Emerging Issues

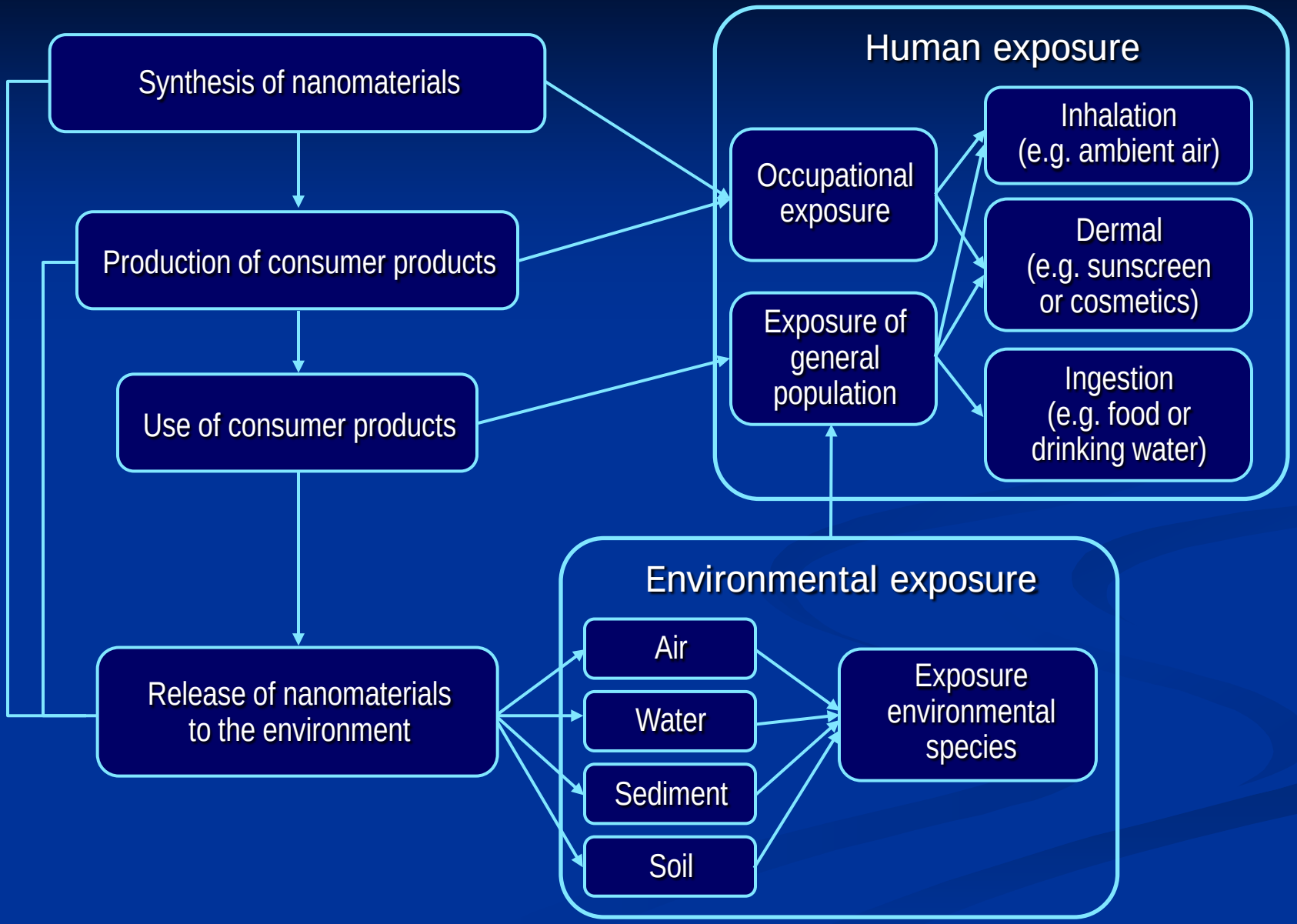
Paul A. Schulte, Ph.D.

