



South of England Cochlear Implant Centre
Progress Report 2009

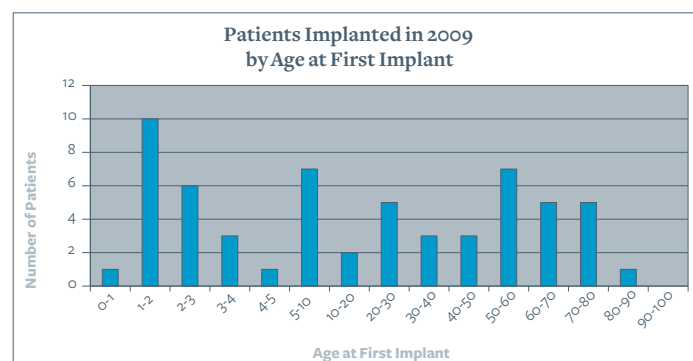
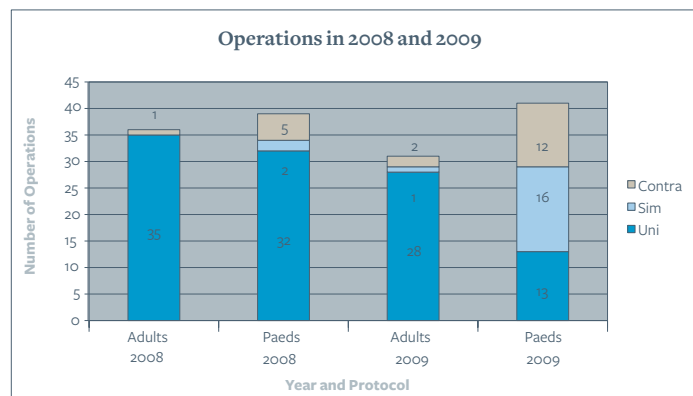
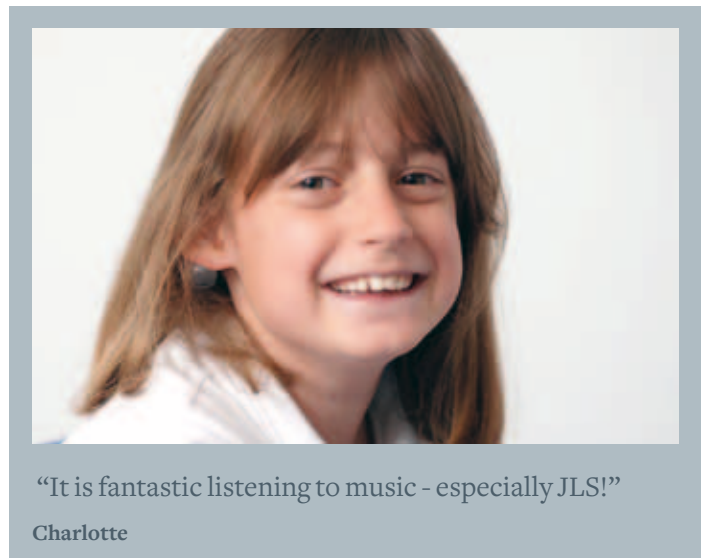
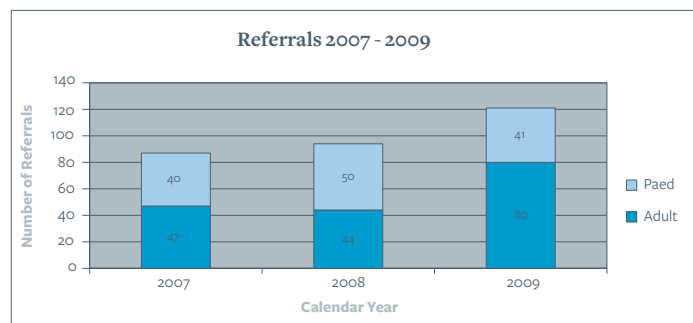
The South of England Cochlear Implant Centre (SOECIC) provides a regional service for severely and profoundly deaf adults, teenagers and children in the South of England and the Channel Islands.

