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

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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:** 1\(^{st}\) phase: policy-makers in low and medium income countries; 2\(^{nd}\) 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

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  - Members of the External Review Group
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