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A solid red square is located in the bottom left corner of the page.

Hear now. And always



Your Care Anywhere: Cochlear™ Remote Check

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Marketing Manager, Connected Care

FOR PROFESSIONALS

Learning Outcomes

After this course, participants will be able to:

- ✓ identify patients who may benefit from the use of Remote Check.
- ✓ list the activities in Remote Check and what each may tell you about the patient and how they are performing with their device.
- ✓ describe how to use Remote Check in conjunction with other Remote Care tools to provide patient-centered care within a clinical model.



A Changing Industry

Develop your own protocol

Consider broader implications of hearing loss
(e.g., cognition)

Work with increasingly complex technology

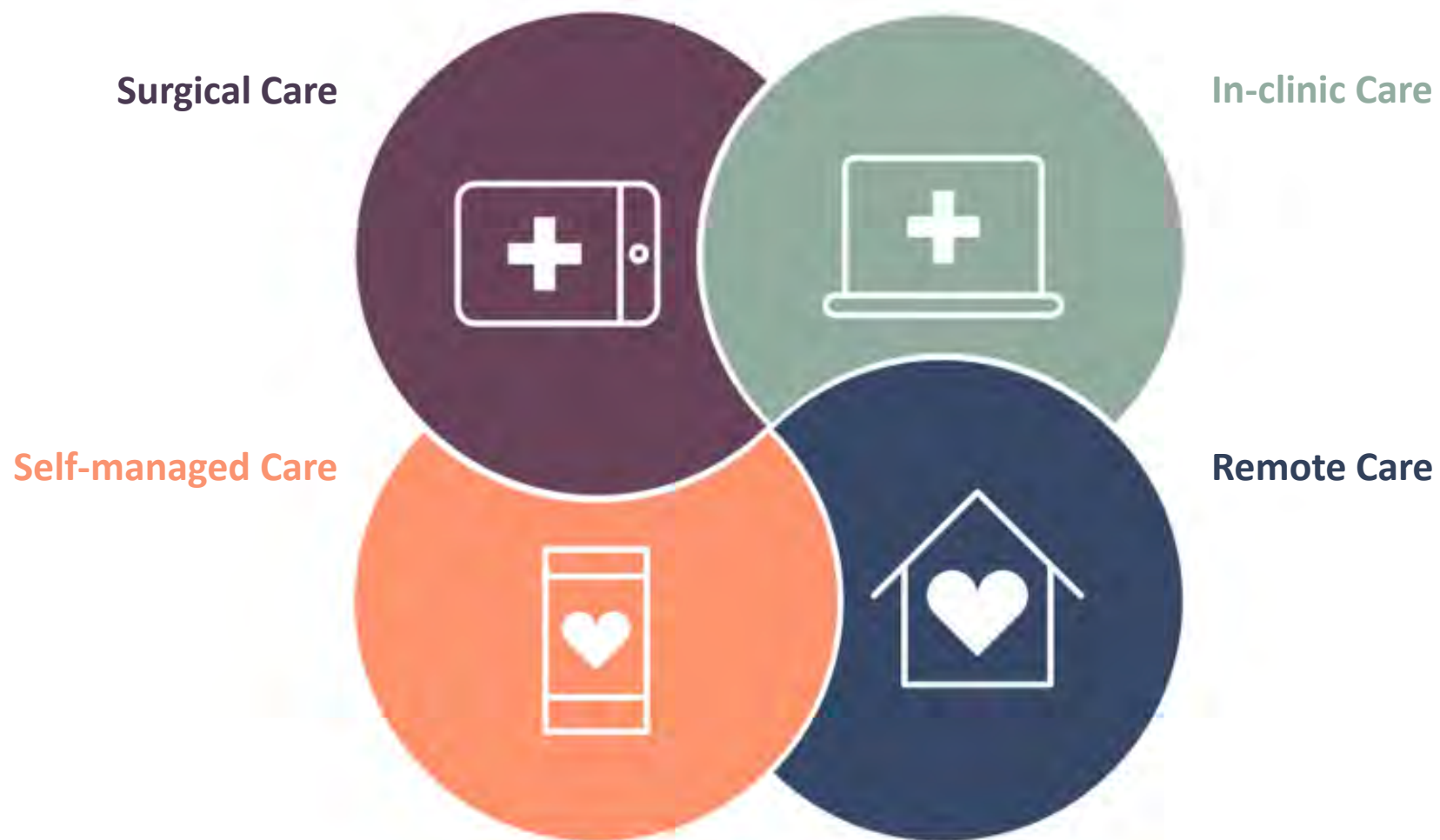
Maintain patient satisfaction and outcomes

See more patients in less time

Changing healthcare landscape



Connected Care supports patients at every stage of their journey



Hear now. And always

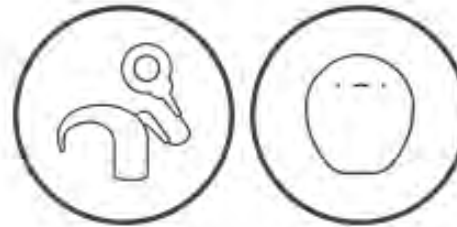


Cochlear™ Remote Check

Cochlear's Remote Care portfolio

*"It takes the stress away, if you like,
of going all the way to the clinic."*

Katie, User of Remote Care



For compatible* Cochlear™
Nucleus® Sound Processors.

Includes:

- Remote Check**
- Remote Assist



For Cochlear Baha® 6 Max
Sound Processors.

Includes:

- Remote Assist

*For sound processor and app compatibility information visit www.cochlear.com/compatibility

**Remote Check and Remote Assist for Nucleus sound processors are intended for ages 6 and older. Remote Check and Remote Assist features are only visible and accessible if they are enabled by a clinician. Clinicians should consider the suitability of the feature before enabling Remote Check and Remote Assist. Remote Check does not replace clinical care and does not involve remote programming of the sound processor. Only available at clinics that have enrolled in Remote Care.

Remote Assist for Baha sound processors is intended for a follow-up adjustment or setup of a replacement or upgrade sound processor for suitable qualified patients based on clinical judgment. Only available at clinics that have enrolled in Remote Care.

Cochlear™ Remote Check

Cochlear's **award-winning*** hearing health tool with customizable tasks you can assign to the patient.



Implant site
photos



Questionnaire
part 1



Aided
audiogram



Implant
check



Speech in
noise



Questionnaire
part 2



Cochlear™ Remote Check: An asynchronous tool



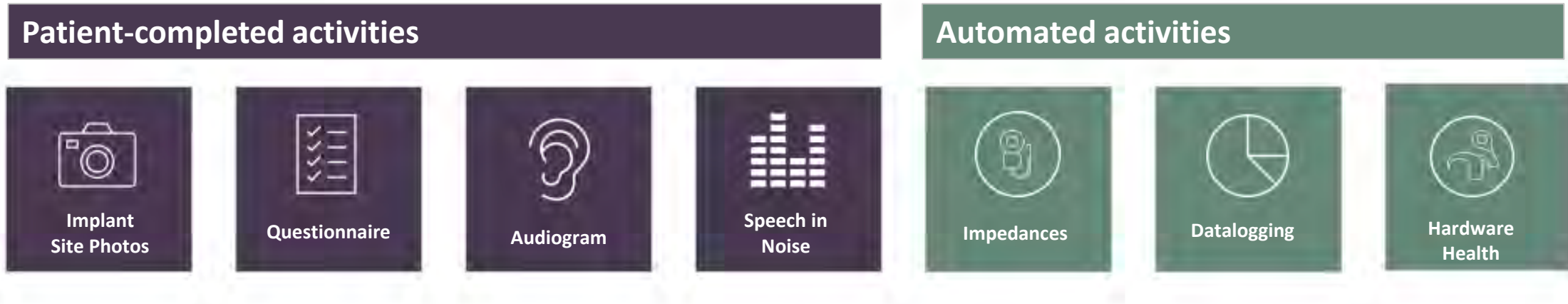
Audiologist decides on activities and assigns Remote Check to patient

Patient completes the activities at home. When complete, results are sent to Audiologist

Audiologist reviews Remote Check and sends results and next steps back to patient in their app



Remote Check Activities



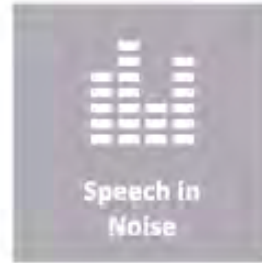
- ✓ The complete set of Remote Check activities are designed to take as little as 15 minutes for patients to complete and as little as 10 minutes for clinicians to assess¹⁻²
- ✓ Clinicians can determine which combination of activities are appropriate to assign to the patient.
- ✓ A complete baseline check including all activities is recommended when performance stabilizes for the patient.

