Occupational Health and Safety:
possible challenges and risks for workers

Intergovernmental Forum on Chemical Safety
Nanotechnology and nanomaterials:
opportunities and challenges

15 September 2008, Dakar, Senegal

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NanoCap project

NanoCap

- Project FP6 Science & Society
- European Trade Unions, environmental NGOs and universities cooperate in opinion forming and positioning in the Nanodebate on
  - Environmental issues
  - Occupational health and safety issues
  - Ethical issues
  - Critical assessment of benefits

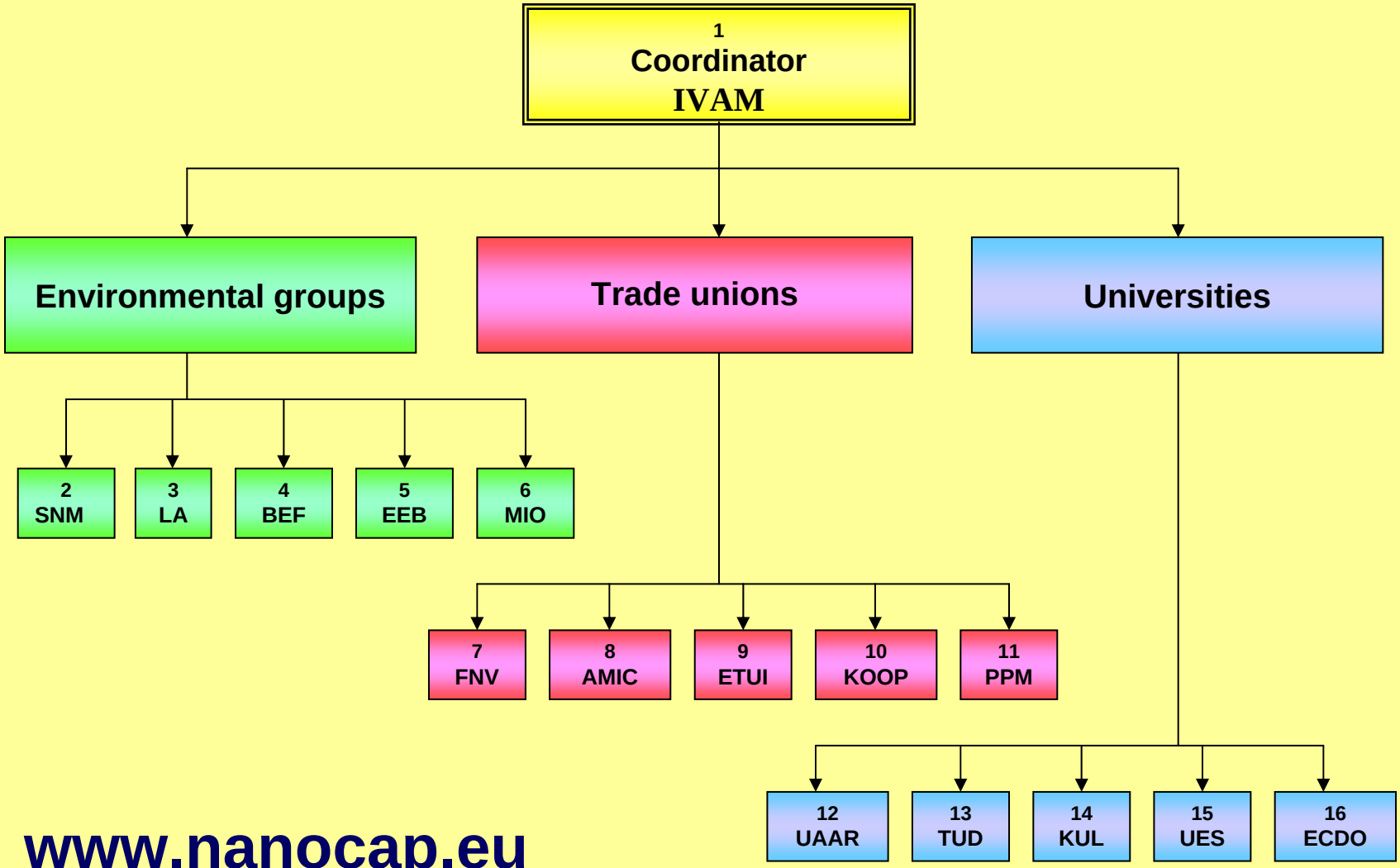
Activities

- working conferences
- discussions with industry and governments
- dissemination activities to members and general public
- **Final conference „Responsible Nanotechnologies“:**
  2 April 2009, European Parliament, Brussels

Period

- Sept 2006 – Sept 2009

NanoCap consortium



www.nanocap.eu

Workers' interests in nanotechnologies

- Development of responsible nanotechnologies
- Safe workplace
- Precautionary approach in case of lacking data
- Full compliance with current legislation
- Environmental compatibility

