



Same-day Patient Consultation and Cochlear Implantation: Innovations in Patient-Centered Health Care Delivery

AM Nassiri¹, RJ Yawn¹, RH Gifford², JT Holder², CJ Stimson³, RD Eavey¹, DS Haynes¹

1. Dept of Otolaryngology & Head and Neck Surgery; 2. Dept of Hearing and Speech Sciences; 3. Dept of Urology Vanderbilt University Medical Center



The Otology Group of Vanderbilt

Background

- Cochlear implantation (CI) is a surgical option for hearing rehabilitation in patients who no longer receive adequate benefit from hearing aid amplification.
- Preoperative evaluation and treatment process for patients undergoing CI is complex, requiring multimodal preoperative evaluation (audiologic, radiographic, and surgical work up)
- As a result, patients experience significant referral-to-surgery time delay and travel burden for each appointment.
- Challenges around access to relatively scarce high-volume CI centers and a growing population of CI candidates additionally stress the need for coordinated, efficient care that expedites treatment and minimizes patient travel burden.
- Since the Center for Medicare and Medicaid Innovation launched the Bundled Payments for Care Improvement initiative in 2013(3), bundling of surgical procedures (most commonly in orthopedics) have been demonstrated to reduce costs and improve the patient experience (1-4).

Objective

To develop a streamlined, patient-centered health care delivery model for patients referred for CI at a high-volume academic center.

Methods

- VUMC IRB approval #170564
- Retrospective review of 245 consecutive patients referred from external provider to VUMC for CI in 2018.
 - Included: 215 patients who underwent CI surgery in 2018
 - Excluded: 9 patients for delays in care outside of hospital-related processes (required other otologic surgery prior to CI, delayed for personal reasons)
- A process map with key events leading up to surgical intervention was developed from observational data (Initial Operational State)
 - Wait times between key events were determined from time stamps in the electronic medical record, while activity times were estimated by personnel responsible for the task.
 - Patient wants / needs were determined through feedback during clinical practice

Results

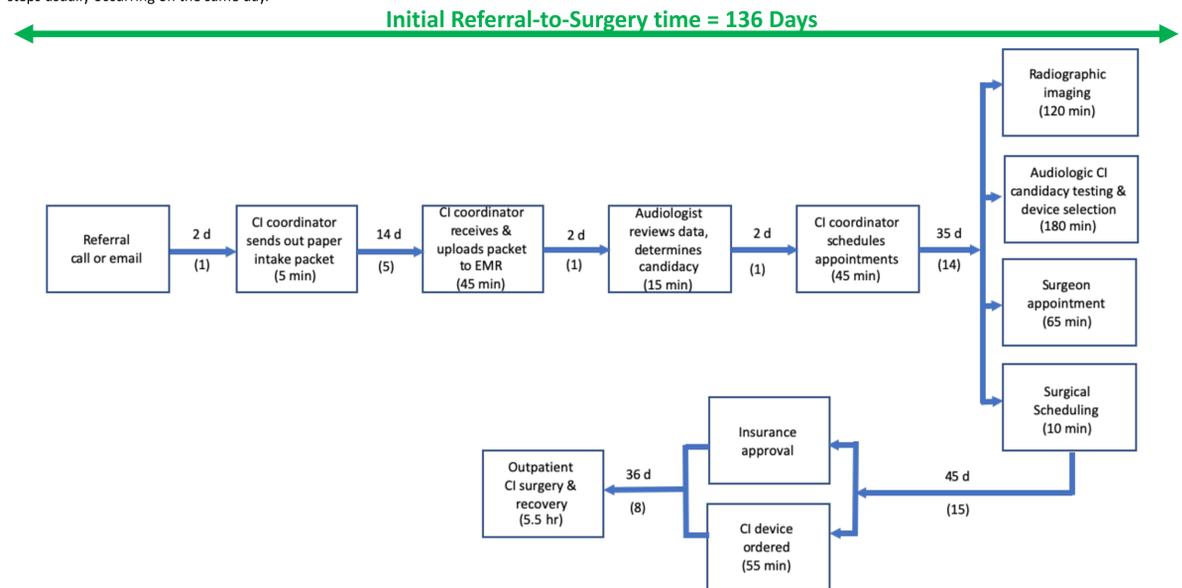
- 206 patients included for process analysis (Initial operational State)
- New Patient-Centered Care Delivery Model has been piloted with one patient.

