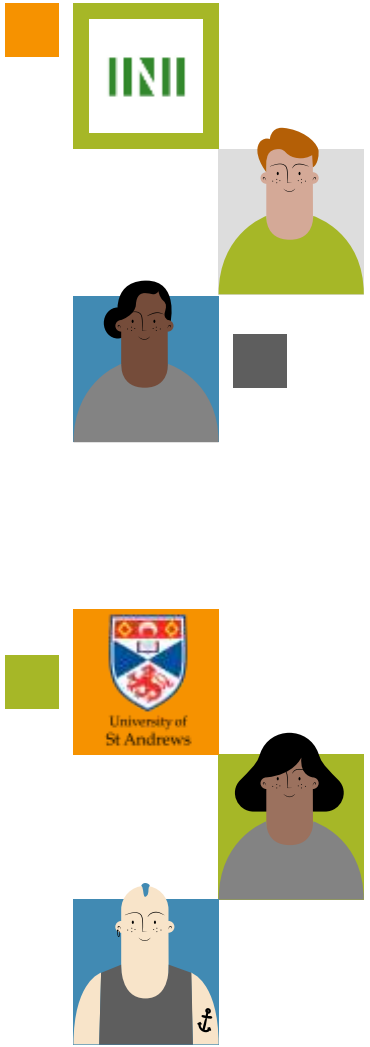
EQUITY, DIVERSITY & INCLUSION (EDI) in Infectious Disease Modelling

Xiahui Li, University of St Andrews

JUNIPER Seminar Talk

November 19th, 2025



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02 What is EDI in IDD?

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Photo from 2024 Isaac Newton Institute programme on ***Modelling and Inference for Pandemic Preparedness***.

- **100+** researchers across continents, backgrounds, and career stages
- **4** weeks of intensive activities
- **13** ongoing collaborative projects

1 Process of EDI Working Group

MILESTONE

1 **ESTABLISH**

To address the absence of formal EDI discussions at major infectious disease modelling conferences

START

2 **IDENTIFY**

Key challenges for promoting inclusivity in infectious disease modelling

3 **ORGANISE**

Recommendations for within a team, conferences and workshops, virtual environment

