From Survey to Solution: Improving Ototoxicity Care with Implementation Research

Cecilia Lacey, AuD
Pittsburgh VA Geriatric Research, Education, and Clinical Center (GRECC)

Dawn Konrad-Martin, PhD, Khaya Clark, PhD, J. Riley DeBacker, PhD, Michelle Hungerford, AuD, Hunter Stuehm, AuD
VA National Center for Rehabilitative Auditory Research

Acknowledgements

Angela Garinis
Julie Graff
Kirsten Johansson
Rosemarie Mannino
Trisha Milnes
Sarah Theodoroff
Survey respondents!

Acknowledgements

Financial Relationships

I receive a salary from the VA Office of Academic Affiliations. This work was funded by VA RR&D Merit Review Award #C3127R to DK-M and RR&D Center Award #C2361-C to M. Patrick Feeney and DK-M.

Non-Financial Relationships

I have no non-financial relationships to disclose.

Author Statement

These contents are the opinions of the authors and do not necessarily represent the views of the VA or the United States Government.

By the end of this presentation...

- Explain how the Consolidated Framework for Implementation Research informed the OtoMIC survey design.
- Describe the importance of collaboration between audiology and oncology in managing ototoxicity.
- Identify barriers to effective ototoxicity management from the perspective of VA clinicians.

Outline

1. Introduction
2. Design and Methods
3. Quantitative and Qualitative Results
4. VA Administrative Data
5. Conclusion

1. Introduction

Cancer is highly prevalent and negatively impacts function and quality of life

- 1 of 3 Americans diagnosed with cancer in their lifetime
- 1.7 million Americans newly diagnosed each year
- 17 million cancer survivors currently

American Cancer Society (2018)

Slide courtesy of DKM

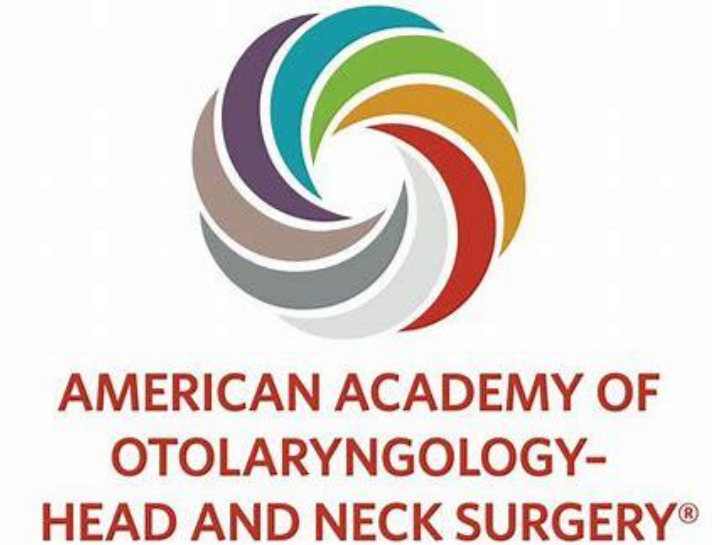
Ototoxic platinum-based chemotherapies are a mainstay of cancer treatment

- 10-20% of all cancers are treated with platinum compounds
- Hearing loss prevalence is 48-56% for cisplatin-containing chemotherapy
- Over 10,000 Veterans with cancer were treated with a platinum-based chemotherapeutic in 2018

National Cancer Institute; Dillard et al., 2022; VA Cancer Registry
Slide courtesy of DKM


American
Speech-Language
Hearing
Association


AMERICAN
ACADEMY OF
AUDIOLOGY


AMERICAN ACADEMY OF
OTOLARYNGOLOGY–
HEAD AND NECK SURGERY®


SOCIÉTÉ INTERNATIONALE
D'ONCOLOGIE PÉDIATRIQUE
SIOP
INTERNATIONAL SOCIETY
OF PAEDIATRIC ONCOLOGY


World Health
Organization


HPCSA
Health Professions Council of South Africa

Recommended ototoxicity management (OtoM)