1) Cochlear Limited, D1739391. Remote Check Usage Investigation. Data on file. The median time taken is 20mins for a unilateral patient and 30mins for a bilateral patient.

2) Cochlear Limited, D1739547 - Remote Check Pilot Evaluation UK & NZ, Feb 2019. Data on file. The average time taken is between 10 – 19mins, depending on the results to be reviewed.

Remote Check Activities

Patient-completed activities



Automated activities



1. Photographing the implant site

Patients take photos of the area where their coil is attached, and the area behind the ear. This allows the clinician to check the site for any skin irritation or inflammation.

For bilateral patients, right ear will be first and then left ear.

A family member or friend may help the patient take photos of the implant site.

Remote Check Activities



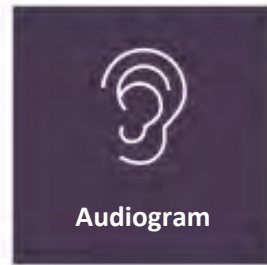
2. Completing the questionnaire

Patients will complete a questionnaire in two parts to give the clinician an indication of their overall hearing health and needs.

It covers patients' medical health, their ability to perceive different sounds, and their device performance and allows them to type information to their clinician.

Includes questions from the Speech, Spatial and Qualities of Hearing Scale (SSQ12) for adult patients or SSQ Parent version for pediatric patients¹.

Remote Check Activities



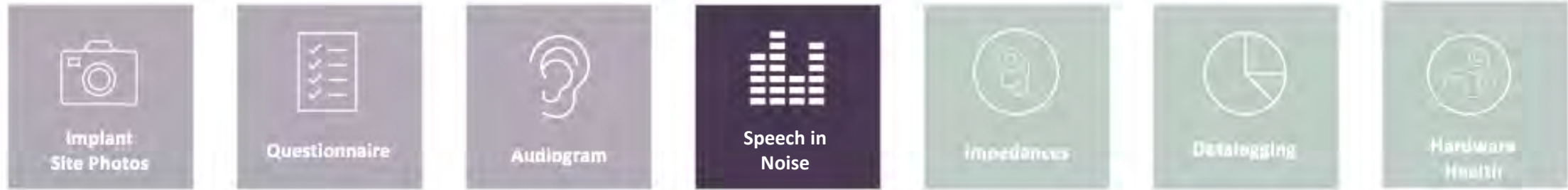
3. Completing an Audiogram

The Audiogram test is an Aided Threshold Test (ATT) to determine the softest level at which a patient can hear.

Pulse tones are streamed directly to the sound processor through the wireless link and the patient must indicate whether a sound was heard or not.

A modified Hughson Westlake¹ procedure is used and some presentations are deliberately inaudible to discourage false positive responses

Remote Check Activities



4. Taking a speech in noise test

Patients take the well-established Digit Triplet Test (DTT), which assesses their hearing ability in noise.

DTT has been shown to be highly correlated with BKB-SIN sentence scores in quiet and adaptive noise, supporting its suitability as a patient driven test for cochlear implant patients.^{1,2}

Remote Check Activities



5. Impedance Measurement

An Impedance Check is run that can be used to detect changes to the implant since the last Remote Check. Impedance results are not displayed in the Smart App for the patient but are sent to the clinician.

While impedances are being measured, a patient is not required to do anything and will remain off-air. The coil must remain on the head.

Remote Check Activities



6. Datalogging & Hardware Health

Datalogging information is sent back to the clinician along with the Remote Check to be displayed in myCochlear™ Professional Portal.

Hardware health checks for any sound processor or microphone faults and communicates that information back to the clinician.

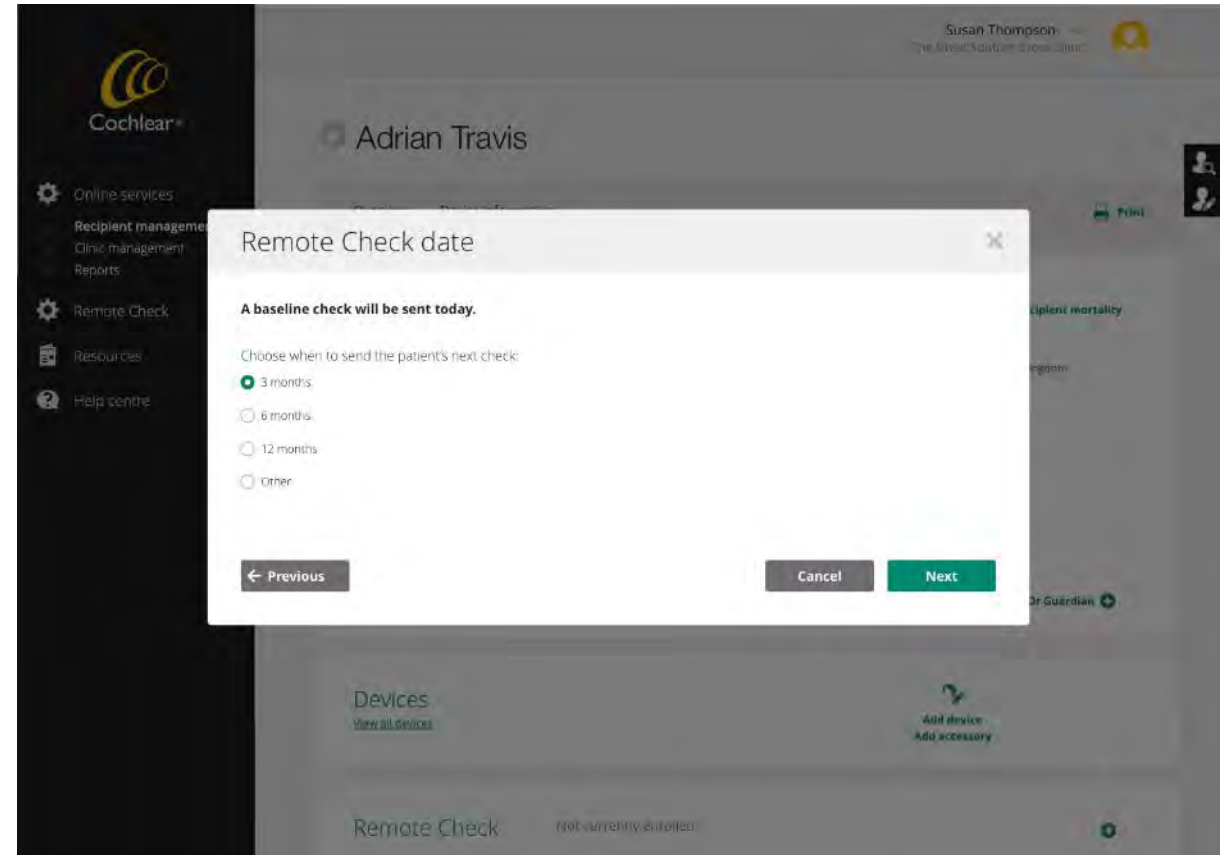
Enrolling patients in Remote Care



Clinicians choose who to enroll in Remote Care and enroll them using **myCochlear clinic**

Remote Check or Remote Assist will not be accessible to the patient until they are enrolled by the clinician

Once enrolled, patients will receive a **baseline** check in their app



Interpreting Results

	Clinical Screening	Clinical Management
 Implant Site Photos	Skin flap, incision and implant site check	✓ PCP/ENT Referral ✓ Swap out hardware/magnet
 Questionnaire	Self-reported issues, hearing performance, T- and C-levels, sound quality	✓ Reprogramming ✓ Replacement sound processor ✓ Counseling/usage training
 Audiogram	Programming: T-levels	✓ Reprogramming
 Speech in Noise	Hearing performance	✓ Reprogramming ✓ Counseling

Interpreting Results (Cont.)

