Fostering U.S.-International Collaboration in Integrating Exposure in Nanomaterial Risk Evaluation

Challenges and opportunities for U.S.-international collaborations in exposure assessment for nanomaterials

Richard Canady, PhD

NeutralScience L3C and NanoRelease

Overall **challenge** for international collaboration to integrate MNM exposure into risk assessment?

Choosing the right topics/methods

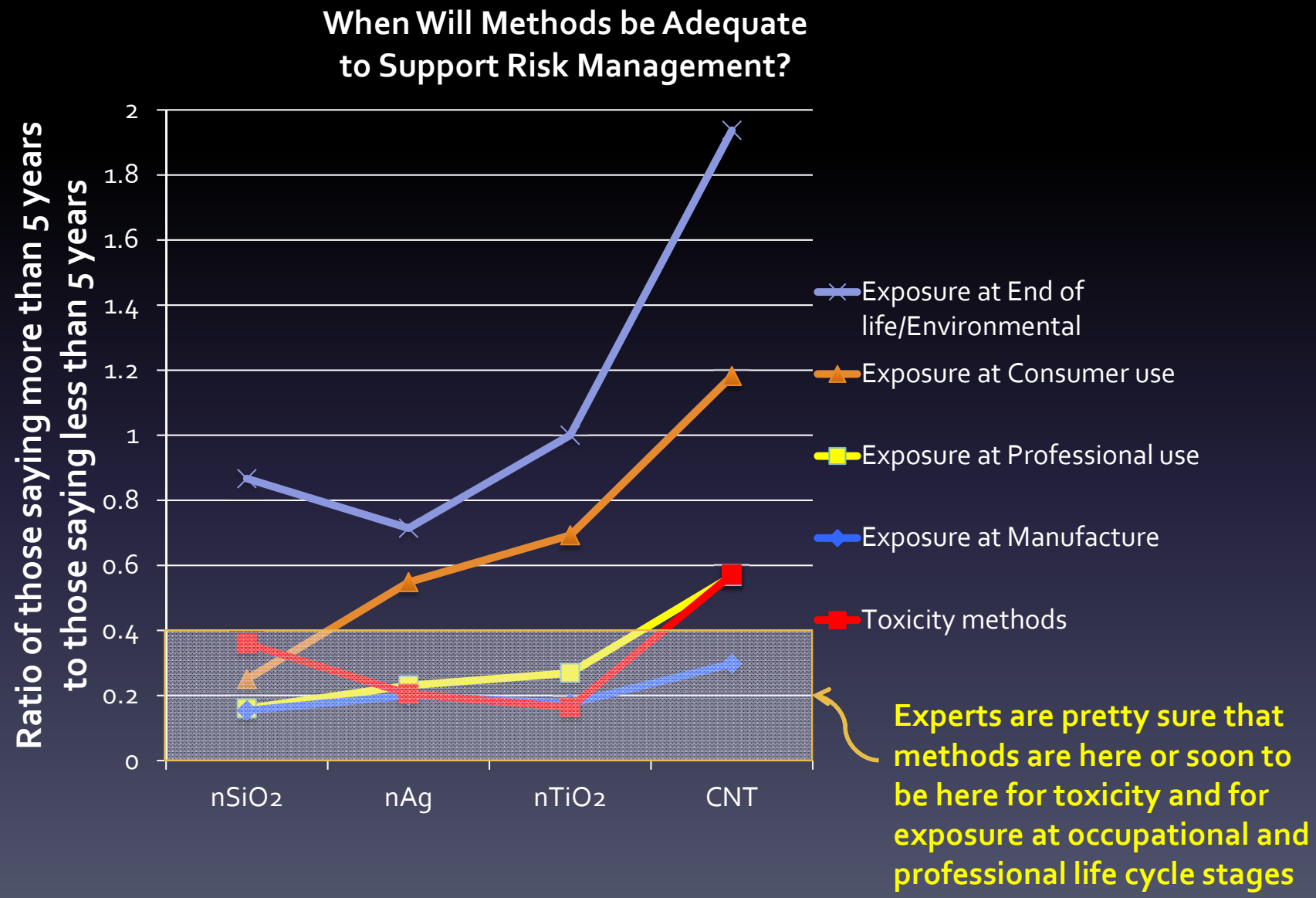
*on which to focus and collaborate on for **R&D***

so that innovation and trade can proceed smoothly and safely.

- MNM issue variation is so complex that it is hard to tell when people are talking past each other
- Some MNM have general benefit across borders for spurring innovation
- Must understand exposure before we can understand toxicity and risk, and innovate safely
- Methods for understanding exposure can be
  - simple and general
  - complex and specific to a particular MNM
  - or impossible/impractical (now)
- So we need to focus collaboration on the most needed exposure methods first, in order to facilitate ***innovation***

Example of complexity of understanding MNM risk

Source: 2015-16 Prosafe Delphi Forum



Very little government funding goes to practical exposure methods R&D for MNM in commerce

And yet understanding of exposure is critical to understanding MNM risk

A lack of exposure measurement methods will impede innovation

So, we need to choose wisely *where* to innovate to avoid exposure measurement unknowns, or innovate on pace with R&D for exposure measurement methods

Opportunity for international collaboration to integrate exposure into risk assessment.

1. Use US-EU COR or OECD to select specific innovation areas and uses for specific emerging materials. Don't leave it "nano" general

2. Model *exposure methods R&D* after or use pre-competitive multi-stakeholder programs like the Global Research Collaboration https://www.src.org/program/grc/ or the Health Effects Institute https://www.healtheffects.org/ to pave the way for safe innovation