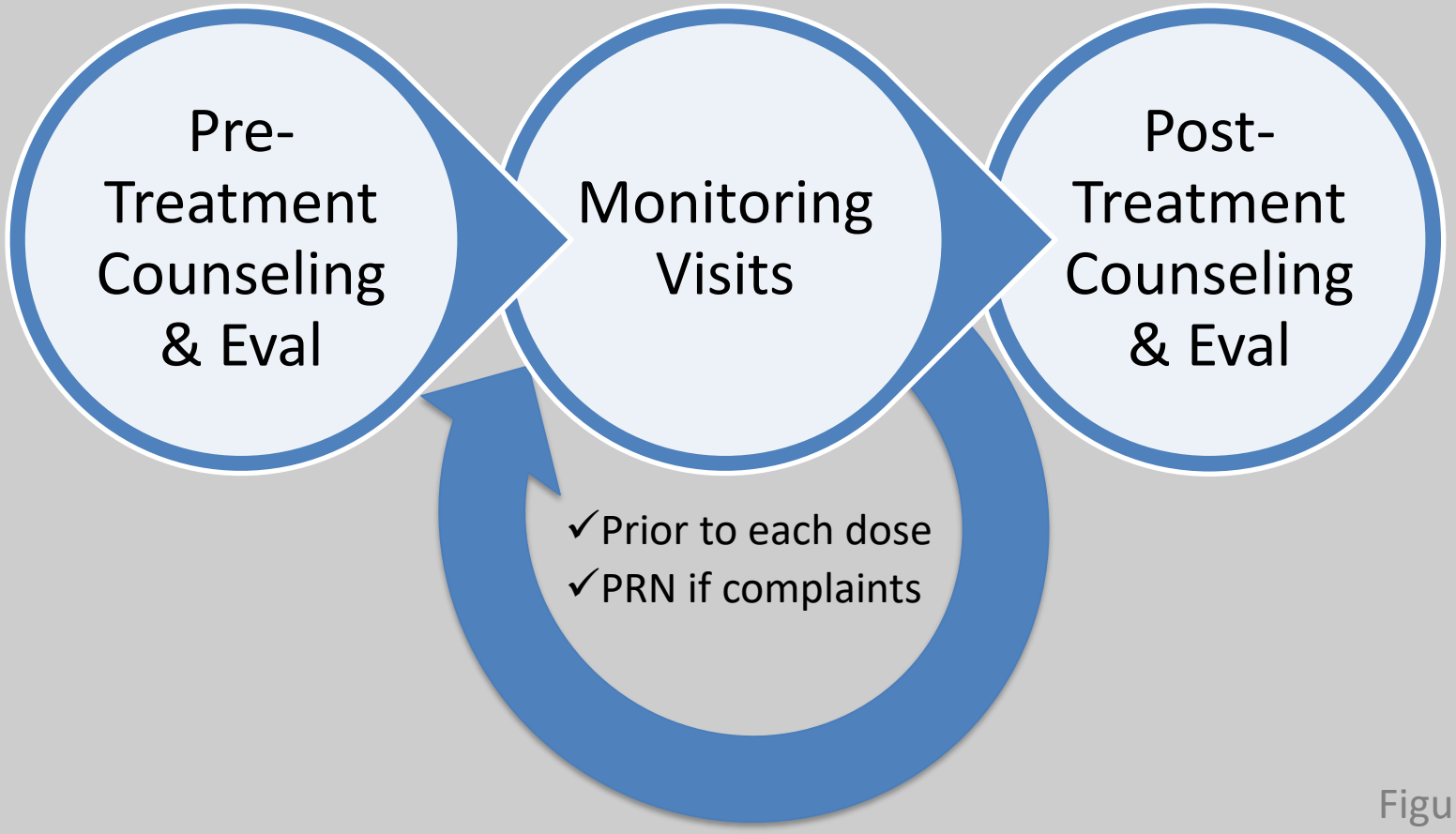


Figure courtesy of JRD

Is recommended ototoxicity management (OtoM) being provided in VA? If not, why?

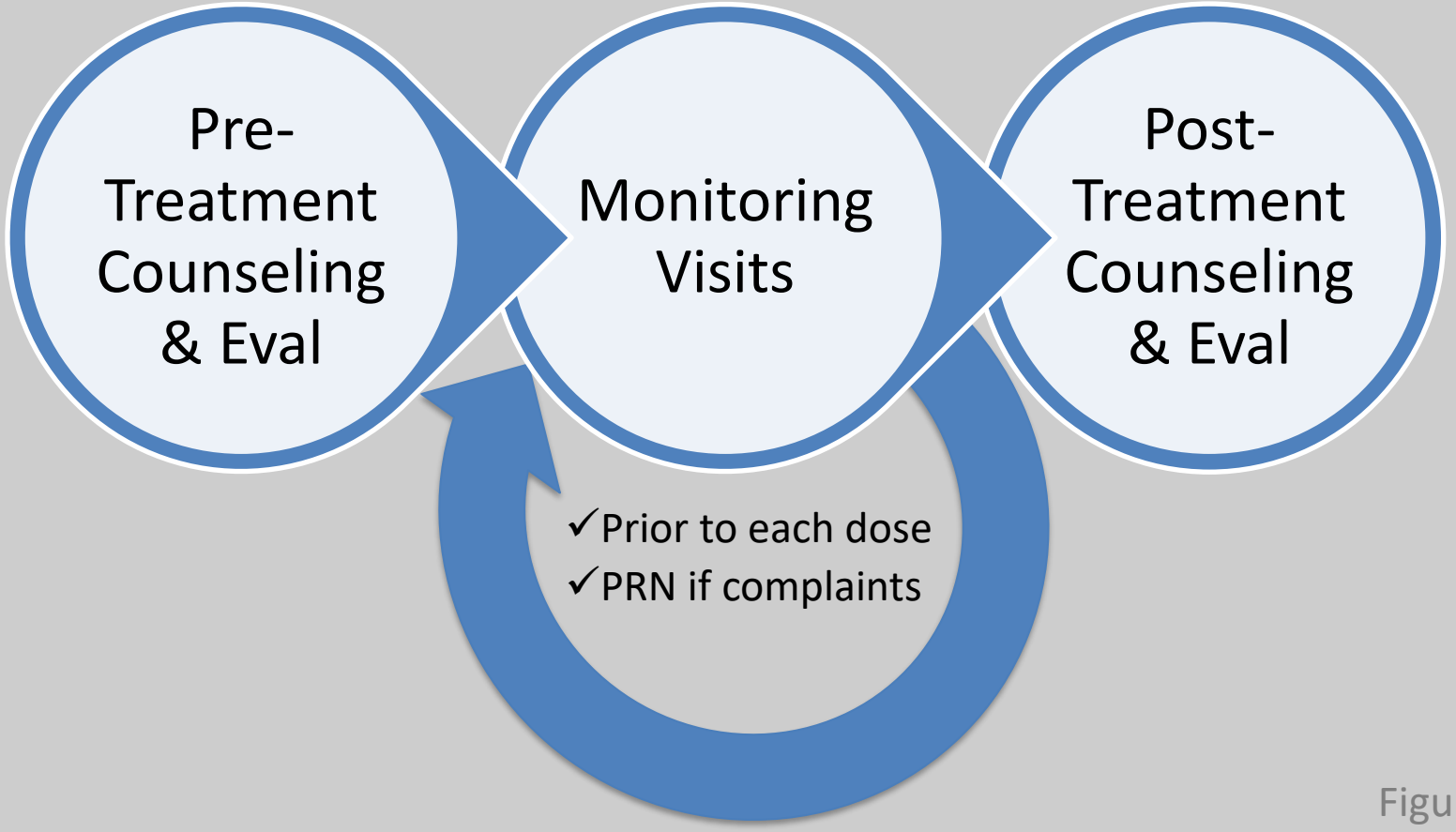


Figure courtesy of JRD

1. Introduction

Many Veterans experience hearing loss during certain cancer treatments but it appears that hearing health providers are generally not involved in their care.