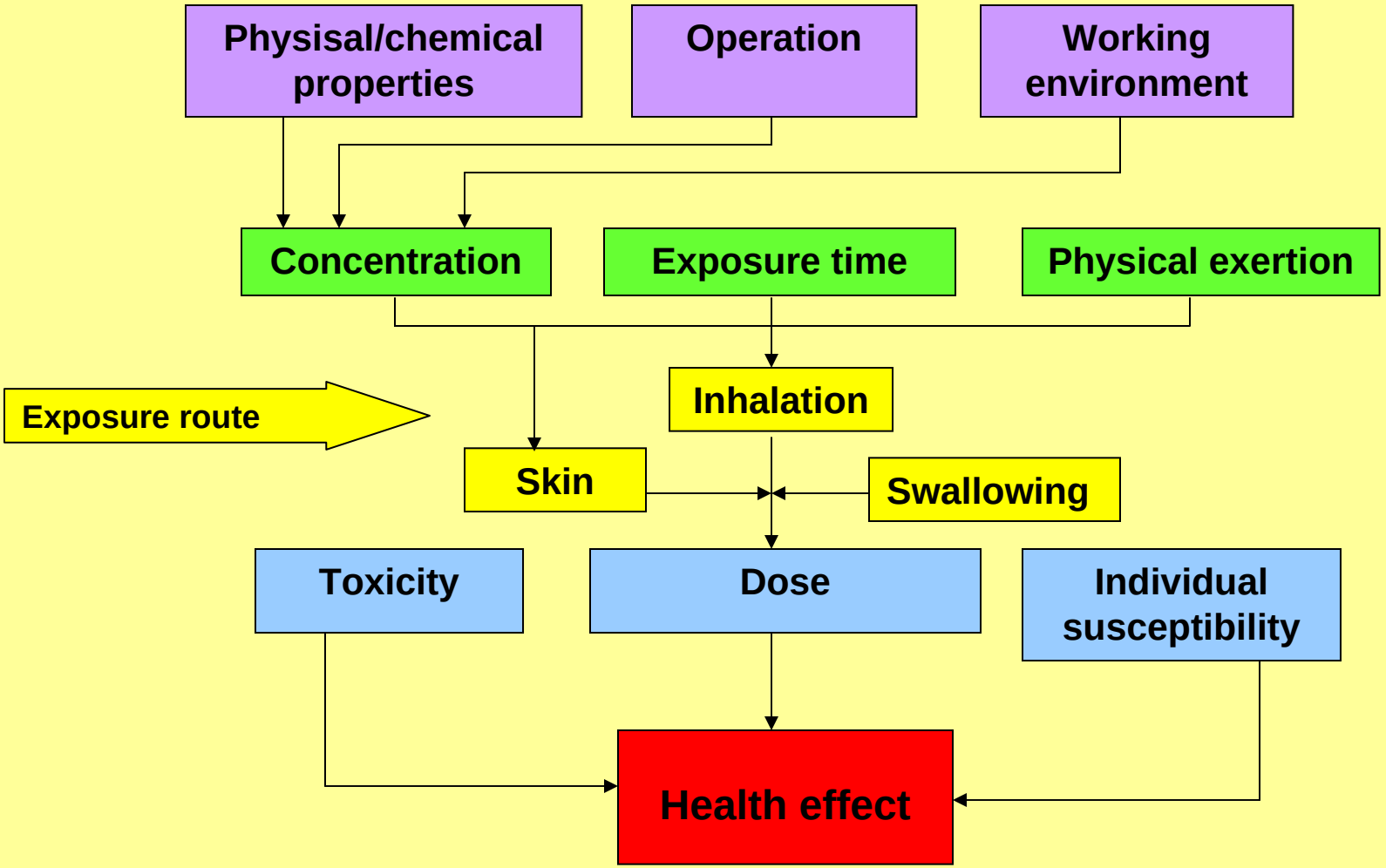
Workers' concerns on nanotechnologies

- **Lacking data**
  - physical / chemical / toxicological data
  - exposure data
  - effectiveness of control measures
  - confidentiallity of nano-product compositions

