Developing WHO Guidelines for Protecting Workers from Potential Risks of Manufactured Nanomaterials

Evelyn Kortum
Department of Public Health, Environment and Social Determinants of Health
World Health Organization, Geneva, Switzerland
kortume@who.int
Workplace hazards: Why do we need action at international level?

- **Globalization is a reality:** Global production of goods has created a global workforce
- **Legal considerations**
- **Ethical responsibility of governments & the private sector to ensure equal levels of health protection & promotion everywhere**
- **Multinationals often produce goods in several countries**
- **Production often takes place in low-cost countries**
- **Fairness and equity among workers in all countries**
Why WHO?

- WHO is the supreme international health agency within the UN family - actions legitimized by its constitution.
- WHO’s main function is "To act as the directing and coordinating authority on international health work”
- “The objective of the World Health Organization shall be the attainment by all people of the highest possible level of health.”
- Health is widely defined as: “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”
- WHO’s mandate covers all aspects of public health including occupational health
- Occupational Health has been on the WHO agenda since its inception - various resolutions of the World Health Assembly (Resolution WHA 60.26 "Workers' Health Global Plan of Action")
What does WHO do in practice in the field of occupational health?

- Provide policy guidance
- Recommend actions and interventions based on sound scientific evidence
- Support Member States in implementing appropriate actions to protect and promote workers’ health
- No prescription of particular actions
- Evidence-based guidelines
Why Nanomaterials?

• **Emerging technology** with increasing use patterns worldwide
• **Risks not fully evaluated**
• **Information** is not available in an equal and equitable manner
• Need to provide the **same level of protection** to workers dealing with nanomaterials across the world
• Global, science-based guidelines provide health protection activities in countries
A WHO guideline.....

- **assists** policy makers or other stakeholders to make **informed decisions**
- **contains** recommendations about health interventions (clinical, public health or policy)
- WHO has adopted internationally recognized standards and methods for guideline development to ensure that guidelines are **free from bias, meet a public health need**

**A recommendation**

- **Provides information** about what policy-makers, health-care providers or patients should do
- **Implies a choice** between different interventions that have an impact on health and that have implications for the use of resources.

**Principles of recommendations:**

- based on a comprehensive and objective assessment of the available evidence.
- Protocolled process of how, by whom, and on what basis a recommendation has been developed.
Guideline Process

• Relevant Question

• PECO (Population/situation-Exposure-Comparison-Outcome) Question
  • Answerable with research

• Systematic Review
  • Protocol
  • Evidence summary / profiles
  • Judgement of the quality of the evidence (GRADE)

• Recommendations (GRADE – Grading of Recommendations, Assessment, Development and Evaluation)
Quality of the evidence: GRADE

- Strongly evidence-based

- GRADE rates the quality of the evidence:
  - the extent to which we have confidence in an estimate of the effect

- Can be applied to risk or aetiology reviews

- Used to judge the strength of a recommendation
WHO Guidelines on "Protecting Workers from Potential Risks of Manufactured Nanomaterials" (NANOH)

- **Aim**: facilitate improvements in occupational health and safety of nanotechnologies in a broad range of manufacturing and social environments by incorporating elements of a risk assessment and risk management framework and contextual issues in the guidelines structure.

- **Target group**: 1st phase: policy-makers in low and medium income countries; 2nd phase: implementation guide for employers and workers
Rationale

- Production processes often simple and unprotected in low- and medium-income countries

- Sufficient information available to provide interim recommendations and guidance about approaches to nanomaterial handling in the workplace (applying the precautionary principle).

- Use existing guidelines and research (OECD, ISO...
• **10 guideline questions developed on**

  - **Prioritization** of nanomaterials to reducing risks
  - **Hazard categories** and control banding for safe handling
  - **Highest exposure** situations and assessments
  - **Risk management** through training, health surveillance, risk mitigation, effectiveness of control measures
Involved groups

- Guidelines Development Group
  - methodologist
  - chair/co-chair
- Steering Group
- External Reviewers

- **Systematic Reviewers**
Concluding remarks: Systematic evidence review and rating

WHO guidelines are science-based and are developed using transparent systematic-review process. Systematic evidence review includes the following steps:

- Systematic collection of evidence for each key question in the form of published data;
- Rating quality of evidence using GRADE
Contributors

- National Institute of Occupational Safety and Health (NIOSH), USA (Scientific Chair)
- In kind contributions by other institutions within the WHO Collaborating Centres Network on Occupational Health:
  - Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST), Canada (reviewers from University of Montréal)
  - National Institute for Occupational Safety and Health (NIOSH), USA (reviewers and Chair)
  - Fundacentro, Brazil (reviewers)
  - Italian National Insurance for Work Accidents and Occupational Diseases (INAIL), Italy (reviewers)
  - Finnish Institute of Occupational Health (FIOH), Finland (reviewers and methodologist)
  - National Institute of Occupational Health (NIOH), South Africa (reviewers)
  - University of Occupational and Environment Health (UEOH), Japan (reviewers)
  - Korean Occupational Health and Safety Agency (KOSHA), Republic of Korea (reviewers and GDG)

- Other contributors:
  - Institute of Occupational Medicine (IOM), Scotland (reviewers)
  - National Institute of Occupational Health (STAMI), Norway (reviewers)
  - Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA) (reviewers)
  - Hoseo University, South Korea (reviewers)
  - ETUI (Co-Chair)
  - Members of the Guideline Development Group
  - Members of the External Review Group
  - WHO Steering Group members (2 from HQ, 1 from EURO)