This report focuses on results obtained from the past 5 years of cochlear implantation at the centre in Southampton.

Service Provision

Activity

Referrals to SOECIC continue to increase and in 2009 there was a notable increase in the number of adult referrals which may be attributed to increased awareness of cochlear implants, by patients and professionals, following publication of the NICE Technology Appraisal Guidance 166. We have been successful in securing funding for more bilateral cochlear implantation in children. Simultaneous bilateral implantation is now our most common procedure in children.





“It means being able to take an active part in the world around me. Hearing my husband and daughter; when we are in the car; when we are out walking; when they are upstairs or in another room or talking to them on the phone. It means being able to listen and enjoy music, rediscovering old and learning new and helping as she learns to play the piano and recorder. It means being able to participate and contribute at work, taking part in meetings and adding value to my team.”

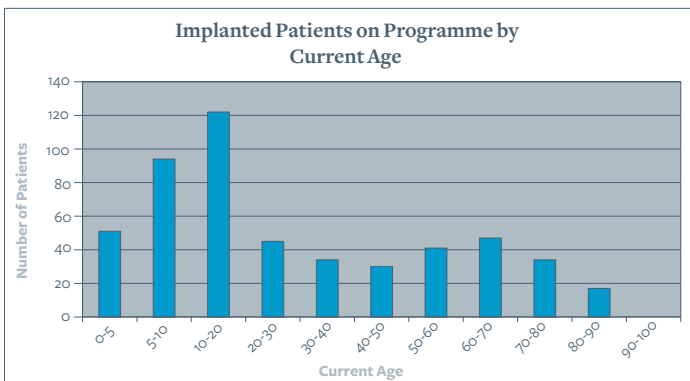
Eva

Waiting Times

Since 2008 at SOECIC we have made changes to the assessment process in order to move towards a consistent 18 week care pathway from referral to treatment. There are, however, external factors which impact upon the pathway. Prior to the commencement and on completion of assessment, funding must be secured from the NHS purchasers. When the assessment is completed funding to commence treatment must be approved. Radiological investigations can take up to 24 weeks for a child. Although we now operate in 5 different hospitals within the region, which has given us some extra capacity, we are still reliant on the availability of suitable facilities particularly for younger and older patients who require specialist care. All these factors can cause a delay in the pathway, however, we have seen some improvement in waiting times. In 2006 70% of children and 35% of adults received their cochlear implant within 9 months following receipt of assessment funding. In 2009 the average time from referral to treatment for an adult was 16 weeks (range 4 - 36), and for children 23 weeks (range 4 - 38). 72% of the adults and 40% of children were implanted within 18 weeks of referral.

Maintenance

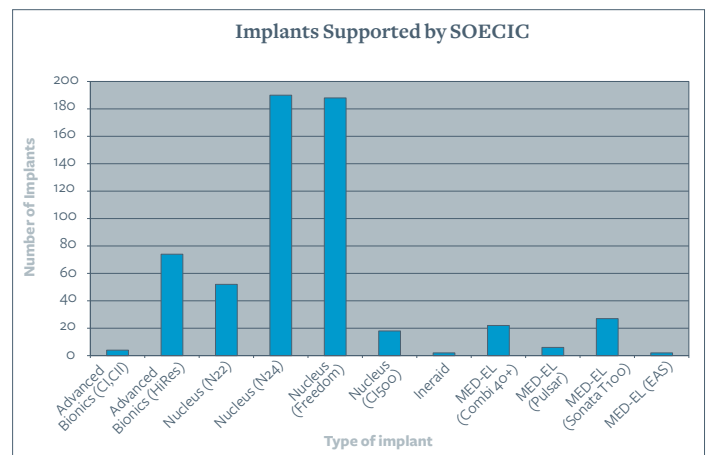
The graph below shows the current age of our patients with cochlear implants. More than half of our existing patients are likely to continue to require support for 50 years or more.