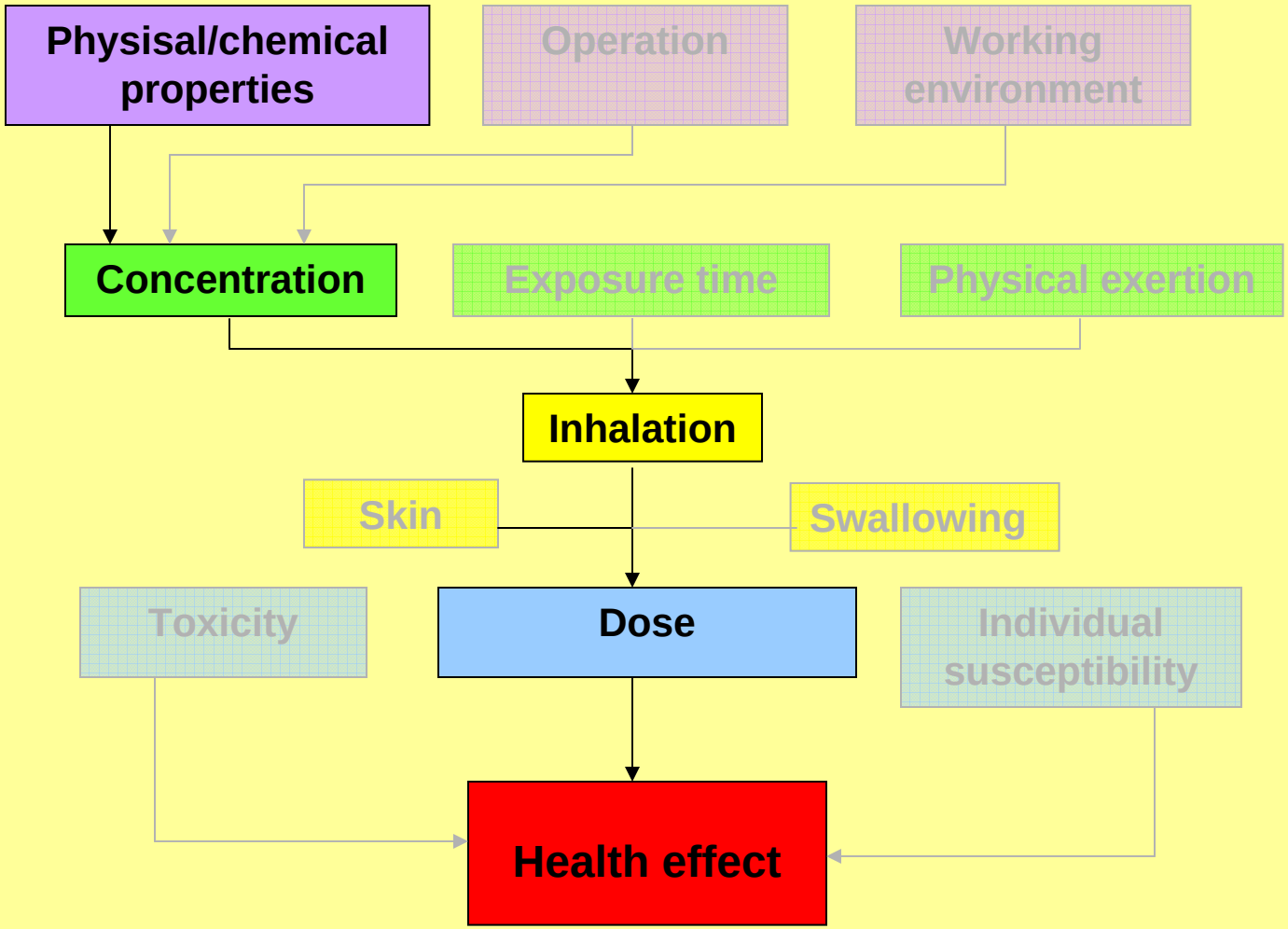
- **Insufficient knowledge**
  - of the companies' (safety) management
  - of occupational physicans
  - labour inspectorate

- **How to organise a safe workplace?**
