implants exists, and the four leading manufacturers have kept their prices high even in low- and middle-income countries. “It is possible that costs will come down as new producers come into the market,” says Chadha. “But even if the price of cochlear implants does come down, it is unlikely to have a major impact on the overall cost of implementing effective cochlear implant programmes and thus the availability of devices for people who need them.”

Barriers to adoption
According to the American Cochlear Implant Alliance, barriers to cochlear implantation can be traced to low awareness among both the general public and the medical community. Further, there are no universally sanctioned medical/clinical guidelines for best practices in cochlear implantation and audiology aftercare - the data-based, best practices which lead to consistent clinical outcomes.
Cosmetic and facial plastic surgery

Market size
The latest data from Market Research Future estimates that the global cosmetic surgery market size will reach US$ 21.97 billion and will grow at a CAGR of approximately 7.8% between 2017-2023.

The cosmetic surgery market share is anticipated to witness significant growth due to rising safety margins, growing obesity, accidents and increasing numbers of cosmetic surgery hospitals. Also, advances in technology and the development of advanced materials such as silicone implants are fueling the growth of the market. Moreover, social and cultural factors such as the influence of media, fashion & film industry, and social networking apps escalate the market on the global platform.

North America leads with the largest cosmetic surgery market share. Well-spread awareness and the growing acceptability of cosmetic surgery are key driving forces behind the growth of the market. Europe accounts for the second-largest cosmetic surgery market share, and the Asia Pacific cosmetic surgery market is rapidly emerging as a profitable market driven by the tourism industry, improving economic conditions and increasing consumer purchasing power.

What’s new in facial plastics
Facial plastic surgery is a multidisciplinary speciality primarily driven by otolaryngology but includes oral maxillary surgery, dermatology, ophthalmology, and plastic surgery. It encompasses both reconstructive and cosmetic components.

As described by Chuang, J. et al. in an article titled, ‘Overview of Facial Plastic Surgery and Current Developments’ and published in the Surgery Journal in 2016, the scope of practice for facial plastic surgery may include rhinoplasty, browlifts, blepharoplasty, facelifts, microvascular reconstruction of the head and neck, craniomaxillofacial trauma reconstruction, and correction of defects in the face after skin cancer resection. Facial plastic surgery also encompasses the use of injectable fillers, neural modulators, lasers, and other devices aimed at rejuvenating skin. Facial plastic surgery is a continually evolving field with ongoing innovative advances in surgical techniques and cosmetic adjunctive technologies.

According to Chuang, J. et al., current trends in facial plastic surgery include increased utilisation of nonsurgical techniques such as fillers and neurotoxins to treat the ageing face, development of new laser technologies, utilisation of 3-D imaging techniques for individualised plating in maxillofacial surgery in trauma, and minimally invasive techniques such as endoscopic approaches to minimise scarring.

There are exciting new research studies in the fields of dermal fillers, 3-D imaging and printing, endoscopy, new biomaterials and tissue engineering, new surgical techniques in facial reanimation and facial transplantation, stem cell research and enhancements in wound healing.

Facial plastic surgery is an important field of surgery that can make lifesaving and life-changing transformations in patients’ individual lives and in society. It is an ever-evolving field that leads to innovation in surgical techniques, technological and computer-based advancements, biomaterials research, and minimally invasive nonsurgical and surgical procedures for facial rejuvenation and reconstruction.
The history of Otorhinolaryngology

The speciality of Otorhinolaryngology, or ear, nose and throat surgery (ENT), is a product of the early 20th century and is when the separate fields of otology and laryngology were joined together.

As described in an article by Weir N., published in the Postgraduate Medical Journal, the 20th century opened was characterised by attempts to perform surgery under conditions of primitive anaesthesia and no antibiotics. The stimulus of two world wars led to significant advances in technology and greater opportunities to explore new and resurrect old surgical procedures. The discovery of antibiotics saw an end to acute mastoiditis and the complications of otitis media and sinusitis, as well as a decline in the number of tonsillectomy and adenoidectomy operations.

Over the last 30 years, the speciality has experienced enormous advances. It has taken advantage of new developments in endoscopy, microsurgery, the use of lasers, cytotoxic drugs, flap reconstruction and microchip technology. During the same period, although still calling themselves otorhinolaryngologists, individual surgeons have subspecialised in otology, otoneurosurgery and skull-base surgery, head and neck surgery, phonosurgery, rhinology and facioplastic surgery, and paediatric otothlnolaryngology.

Similarly, audiology has become a speciality in its own right, and the sophisticated tests of hearing and balance, together with the provision of investigation and treatment of deaf children and elderly people, are managed by audiological physicians.

The future of ENT

3D printing in Otolaryngology

According to a recent research paper from the Department of Otolaryngology at the Indiana University School of Medicine in Indianapolis, 3D printing has been used in recent years in otolaryngology for preoperative planning, education, prostheses, grafting, and reconstruction. Emerging technologies include the printing of tissue scaffolds for the auricle and nose, more realistic training models, and personalised implantable medical devices.