The maintenance charge allows SOECIC to replace the external parts of the cochlear implant every 5 years with the latest model of sound processor. This fee also covers all the costs of repairs, spares and batteries and all patient reviews.

Range of Implants Supported

SOECIC currently supports 588 cochlear implant systems. From January 2010 we will be offering four types of devices to new patients. The Advanced Bionics Hi Res 90K, the Nucleus CI500 Series, the MED-EL Sonata T100 and the Neurelec Digisonic SP Binaural (adults only). If patients have some low frequency hearing we are able to offer them the MED-EL EAS hearing system which combines both cochlear implant and digital acoustic amplification.



Outreach

SOECIC bases its outreach programme on the NDCS/BCIG Quality Standards (2005). **

Each child is allocated a Key Contact from the Outreach Support Team (Speech and Language Therapists and Teachers of the Deaf).

Contacts may be by home visit, school visit, clinic session or phone call and are made according to the following schedule but may vary depending on the needs of the child. There will be at least 10 contacts in the first year after cochlear implantation, 6 contacts in the second and third year and then annual contact until the young person leaves school. Additional visits will be made as necessary and may include attendance at educational reviews at transition stages.

**National Deaf Children's Society Quality Standards Cochlear Implants for children and young people - Guidelines for professionals working with deaf children and young people. (published by the National Deaf Children's Society April 2005)

Training

SOECIC Training courses

- Advanced Bionics Training
- An Introduction to Auditory Neuropathy Spectrum Disorder (ANSD)
- An Introduction to Auditory Processing Disorder (APD)
- Autistic Spectrum Disorder and Deafness
- Bilateral Cochlear Implantation: Information for Funders and Referrers
- Cochlear Implant Training Day – Part 1
- Cochlear Implant Training Day – Part 2
- Device Troubleshooting Workshop
- FM Systems and Cochlear Implants
- Hanen Overview
- Is your 10 o'clock patient suitable for a cochlear implant?

Research Interests

Current research interests

- Evaluation of patients' music perception
- Music rehabilitation
- Children with additional needs
- Bilateral cochlear implantation and quality of life
- Bimodal hearing
- Changes in evoked potentials after cochlear implantation
- Whole brain MRI imaging

SOECIC is the lead centre for the National Paediatric Bilateral Audit which is a collaborative project between 14 centres. The results will be reported to the National Institute of Health and Clinical Excellence (NICE).

Audits

Local Professional Survey of the South of England Cochlear Implant Centre (SOECIC) service

Approximately 600 questionnaires were sent out to local professionals. 168 questionnaires were returned. The professionals were asked to rate their overall level of satisfaction with the current rehabilitation service provided by SOECIC on a scale of 1 – 5, 86% of the respondents described their satisfaction as 1 – 3 where 1 was the best level.

99% of local professionals favoured outreach sessions at the child's home or educational setting together, or a mix of rehabilitation sessions at the implant centre and outreach, which is what we currently offer, rather than solely clinic based appointments.

Regarding training, 62% of professionals who returned questionnaires had attended courses at SOECIC or formal outreach sessions locally run by SOECIC staff. Comments most frequently reported included terms, "excellent", "very useful" and "informative."

Involvement of Service Users to influence Service Provision

An audit of the assessment process was undertaken via a postal questionnaire survey completed retrospectively by our service users. The survey comprised a combination of open-ended questions and statements to agree or disagree with, on a five-point scale. The questions focussed on issues of stress, privacy, and understanding of the assessment process. We received 43 completed questionnaires from adult service users and 38 from parents and carers of children who had used the service. 94.4% of responses were rated as positive indicating a high level of patient satisfaction with the process. Nevertheless, the comments made enabled SOECIC to make improvements to the process. The assessment was condensed to a shorter, more focussed assessment block. More group information sessions and discussions were included, resulting in a more efficient use of staff time, and creating peer-support mechanisms for candidates and their families.