  - Unclear for workers' representatives
  - No clear role for labour inspector

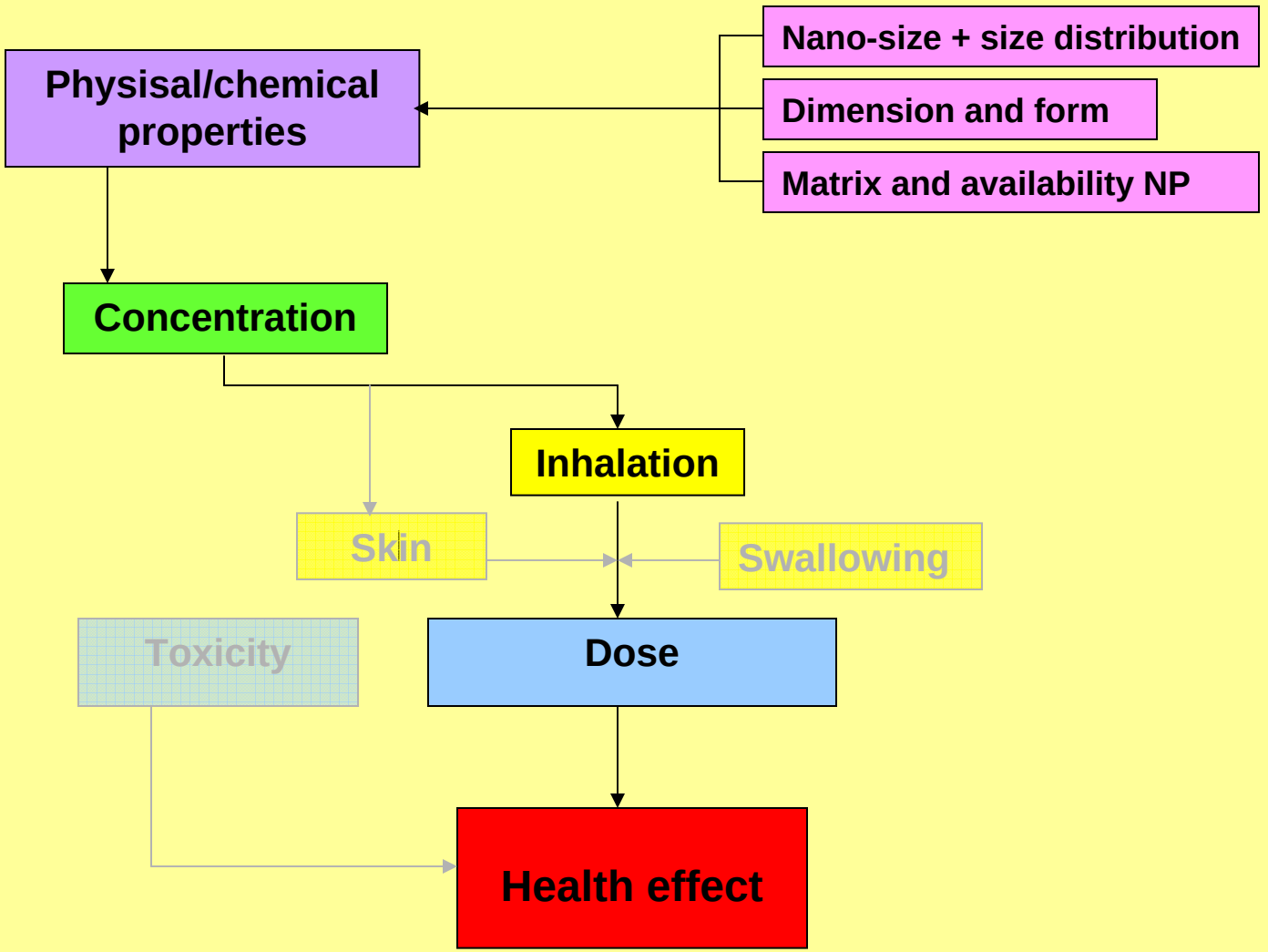
Organising a precautionary approach
Scheme for nano risk assessment



