Breakout Session 1: Track A

A Qualitative Examination of Patients' and Clinicians' Perspectives on AI-driven Automated Screening for Cognitive Impairment

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Supplement Award: Natural Language Processing and Automated Speech Recognition to Identify Older Adults with Cognitive Impairment (3R01AG066471-03S1)

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Project Summary and Goals

Overarching goal: Generate a novel ethics framework for identifying and addressing ethical barriers to clinical adoption of AI-driven tools for detecting cognitive impairment in primary care settings.

Methods:

- Semi-structured interviews with research participants recruited through Parent Award

- Focus groups with primary care clinicians

- PRISMA-Scoping Review to characterize existing ethical norms/standards in the literature

Achieved Goals & Status

- Conducted and completed preliminary analysis of 31 semi-structured interviews with primary care patients (ages ≥55)

- Conducted and ongoing analysis of three primary care physician focus groups (N=17 clinicians)

- Completed collection and preliminary analysis of 84 articles for a PRISMA-Scoping Review (~20 articles pending)

Patient Participants (n=31)

Age	
50-59 years	10%
60-69 years	55%
70-79 years	19%
80-89 years	16%
Female	58%
Race	
Black, non-Hispanic	58%
White, non-Hispanic	23%
Hispanic or Latino	23%
Education	
Some high school	23%
High school graduate or equivalent	13%
Any college or equivalent	42%
Post-graduate degree	19%

Patients' Perceived Benefits

- Improved outcomes for detection & diagnosis of cognitive impairment

- Improved access to and acceptability of screening procedures (e.g., workflow efficiency)

- Use of AI-screening for decision-making

I think a machine would be…nonjudgmental…It would just [provide] an objective point of view, not someone who would know me personally. So, I would feel more confident in the machine actually . . .

Patients' Concerns

- Technical errors
- Trust in security (privacy/confidentiality)
- Results leading to mental health distress

You could hack my medical records . . . there are people with conditions that they see as stigmatized. Maybe there's somebody who sees dementia stigmatizing, or humiliating, or they're embarrassed by it…So, that could be - it could be a problem…It's a big institution protecting your data. We all know that there are big institutions, banks, anthem insurers, right, that have been hacked,

# Clinicians' and Their Experiences with CI Management (N=17)

Professional Role (%, Colum total >100% due to multiple roles held)	
Clinical Care	100%
Precepting	41%
Administration	53%
Research	18%
Confidence...*highly or very confident*	
administering screening tests for cognitive impairment	75%
conducting a best-practice work-up of newly identified cognitive impairment	47%
providing best-practice medical care for patients with Alzheimer's type dementias	29%
counseling patients and caregivers about non-medical care for people with dementia	35%
Quality/availability of resources for patients with dementia at your institution - *excellent or very good*	13%
Use or interaction with artificial intelligence (AI)-based tools/support - *any*	23%

# Clinicians' Perspectives

Benefits		Concerns	
Diagnostic triangulation	Insufficient Resources for follow-up evaluation & care	Bias and inaccuracies	Psychological stress for patients
Efficiency & time saving	Financial/insurance coverage risk for patients	Insufficient knowledge to help patients interpret and trust results	Patient Consent & Autonomy