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

CDC Workplace Safety and Health

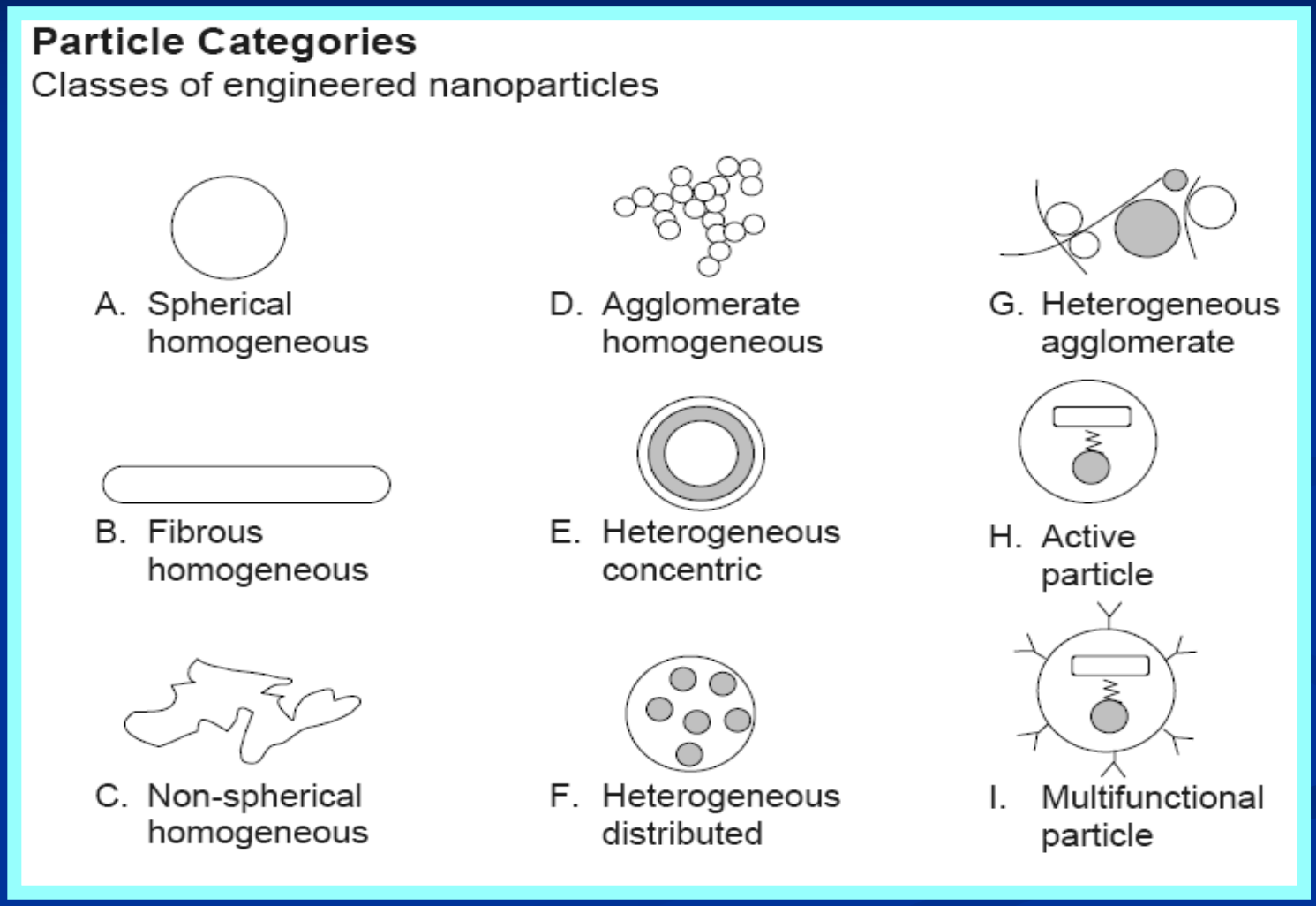
The findings and conclusions in this report are those of the author and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

