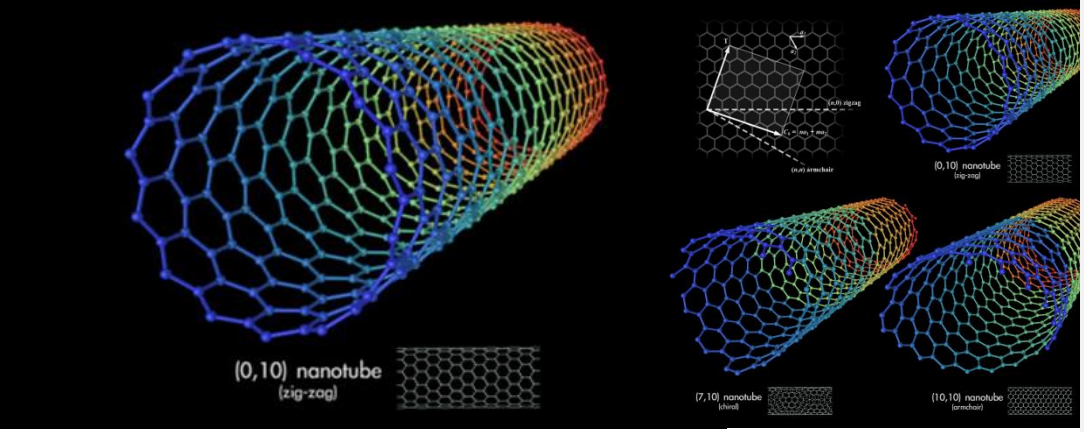

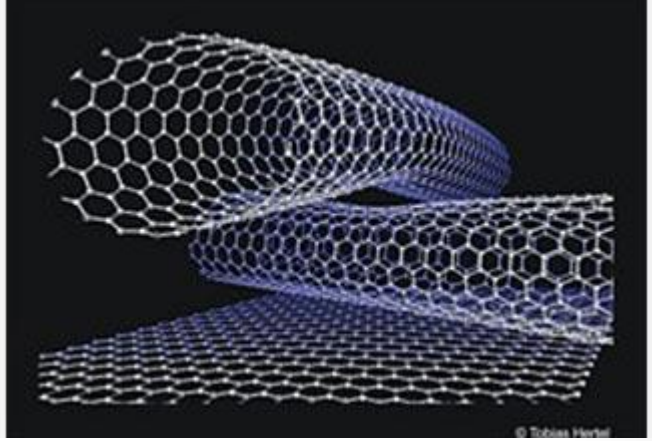

Developing WHO Guidelines for Protecting Workers from Potential Risks of Manufactured Nanomaterials

Evelyn Kortum
Department of Public Health, Environment and Social Determinants of Health
World Health Organization, Geneva, Switzerland
kortume@who.int

World Health Organization

Workplace hazards: Why do we need action at international level?

- **G**lobalization is a reality: global production of goods has created a global workforce
- **L**egal considerations
- **E**thical responsibility of governments & the private sector to ensure equal levels of health protection & promotion everywhere
- **M**ultinationals often produce goods in several countries
- **P**roduction often takes place in low-cost countries
- **F**airness 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 (**P**opulation/situation-**E**xposure-**C**omparison-**O**utcome) Question
  - Answerable with research
- ***Systematic Review***
  - ***Protocol***
  - ***Evidence summary / profiles***
  - ***Judgement of the quality of the evidence (GRADE)***
- Recommendations (GRADE – **G**rading of **R**ecommendations, **A**ssessment, **D**evelopment and **E**valuation)

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…)

World Health Organization

- *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)