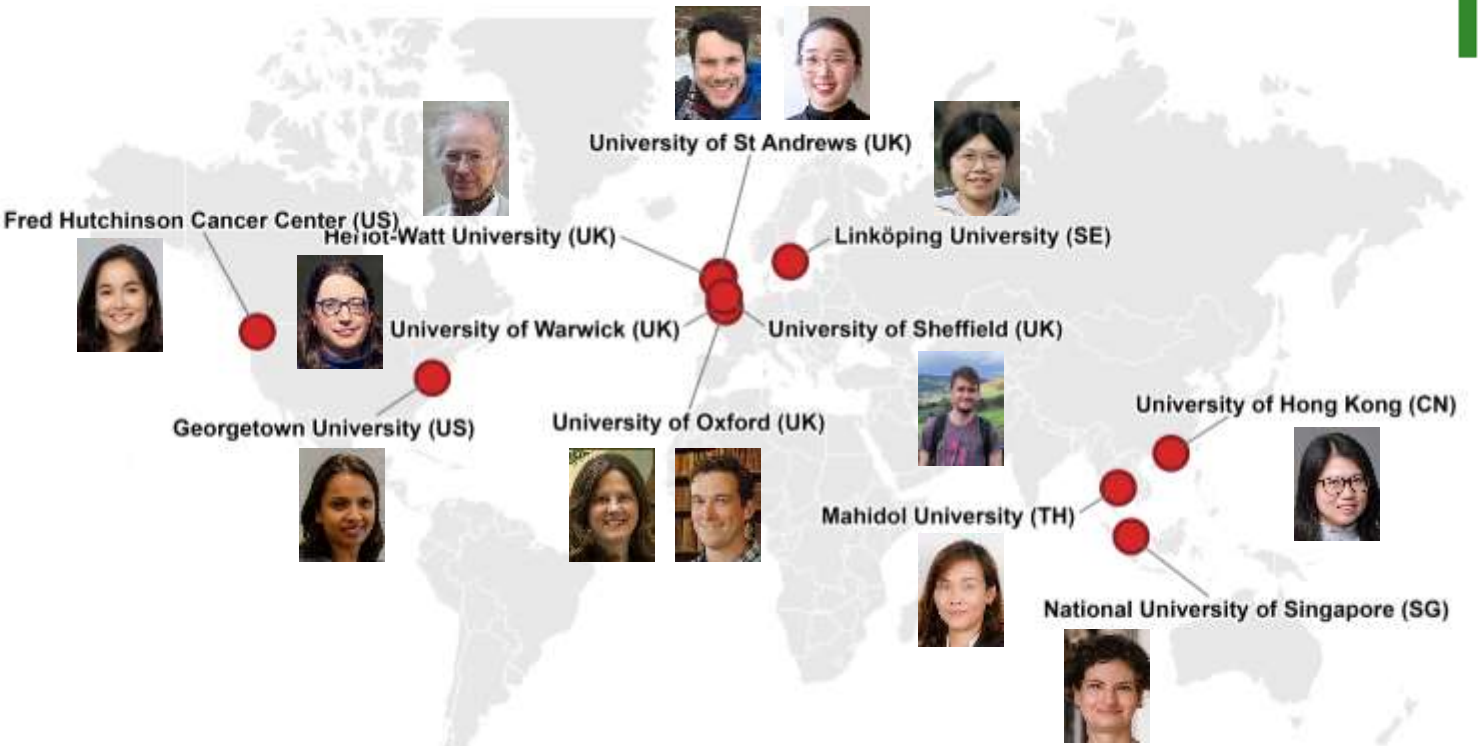
4 **FEEDBACK**

Review and finalise collectively

5 **OUTPUT**

MIP-EDI Global Collaboration Network

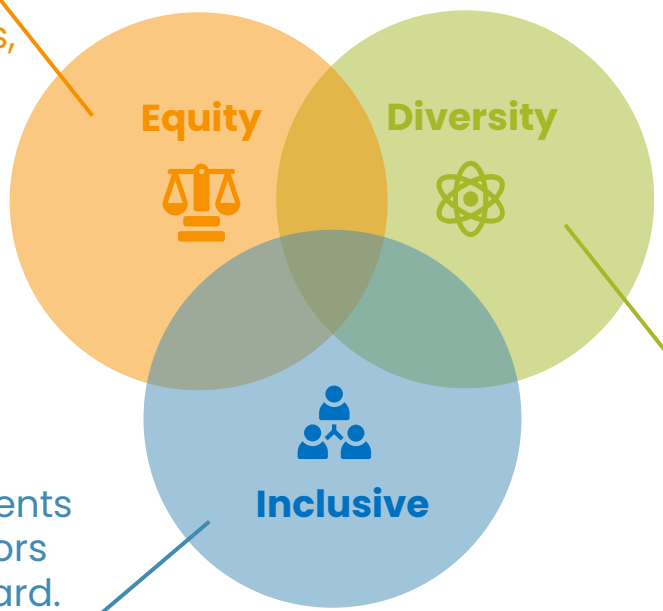
Institutional Affiliations of Coauthors



11 institutions across 6 countries

2 What is EDI in Infectious Disease Modelling?

