

# Global Health

## SECTION EDITOR



**Cheka R Spencer, MSc,  
AFHEA, FRCS (ORL-HNS),**

Consultant ENT Surgeon (Rhinology and Facial Plastics), The Royal Free London; Member of the ENT UK Global Health Committee.

E: [drchekaspencer@doctors.org.uk](mailto:drchekaspencer@doctors.org.uk)

Twitter: @ChekaSpencer  
@ENTUKGlobal

## Charitable hearing care in Pakistan: establishing the IMRA Cochlear Implant Programme and Middle Ear Project

BY ANNA SYMONS, MAHA KHAN AND HAROON KHAN

IMRA, the International Medical Relief Agency, is a registered charity providing volunteer-delivered cochlear implant and major ear surgery to children and adults in Pakistan. Established in 2001 by UK-based ENT surgeons led by **Mr Haroon Khan**, its primary aim is delivering structured care for middle ear disease to patients unable to afford or access this. IMRA has provided the first charitable multidisciplinary cochlear implantation programme in Pakistan with locally trained multi-professional support.

### Healthcare in Pakistan

Pakistan is a country with diverse human and service development levels. A few areas are among the most developed worldwide, but the majority have some of the lowest global development indices. In a very large country with populous poor rural communities spread over large distances, healthcare is often only accessible by travelling to large cities, with costs and practicality of travel prohibitive to most.

The economic diversity is reflected in healthcare provision, where often skilled surgery and associated healthcare specialties are only provided in a small number of costly urban private facilities. Indeed, until donation of microscopes by IMRA to two government hospitals in rural Mirpurkhas and Karachi in 2009, no government hospitals had a microscope in the outpatient ENT department.

There is a general lack of funding: in 2014 only 2.6% of the country's gross domestic product was spent on health, compared to 9.8% in the UK. Whilst the Pakistani government struggles

to finance public healthcare, individuals are also unable to find the necessary funds. Household income per capita averaged only £600 per annum in 2016, and households, on average, consist of six members. These factors, exacerbated by 'brain drain', create huge barriers to the provision of specialist services to the many who cannot afford private healthcare. As a result of these challenges, patients commonly present with advanced stage middle ear disease.

### The Middle Ear Project

In 2008 the Middle Ear Project launched in Mirpurkhas, in Sindh province. Following extensive research, this region was chosen due to the potential to benefit a populous community where ENT services were scarce. Patients travel up to 150 miles for inadequate provision of surgical treatment of middle ear disease. The region is safe for UK volunteer surgeons and anaesthetists to travel to and is relatively accessible from major cities for volunteer and medical equipment

**"In 2014 only 2.6% of the country's gross domestic product was spent on health, compared to 9.8% in the UK"**



Malaysian and Pakistani surgeons with a visually impaired adult patient after his successful cochlear implantation surgery.



Mr Waseem Ahmed, Consultant Otolologist, Manchester, doing mastoid surgery in IMRA's free ear surgery camp in Karachi.

transportation. Annual trips to Mirpurkhas have allowed IMRA to expand this service to Indus Hospital in Karachi in response to demand. Since 2008, IMRA has treated 1000 outpatients and performed 470 middle ear surgeries (mostly mastoid exploration and tympanoplasty).

The cost of donated resources and volunteer time and skill to date is valued at over £2 million. This achievement has not been without its challenges such as a volatile political climate, volunteer and equipment security, resource reliability/availability, and local cooperation. However, diligent planning and communication through the framework illustrated in Figure 1 has been indispensable in achieving the successes to date.

Through the Middle Ear Project, IMRA has been able to donate specialist ENT equipment worth over £250,000 to Mirpurkhas Hospital and Indus Hospital, Karachi. This includes microscopes, surgical drills, middle ear surgical sets, nerve monitors, anaesthetic and diathermy machines. This equipment was kindly donated by international medical companies and UK hospitals, supplemented by charitable donations and fundraising efforts. Additionally, over 3000 hearing aids have been donated to patients in Lahore, Karachi, Mirpurkhas and rural Punjab.

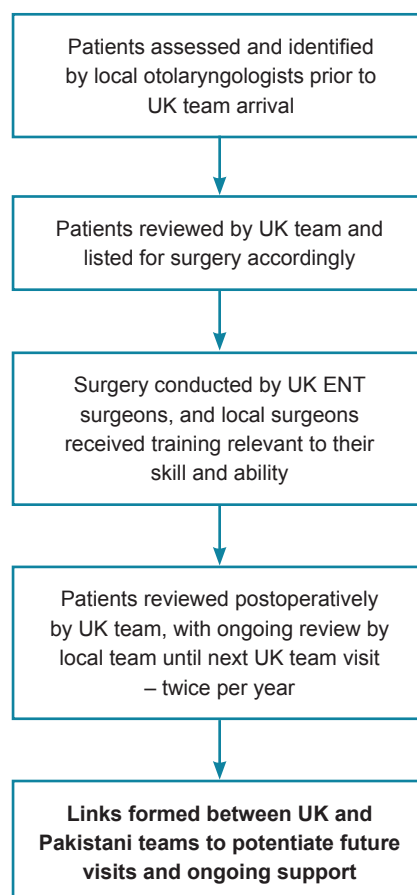


Figure 1. Patient Care Model - Major Ear Surgery Project.

### The Cochlear Implantation Project

IMRA's breakthrough intervention was delivered in 2012 when Pakistan's first free cochlear implant surgery and supportive care pathway was delivered at Dow University Hospital, Karachi. Previously, cochlear implantation was available only in the private sector, at a cost of £30,000 to the patient: prohibitive to the vast majority who may benefit. Additionally, the quality of multi-professional supportive care was variable with unknown speech and functional outcomes.