> *I would be skeptical of, which is like my patients have different educational levels. Some of them have different literacy levels. They speak different languages. I worry that like a lot of cognitive tests, at least, that I'm imagining like this fun Lumosity brain games may have images or rely on language-based factors that really are helpful for most people but may not be appropriate for my patient.*
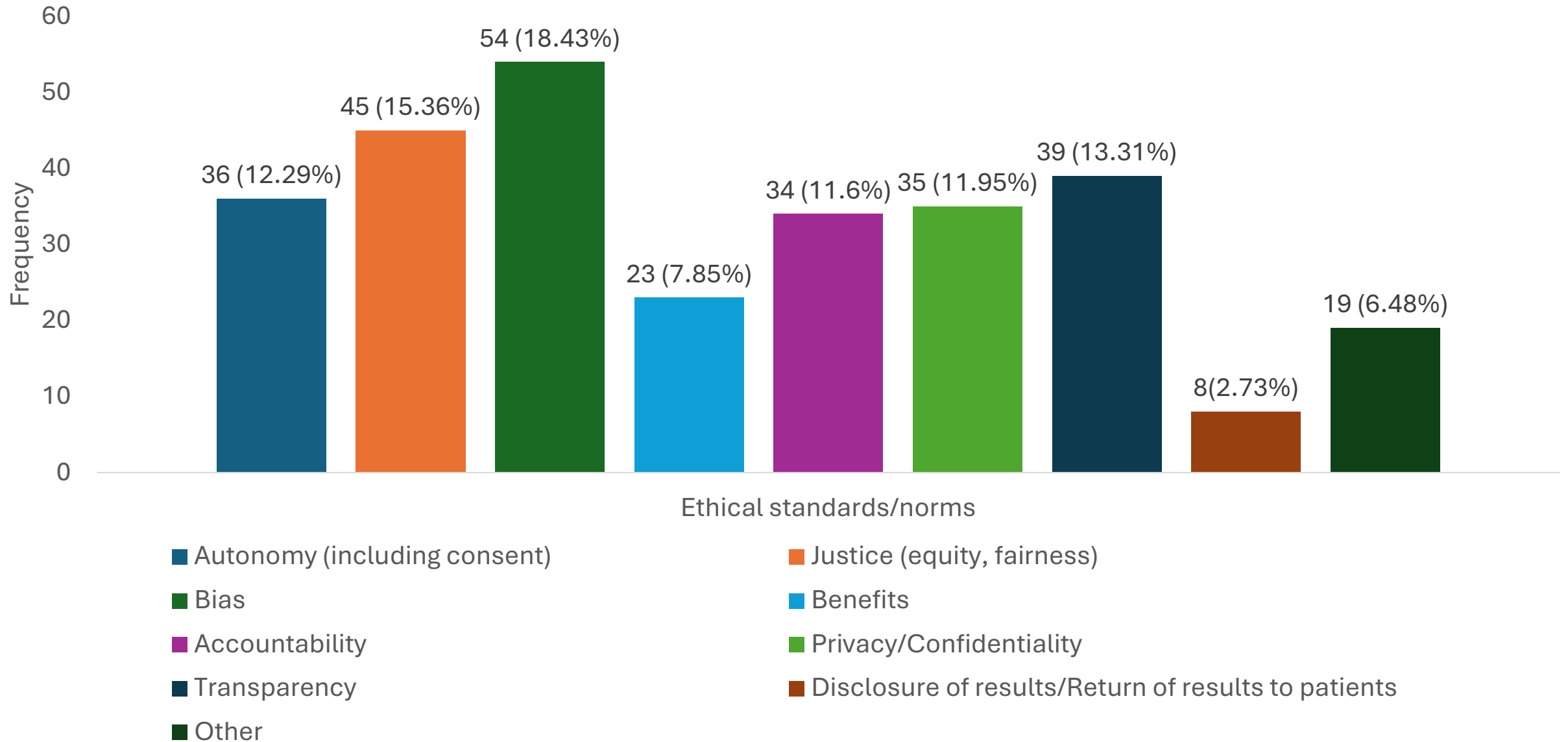