

Next-Generation Sequencing Platforms in Clinical Practice: A Survey of Infectious Disease Providers



Shilpa Vasishta, MD¹, Christopher J. Graber, MD, MPH², Tara Vijayan, MD²,
¹UCLA Internal Medicine, ²UCLA Division of Infectious Diseases



David Geffen
School of Medicine

Introduction

- Next-generation sequencing (NGS) is a novel diagnostic tool in infectious diseases practice
- Strengths: High sensitivity; unbiased testing; ability to detect fastidious organisms
- Limitations: High cost; lack of standardized methods; results of unclear significance
- No guidelines or consensus to date regarding appropriate clinical use of this tool

Objective

- To assess perceived utility of NGS among infectious diseases providers in one regional cohort

Methods

- Participants: 26 infectious diseases attendings and fellows in Southern California
- Survey: Four clinical scenarios followed by decision-making queries:
 1. **Immunocompetent patient without localizing signs** — Questions about likelihood of sending NGS
 2. **Immunocompromised patient with localizing signs** — Questions about likelihood of sending NGS
 3. **Immunocompetent patient with joint infection** — Questions about interpretation of NGS results
 4. **Immunocompromised patient with lung lesion** — Questions about interpretation of NGS results

Conclusions

- **Providers with >5 years experience are more likely to send NGS, citing:**
 - **Avoidance of painful or risky procedures**
 - **Possibility of diagnosis not otherwise considered**
- **Providers are more likely to send NGS for immunocompromised patients, citing:**
 - **Results more helpful**
 - **Testing more cost-effective**
- **Providers given NGS data often seek further (including invasive) diagnostic testing**
- **Further study is needed to guide evidence-based NGS use**