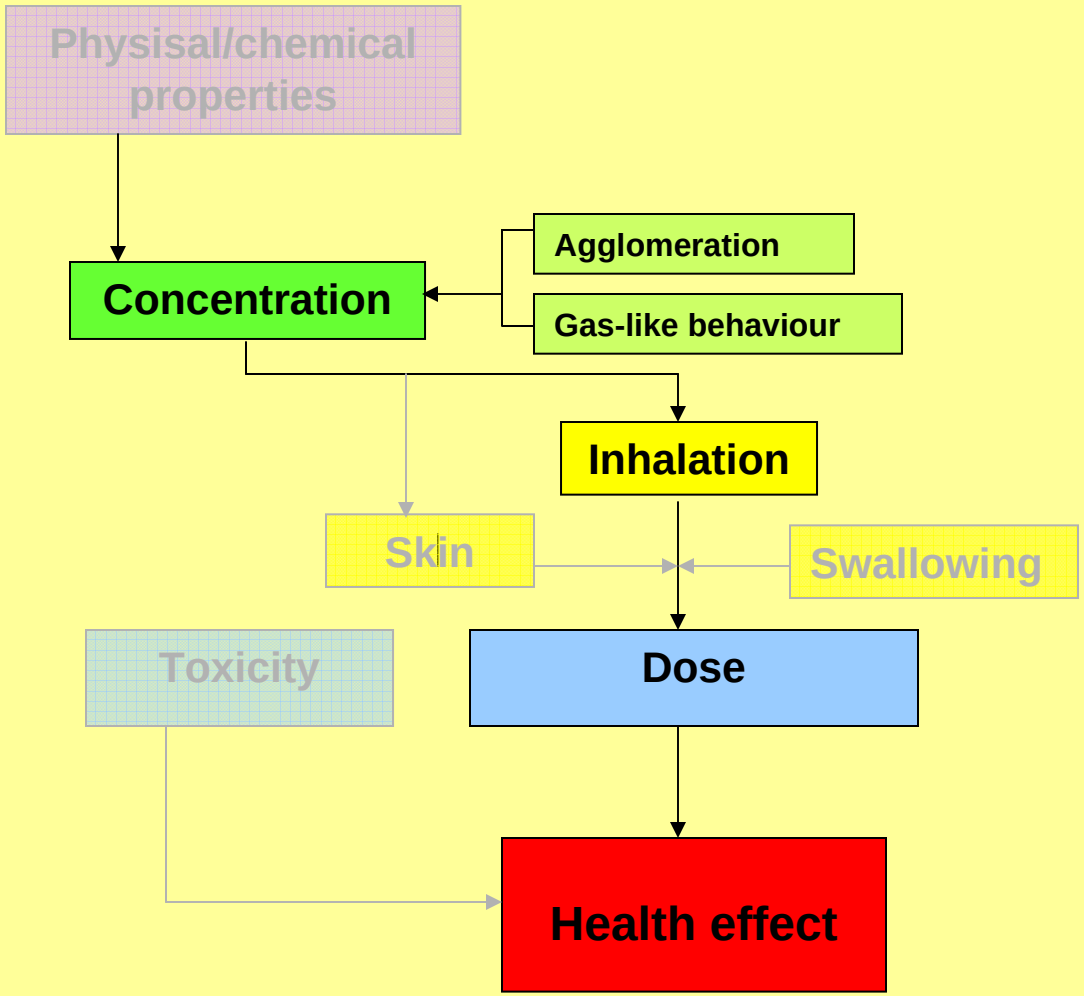
Items in particular influenced by Nano



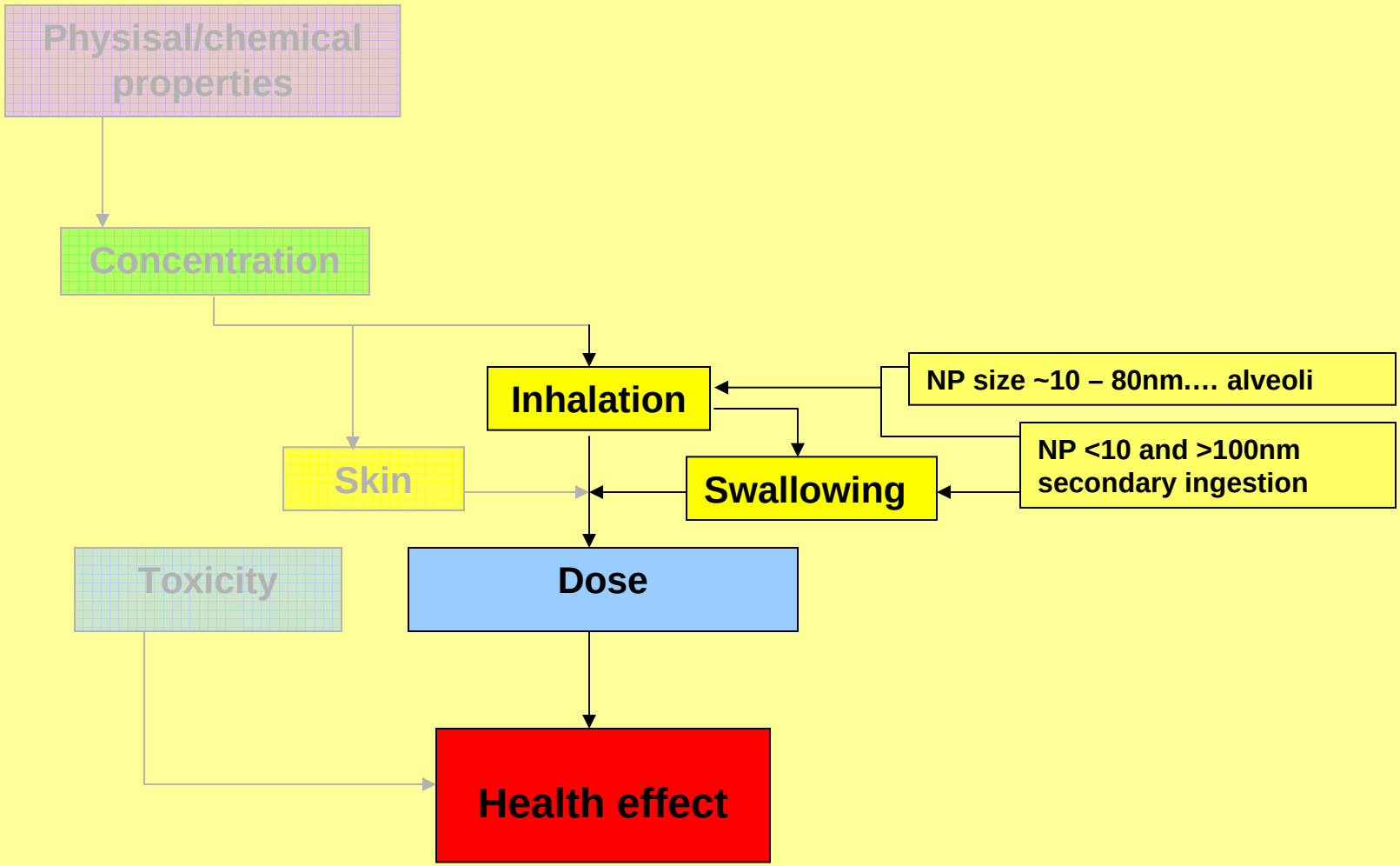
(Some) relevant nano-specific properties