NIOSH

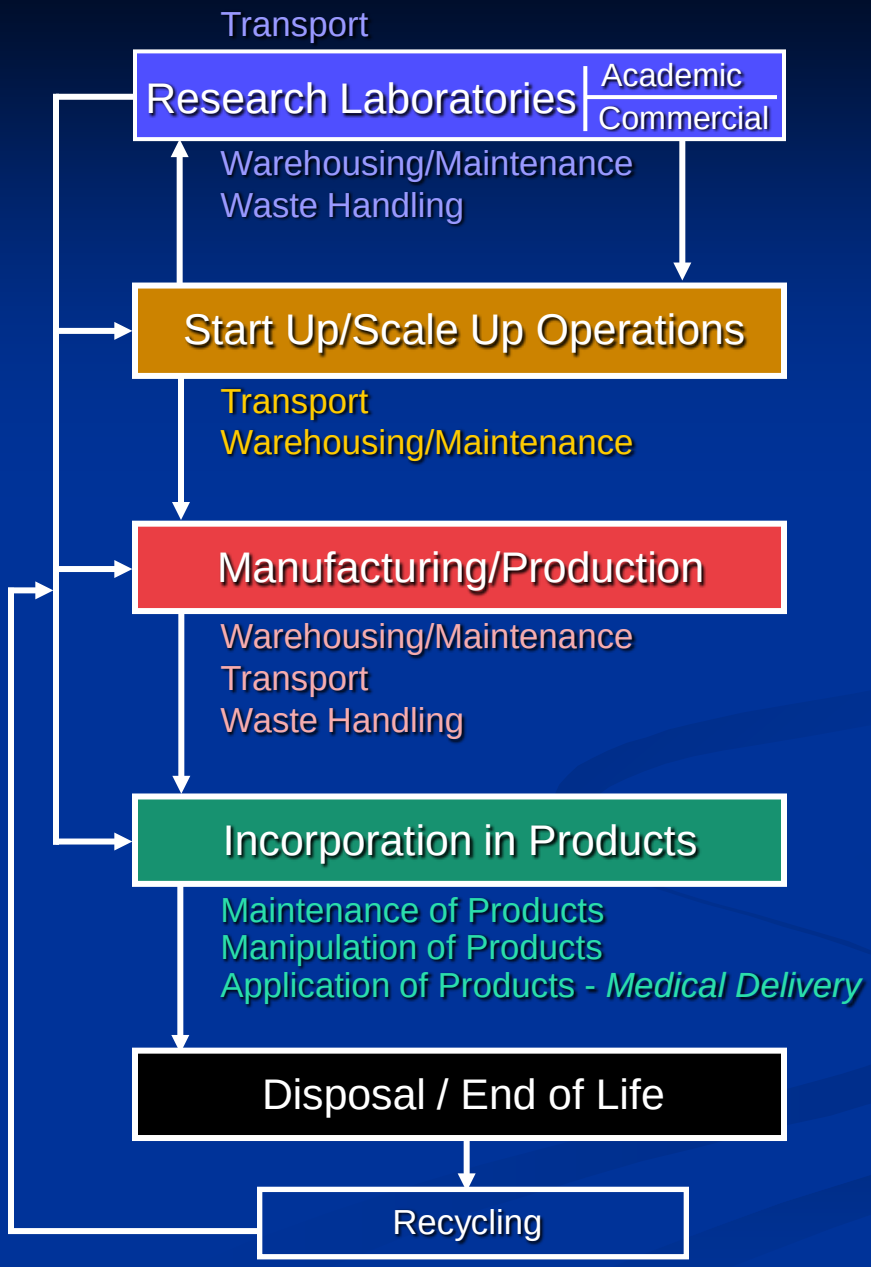


Framing NANO, 2009

What could a “Nanoparticle” be?



Dr. Andrew Maynard: Woodrow Wilson International Center for Scholars


Transport
Research Laboratories
Academic
Commercial
Warehousing/Maintenance
Waste Handling
Start Up/Scale Up Operations
Transport
Warehousing/Maintenance
Manufacturing/Production
Warehousing/Maintenance
Transport
Waste Handling
Incorporation in Products
Maintenance of Products
Manipulation of Products
Application of Products - Medical Delivery
Disposal / End of Life
Recycling

Parameters That Could Affect Nanoparticle Toxicity

- Size
- Shape
- Composition
- Solubility
- Crystalline structure
- Charge
- Surface characteristic
- Attached functional groups
- Agglomeration
- Impurities

Views Toward Engineered Nanoparticles

Time	Hazard classification	Type of action
Present	“As if”	Precautionary
Near future	“Likely to be”	Due diligence
Farther future	“Is”	Institutionalized