	Clinical Screening	Clinical Management
 Impedances	Electrodes	✓ Disabling/flagging electrodes ✓ Reprogramming
 Datalogging	Device Usage, Environments	✓ Counseling ✓ Program changes ✓ Troubleshooting
 Hardware Health	Sound Processor or microphone issues	✓ Device replacement

Assessing Hearing Performance

Two activities in Remote Check objectively measure hearing performance:



Aided Threshold Test (ATT)
To measure audibility



Digit Triplet Test (DTT)
To measure speech
understanding in noise

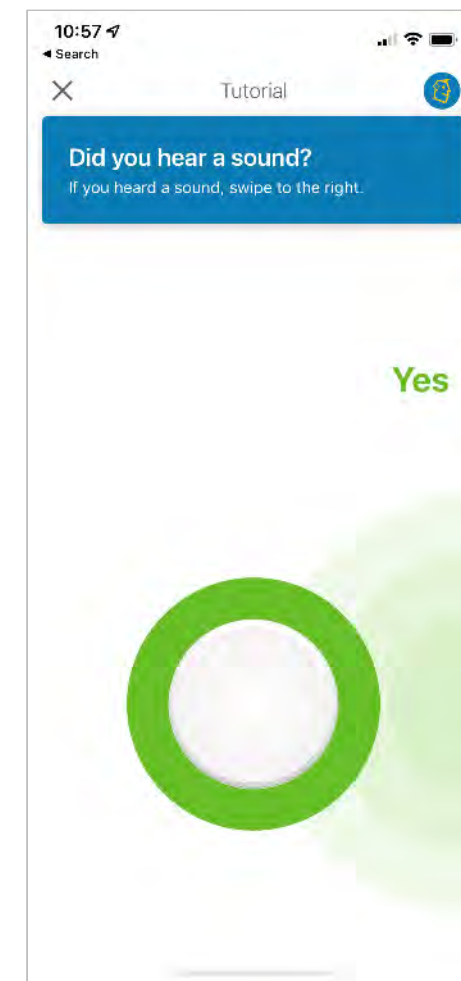
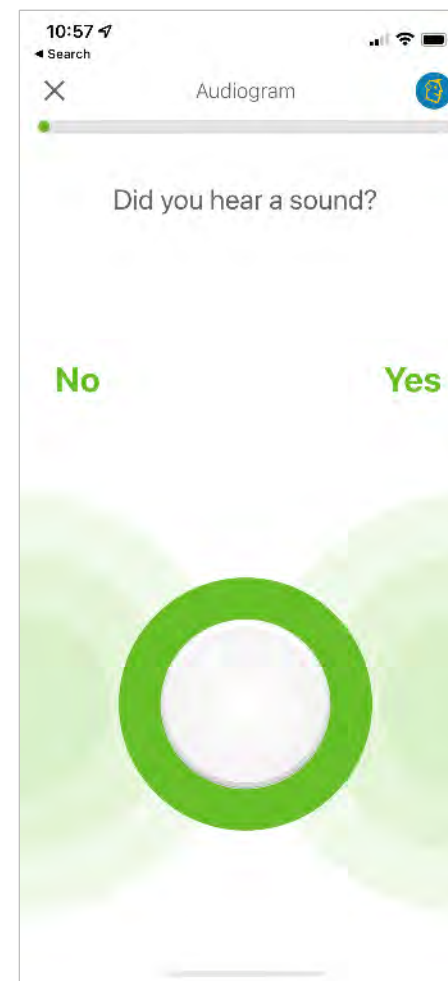
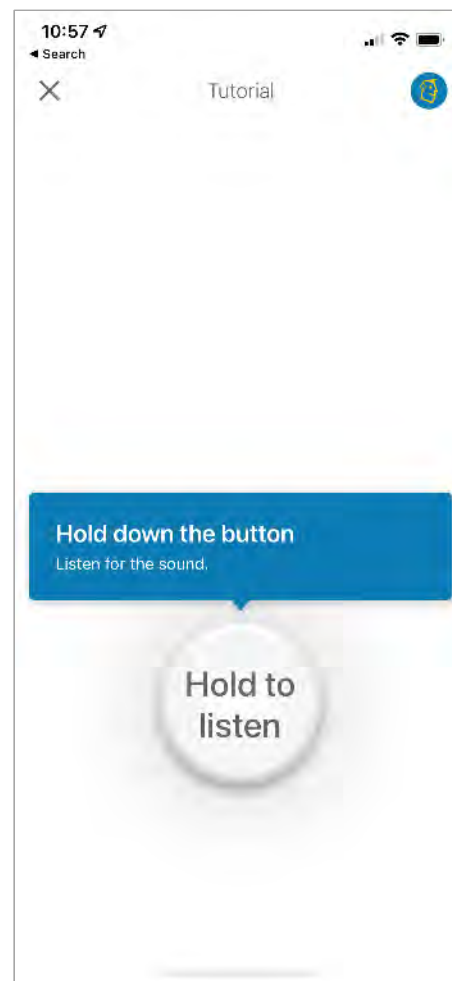
Aided Threshold Test (ATT)

Tones are played at **seven** different frequencies with a threshold calculated for each

Some sounds are **deliberately inaudible** (zero tokens) to discourage false positives

A **tutorial** trains the user how to respond:

- Click “Hold to listen” to hear the sound
- Swipe right if heard, left if not heard



Aided Threshold Test (ATT)

Automated app-based screening can determine thresholds with similar accuracy to that of manual audiometry^{1,2}, making it suitable as a screening tool

The Remote Check Audiogram delivers accurate thresholds which are typically lower than for free-field measurements due to test optimization for remote patient use³

1. Mahomed F, Swanepoel DW, Eikelboom RH, Soer M. Validity of automated threshold audiometry: a systematic review and meta-analysis. *Ear and hearing*. 2013 Nov 1;34(6):745-52.
2. Bastianelli M, Mark AE, McAfee A, Schramm D, Lefrançois R, Bromwich M. Adult validation of a self-administered tablet audiometer. *Journal of Otolaryngology-Head & Neck Surgery*. 2019 Dec 1;48(1):59
3. D1098853 Evaluation of Remote Care App and Nucleus Smart App with CP 1000 sound processor. Clinical Investigation Report. Data on file 24 Feb, 2020



Digit Triplet Test (DTT)



Digit triplets are presented at **different signal-to-noise ratios (SNR)** to determine the SNR at which triplets are recognized 50% of the time – this is the speech reception threshold

Digits 1-9 used (7 and 0 excluded)

Digits are not repeated in any triplet sequence but the triplet sequence may be repeated during testing

Practice mode trains patients how to respond; the patient must pass practice mode to progress to the actual DTT



Digit Triplet Test (DTT)

Digit in noise tests are available in many languages¹⁻² and adapted for Smartphone and internet hearing screening applications

Reliably performed by children³

Unaffected by linguistic/cognitive bias, with minimal floor & ceiling effects⁴

Highly correlated with other speech-in-noise tests, such as BKB-SIN⁵



*Remote Check is intended for ages 6 and older. The Remote Check feature is only visible and accessible if the feature is enabled by a clinician. Clinicians should consider the suitability of the feature before enabling Remote Check.

1. Vlaming MS, Kollmeier B, Dreschler WA, Martin R, Wouters J, Grover B, Mohammadh Y, Houtgast T. HearCom: Hearing in the communication society. Acta acustica united with Acustica. 2011 Mar 1;97(2):175-92.
2. Zokoll MA, Wagener KC, Brand T, Buschermöhle M, Kollmeier B. Internationally comparable screening tests for listening in noise in several European languages: The German digit triplet test as an optimization prototype. International Journal of Audiology. 2012 Sep 1;51(9):697-707.
3. Koopmans WJ, Goverts ST, Smits C. Speech recognition abilities in normal-hearing children 4 to 12 years of age in stationary and interrupted noise. Ear and Hearing. 2018 Nov 1;39(6):1091-103.
4. Kaandorp MW, Smits C, Merkus P, Goverts ST, Festen JM. Assessing speech recognition abilities with digits in noise in cochlear implant and hearing aid users. International journal of audiology. 2015 Jan 2;54(1):48-57.
5. Cullington HE, Aidi T. Is the digit triplet test an effective and acceptable way to assess speech recognition in adults using cochlear implants in a home environment?. Cochlear implants international. 2017 Mar 4;18(2):97-105.