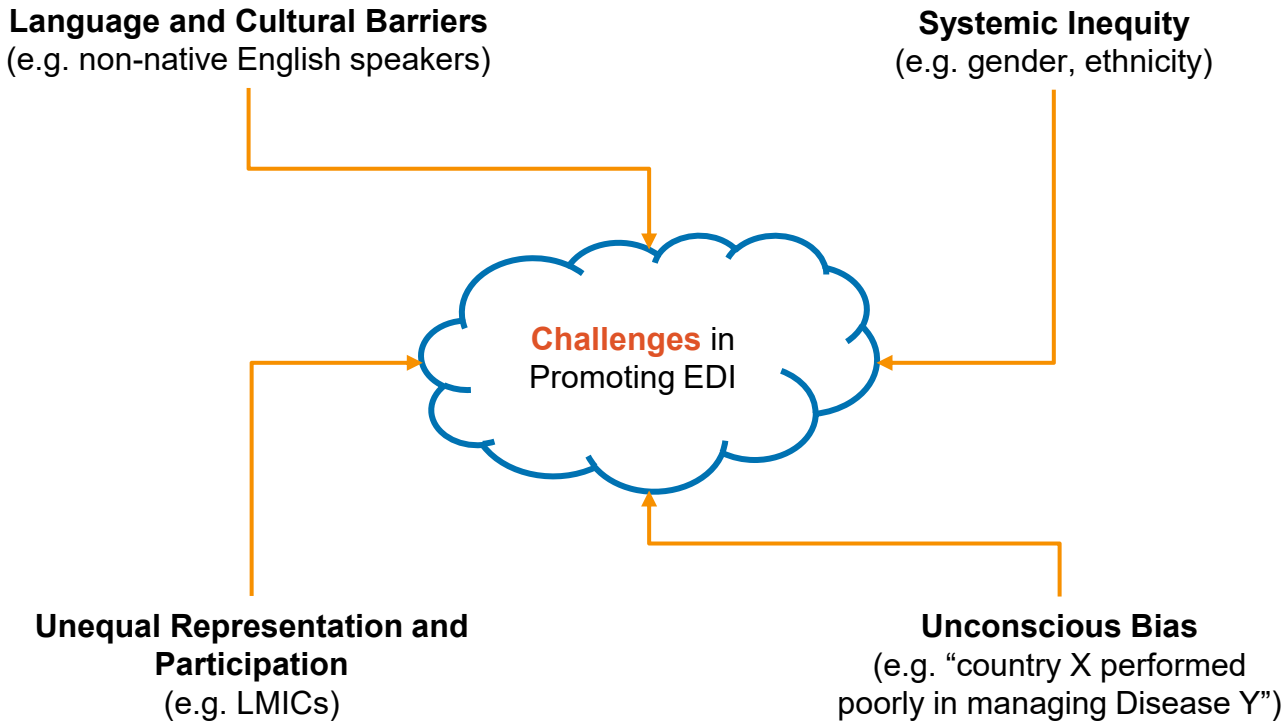
Ensuring fair access to opportunities, resources, and recognition within modelling research.



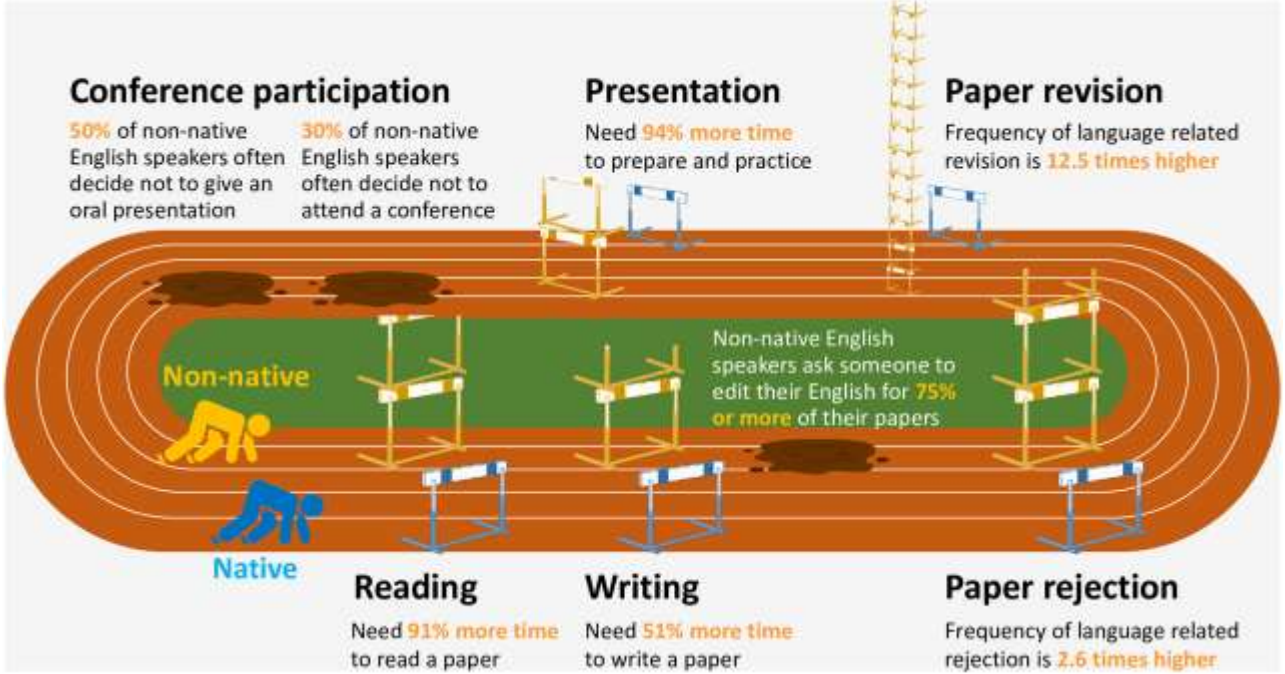
Involving people with varied backgrounds, disciplines, geographic locations, institutions, career stages, etc.