2. Design and Methods

Project Goals

1) Assess OtoM program logistical needs, resources, and climate for change
2) Identify OtoM service gaps
3) Characterize provider perspectives

Project Goals

1) Assess OtoM program logistical needs, resources, and climate for change
2) Identify OtoM service gaps
3) Characterize provider perspectives

Project Goals

1) Assess OtoM program logistical needs, resources, and climate for change
2) Identify OtoM service gaps
3) Characterize provider perspectives

↓

OtoMIC Survey

Use feedback to facilitate organizational partner alignment

↓

Develop OtoM program implementation recommendations and toolkit

Project Goals

1) Assess OtoM program logistical needs, resources, and climate for change
2) Identify OtoM service gaps
3) Characterize provider perspectives

OtoMIC Survey

Use feedback to facilitate organizational partner alignment

Develop OtoM program implementation recommendations and toolkit

Implementation Science

BioMed Central

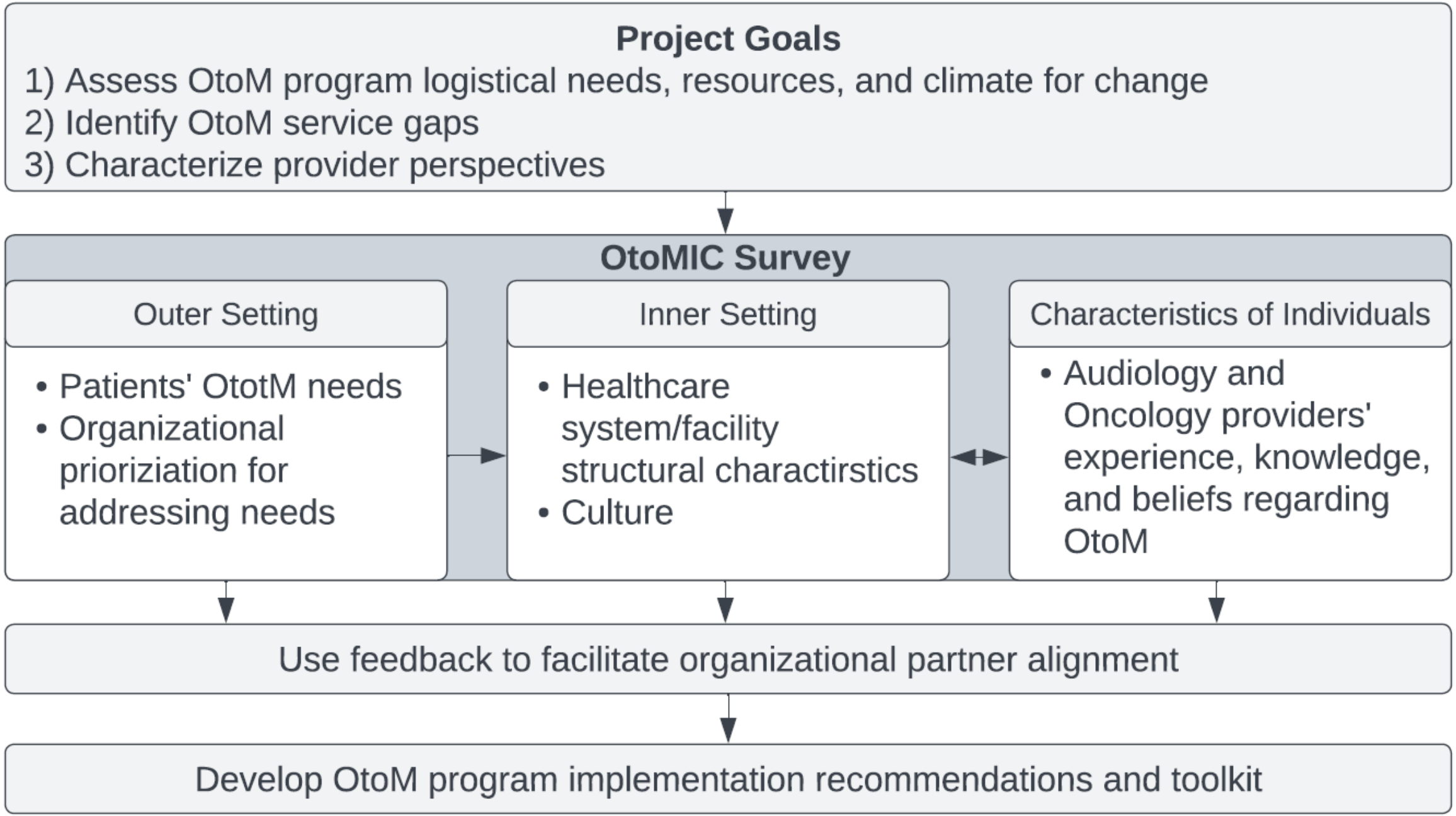
Research article

Open Access

Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science

Laura J Damschroder*[1], David C Aron[2], Rosalind E Keith[1], Susan R Kirsh[2], Jeffery A Alexander[3] and Julie C Lowery[1]

Address: [1]HSR&D Center for Clinical Management Research, VA Ann Arbor Healthcare System (11H), 2215 Fuller Rd, Ann Arbor, MI 48105, USA, [2]VA HSR&D Center for Quality Improvement Research (14W), Louis Stokes Cleveland DVAMC, 10701 East Blvd, Cleveland, OH 44106, USA and [3]Health Management and Policy, School of Public Health, University of Michigan,109 S. Observatory (M3507 SPH II), Ann Arbor, Michigan 48109-2029, USA


Project Goals
1) Assess OtoM program logistical needs, resources, and climate for change
2) Identify OtoM service gaps
3) Characterize provider perspectives
OtoMIC Survey
Outer Setting
• Patients' OtotM needs
• Organizational prioriziation for addressing needs
Inner Setting
• Healthcare system/facility structural charactirstics
• Culture
Characteristics of Individuals
• Audiology and Oncology providers' experience, knowledge, and beliefs regarding OtoM
Use feedback to facilitate organizational partner alignment
Develop OtoM program implementation recommendations and toolkit

Inner setting – Network and communications	*How do patients at your facility access ototoxicity monitoring and/or management? (Select all that apply.)* - Referral from Pharmacy - Referral from Primary Care - Referral from Audiologist - Referral from Oncology Team - Self-referral - Unsure - Other (text box)
Outer setting – Patient needs and resources	*Approximately what percentage of your patients have had the following as a result of an ototoxic agent?* - New or increased hearing loss - New or increased tinnitus - New or increased balance problems - Decreased quality of life as a result of one of the above - Unsure

Three domains of the CFIR were used to develop and interpret results from the OtoMIC Survey

- Validated by an interdisciplinary team
- Emailed to 221 VA clinicians nationwide
  - Audiologists surveyed between 2020 and 2021
  - Oncologists surveyed between 2022 and 2023
- 96 anonymous responses obtained form audiology, oncology, and pharmacy providers

2. Design and Methods

To see why audiology services aren’t part of cancer care, we developed a survey using a framework designed to help interventions make their way into real-word clinical settings.