Patient Needs & Correlating Operational Improvements

Patient Need	Operational changes
Shorter referral-to-treatment time	Pre-reserved, coordinated appointments Bundled model (eliminated insurance approval time) CI device inventory Interactive EMR to upload prior test results
Fewer trips to institution	Same-day evaluation and surgery
Access to information	Interactive EMR with CI information Telehealth / staff messaging

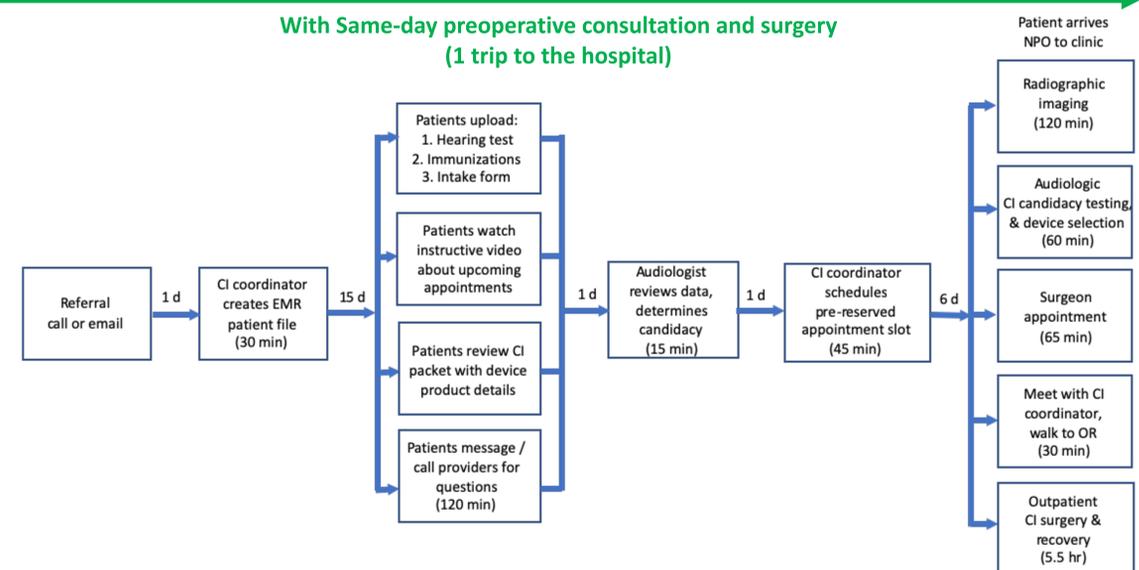
Results (continued)

Initial Operational State. Mean wait time for each step represented above arrows, the standard deviation is represented below the arrows in parentheses (). The mean task time is represented within each process step box. The mean wait time from referral to surgery was 136 d; the mean active work time was 17.6 h. Stacked boxes represent process steps usually occurring on the same day.



New Patient-Centered Care Delivery Model

New Referral-to-Surgery time = 24 Days
With Same-day preoperative consultation and surgery (1 trip to the hospital)



Summary & Next Steps

- New Patient-Centered Care-Delivery Model reduced the referral-to-surgery time from 136 to 24 days, with in-person new patient consultation, preoperative evaluation and surgery occurring during a one-day outpatient experience.

- Initial trial with patient had excellent feedback.

Next Steps:

- Implement interactive EMR with ability to upload outside hospital records and audiograms, access to CI information and videos about the evaluation and surgical process
- Implement broader CI device inventory.

Contact

Ashley M. Nassiri, MD, MBA
Vanderbilt University Medical Center
ashley.m.nassiri@vumc.org
@AshleyNassiri on Twitter

References

- Dummit LA, Kahvecioglu D, Marrufo Get al. Association Between Hospital Participation in a Medicare Bundled Payment Initiative and Payments and Quality Outcomes for Lower Extremity Joint Replacement Episodes. *Jama* 2016;316:1267-78.
- Navathe AS, Troxel AB, Liao JMet al. Cost of Joint Replacement Using Bundled Payment Models. *JAMA internal medicine* 2017;177:214-22.
- Maddox KJ, Epstein AM. Using Bundled Payments to Improve the Patient Experience *Harvard Business Review*. Boston, MA: Harvard Business School Publishing, 2018.
- Andrawis JP, McClellan M, Bozic KJ. Bundled Payments are Moving Upstream *New England Journal of Medicine Catalyst*: Massachusetts Medical Society, 2019.
- Gorin SS, Haggstrom D, Han PKJet al. Cancer Care Coordination: a Systematic Review and Meta-Analysis of Over 30 Years of Empirical Studies. *Annals of behavioral medicine : a publication of the Society of Behavioral Medicine* 2017;51:532-46.