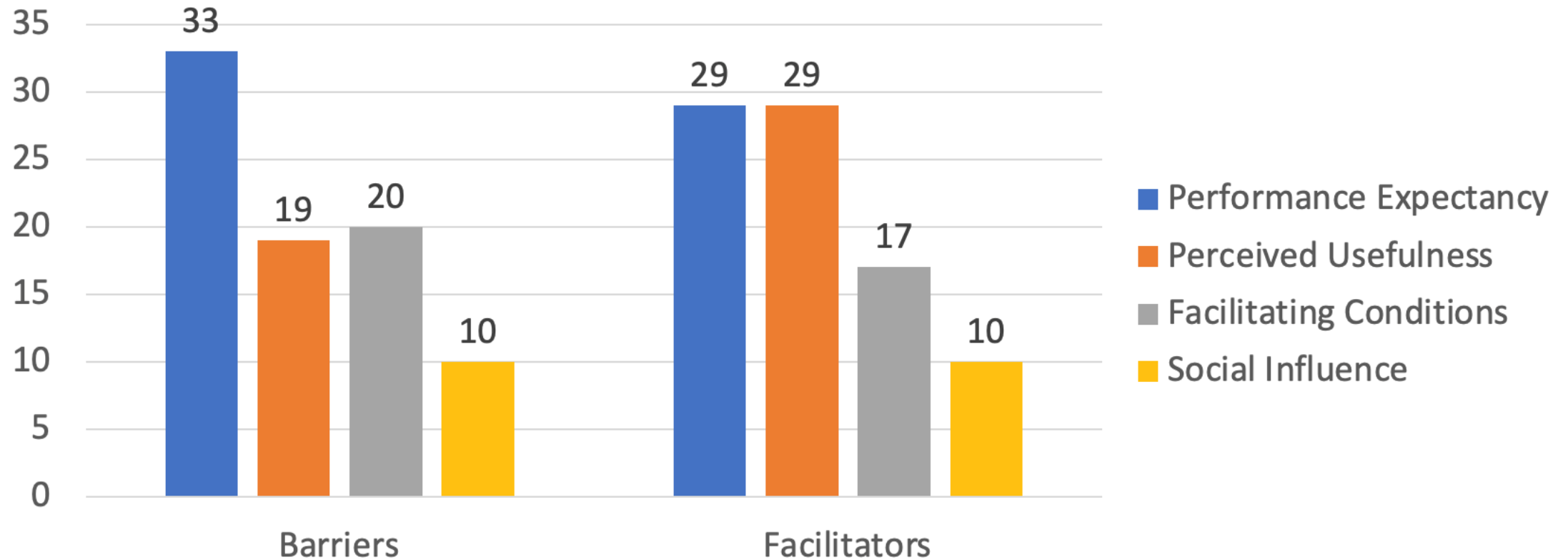
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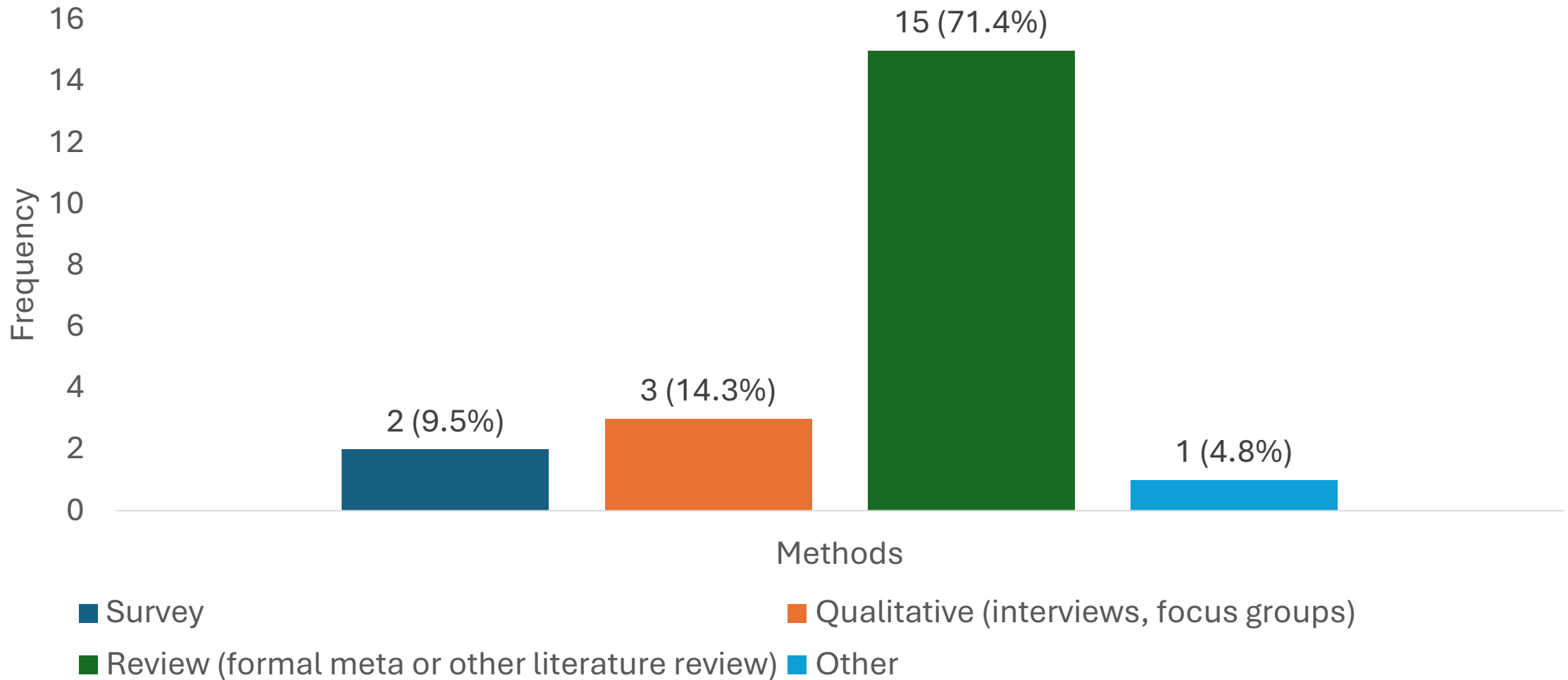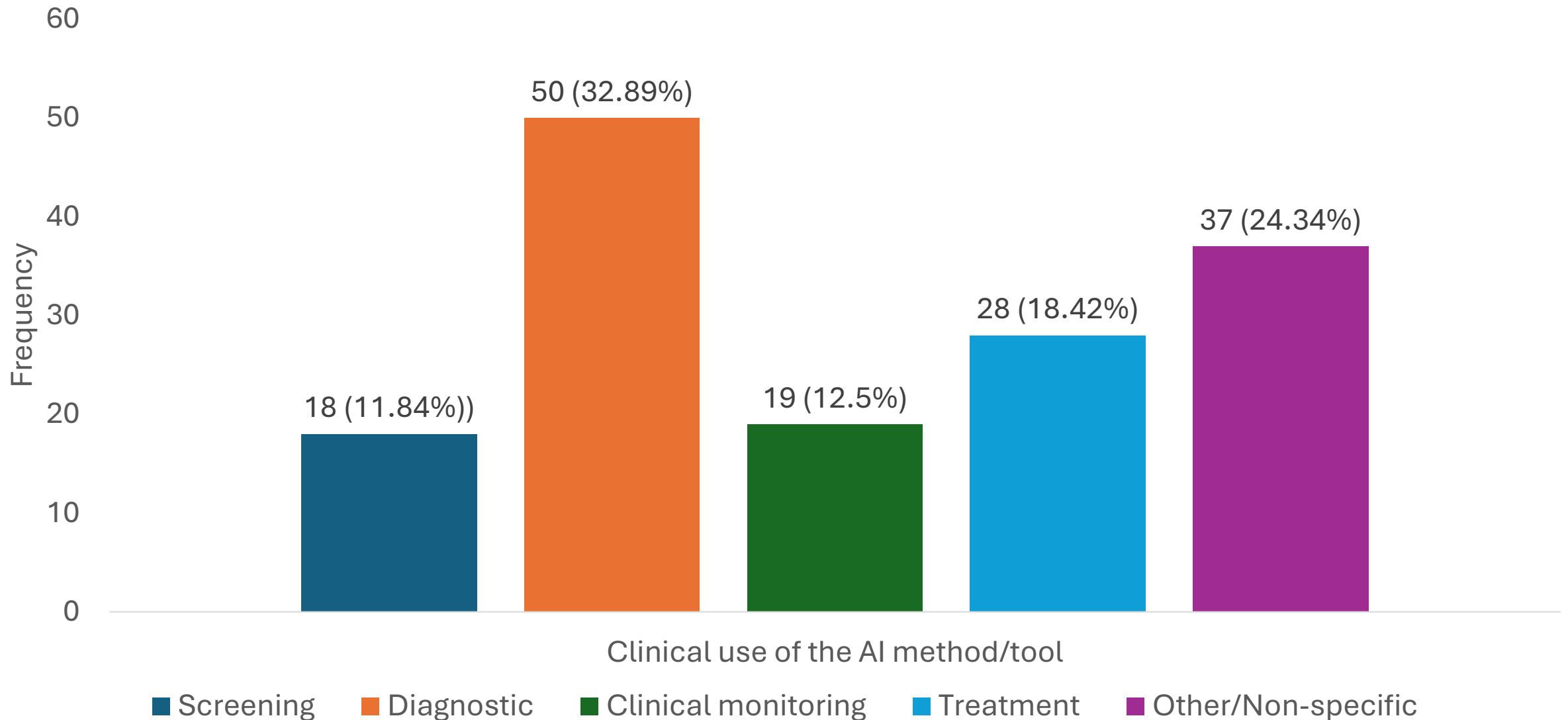
Ethical Standards Are Raised in the Evaluation