Creating environments where all contributors feel valued and heard.

3 Current Challenges to EDI

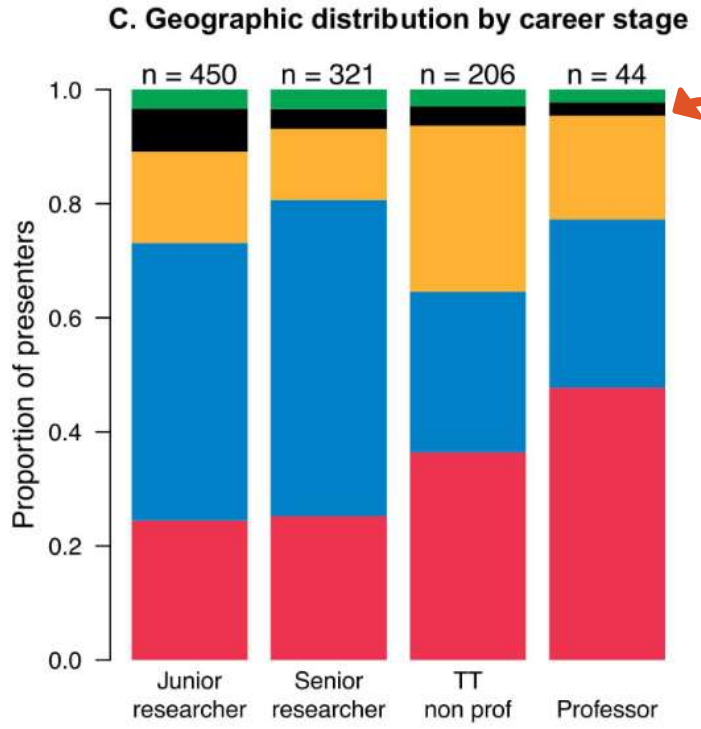


3.1 Language Barrier



Source: Amano, T., Ramírez-Castañeda, V., Berdejo-Espinola, V., Borokini, I., Chowdhury, S., Golivets, M., ... & Veríssimo, D. (2023). *The manifold costs of being a non-native English speaker in science. PLoS biology*, 21(7), e3002184.

3.2 Systemic Inequity



Source: Cori, A. (2024). *SIR… or MADAM? The impact of privilege on careers in epidemic mo*

3.2 Systemic Inequity

Twenty years of infectious disease dynamics research: gender and race imbalances in publication and citation practices

Juliana C. Taube[†], Alexes Merritt[†] and Shweta Bansal

Department of Biology, Georgetown University, Washington, DC, USA

On publications and citations:

- Between 2000 and 2019, men were lead authors on 61% of publications in IDD field and senior authors on 67% of them.
- Papers with both a male lead and senior author are only slightly under-cited. But if a woman is the senior author, the under-citation jumps to 15%.
- The same study found that authors of colour are also systematically under-cited by more than 30%, while papers with White lead and senior authors are consistently over-cited.