Interpretation of DTT Results

In a clinical study of Remote Check, the group mean performance with DTT was **4.9 dB**¹

Test-Retest validity of DTT is high and comparable to in-booth testing¹

Results of DTT can be compared to the subject's baseline over time to track progress

1) Maruthurkkara, S, Case S, Rottier R (2021) Evaluation of Remote Check: A Clinical Tool for Asynchronous Monitoring and Triage of Cochlear Implant Systems. Ear & Hearing, 43(2): 495-506.



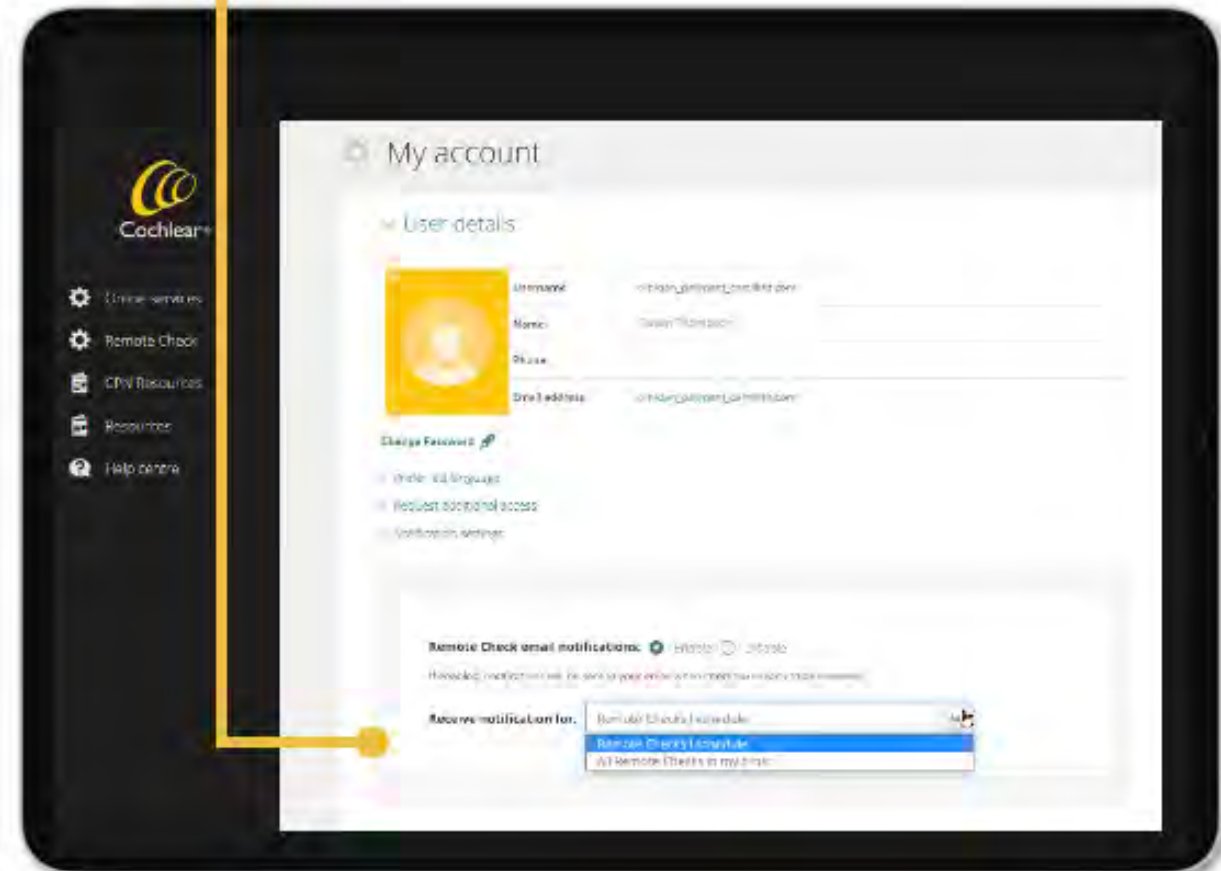
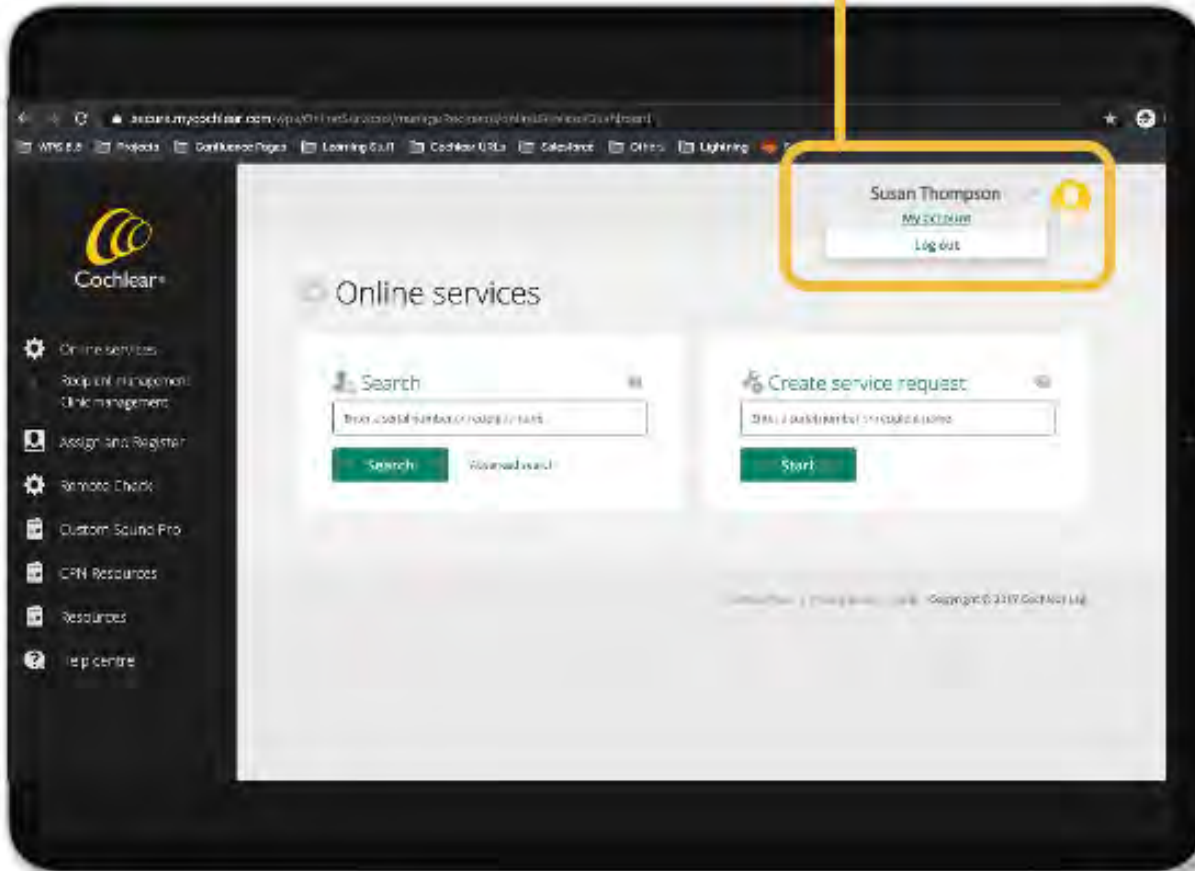
Remote Check email notifications



1 Log into myCochlear Clinic

2 Go to My Account and set up notification preferences

3 Select to Enable email notifications. Choose whether to be notified of all checks or just those scheduled by you (use drop down).



Changes to preferences will be automatically saved.
Click the left (black) menu panel to exit My account.