A follow up survey was conducted after the implementation of a new style of assessment block. The responses received demonstrated that this had been effective with 100% of the replies rated as positive. The newer service users had an overall more positive first experience at our Centre and felt they had a greater understanding of what was being assessed and why, and were less likely to perceive assessment activities as difficult or stressful.



"I can hear music and television and I can hear my friends talking."

Elliot

"It has exceeded all our expectations. Now when he talks to his friends they can understand him."

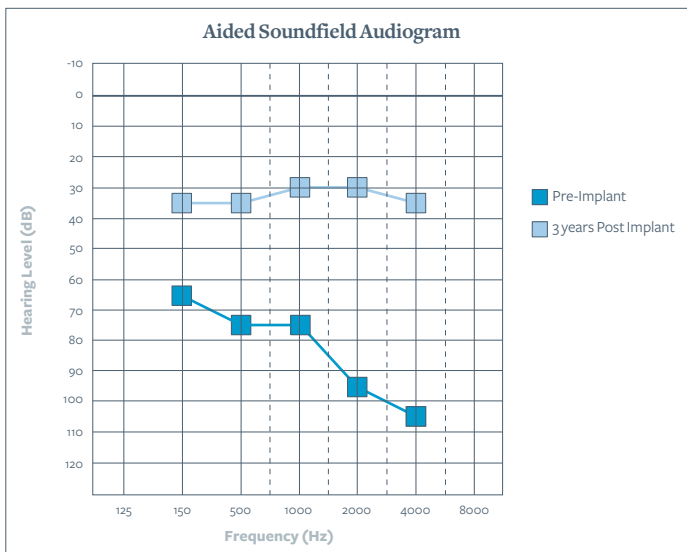
Sasha and Darren (Elliot's parents)

Outcomes

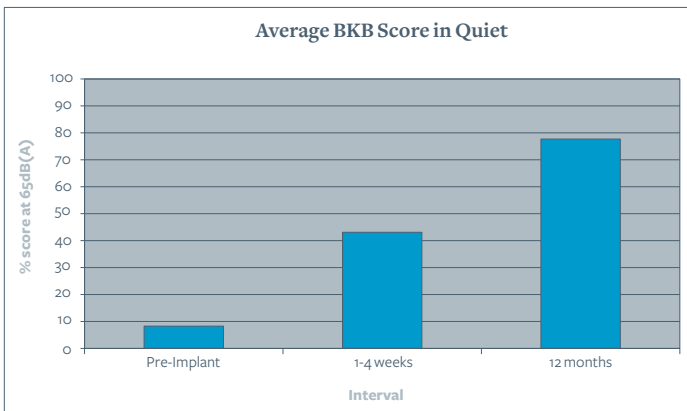
A number of procedures are used routinely to measure outcomes

Sound Field Aided Response Levels

The figure below shows the average sound field aided response levels of adults and children implanted in the past 5 years with at least 3 years of implant use (n=44). The responses with hearing aids prior to implantation are compared with the response levels using sound processors. When using sound processors the cochlear implant recipients are able to detect moderately quiet sounds across the frequencies important for hearing speech.