3. Quantitative and Qualitative Results

Journal of Cancer Survivorship
https://doi.org/10.1007/s11764-022-01316-7

Open Access

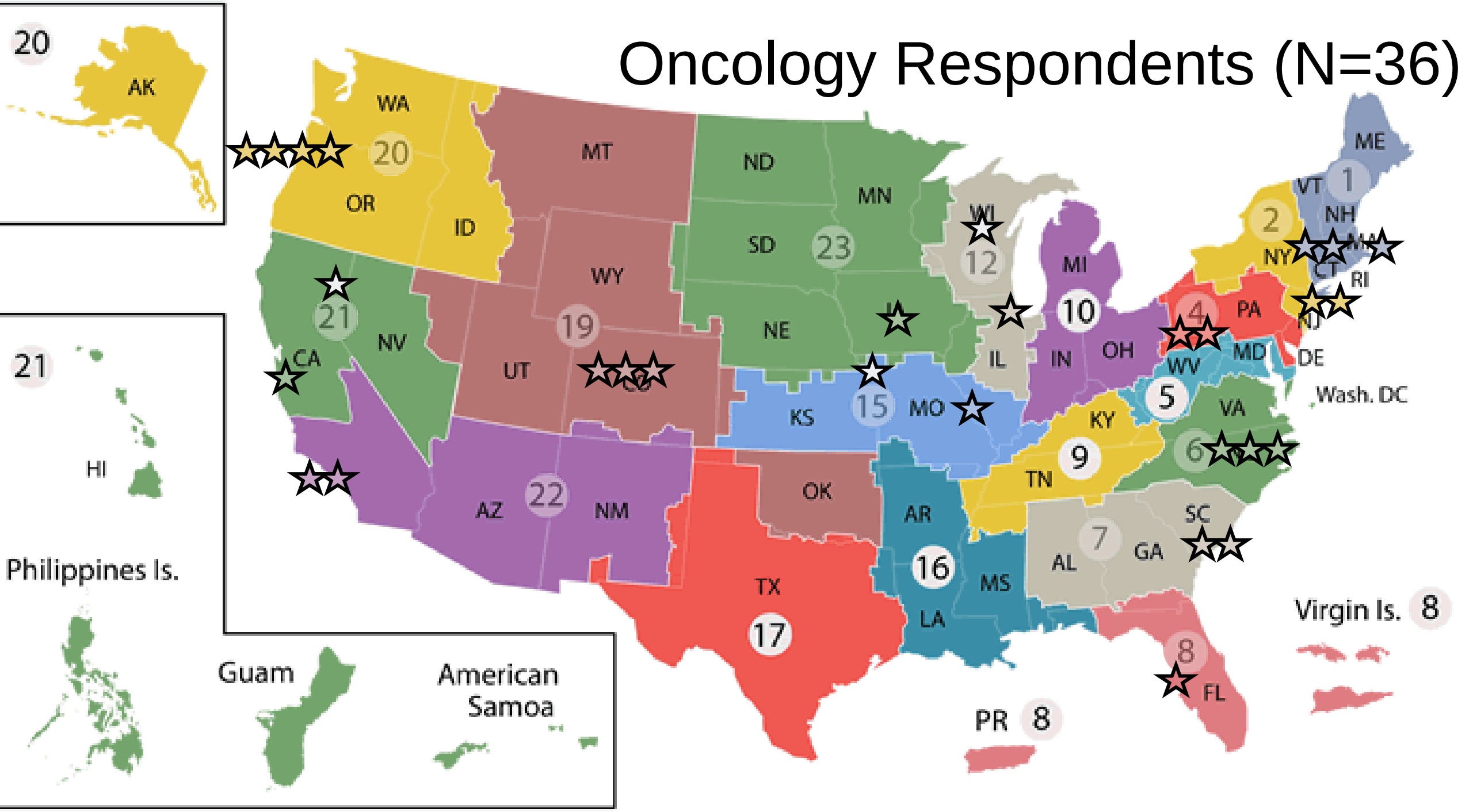
Audiologists' perceived value of ototoxicity management and barriers to implementation for at-risk cancer patients in VA: the OtoMIC survey

Dawn Konrad-Martin[1,2] · Rachel Polaski[1] · J. Riley DeBacker[1] · Sarah M. Theodoroff[1,2] · Angela Garinis[1,2] · Cecilia Lacey[1] · Kirsten Johansson[3] · Rosemarie Mannino[3,4] · Trisha Milnes[1,5] · Michelle Hungerford[1] · Khaya D. Clark[1,6]