Remote Check Menu

1
Log in to
myCochlear
Clinic

Go to
Remote
Check

2

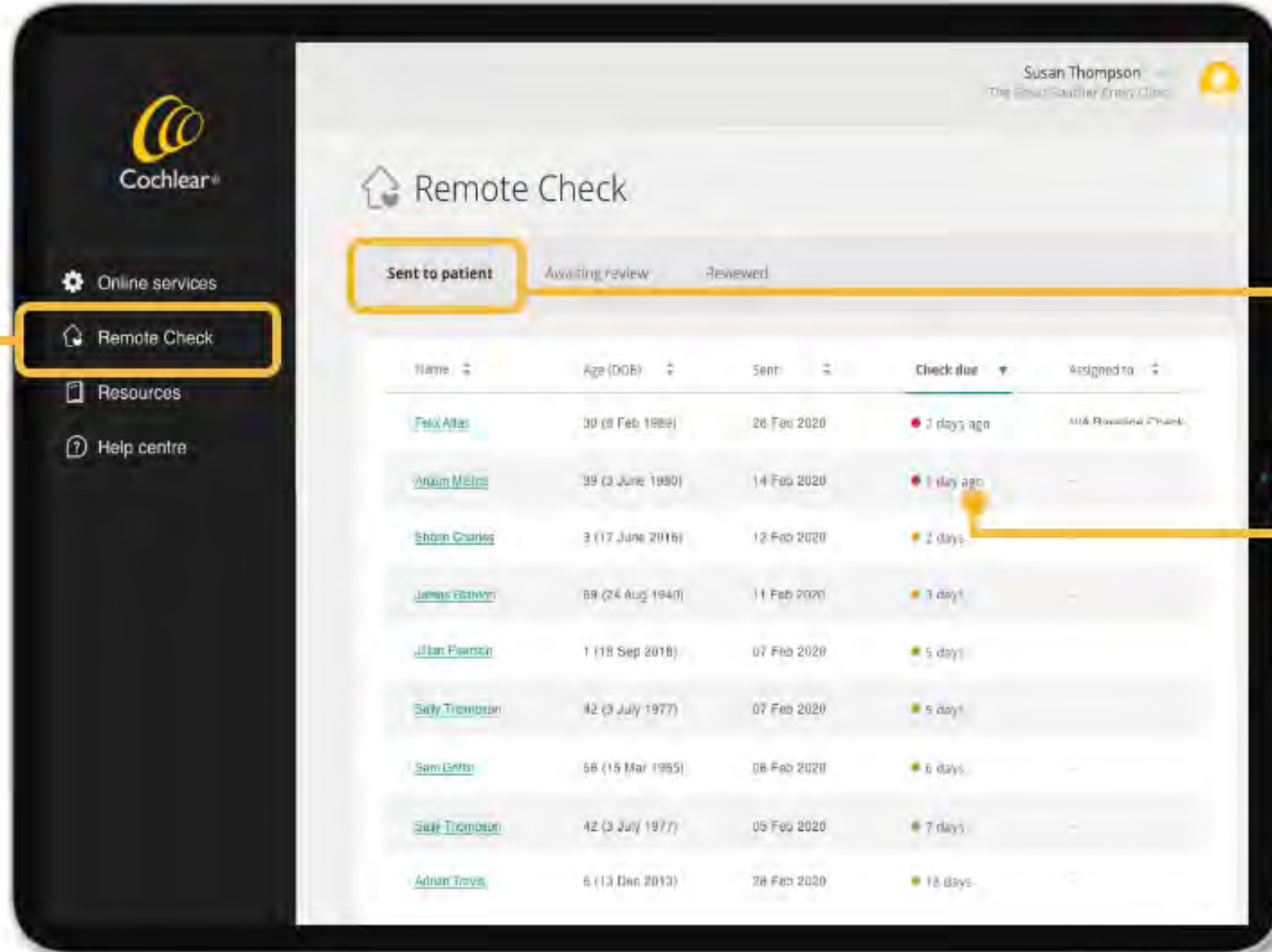
Online services

Remote Check

Resources

Help centre

To access patient
information, click
the patient's name
to open Online
services



The screenshot shows the 'Remote Check' interface. The sidebar on the left contains the Cochlear logo and navigation links: 'Online services', 'Remote Check' (highlighted with a yellow box and a '2' callout), 'Resources', and 'Help centre'. The main content area is titled 'Remote Check' and has three tabs: 'Sent to patient' (highlighted with a yellow box and a '1' callout), 'Awaiting review', and 'Reviewed'. Below the tabs is a table with columns: 'Name', 'Age (DOB)', 'Sent', 'Check due', and 'Assigned to'. The table lists several patients with their names, ages, dates sent, due dates, and assigned staff. A yellow box with a '1' callout points to the 'Check due' column, indicating that users should review due dates and take action if overdue.

Name	Age (DOB)	Sent	Check due	Assigned to
Felix Allen	30 (8 Feb 1989)	26 Feb 2020	1 day ago	Alia Rosewood (Pharm)
Anam Malik	39 (3 June 1980)	14 Feb 2020	1 day ago	—
Sharon Charles	3 (17 June 2016)	12 Feb 2020	2 days	—
James Robinson	89 (24 Aug 1940)	11 Feb 2020	3 days	—
Jillian Pearson	1 (18 Sep 2018)	07 Feb 2020	5 days	—
Sally Thompson	42 (3 July 1977)	07 Feb 2020	5 days	—
Sam Griffin	56 (15 Mar 1965)	08 Feb 2020	6 days	—
Sally Thompson	42 (3 July 1977)	05 Feb 2020	7 days	—
Adrian Travis	6 (13 Dec 2013)	28 Feb 2020	18 days	—

This view lists
checks **Sent to
patients** but not
yet completed

1
Review Check
due dates
and action if
overdue

Remote Check Dashboard



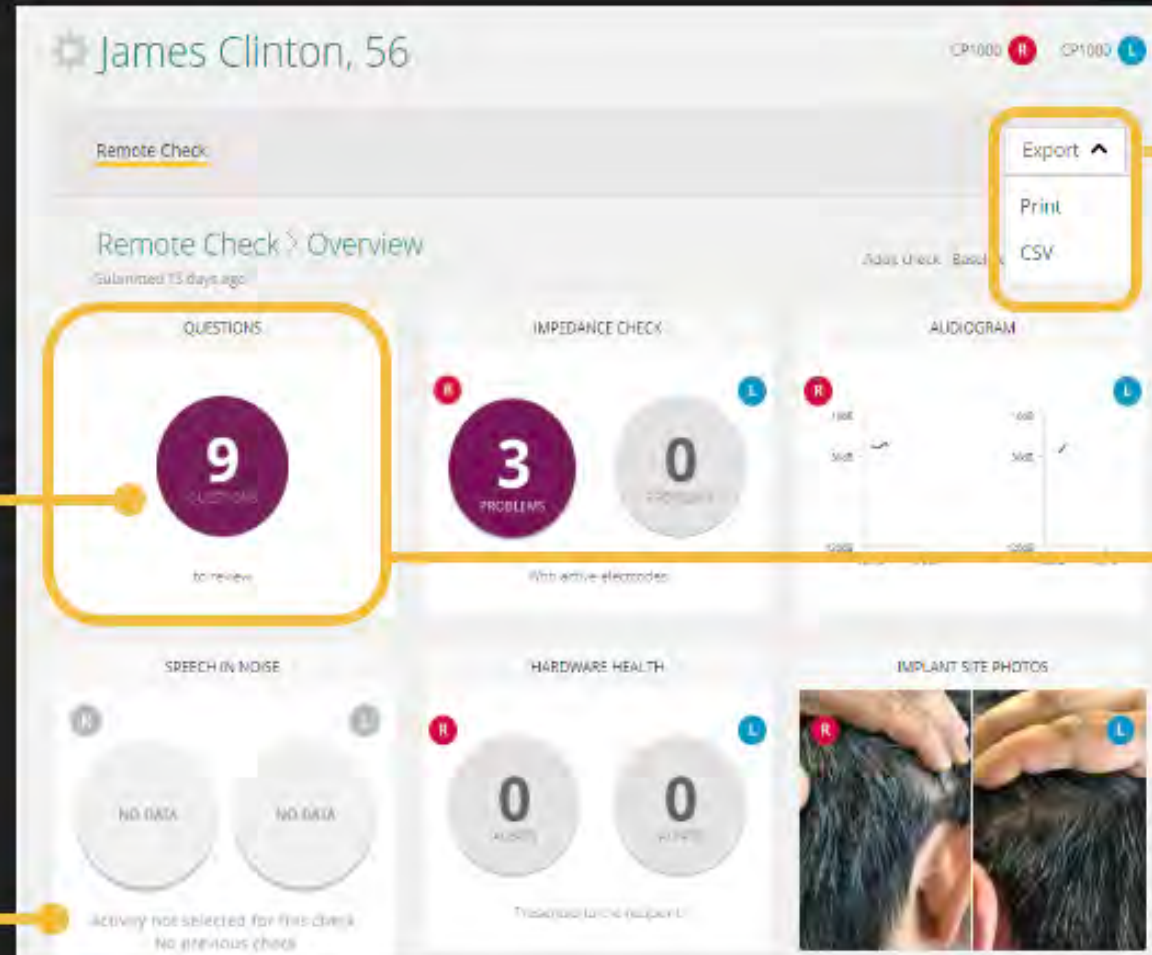
1

The patient dashboard opens

2

Review tasks in purple flagged for attention

Activities not assigned for this check are indicated in grey



3

Click on Export and select Print to print all check results or select CSV to export data into another application