Results

Fig 1: Likelihood of sending NGS, by provider experience

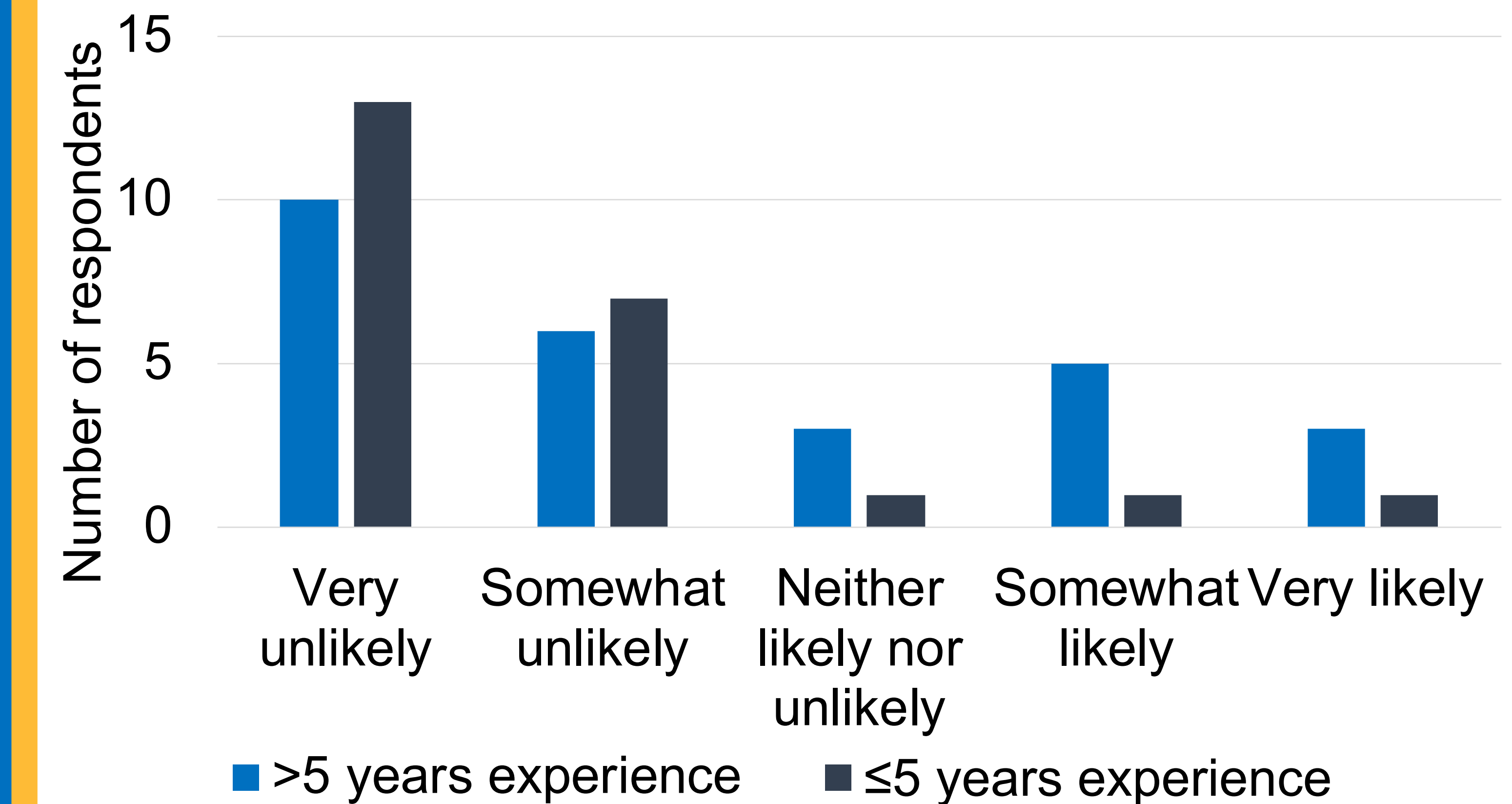


Fig 2: Likelihood of sending NGS, by clinical scenario

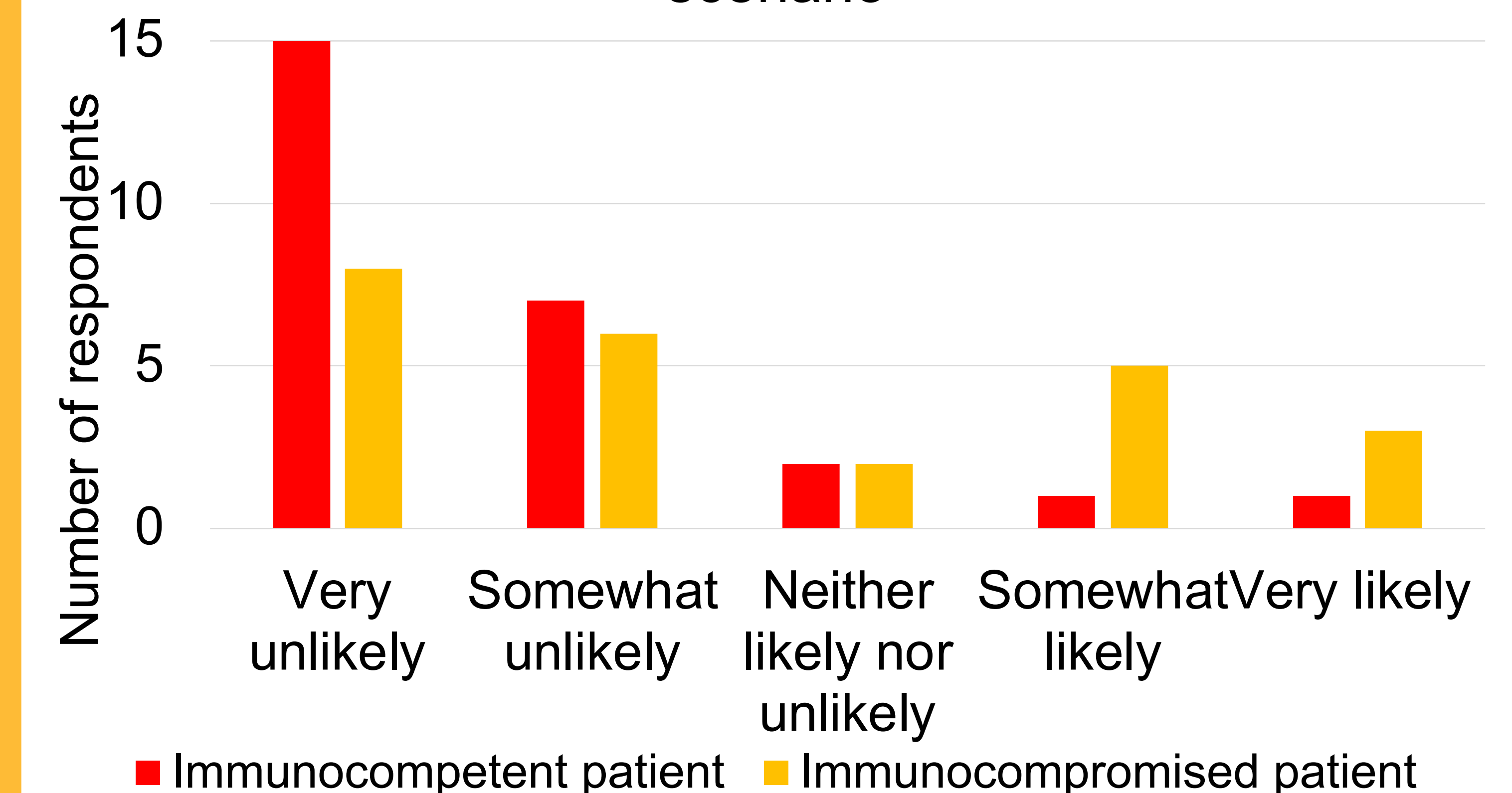


Fig 3: Management plan incorporating NGS data, by clinical scenario