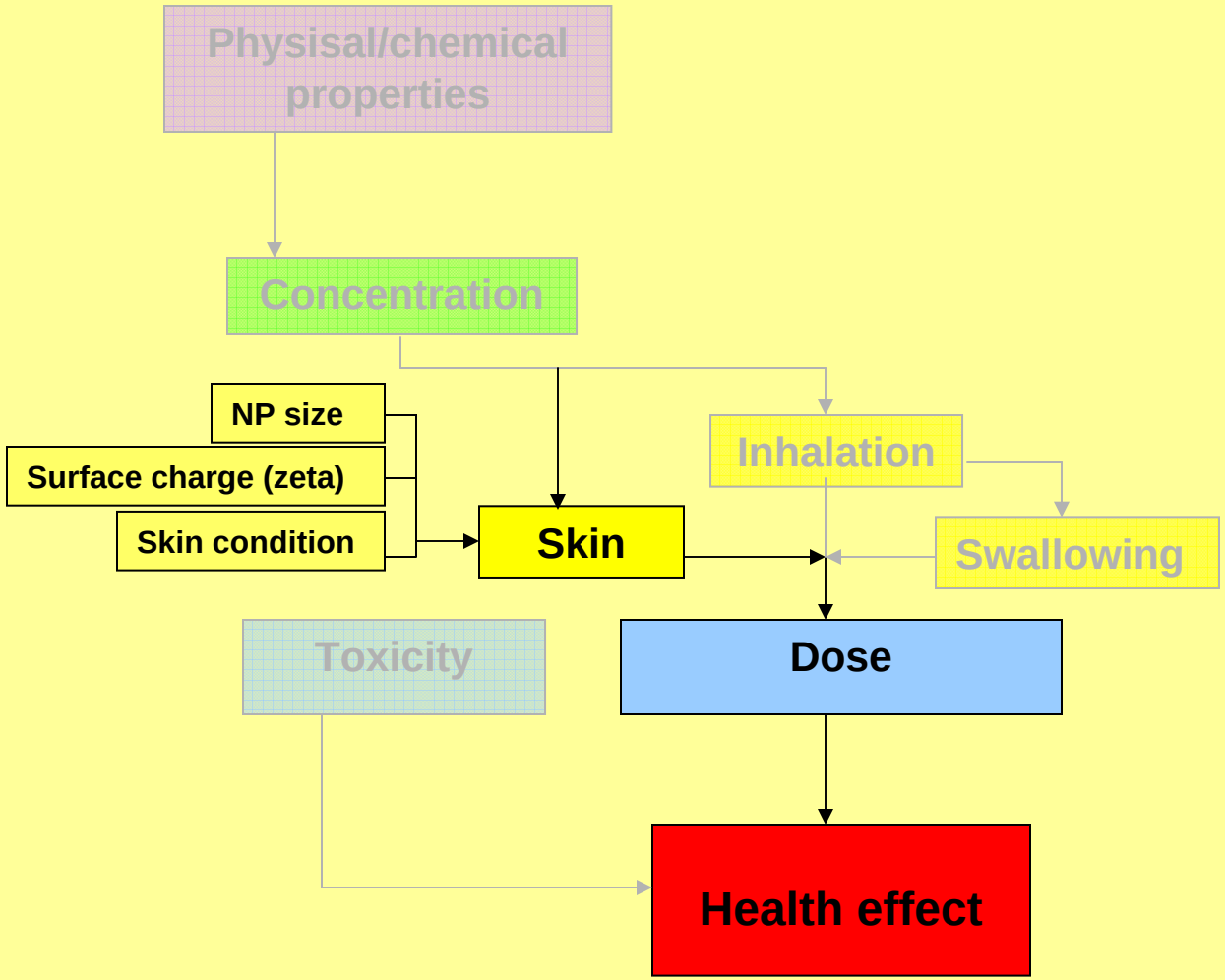
Airborn behaviour of Nanoparticles



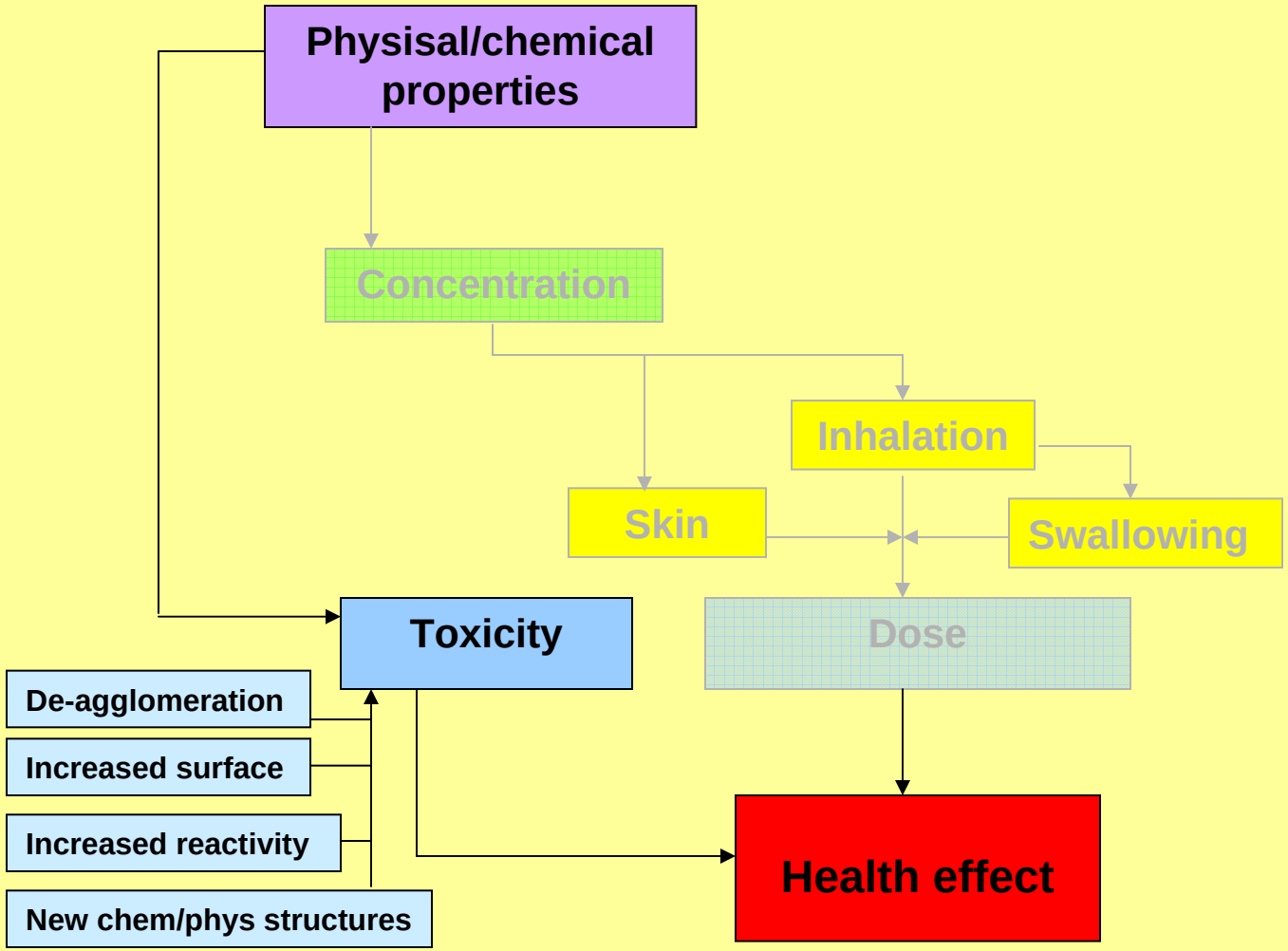