4

Click on each tile to open the detailed results view

Finalizing a Check

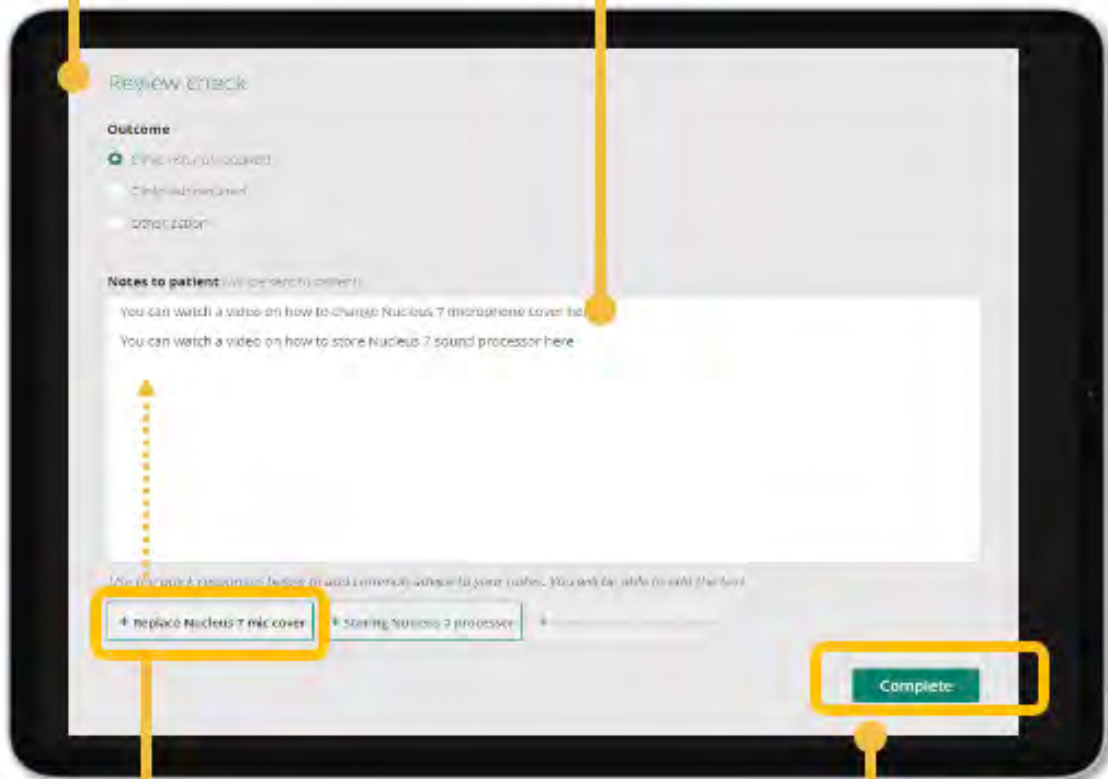


1 Scroll down to **Review Check** and select the check outcome

2 Type in notes to the patient (optional)

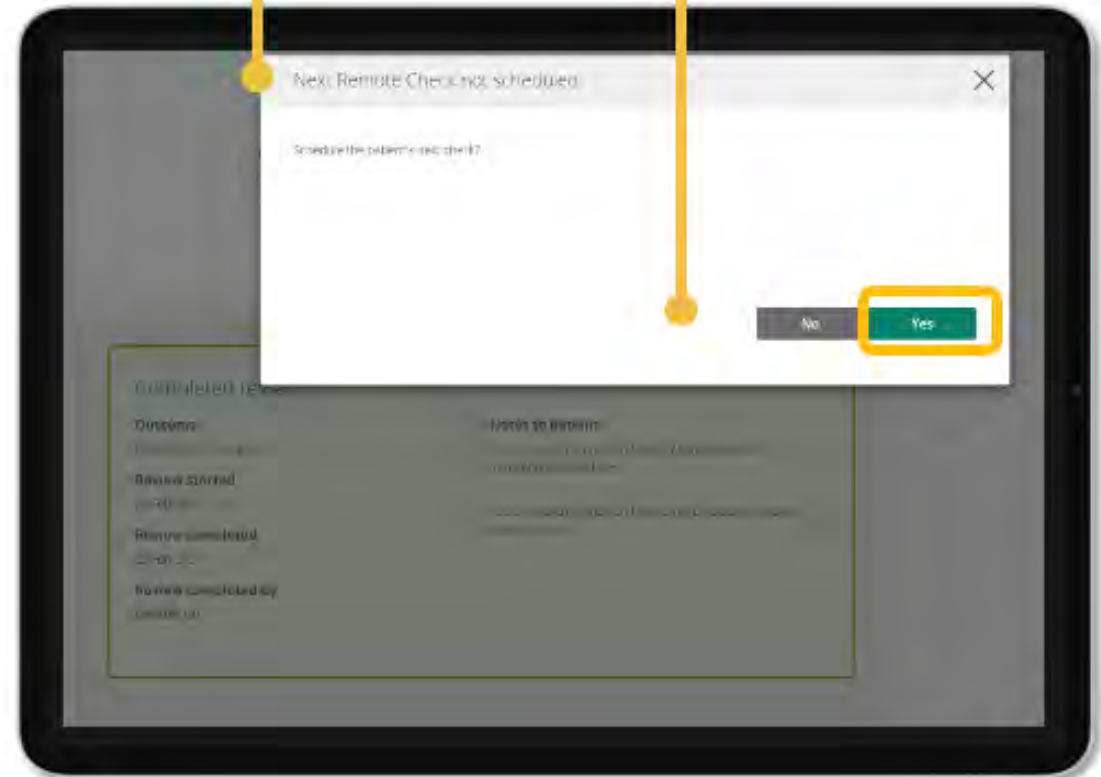
3 Click on **Quick Links** to automatically add pre-formatted text and video links into Notes

4 Click **Complete** to finalize the check and send results to the patient



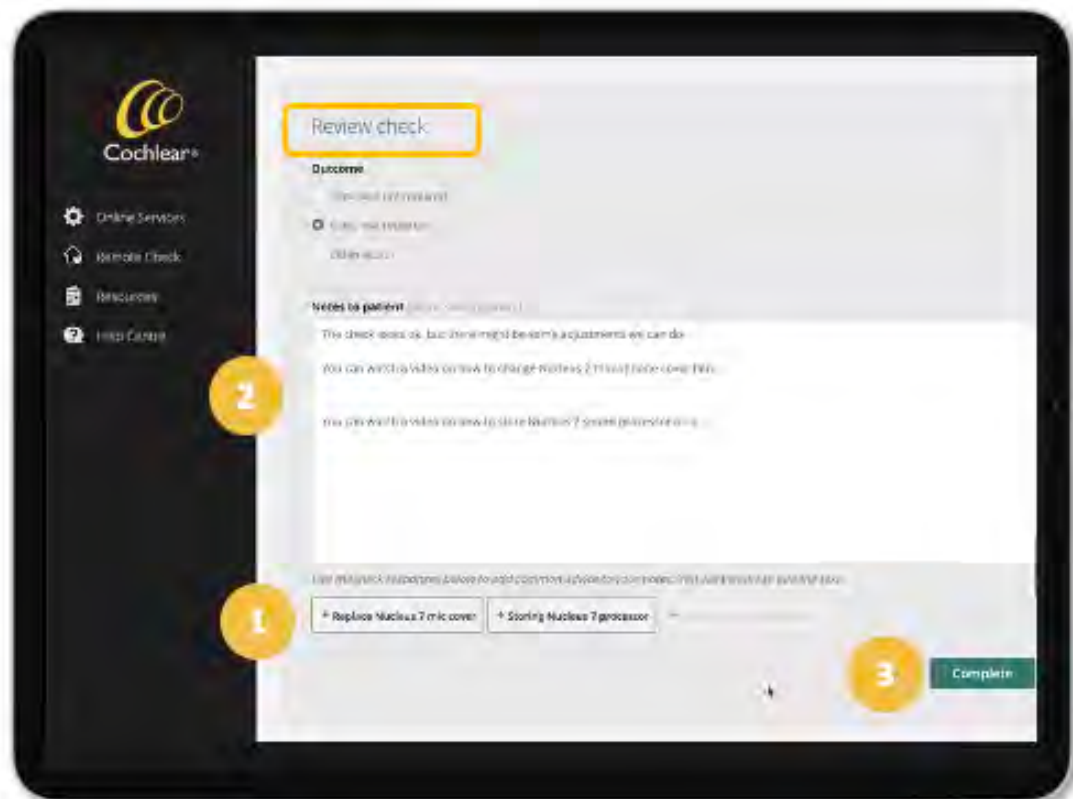
5 A pop up will appear

6 Click **YES** to immediately schedule a future check.



Quick Support Response Links

When finalizing a check, insert pre-formatted responses and links into the patient notes for quick access to content about common help topics