Adult Outcomes



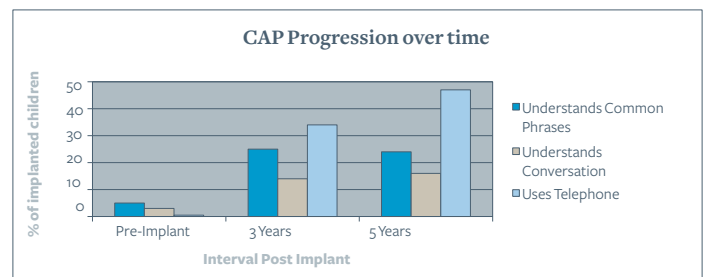
The Bamford Kowal Bench (BKB) Sentence test material is presented at 65dB(A) in a sound alone condition with no visual clues. The chart above displays the results of 92 adults who received their implants between 2004 and 2009. The average score of the adults tested between 1 and 4 weeks after initial tuning is 43% but progress is still being made after 12 months of use. It should be noted that 6 patients tested at the 12 month stage are not making sufficient use of their implants to score on this test. For another 6 patients it was not considered to be a suitable test. Since our last progress report we have seen an increase from an average score of 67% at 12 months post implant to an average of 77% possibly indicating improved performance with the newer devices.

Paediatric Outcomes

Speech Discrimination – The McCormick Automated Toy Test (ATT)

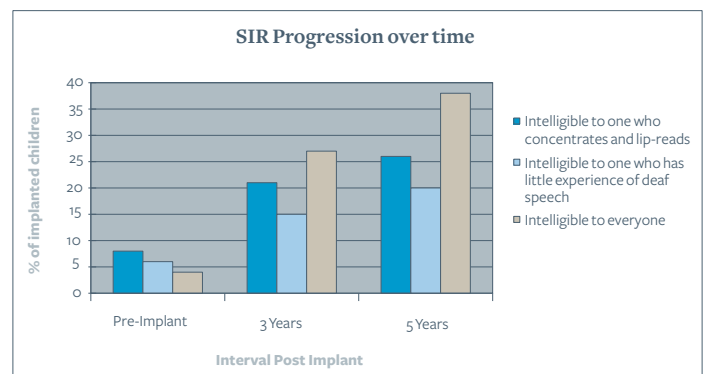
The ATT measures a child's ability to discriminate between fourteen toys comprising seven similar sounding pairs (eg. plate/plane, cup/duck). Words are presented through a loudspeaker and the child responds by pointing to the correct toy. The speech level at which the child is able to identify 71% of the toys accurately is then recorded. One year after implantation the average level of children able to complete the test was at 51dB(A) improving to an average level 45dB(A) after five years of implant use.

Categories of Auditory Performance (CAP)



Progress of children with cochlear implants is monitored annually by rating their functional use of hearing, using the CAP 7 point scale which rates the listener's ability to understand aural information. The graph above shows progress of children on the programme (including those with additional learning difficulties) implanted in the past 10 years. It should be noted that some of these children are still under 6 years old. These are encouraging results as they indicate that children listening with cochlear implants are able to develop, over time, sophisticated listening skills for everyday situations.

Speech Intelligibility Rating (SIR)

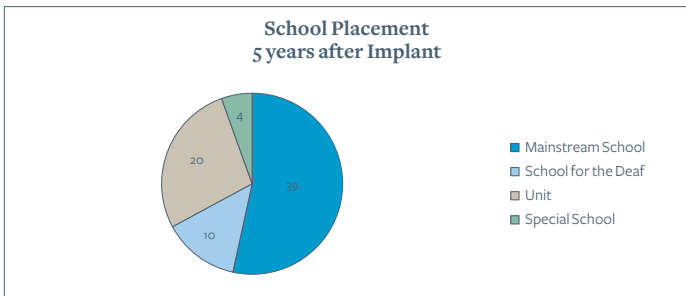


Development of speech intelligibility of implanted children is measured regularly by rating their progress on a five-point scale. The graph above shows the progress of children on the programme (including those with additional learning difficulties) implanted in the past 10 years.

