The relationship between uncertainty tolerance and oncologists’ perceptions of large-panel genomic tumor testing

Eric Anderson  
*Maine Medical Center*

Alexandra Hinton  
*Maine Medical Center*

Christine Lary

Kimberly Murray  
*Maine Medical Center*

Leo Waterson  
*Maine Medical Center*

*See next page for additional authors*

Follow this and additional works at: [https://knowledgeconnection.mainehealth.org/mmc](https://knowledgeconnection.mainehealth.org/mmc)

Part of the Genomics Commons, and the Oncology Commons

**Recommended Citation**  
Anderson, Eric; Hinton, Alexandra; Lary, Christine; Murray, Kimberly; Waterson, Leo; Han, Paul; and Maine Cancer Genomics Initiative, "The relationship between uncertainty tolerance and oncologists’ perceptions of large-panel genomic tumor testing" (2019). *Maine Medical Center*. 692.  
[https://knowledgeconnection.mainehealth.org/mmc/692](https://knowledgeconnection.mainehealth.org/mmc/692)

This Poster is brought to you for free and open access by the All MaineHealth at MaineHealth Knowledge Connection. It has been accepted for inclusion in Maine Medical Center by an authorized administrator of MaineHealth Knowledge Connection. For more information, please contact mckeld1@mmc.org.
Authors
Eric Anderson, Alexandra Hinton, Christine Lary, Kimberly Murray, Leo Waterson, Paul Han, and Maine Cancer Genomics Initiative

This poster is available at MaineHealth Knowledge Connection: https://knowledgeconnection.mainehealth.org/mmc/692
The relationship between uncertainty tolerance and oncologists’ perceptions of large-panel genomic tumor testing

Eric Anderson¹, Alexandra Hinton¹, Christine Lary¹, Kimberly Murray¹, Leo Waterston¹, Paul Han²
Maine Cancer Genomics Initiative*
¹Center for Outcomes Research and Evaluation, Maine Medical Center Research Institute

Introduction

Large-panel genomic tumor testing (GTT) is a new technology that promises to make cancer treatment more precise, but that currently poses many uncertainties regarding its clinical value and appropriate use. Uncertainty Tolerance (UT), a psychological construct that describes trait-level differences in individuals’ responses to uncertainty, may influence oncologists’ perceptions and attitudes regarding GTT.

Methods

Sample. 57 Community-based oncologists participating in a statewide study of large-panel GTT in routine oncology care completed surveys assessing their perceptions and attitudes regarding GTT.

Measures.

Perceived uncertainty about GTT (1-item): Genomic tumor testing seems uncertain

Attitudes about GTT (8-items, α = 0.67): GTT seems:

- beneficial
- harmful *
- accurate
- unproven *
- trustworthy, complicated, inefficient *, worthwhile *

Self-efficacy about GTT (4-items, α = 0.82): Confidence in:

- ability to interpret results
- ability to explain results
- ability to make appropriate treatment decisions
- your practice’s ability to implement GTT

Uncertainty Tolerance (UT). Separate subscales assessed tolerance of 3 types of uncertainty: ambiguity, risk, and complexity

Ambiguity Tolerance (Plan Ambiguity in Medicine Scale; Han et al., 2009)
I would not have confidence in a medical test or treatment if experts had conflicting opinions about it. I would not be afraid of trying a medical test or treatment even if experts had conflicting opinions about it. If experts had conflicting opinions about a medical test or treatment, I would still be willing to try it.

Risk Tolerance (Pearson Risk Attitude Scale; Pearson et al., 1995)
I try to avoid situations that have uncertain outcomes.

Complexity Tolerance (Ambiguity in Medicine Scale; Han et al., 2009)
I don’t have confidence in a medical test or treatment if experts had conflicting opinions about it. If experts had conflicting opinions about a medical test or treatment, I would still be willing to try it. I would not be afraid of trying a medical test or treatment even if experts had conflicting opinions about it.

Statistical Analysis. The relationship between perceived uncertainty and self-efficacy and attitudes regarding GTT was explored using GLMs.

Conclusions

- Oncologists’ perceived uncertainty about GTT is associated with their global attitudes towards GTT. Higher uncertainty is associated with more negative attitudes.
- Moreover, this relationship is moderated by individual differences in oncologists’ uncertainty tolerance (UT). Greater UT buffers the relationship between uncertainty and negative attitudes. Furthermore, UT appears to have differential effects depending on the type of uncertainty (ambiguity, risk, complexity).
- More research is needed to understand the mechanisms by which UT influences perceptions, attitudes, and practices regarding GTT and other uncertain medical interventions.

References


Eric Anderson: eanderson@mmc.org

* Jackson Laboratory MCGI leadership team: Jens Rueter, Andrey Antov, Ed Liu
The MCGI is supported by funding through the Alfond Foundation