1

Choose one or more quick links from the options provided

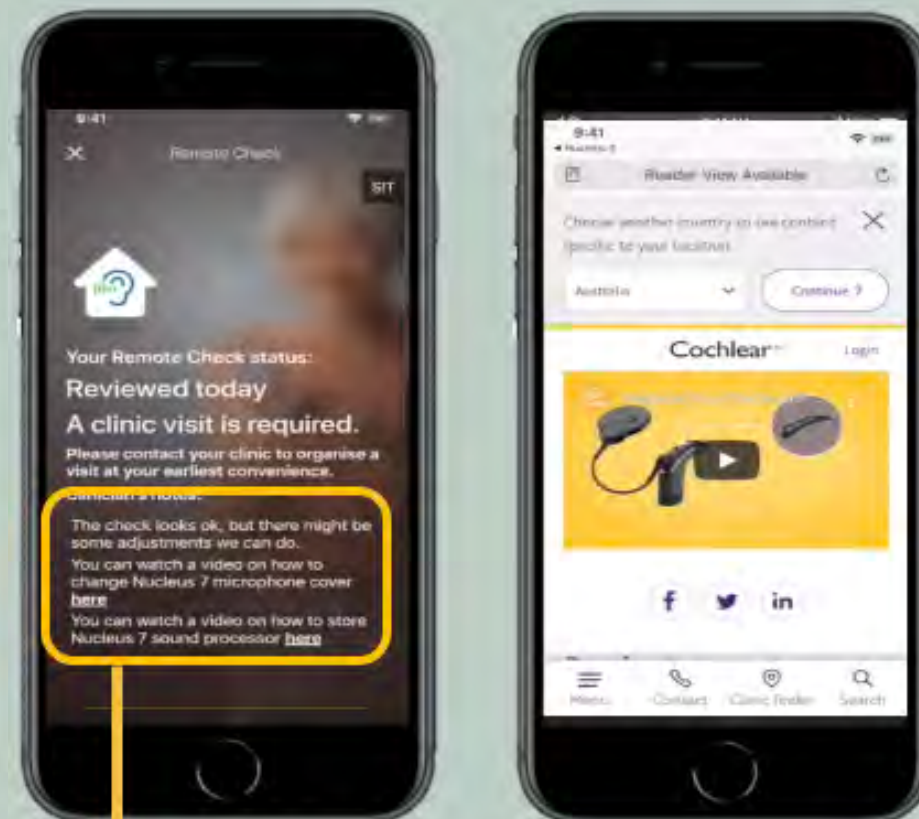
2

The selected link will appear in the notes. Edit pre-formatted text as required.

3

Complete the check to send notes and links to the patient

Nucleus® Smart App



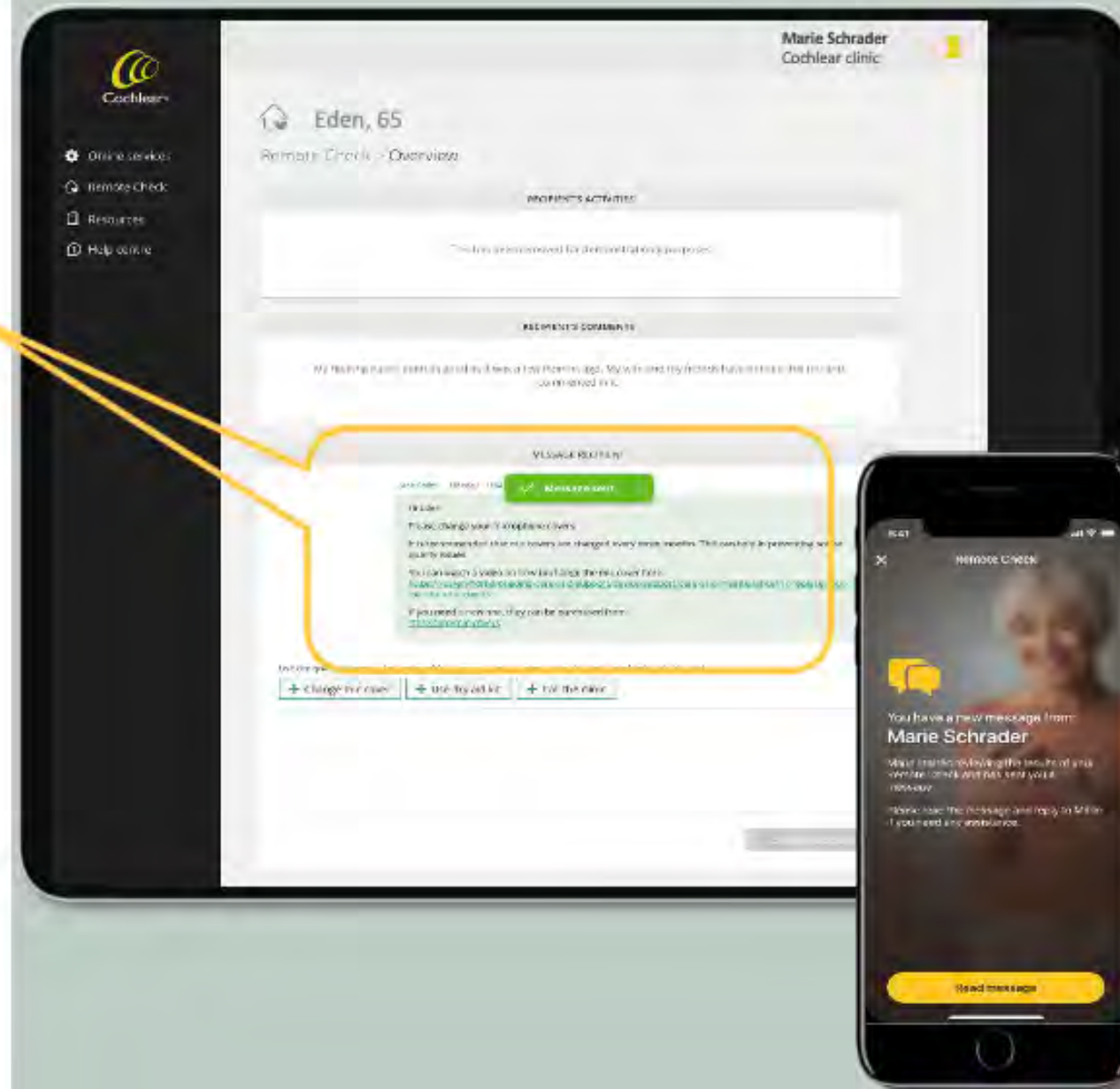
The patient receives the notes and links directly on their smartphone.

Clicking the links will open the support information in their smartphone browser

Remote Check supports bi-directional messaging

Clinicians can use myCochlear Clinic (mCC) to message back and forth with their patient to help resolve identified issues

Enables clinicians to continue a conversation to send further patient instructions, share links to instructional videos, or request further information **before** finalizing their review of a Remote Check



Patient Support



In the Smart App



Tutorials are available in the Smart App to teach patients how to do each activity.

In the Getting Started Guide



The Nucleus Remote Care Getting Started Guide contains detailed information about Remote Care and each Remote Check activity.