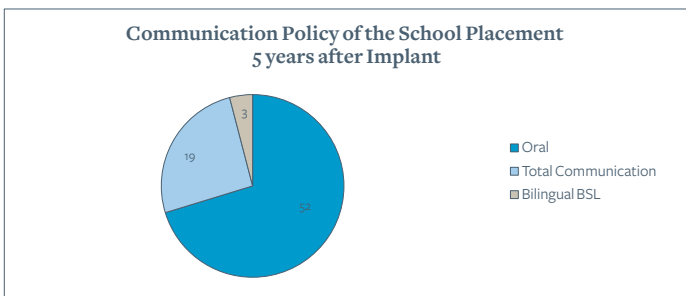
The data shows the best level of speech intelligibility achieved at each interval. After 5 years of implant use over 80% of children have speech that is intelligible to a listener who concentrates and lipreads, and almost 40% of children are intelligible to everyone.

Educational Provision for Children with Cochlear Implants

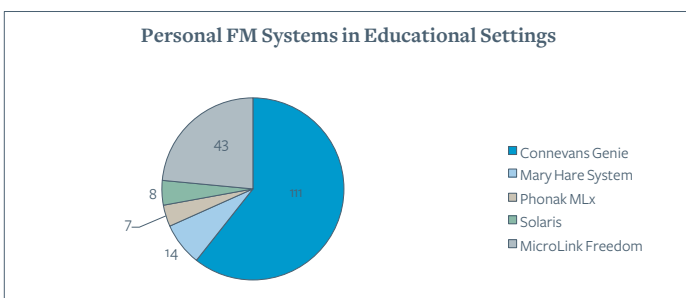
The type of school placement is recorded 5 years after implant use. It should be noted that in some areas there are limited options for type of provision. The following charts show the provision for children implanted since 2000.



53% of the children are educated in mainstream schools, 14% in Special Schools for the Deaf and 27% in mainstream schools with specialist support units.



At 5 years post implant the majority (70%) of children are in educational placements using an oral mode of communication, 26% in placements using Total Communication and 4% in placements using Bilingual BSL.



We encourage the use of personal FM systems in accordance with NDCS Quality Standards for all school age children. Out of a total of 209 children and young people between the ages of 3 and 18, 183 are using personal assistive listening devices or FM systems. 60% of the pupils fitted with FM systems use a Connevens Genie.

“It has changed my life! I am more confident in everyday situations as I can hear more now. Also I really enjoy listening to music which I never had before”

Tracey



Amina was given a cochlear implant when she was 3½ years old. She is now 6 years old and attends a primary school with a resource for hearing impaired children.

Failures, Non Users, Explants and Re-implantations.

At the end of 2009 SOECIC supported 518 implanted patients, 70 of whom are bilateral cochlear implant users using two processors. Since SOECIC conducted its first cochlear implant in 1990 it has implanted 639 cochlear implant devices. There have been 31 devices explanted. 21 were due to device failures and 10 due to medical reasons such as necrosis of the skin flap (2), pain (1), ossification of the cochlear and extrusion of the electrode array (1), cholesteatoma (1), recurrence of meningitis (1) and infection (4). Some failed cochlear implants have not been explanted. There have been a total of 30 cochlear implant device failures since the programme began. 11 were MED-EL Combi 40+, 4 were Ineraid, 1 was a MED-EL Pulsar, 2 were Nucleus 22, 6 were Nucleus 24R(CS), 4 were Nucleus Freedom Contour Advance, and 2 were Advanced Bionics Hi Res 90K. Of the 492 Nucleus cochlear implant systems we have implanted there are 24 cochlear implants which have been identified with characteristics decrements. Some are attributed to insulation damage of electrode arrays but patient performance is not always affected. Of the faulty devices 5 have been explanted and replaced; 5 systems have been identified as failures but have not been removed - the patient has received a second cochlear implant in the contralateral ear. The remaining patients are being closely monitored.

“My cochlear implant has been a huge success and changed my life in more ways than I imagined it would. I no longer feel isolated socially and have regained my lost confidence. To hear our little granddaughter’s first words and go to see her in her school play and hear her clearly was wonderful.”

Maureen