Received: 14 September 2022 / Accepted: 7 December 2022

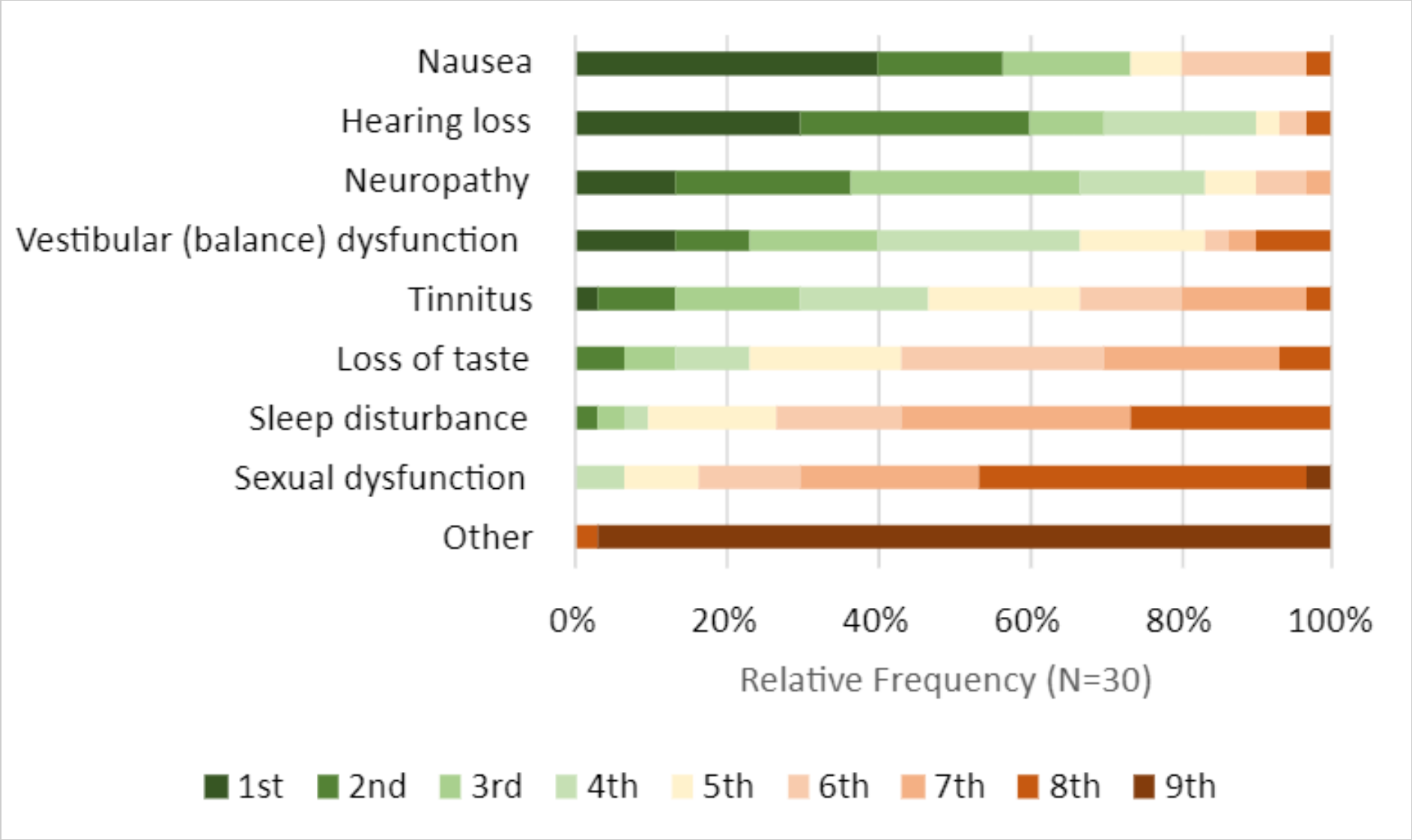
Audiology Respondents (N=63)

Oncology Respondents (N=36)



Q 21: Inner setting - Implementation climate

Q 21: Inner setting - Implementation climate



Q 11-13: Individuals involved - Evaluation of knowledge

Q 11-13: Individuals involved - Evaluation of knowledge

A family member of a patient brings up that the patient has had a hard time following conversations in a noisy environment since their last cycle of cisplatin. How would you the provider respond? (N=35)
A patient reports ringing in their ears before they are supposed to start a new cycle of carboplatin and radiation. How would you the provider respond? (N=35)
The audiologist has confirmed that after receiving cisplatin a patient has had a significant hearing shift compared with their pre-treatment baseline evaluation. This patient will require a hearing aid. The patient is concerned about the persistent ringing and hearing loss they've experienced since their last dose of cisplatin and is worried about progression of the hearing loss with further treatment. The tumor response to the treatment has been good. How would you the provider respond? (N=34)

Q 11-13: Individuals involved - Evaluation of knowledge

A family member of a patient brings up that the patient has had a hard time following conversations in a noisy environment since their last cycle of cisplatin. How would you the provider respond? (N=35)	Refer to audiology	33 (94%)
	Increase frequency of ototoxic monitoring	25 (80%)
	Consider changing dosage	**28 (71%)**
A patient reports ringing in their ears before they are supposed to start a new cycle of carboplatin and radiation. How would you the provider respond? (N=35)	Refer to audiology	29 (83%)
	Increase frequency of ototoxicity monitoring	17 (71%)
	Provide counseling	23 (66%)
The audiologist has confirmed that after receiving cisplatin a patient has had a significant hearing shift compared with their pre-treatment baseline evaluation. This patient will require a hearing aid. The patient is concerned about the persistent ringing and hearing loss they've experienced since their last dose of cisplatin and is worried about progression of the hearing loss with further treatment. The tumor response to the treatment has been good. How would you the provider respond? (N=34)	**Consider changing medication**	**31 (91%)**
	Increase frequency of ototoxic monitoring	16 (71%)
	Provide counseling	24 (71%)
	Refer to audiology	22 (65%)
	Consider changing dosage	**23 (47%)**

