

Clinic overview

- Providing care for 1,600 adult and paediatric cochlear implant recipients.
- Supports patients across Scotland, including those in remote rural and island communities.
- Actively using Remote Check for annual patient reviews.

Clinic challenges

- Growing patient numbers and demands on clinician time.
- Limited availability of clinical treatment and test rooms.
- Both patients and clinicians can travel significant distances to outreach clinics.



**Case study: Scottish Cochlear Implant Programme,
United Kingdom**

Using Remote Check as a convenient alternative to annual clinic appointments

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Overview

The Scottish Cochlear Implant Programme (SCIP) manages an increasing number of adults and children with cochlear implants (CIs) who require lifelong clinical support to maintain their hearing performance. To meet growing demand and improve patients' access to care, the programme sought to unlock efficiencies in its annual reviews.

In 2019, the SCIP introduced Cochlear™ Remote Check, an app-based remote monitoring solution for CI recipients. Remote Check allows these patients to complete hearing health checks assigned by their clinician at a convenient time and place, without visiting the clinic. Since its introduction, Remote Check has been adopted as a triaging tool in place of annual reviews to assess whether patients need to attend an in-clinic appointment.

Currently the SCIP uses Remote Check to provide annual reviews for adults and older children (age 10 years and above) who have had their implant for two or more years and who have access to the available technology to utilise it.

Background

The SCIP is the national cochlear implant centre for Scotland and supports patients from across the country, including many rural and island communities. Currently the SCIP manages approximately 1,600 adult and child patients.

Patients primarily attend post-implant programming appointments at the University Hospital Crosshouse in Kilmarnock. Overnight hotel accommodation is provided at the hospital if patients are traveling from a distance. Outreach clinics have been established at six sites across Scotland to support patients who live further away. Organising an outreach clinic involves securing space in a local hospital or health centre (depending on availability) and one or two clinical scientist staff travelling to the sites. The staff travel with clinical equipment, leaving the University Hospital Crosshouse with reduced clinical staff and equipment for the duration of the outreach clinic.

Both patients and clinical scientists can travel a significant distance to attend outreach clinics (see Figure 1). Very remote patients, for example those on the Orkney Islands, may need to take three days off work to attend a clinic appointment: one day to fly and then drive to the clinic, one day for the appointment, and then one day for the reverse trip.

Figure 1: Distance between University Hospital Crosshouse (Kilmarnock) and outreach clinic sites



Map of Scotland

Several factors caused the SCIP to undertake an evaluation of the efficiency and effectiveness of its service:

- Growing patient numbers meant the SCIP needed to identify ways to increase clinical capacity to support new patients.
- The SCIP team recognised that many patients were impacted by the need to take time off work and travel long distances to appointments, as well as the associated costs and environmental impacts.
- There is a capacity constraint for appointments both at University Hospital Crosshouse and in outreach clinics due to a limited number of clinical scientists and treatment rooms available.

Factoring in both patient and clinic needs, the SCIP introduced Remote Check to explore whether a remote monitoring service could complement their current care model and address some of the emerging challenges.

Implementation

The SCIP began piloting Remote Check in April 2019 and expanded its use significantly during the COVID-19 pandemic. When face-to-face patient appointments were suspended in NHS Scotland in 2020, Remote Check was piloted by SCIP for routine review and emergency appointments in suitable adult CI patients (n=134).

In April 2021, the programme surveyed patients who had used Remote Check to collect their feedback (Figure 2). Patients reported that Remote Check provided them with reassurance about the performance of their sound processor and their hearing status. Patients also commented that Remote Check allowed them to avoid unnecessary travel to the clinic. Some patients constructively suggested a desire for more clinic feedback on the tests once completed, which the SCIP team have taken on board when responding to patients.

Figure 2: Survey of adults using Remote Check (n = 134)



Currently the SCIP uses Remote Check to provide annual reviews for adults and older children (age 10 years and above) who have had their implant for two or more years. By monitoring patient's progress and identifying any issues requiring further management, Remote Check allows the clinic to triage a patient's who need to be seen in the clinic. The SCIP's process for a patient completing an annual review with Remote Check is described below:

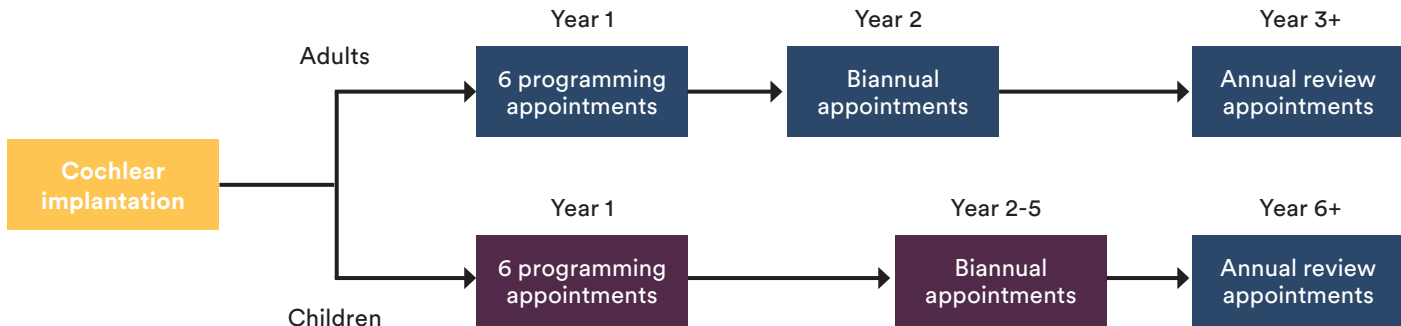
- The patient is sent an invitation to complete a Remote Check when their annual review is due. The invitation is sent via email through the Remote Check system.
- Depending on the Remote Check responses and results, the clinical team decides whether the patient needs to come into the clinic for further follow-up. The patient is advised of the outcome of the Remote Check via the Nucleus Smart App or email. To date, approximately 9% of Remote Checks have required a follow-up clinic appointment.
- Irrespective of the patient's Remote Check results, the clinic provides the patient with the option to attend an in-clinic programming appointment. This approach was implemented based on patient survey feedback that some patients did not want Remote Check to replace face-to-face appointments. This may change in the future as the SCIP reviews its patient pathway, as very few patients have requested a clinic appointment if their Remote Check results did not require follow-up.
- The patient also has the option to defer their appointment for a year. If they do so, they will be sent a request to complete the Remote Check in a year's time and, again depending on their Remote Check results, will be offered an in-clinic appointment or to defer again for another year.

Adult patients who are less than two years post-implantation may also be asked to complete a Remote Check. However, regardless of the Remote Check results these patients also attend the hospital for a programming appointment. This enables completion of a battery of routine tests to monitor their hearing progress up to two years post implantation. The Remote Check results are used to streamline or inform the direction of programming appointments and provide the clinician with additional data for a more holistic, ongoing picture of the patient’s hearing progress.

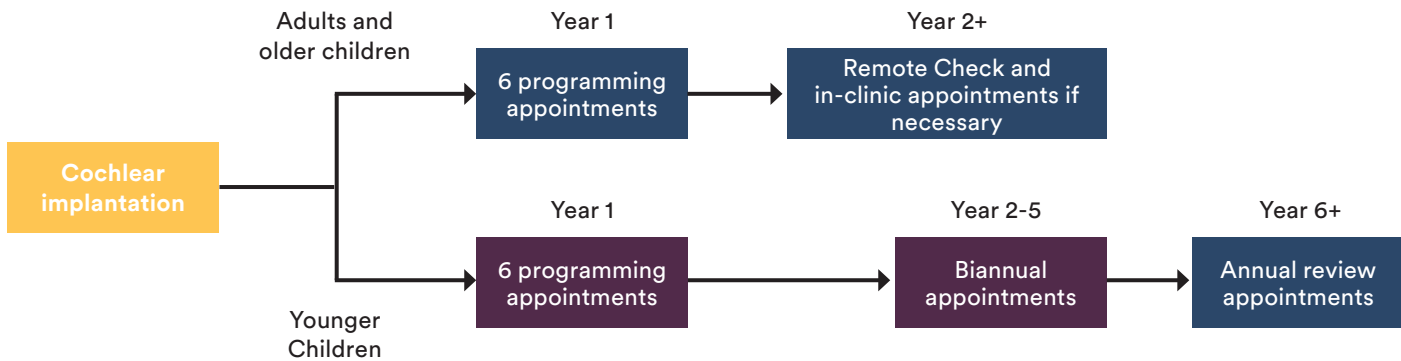
Figure 3 details the current patient pathway and the pathway prior to Remote Check.

Figure 3: Comparison of the SCIP CI patient pathway before and after Remote Check implementation

CI Patient Pathway before Remote Check



CI Patient Pathway after Remote Check implementation



Service impact

The SCIP currently has around 200 patients enrolled in Remote Check and is actively using Remote Check for annual patient reviews. Remote Check has been shown to provide benefits to SCIP's patients and the clinic. It can provide patients with reassurance about their hearing status whilst avoiding unnecessary clinic visits and travel. This is particularly pertinent for patients who are concerned about taking time off work, time off school, are unable to travel, or wish to avoid going into hospital. Having the option to complete a Remote Check may have also contributed to fewer patients who 'did not attend' scheduled appointments by giving patients with typically poor attendance an alternative way to access care.

For clinics, it takes less time to review a Remote Check than to conduct a face-to-face scheduled appointment. An added benefit is that Remote Check results can be reviewed by the clinical staff at their desks which helps relieve pressure on the availability of treatment and test rooms.

Remote Check has also helped augment existing SCIP initiatives to improve service effectiveness and capacity, as detailed below:

- If Remote Check identifies an equipment issue, the clinic can mail spare parts or replacement sound processors directly to the patient's home. This helps to avoid the need for the patient to come into the clinic and releases an appointment slot for another patient.
- If patients require training on how to use Remote Check, the clinic can provide it via email or schedule a National Health Service (NHS) Attend Anywhere appointment. NHS Attend Anywhere is a web-based platform which enables scheduled video consultation appointments.

Conclusion

Remote Check has allowed the SCIP to offer virtual annual review appointments both during and after the COVID-19 pandemic. Not only has this improved access to care for CI patients who live far away from the clinic, but it has also helped to increase clinic capacity and service effectiveness.

As the SCIP meets an ever-growing demand for cochlear implant after-care in Scotland, including the need for programming appointments, it will continue to develop the use of Remote Check in its patient pathway.