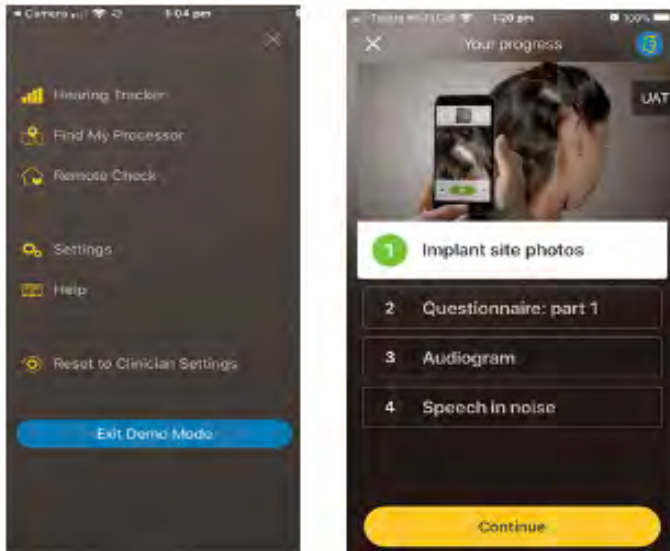
From Cochlear



Patients are encouraged to contact Cochlear Customer Service for further support.

Remote Check Demo

- A demo feature is available for clinicians (not for patient use)
- Currently available **for both iPhones and Android devices***
- Each demo session starts a new check and no data or photos are sent to Cochlear or stored locally



Using the Remote Check Demo

- 1 Download the Nucleus® Smart App from the App Store (no need to login)
- 2 Scan the onscreen QR code using the iPhone camera
- 3 Tap 'Open in Nucleus Smart'
- 4 A subset of Remote check activities will appear. Follow onscreen instructions to complete activities. Demo mode will continue to appear in subsequent sessions.

Hear now. And always



Remote Care: Getting Started

Who is Remote Care for?

Remote Care is suitable for most patients, including adults and pediatric patients,* alone or with support from a carer.

Consider especially for those patients who:

- Travel long distances for clinic visits
- Have additional mobility, access or health concerns
- Are affected by other lifestyle, work or school situations

Suitable candidates require:

- A compatible Cochlear Sound Processor
 - Nucleus 8, Nucleus 7 Sound Processor or Kanso®2 Sound Processor
 - Baha 6 Max Sound Processor
- The access and motivation to use smartphone and video call functions – ask your patient, “Do you like your smartphone?”
- Nucleus or Baha Smart App installed

*Remote Check is designed for patients aged six years and older with compatible unilateral or bilateral devices.¹

1. Maruthurkkara S, Case S, Rottier B. Evaluation of Remote Check: A Clinical Tool for Asynchronous Monitoring and Triage of Cochlear Implant Recipients. Ear Hear. 2021 Jul 27.



Getting Started with Remote Care

1. Identify patient and clinic needs

Decide how Remote Care can support your clinic and your patients



2. Enroll in Remote Care

Choose the appropriate subscription package for your clinic and begin working with Cochlear's implementation team



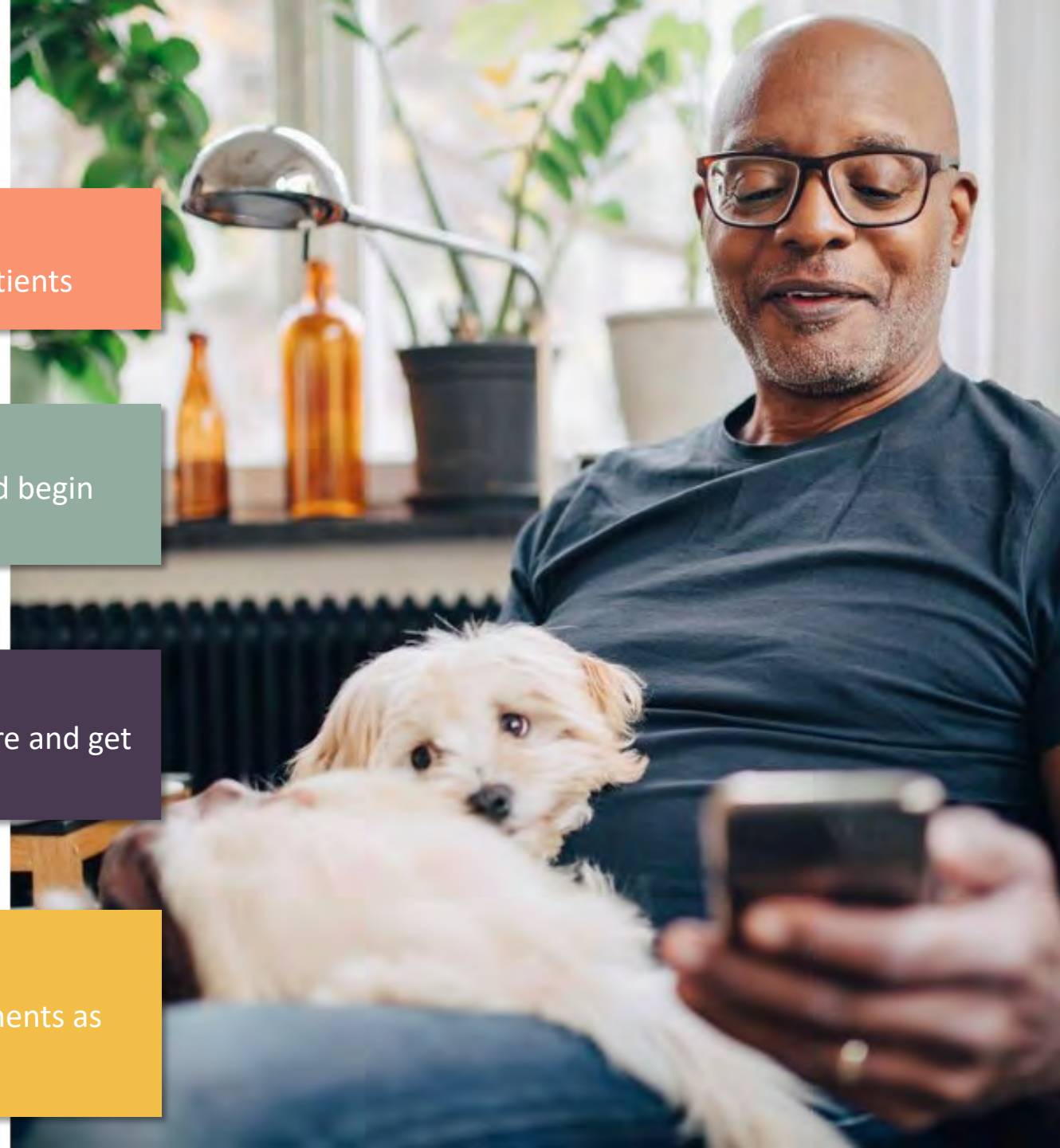
3. Begin using Remote Care

Select which patients and clinical situations will utilize Remote Care and get started



4. Evaluate and Maximize Use

Review your implementation of Remote Care and make adjustments as needed



Supporting resources

Clinician Getting Started Guides



BUN955



FUN4669

Patient Getting Started Guides (English/Spanish)



BUN957



FUN3956

Implementation Support

Remote Care Flyer



FUN4068

Data & Privacy Guidelines



FUN4593



BUN954

Reimbursement Considerations



CAM-HE-033_G



Quality care, anywhere



www.cochlear.com

This material is intended for health professionals. If you are a consumer, please seek advice from your health professional about treatments for hearing loss. Outcomes may vary, and your health professional will advise you about the factors which could affect your outcome. Always follow the instructions for use. Not all products are available in all countries. Please contact your local Cochlear representative for product information.

Views expressed are those of the individual. Consult your health professional to determine if you are a candidate for Cochlear technology.

Remote Check and Remote Assist for Nucleus sound processors are intended for ages 6 and older. Remote Check and Remote Assist features are only visible and accessible if they are enabled by a clinician. Clinicians should consider the suitability of the feature before enabling Remote Check and Remote Assist. Remote Check does not replace clinical care and does not involve remote programming of the sound processor. Only available at clinics that have enrolled in Remote Care.

Remote Assist for Baha sound processors is intended for a follow-up adjustment or setup of a replacement or upgrade sound processor for suitable qualified patients based on clinical judgment. Only available at clinics that have enrolled in Remote Care.

The Cochlear Nucleus 8, Nucleus 7, Kanso 2 and Baha 6 Max sound processors are compatible with Apple and Android devices. The Cochlear Nucleus Smart App and Baha Smart App are available on App Store and Google Play. For compatibility information, visit www.cochlear.com/compatibility.

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