Q 25: Inner setting - Implementation climate

Q 25: Inner setting - Implementation climate

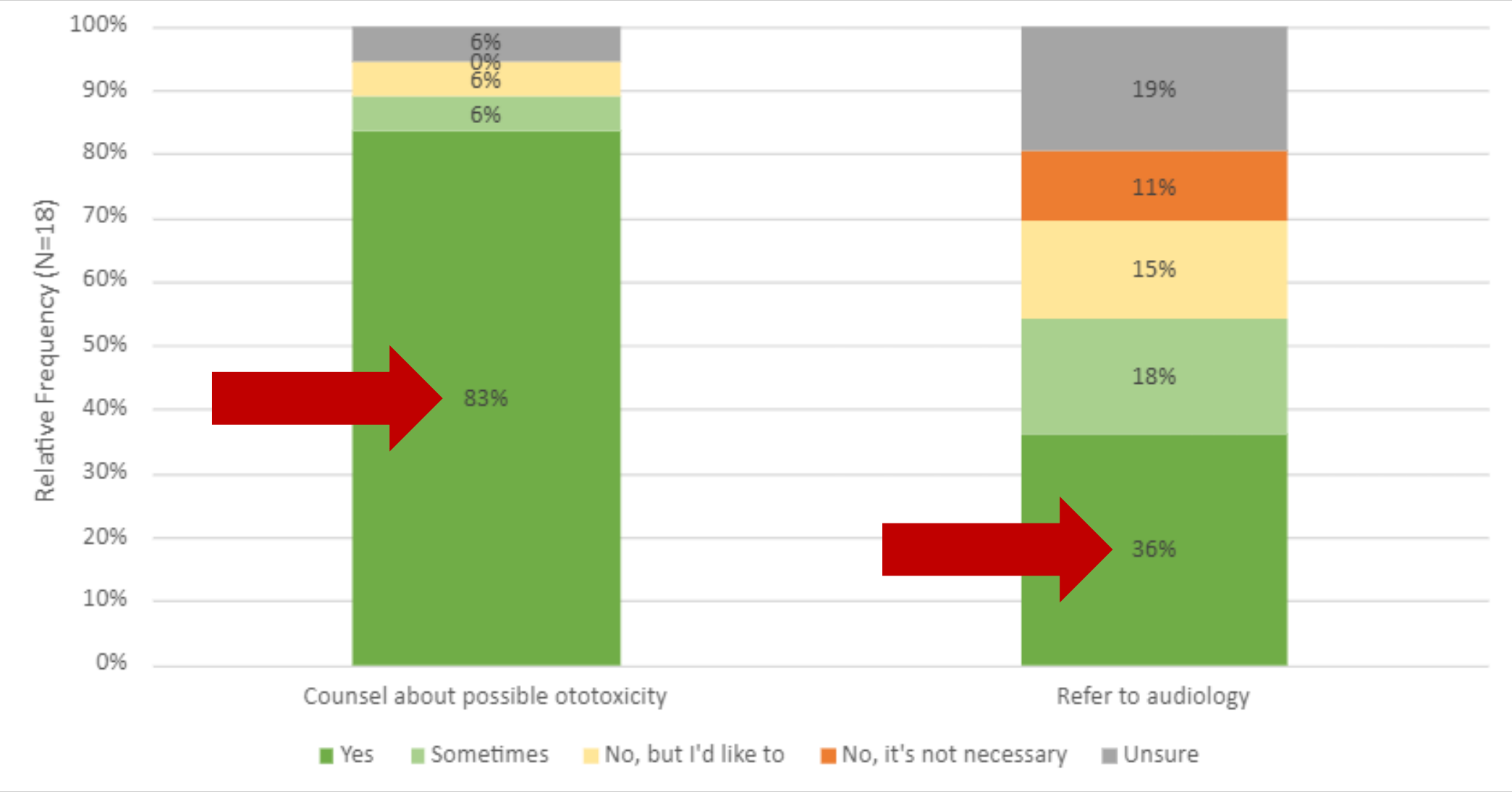
AUDIOLOGY

- Pre-treatment baseline
- Ability to detect ototoxicity early
- Management of ototoxic effects during and after treatment

ONCOLOGY

- Pre-treatment baseline
- Ability to detect ototoxicity early
- Management of ototoxic effects during and after treatment
- Point-of-care and at-home screening

Q 19 & 18: Inner setting - Network and communications



Q 14 & 6: Individuals involved – Evaluation of knowledge & Outer setting – Patient needs and resources

- 100% of audiology and 94% of oncology providers reported that some form of ototoxicity management is necessary for patients receiving cisplatin
- However, only about 50% of audiology and 70% of oncology team respondents perceive that ototoxicity management is routinely provided for patients receiving cisplatin at their facility

Summary of common OtoM barriers

- Low referral rates from oncology [as shown in slide above]

Data not shown:

- Underestimation regarding the prevalence of ototoxicity
- Disagreement over hearing testing schedules
- Lack of interprofessional communication
- Misalignment concerning which provider is responsible for various aspects of OtoM

Key Themes of Barriers to OtoM

		Quotations (Grey = AUD / White = ONC)
		▪ Without an oncologist on site, it has been difficult to generate referrals or know which patients are receiving any of these ototoxic medications ▪ Lack of communication between oncology and audiology ▪ [Audiology] services not integrated as part of the treatment team with oncology
		▪ No ENT in house and it takes weeks to get in to see an ENT provider ▪ MD doesn't order [hearing testing] ▪ Deficit in team knowledge [on ototoxicity] and lack of perceived need [for OtoM]
		▪ Time and space to get patients seen before, after treatments, and after complaints of changes ▪ Do not have ototoxic[ity] program specialist position ▪ Perhaps if someone was on-call when ototoxic patients are identified
		▪ Time to start treatment vs. time to get into audiology ▪ Oncology providers do not have any support/ancillary staff such as nurse navigators ▪ Limited access to audiologists
		▪ A national standardized protocol would be helpful to encourage good communication between [audiology and oncology] departments ▪ Scope of practice ▪ No known protocol that both [audiology and oncology] departments follow

Key Themes of Barriers to OtoM		
Theme	CFIR Domain	Quotations (Grey = AUD / White = ONC)
Interdisciplinary communication and identifying patients	Inner setting	▪ Without an oncologist on site, it has been difficult to generate referrals or know which patients are receiving any of these ototoxic medications ▪ Lack of communication between oncology and audiology ▪ [Audiology] services not integrated as part of the treatment team with oncology
		▪ No ENT in house and it takes weeks to get in to see an ENT provider ▪ MD doesn't order [hearing testing] ▪ Deficit in team knowledge [on ototoxicity] and lack of perceived need [for OtoM]
Resources	Inner setting	▪ Time and space to get patients seen before, after treatments, and after complaints of changes ▪ Do not have ototoxic[ity] program specialist position ▪ Perhaps if someone was on-call when ototoxic patients are identified
		▪ Time to start treatment vs. time to get into audiology ▪ Oncology providers do not have any support/ancillary staff such as nurse navigators ▪ Limited access to audiologists
Lack of protocol	Outer setting	▪ A national standardized protocol would be helpful to encourage good communication between [audiology and oncology] departments ▪ Scope of practice ▪ No known protocol that both [audiology and oncology] departments follow