In terms of implications for practice, the authors highlight that after the up-front costs of 3D printing are accounted for, its utilisation in surgical models, patient-specific implants, and custom instruments can reduce operating room time and thus decrease costs. Educational and training models provide an opportunity to visualise anomalies better, practice surgical technique, predict problems that might arise, and improve quality by reducing mistakes.

Artificial Intelligence and Machine Learning in Otolaryngology

Although still in its infancy in terms of adoption in ENT, the potential of adopting the use of artificial intelligence (AI) and machine learning technologies are showing great promise in the field. Current uses of AI in otolaryngology include otoscopy imaging, language processing, and categorising chronic sinus conditions.

According to Bur A.M. et al. (2019), the future adoption of AI technologies in otolaryngology practice may be hindered by misconceptions of what AI is and a fear that machine errors may compromise patient care. However, with potential clinical and economic benefits, otolaryngologists need to understand the principles and scope of AI. Despite its potential, AI raises new ethical concerns around patient privacy and safety, data bias, and the physician-patient relationships.
Robotic surgery in head and neck cancer

According to a research paper by Golusiński W., from the Poznan University of Medical Sciences in Poland, interest in functional organ preservation surgery (FOPS) in the treatment of head and neck cancer has increased dramatically in recent years as clinicians seek to minimise the adverse effects of treatment while maximising survival and quality of life. In this context, the use of transoral robotic surgery (TORS) is becoming increasingly common.

TORS was first approved by the United States Food and Drug Administration (FDA) in 2009 for the treatment of early-stage oropharyngeal cancer. Since then, the indications for TORS in Head-Neck Squamous Cell Carcinoma (HNSCC) have rapidly expanded to include not only the oropharynx, but also the hypopharynx, parapharyngeal space, and supraglottic larynx.

Despite the predominance of the da Vinci robotic systems, Golusiński says that several novel, flexible surgical robots are currently in development, and the commercial introduction of these robots is expected to decrease costs and expand current indications for TORS, thus enabling wider adoption of this technology.

Other advances currently being studied include augmented reality (AR), which provides real-time image-guidance with navigational cues and representations of key anatomical structures overlaid on the operative field. Also, cone beam computed tomographic (CBCT) angiography has been proposed to provide image-guidance for the dissection of critical vascular landmarks and resection of base-of-tongue neoplasms with adequate margins.
**ENT technology news**

- **Leading hearing aid battery manufacturer RAYOVAC®’s has unveiled the latest Active Core Plus™ technology to the European market.** It means a battery with longer lasting performance**, quality and reliability – giving users an even better experience. Active Core Plus™ is designed with more sophisticated functionality to meet the demands of modern-day devices. It features breakthrough materials, enhanced manufacturing processes and a new, optimised formulation. Other benefits include greater consistency, a clearer experience and enhanced wireless streaming. It also performs in high and low temperature and humidity environments.

- **Interacoustics has recently announced the release of Lyra, a new PC-based and dedicated product for clinical OAE that provides fast and reliable DPOAE and TEOAE measurements.** Lyra offers a flexible software suite, which enables detailed interpretation and analysis of test data. OtoAccess® Database compatibility and easy navigation ensures a simple workflow for the clinician, leaving more time for the patient and secure handling of patient data.

- **Puretone recently released the full DX Series of hearing protection for shooters.** The company released two new models, DX1 and DX3, alongside the flagship DXS. Packed with the most comprehensive features list yet, the new CENS ProFlex DX Series has been more than three years in the making. The DX Series offers 25dB SNR and is tested according to CE EN352 & IPIL: 37.3/44/42.

- **Epica, a company based in San Clemente, California, recently won FDA clearance for its SeeFactorCT3 system that combines computed tomography (CT), fluoroscopy, and digital radiography (DR) into a single device.** It is intended for use in diagnostic, interventional, and intraoperative procedures mostly involving the head, neck, and extremities, and as such, is expected to be used by a variety of surgeons, dentists, and imaging specialists.

- **GN Hearing and Cochlear recently announced support for Audio Streaming for Hearing Aids (ASHA) specification using Bluetooth Low Energy (BLE) connection.** Now, Android users with hearing loss can stream music and other sounds directly from their device without worrying about energy consumption. Compared to Bluetooth Classic, BLE uses half as much energy over the same period of time. As of the announcement, direct streaming from Google’s Pixel 3, Pixel 3 XL, Pixel 3a, and Pixel 3a XL is supported on GN Hearing’s ReSound LiNX Quattro, and Beltone Amaze hearing aids. Specific compatibility with Cochlear’s implant sound processors is forthcoming. The new device functionality accompanies the recent release of Android 10.
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Under the theme of ‘Tomorrow’s Otolaryngology Today’, the 17th Middle East Otolaryngology Conference and Exhibition will return to cover all major Otolaryngology disciplines and showcase cutting-edge solutions.

Taking place from 26-28 March 2020 at the Conrad Dubai Hotel, ME-OTO will host 7 CME scientific conference tracks, 150 speakers and 30 exhibiting companies

For more information, visit me-oto.com