3.3 Unequal Representation & Participation

Original research

Conference equity in global health: a systematic review of factors impacting LMIC representation at global health conferences

Lotta Velin [1,2] Jean-Wilguens Lartigue [1,3] Samantha Ann Johnson [4] Anudari Zorigtbaatar [1,5] Ulrick Sidney Kanmounye,[1,6] Paul Truche,[1,7] Michelle Nyah Joseph[1,8]

Key Findings:

- Between 1997 and 2019, only 39% of attendees were from LMICs
- 96% of these conferences were held in high or middle-income countries

3.4 Unconscious Bias

“Country X performed poorly in managing Disease Y.”

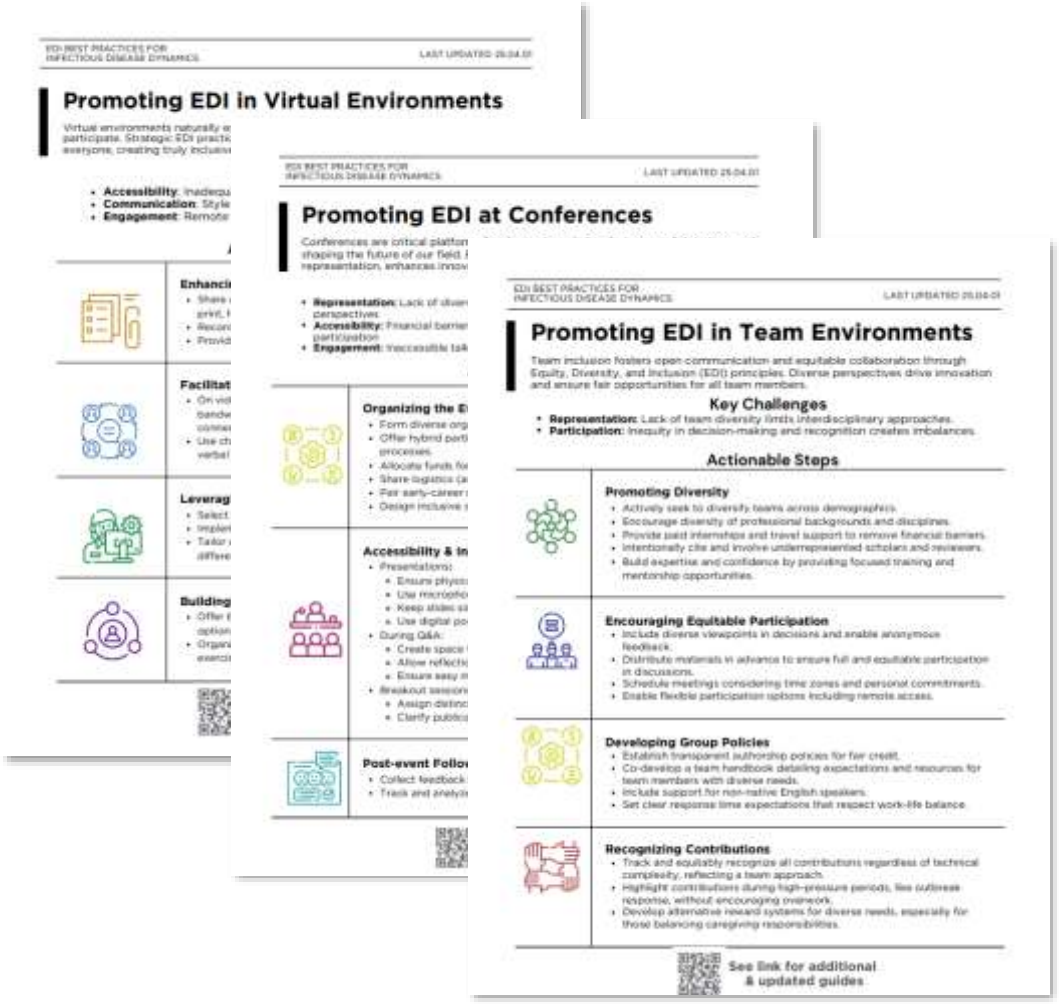
“People with X infection…”

4 Actionable Guidelines

Context-specific Recommendations

Focuses on three critical areas where EDI efforts can have the most immediate impact:

- **Within a Team:** Fostering inclusive collaboration and equitable recognition.
- **Conferences and Workshop:** Creating accessible and welcoming environments for diverse participants.
- **Virtual Environments:** Ensuring inclusivity across geographic and technological boundaries.