3. Quantitative and Qualitative Results

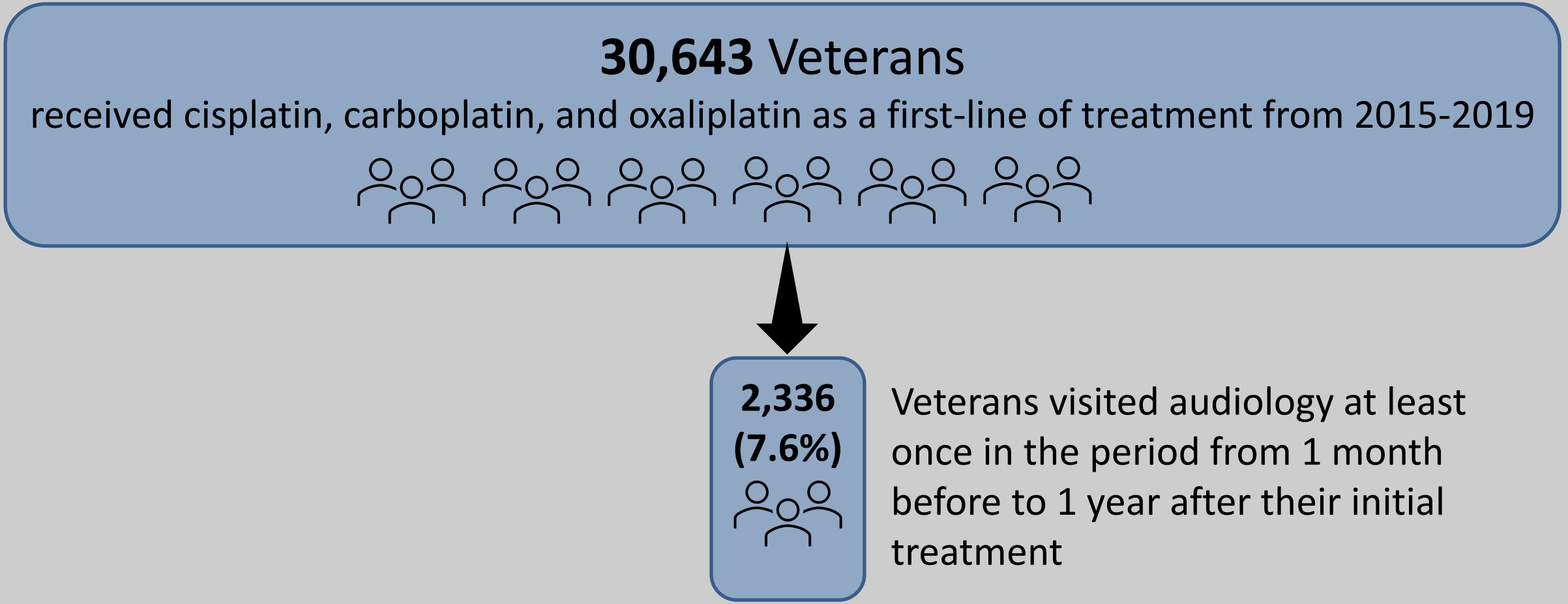
Although clinicians value providing hearing care during cancer treatment, multiple barriers prevent its routine administration.

4. Administrative Data

Methods

30,643 Veterans

received cisplatin, carboplatin, and oxaliplatin as a first-line of treatment from 2015-2019


30,643 Veterans
received cisplatin, carboplatin, and oxaliplatin as a first-line of treatment from 2015-2019
2,336
(7.6%)
Veterans visited audiology at least once in the period from 1 month before to 1 year after their initial treatment

Where’s the disconnect?

- Clinical stakeholder perceptions v. administrative data
  - Were perceptions of the respondents inaccurate?
  - Were respondents more likely to be engaged in OtoM than their peers who did not respond?

4. Administrative Data

A review of medical records revealed that while many Veterans receive drugs that can damage their hearing, very few ever access audiology during their cancer treatment.

