Statistical Considerations in the Development of a Consensus Statement

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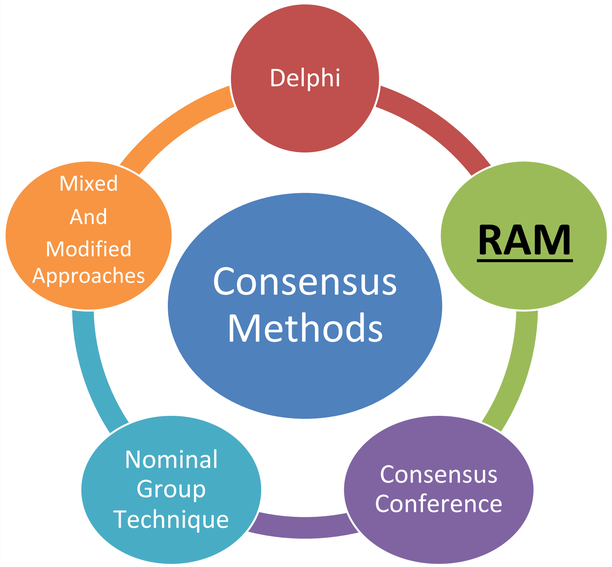
INTRODUCTION

Defining a **consensus statement:**

*"A comprehensive summary of the **opinions** of a panel of experts… **to provide guidance** to health care professionals, especially on controversial or poorly understood aspects of care"*

-Miller-Keane Encyclopedia



When are they used?

- **Rare / high-risk** medical conditions
- Open standards for technological development
- Economic policy guidance

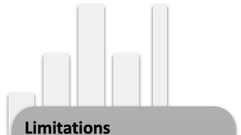
EVALUATING RAND/UCLA METHODOLOGY (RAM)

RAND/UCLA Appropriateness Method (RAM):

1. Define **expert criteria** (industry-dependent)
2. Select **panel** of experts (n = 9-15; not based on statistical power / hypothesis tests)
3. **Literature review** for initial clinical comparison round (usually PRISMA guidelines)
4. 1st round - experts independently rate appropriateness of **clinical scenarios** based on clinical judgment/appropriateness (1-9)
5. 2nd round - experts meet to **discuss** ratings, then given the opportunity to **rate again; third round if needed**
6. **Expert consensus reached** to provide recommendations for clinical indications

Benefits

- Expert Guidance
- Encourages Collaboration
- Systematic and Transparent
- Flexible
- Reduces Variability in Care



Limitations

- Subjective
- Panel Bias
- Groupthink
- Resource Intensive
- Dynamic/Evolving
- Lacks classical statistics

STATISTICAL CONSIDERATIONS

Statistical Analysis:

- *Descriptive statistics:* median and IQR rating for each scenario (resistant to extreme opinions)
- *Hypothesis testing / power analysis:* not applicable; opinion-based, try to balance backgrounds of experts
- *Consensus threshold:* based on scenario medians (appropriate, uncertain, inappropriate) and IQR (level of disagreement)

Methods to increase validity and reliability:

Method	Statistical Analogy
Balanced number and background of experts	Statistical power
Multiple, iterative rating rounds for experts with discussion and opportunities to revise	Replication
Appropriateness and agreement scales	Cohen's Kappa

CONCLUSION AND ADDITIONAL RESOURCES

Conclusion:

- **Consensus studies** (i.e., statements) are key tools to assess clinical treatment appropriateness and agreement among experts.
- However, they are **based on opinions**, and thus do not have the same statistical rigor of traditional studies.
- Care should be taken to include measures outside of traditional statistics to ensure the **validity and reliability of findings.**

GitHub Repository:

- Full **Links & Terms**
- **Literature** Review
- **Simulation of RAM in R**
- Author **Contact**

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