The IMRA Cochlear Implantation Project was the culmination of four years of fundraising, preparation and framework planning. This involved local Pakistani audiologists and speech therapists undergoing months of sponsored training at the specialist centres, Great Ormond Street Hospital, The Royal National Throat, Nose and Ear Hospital, Northwick Park Hospital and Manchester Royal Infirmary.

At Mayo Hospital, Lahore, a cadaveric surgery workshop with live streaming of cochlear implant surgeries was set up to give local surgeons a better understanding of the surgical procedure and potential complications. All implant surgery is undertaken by consultant neuro-otologist, Mr Noweed Ahmad of The James Cook



UK and Pakistan team of surgeons who operated on 37 charitable chronic ear disease patients at two different centres in December 2019, over four days.

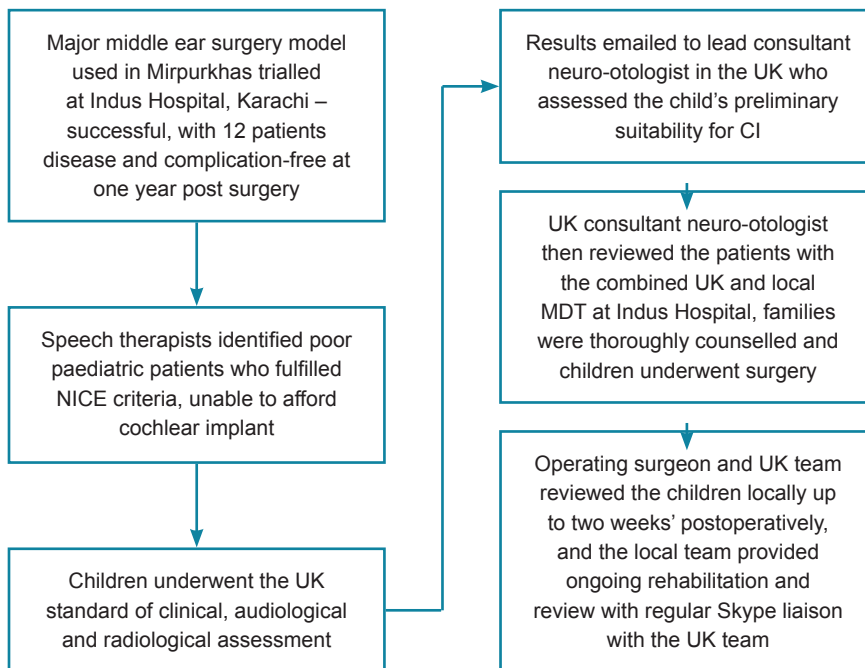


Figure 2 - Patient Care Model – Cochlear Implant Project

University Hospital, Middlesbrough. The framework for the multidisciplinary cochlear implant assessment, counselling, surgery, rehabilitation and follow-up (in accordance with NICE guidelines) used is outlined in Figure 2.

Through this programme, IMRA has provided cochlear implants and rehabilitation worth an estimated £4 million to 85 patients (mainly paediatric), across Pakistan at Indus and Memon Hospitals, Karachi, and Mayo Hospital, Lahore. When the team intervened early at up to three years of age, they found 80-90% of children developed hearing and speech skills equal to those of their peers with normal hearing.

### IMRA supporting education

Education is another priority for IMRA. Six professionals have been financially supported to travel to the UK and receive training surmounting £60,000. IMRA organised workshops and lectures at the National 2018 Lahore ENT Conference, covering endoscopic sinus surgery, head and neck surgery, and cochlear implantation. The Middle Ear Project has provided learning opportunities for British and

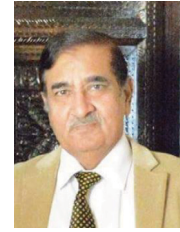
Pakistani surgeons alike. Local doctors receive high quality training from UK-trained consultant surgeons whilst British volunteers gain experience managing advanced middle ear disease less commonly seen in the UK. Indeed, registrar-grade UK doctors have demonstrated progression of operative competency through the Middle Ear Project which has led to two separate BMA Humanitarian Awards.

### The future

IMRA has increased awareness of hearing impairment in Pakistan through encouraging families to access healthcare for deaf children: a great stigma in Pakistani society and a barrier to good healthcare, socialisation and education. Through IMRA's work, the Pakistani government has become more aware of deafness, and is currently seeking further ways of providing assessment, management and opportunities for children with hearing impairment.

To learn more, please visit:

**[www.imra-doctors.com](http://www.imra-doctors.com)**



**Shoukat Malik, MCPS FCPS (ENT),**

Senior board member of IMRA Medical Society; ENT Consultant, Karachi, Pakistan.

Since the inception of IMRA, I have operated on over 80 chronic middle ear surgery cases. I have trained both local and UK-based trainees. I am fortunate to have been trained in cochlear implantation by the UK team and have operated on over 40 patients.

IMRA has achieved great success all over Pakistan. We face some difficulties due to the political and economic climate here, as well as the healthcare arrangements. Our success is mostly due to the strong working relationship the Pakistan team have with the UK-based IMRA team. We communicate regularly and with mutual respect; this is my advice for anyone who would like to work with global health projects.

### AUTHORS



**Anna Symons, BA, MBBS student,**

Fourth year medical student, University of Bristol, UK.



**Maha Khan, MBChB, MRCS (ENT),**

ST5 Trainee in ENT, Salford Royal Hospital NHS Foundation Trust, UK.



**Haroon Khan, DLO(Lon), FRCS(Glas), FRCS(Orl-HNS),**

Chair and Founder of IMRA Charity (Registered in UK/ USA/Pakistan); Consultant ENT, Manchester (now partially retired from NHS Substantive post); DOHNS Examiner, UK.