Uptake characteristics inhalation



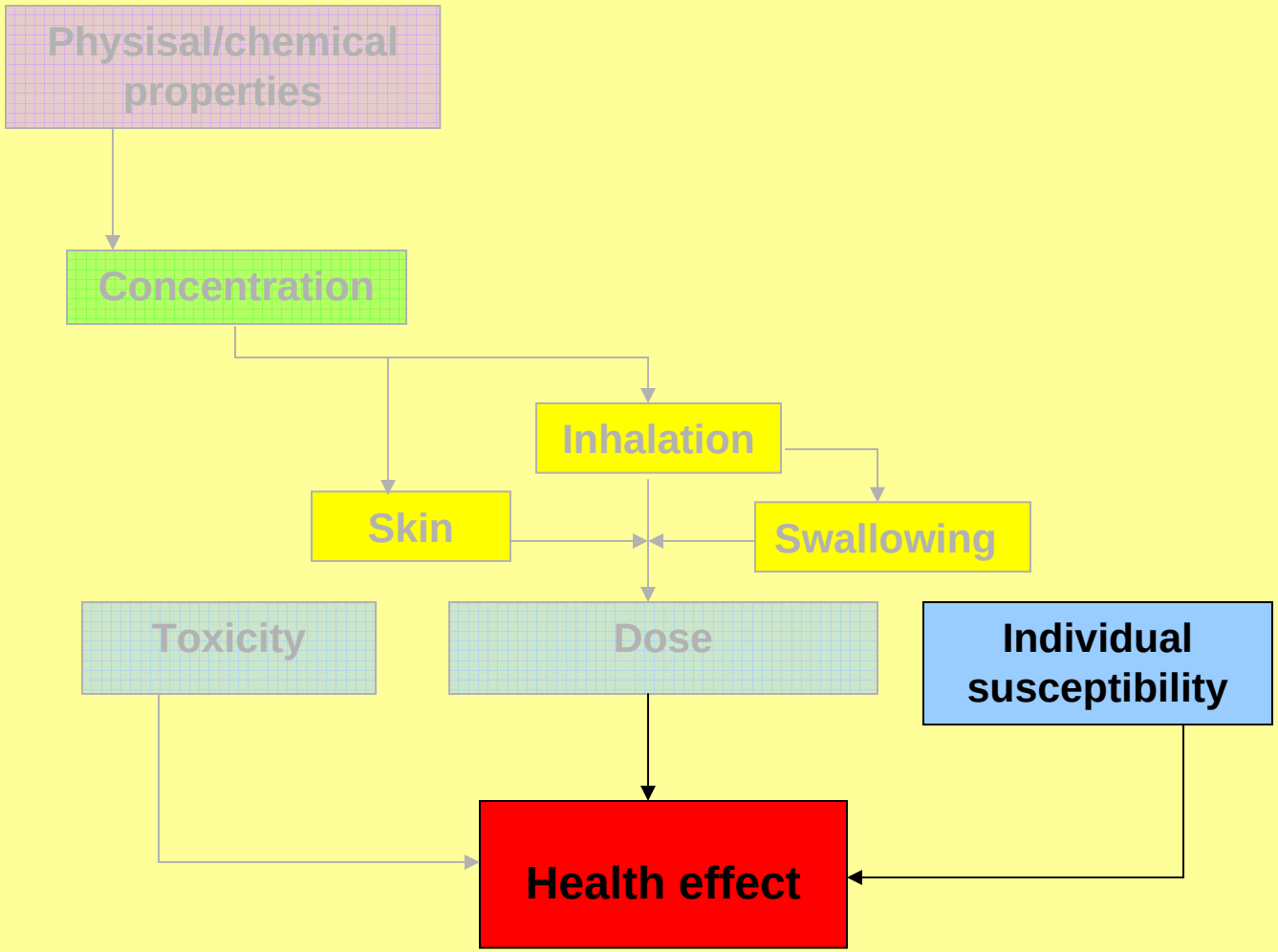
Uptake nano characteristics skin