EDI BEST PRACTICES FOR INFECTIOUS DISEASE DYNAMICS

LAST UPDATED 25.04.01

Promoting EDI in Virtual Environments

Virtual environments naturally e
participate. Strategic EDI practic
everyone, creating truly inclusiv

- **Accessibility**: Inadequ
- **Communication**: Style
- **Engagement**: Remote

Enhanci
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Facilitat
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Leverag
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- Tailor

Building
- Offer
- Organi

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Organizing the E
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- Share logistics (a
- Pair early-career
- Design inclusive

Accessibility & In
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  - Assign distinc
  - Clarify public

Post-event Follo
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- Track and analyz

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Promoting EDI in Team Environments

Team inclusion fosters open communication and equitable collaboration through Equity, Diversity, and Inclusion (EDI) principles. Diverse perspectives drive innovation and ensure fair opportunities for all team members.

Key Challenges

- **Representation:** Lack of team diversity limits interdisciplinary approaches.
- **Participation:** Inequity in decision-making and recognition creates imbalances.

Actionable Steps

Promoting Diversity
- Actively seek to diversify teams across demographics.
- Encourage diversity of professional backgrounds and disciplines.
- Provide paid internships and travel support to remove financial barriers.
- Intentionally cite and involve underrepresented scholars and reviewers.
- Build expertise and confidence by providing focused training and mentorship opportunities.

Encouraging Equitable Participation
- Include diverse viewpoints in decisions and enable anonymous feedback.
- Distribute materials in advance to ensure full and equitable participation in discussions.
- Schedule meetings considering time zones and personal commitments.
- Enable flexible participation options including remote access.

Developing Group Policies
- Establish transparent authorship policies for fair credit.
- Co-develop a team handbook detailing expectations and resources for team members with diverse needs.
- Include support for non-native English speakers.
- Set clear response time expectations that respect work-life balance.

Recognizing Contributions
- Track and equitably recognize all contributions regardless of technical complexity, reflecting a team approach.
- Highlight contributions during high-pressure periods, like outbreak response, without encouraging overwork.
- Develop alternative reward systems for diverse needs, especially for those balancing caregiving responsibilities.

See link for additional & updated guides

4.1 Within a Team

Why matters?

Team inclusion fosters open communication and equitable collaboration through EDI principles. Diverse perspectives drive innovation and ensure fair opportunities for all team members.

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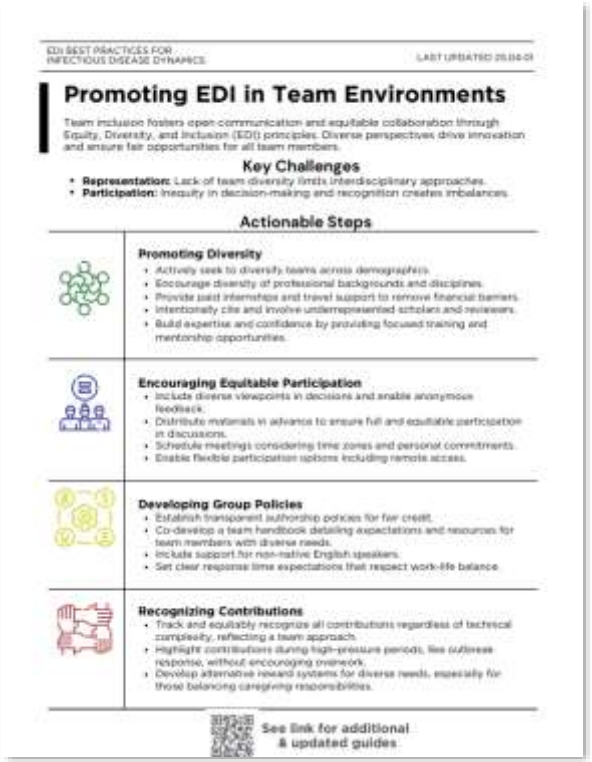
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- Schedule meetings considering time zones

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Recognizing Contributions

- Equitably recognize all contributions
- Highlight contributions during high-pressure periods
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4.2 Conferences and Workshops

Why matters?