5. Conclusion

Recommended ototoxicity management (OtoM) is not routinely provided in VA

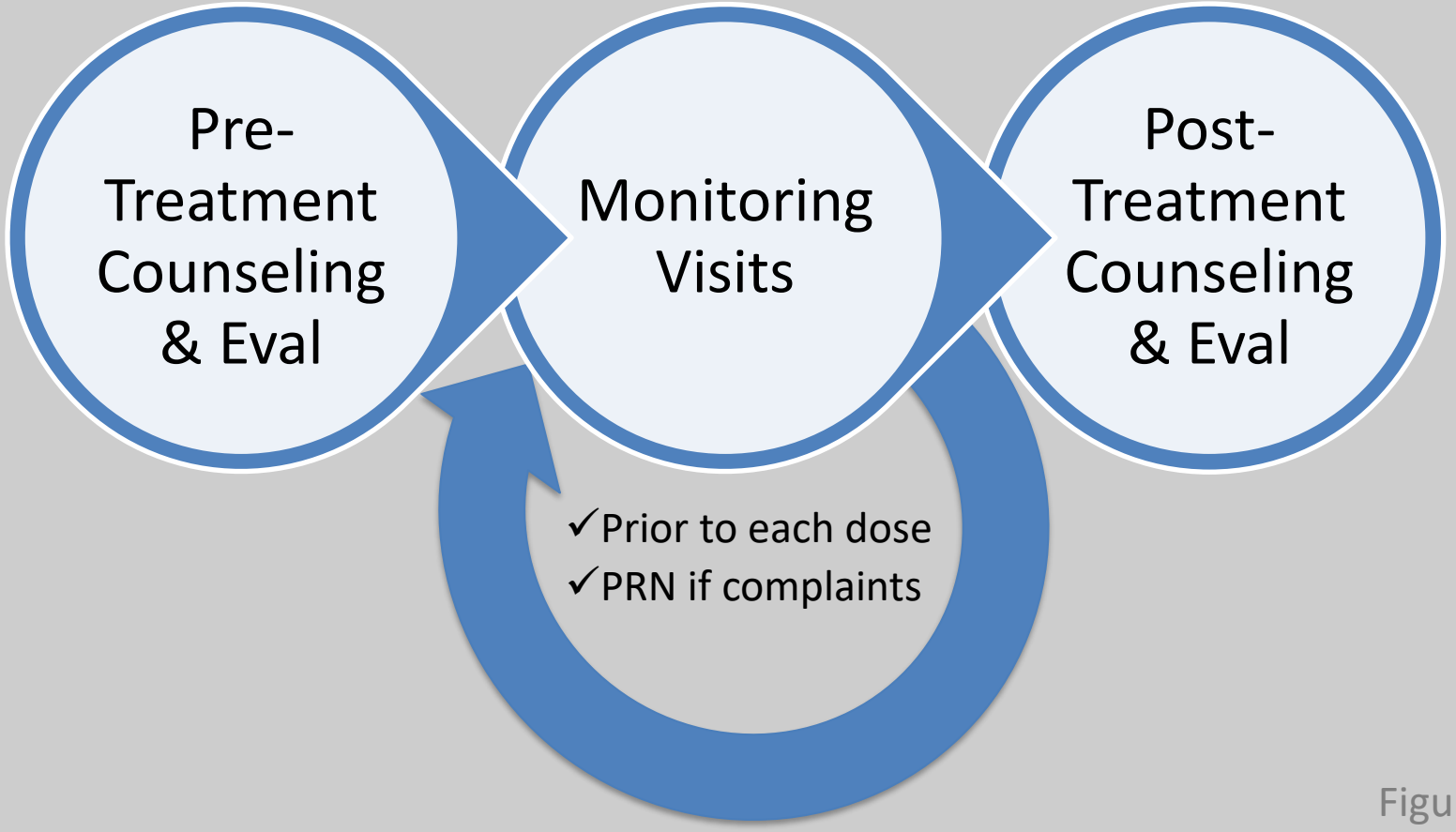
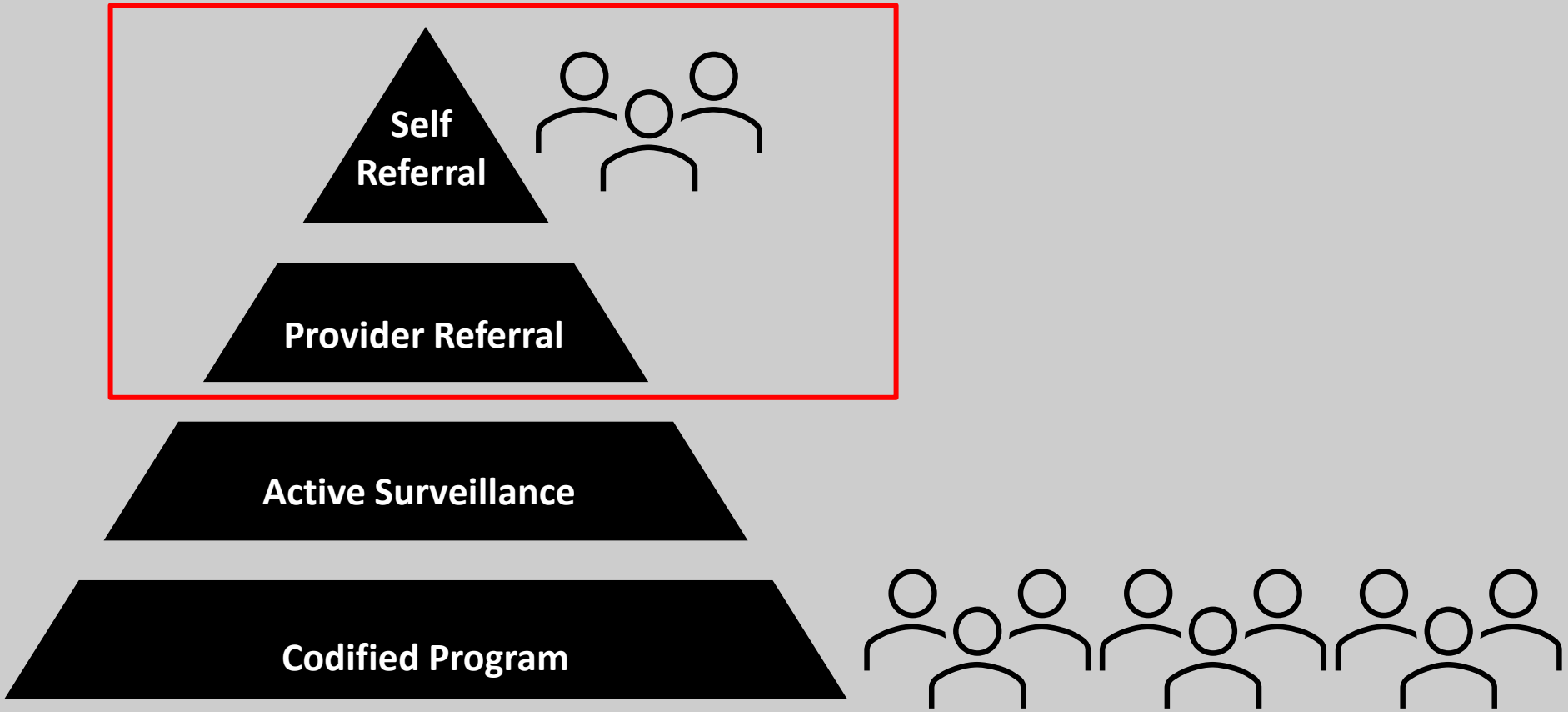


Figure courtesy of JRD



Information courtesy of Trisha Milnes, AuD

5. Conclusion

Only a small portion of Veterans in need of hearing care access services during their treatment.

Implementation/public health science and clinician-identified barriers/solutions can inform broader implementation of ototoxicity management as a routine part of cancer care.

Summary

1. Introduction: Many Veterans experience hearing loss during certain cancer treatments but it appears that hearing health providers are generally not involved in their care.
2. Methods: To see why audiology services aren't part of cancer care, we developed a survey using a framework designed to help interventions make their way into real-word clinical settings.
3. Results: Although clinicians value providing hearing care during cancer treatment, multiple barriers prevent its routine administration.
4. A review of medical records revealed that while many Veterans receive drugs that can damage their hearing, very few ever access audiology during their cancer treatment.
5. Conclusion: Implementation/public health science and clinician-identified barriers/solutions can inform broader implementation of ototoxicity management as a routine part of cancer care.

Future Direction

Clinician and patient perspectives will be used to develop a practical toolkit which emphasizes practices that positively influence outcomes and are valued by patients and providers.

By the end of this presentation...

- Explain how the Consolidated Framework for Implementation Research informed the OtoMIC survey design.
- Describe the importance of collaboration between audiology and oncology in managing ototoxicity.
- Identify barriers to effective ototoxicity management from the perspective of VA clinicians.

Thank you! Questions?

Cecilia Lacey, AuD
cecilia.lacey@va.gov