Bonus: PRISMA-SR (Clinician Acceptance)

Barriers and Facilitators to Clinician AI Acceptance and Use

Integrated throughout: Consent & Clinical Use of AI

How do we think about the models of consent in the context of different uses of AI Tools to "meet" elements of a valid consent?

Elements of Informed Consent
- Disclosure of Information
- Capacity to consent
- Voluntary

Clinical Use
- Screening
- Diagnosis
- Treatment decisions
- Monitoring

Path for AI-Tool Development
Has Multiple Points of Ethical Assessment

Potential harms & unintended consequences flow back to individuals and subgroups (discriminatory interpretations, inequity in access, confidentiality/privacy breach)
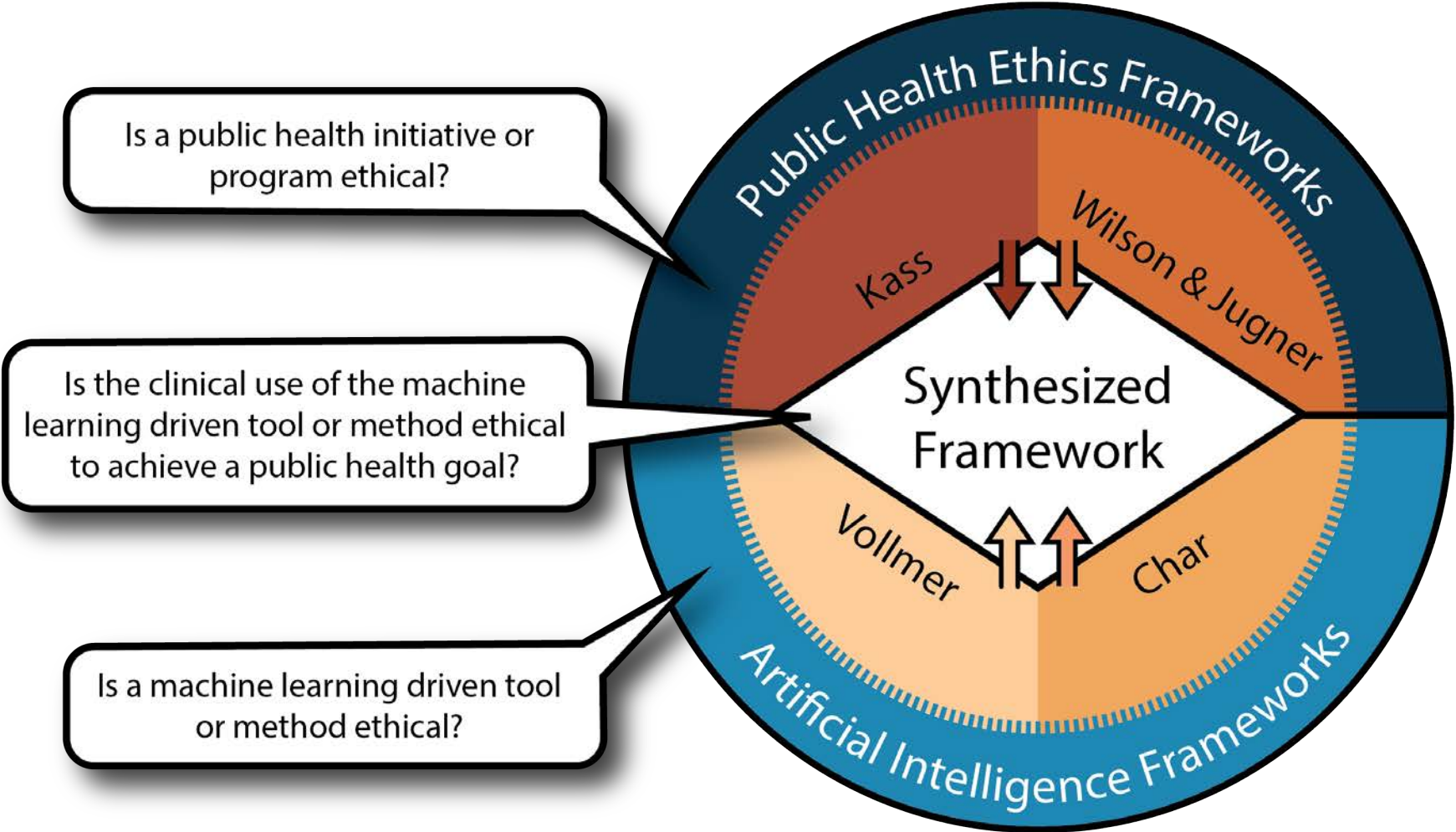
Patient Data

Participant Data

Research/ Repository/ Data Attainment

Algorithms that inform AI-Tool Development

Clinical Implementation

New Model(s) is Needed to Understand the Implementation of AI into Clinical Context

Challenges & Outputs

- Synthesizing literature that uses varying terms within a quick moving topic area
- Recruitment of clinicians (limited capacity/time)

Planned Publications (in Draft)

- Ethical challenges in machine learning-based clinical screening of cognitive impairment, Arias et al
- Patient perceptions about artificial intelligence in screening for cognitive impairment, Wurtz et al
- Barriers and facilitators to clinician AI acceptance and use in healthcare settings, Scipion et al

Future Directions

- Developing next proposal to evaluate barriers and solutions to improve physician literacy in AI

- Generate informed consent models that are consistent with and tailored to AI-driven tools for cognitive impairment detection

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