Conferences are critical platforms for sharing knowledge, fostering collaboration, and shaping the future of our field. Ensuring EDI improves representation, enhances innovation, and creates a welcoming environment for all.

Key Challenges

Representation: Lack of diversity in committees, speakers, and participants limits perspectives.

Accessibility: Financial barriers, visa challenges, and caregiving responsibilities prevent participation.

Engagement: Inaccessible talks and exclusive social events exclude certain attendees.

IDM BEST PRACTICES FOR INFECTIOUS DISEASE DYNAMICS

LAST UPDATED 25.04.01

Promoting EDI at Conferences

Conferences are critical platforms for sharing knowledge, fostering collaboration, and shaping the future of our field. Ensuring equity, diversity, and inclusion (EDI) improves representation, enhances innovation, and creates a welcoming environment for all.

Key Challenges

- **Representation:** Lack of diversity in committees, speakers, and participants limits perspectives
- **Accessibility:** Financial barriers, visa challenges, and caregiving responsibilities prevent participation
- **Engagement:** Inaccessible talks and exclusive social events exclude certain attendees

Actionable Steps

Organizing the Event

- Form diverse organizing committees to ensure broad perspectives.
- Offer hybrid participation options and select locations with simplified visa processes.
- Allocate funds for caregivers, nursing spaces, and travel support.
- Share logistics (accessibility details, timetables) before registration.
- Pair early-career researchers with mentors for career guidance.
- Design inclusive social events with non-alcoholic options + quiet spaces.

Accessibility & Inclusion in Sessions

- Presentations:
  - Ensure physically accessible venue locations and seating arrangements.
  - Use microphones and introduce yourself as a speaker.
  - Keep slides simple and clear, avoiding complex jargon.
  - Use digital pointers to accommodate light sensitivities.
- During Q&A:
  - Create space for underrepresented voices.
  - Allow reflection time and provide flexible question formats.
  - Ensure easy microphone access with 'mic runners'.
- Breakout sessions/working groups:
  - Assign distinct roles to balance responsibilities.
  - Clarify publication processes for any outputs.

Post-event Follow-up:

- Collect feedback to identify areas for improvement.
- Track and analyze diversity statistics for participants and speakers.

See link for additional & updated guides

4.2 Conference – Actionable Steps

Organizing the Event

- Form diverse organizing committees
- Allocate funds for caregivers, nursing spaces, and travel support
- Design inclusive social events

Accessibility & Inclusion in Sessions

- Presentations: Ensure physically accessible venue locations
- During Q&A: Create space for underrepresented voices
- Working groups: Clarify publication processes for any outputs

Post-event Follow-ups

- Collect feedback to identify areas for improvement
- Track and analyze diversity for participants and speakers

4.3 Virtual Environment

Why matters?

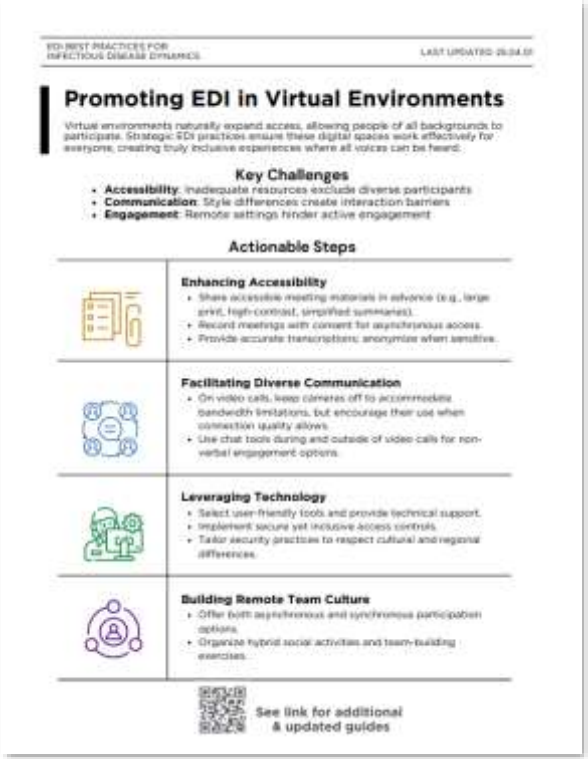
Virtual collaborations allow geographically dispersed experts from multiple disciplines to share data rapidly, co-develop models and respond collectively to emerging outbreaks.

Key Challenges

Accessibility: Inadequate resources exclude diverse participants.

Communication: Style differences create interaction barriers.

Engagement: Remote settings hinder active engagement



4.3 Virtual Environment – Actionable Steps

Enhancing Accessibility

- Share accessible meeting materials in advance
- Record meetings with consent for asynchronous access
- Provide accurate transcriptions

Facilitating Diversity Communication

- Use chat tools during and outside of video calls for non-verbal engagement options
- Keep cameras off to accommodate bandwidth limitations

Leveraging Technology

- Select user-friendly tools and provide technical support
- Adapt security practices to respect cultural and regional differences

Building Remote Team Culture

- Offer both asynchronous and synchronous participation options
- Organize hybrid social activities and team-building exercises

5 Discussion

SUMMARY

We analysed current barriers and proposed actionable guidelines across three settings:

- ✓ Within a Team
- ✓ Conferences and Workshops
- ✓ Virtual Environments

LIMITATIONS

- The effectiveness of our study requires adaptation to local norms, resources and priorities
- Focus on research environments; deeper structural inequities (colonialism, racism, sexism) require broader examination
- The authorship reflects limited representation

6 An Ongoing Journey…

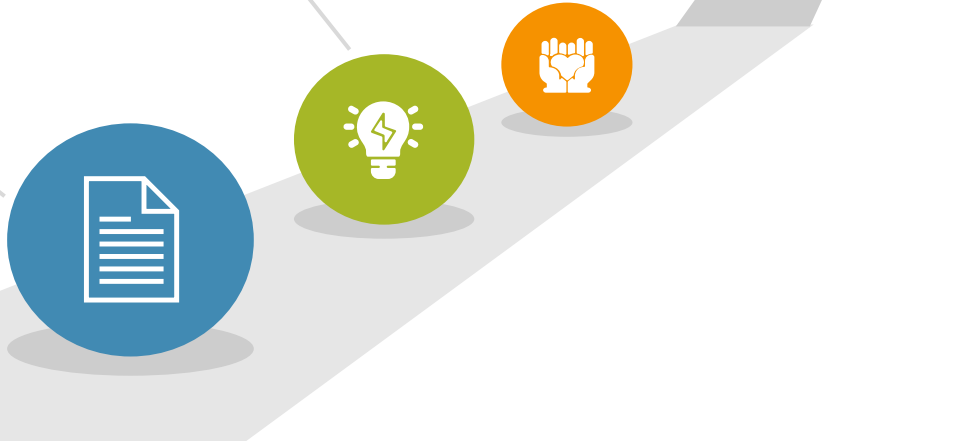
Long term: Further research

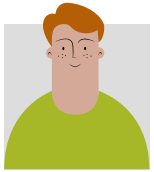
- Evaluate the effectiveness of EDI initiatives and to create context-specific solutions
- Expand EDI effort into recruitment, funding, and other critical areas

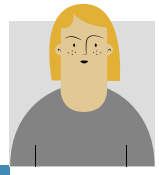
Short term: MIP Follow-up Meeting

- A follow-on meeting is December 2025 to refine and disseminate these ideas.

Starting Point: EDI Working Group







Thank You

Do you have any questions?

GitHub

PAPER