Nano-influence on toxicity

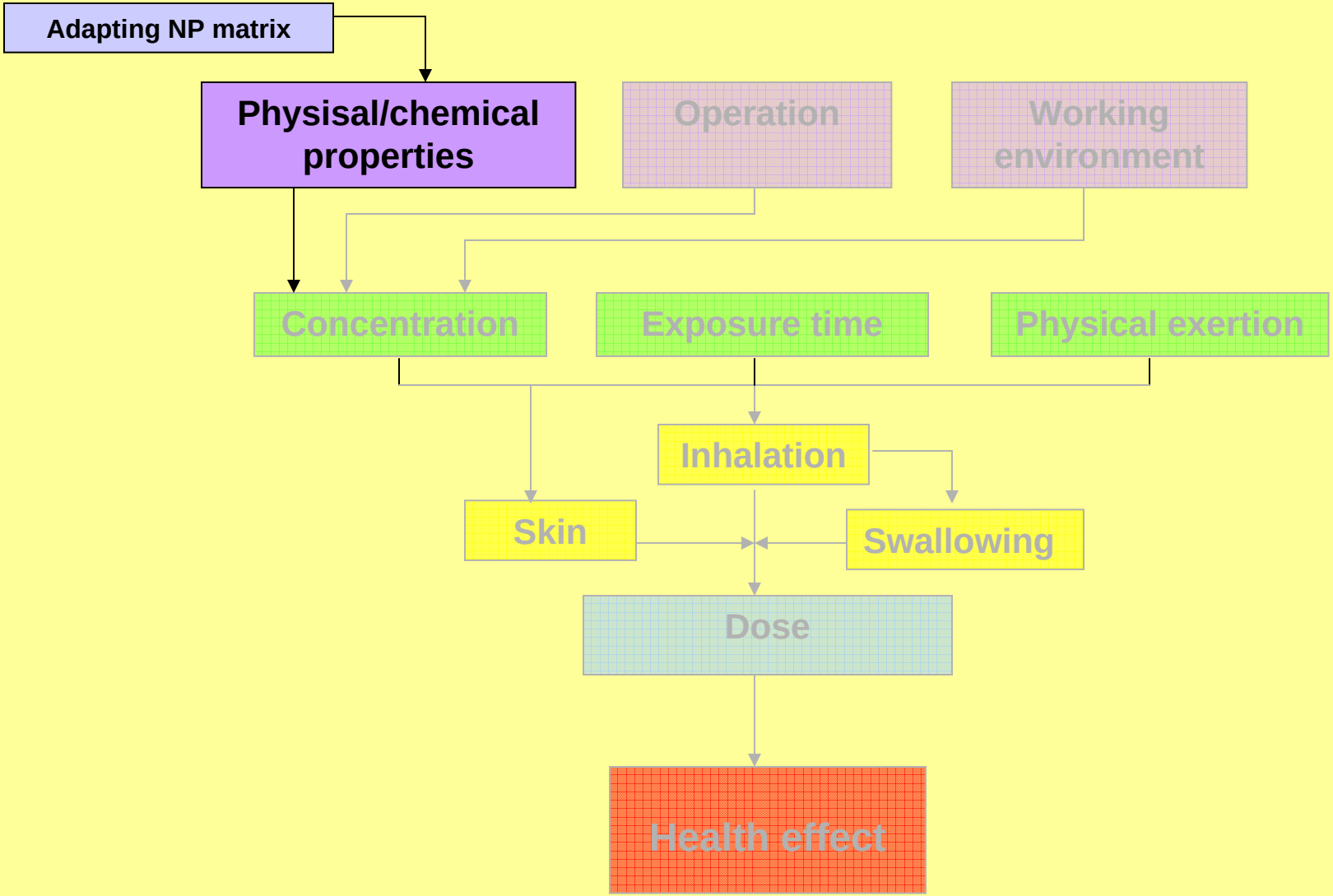


Individual differences



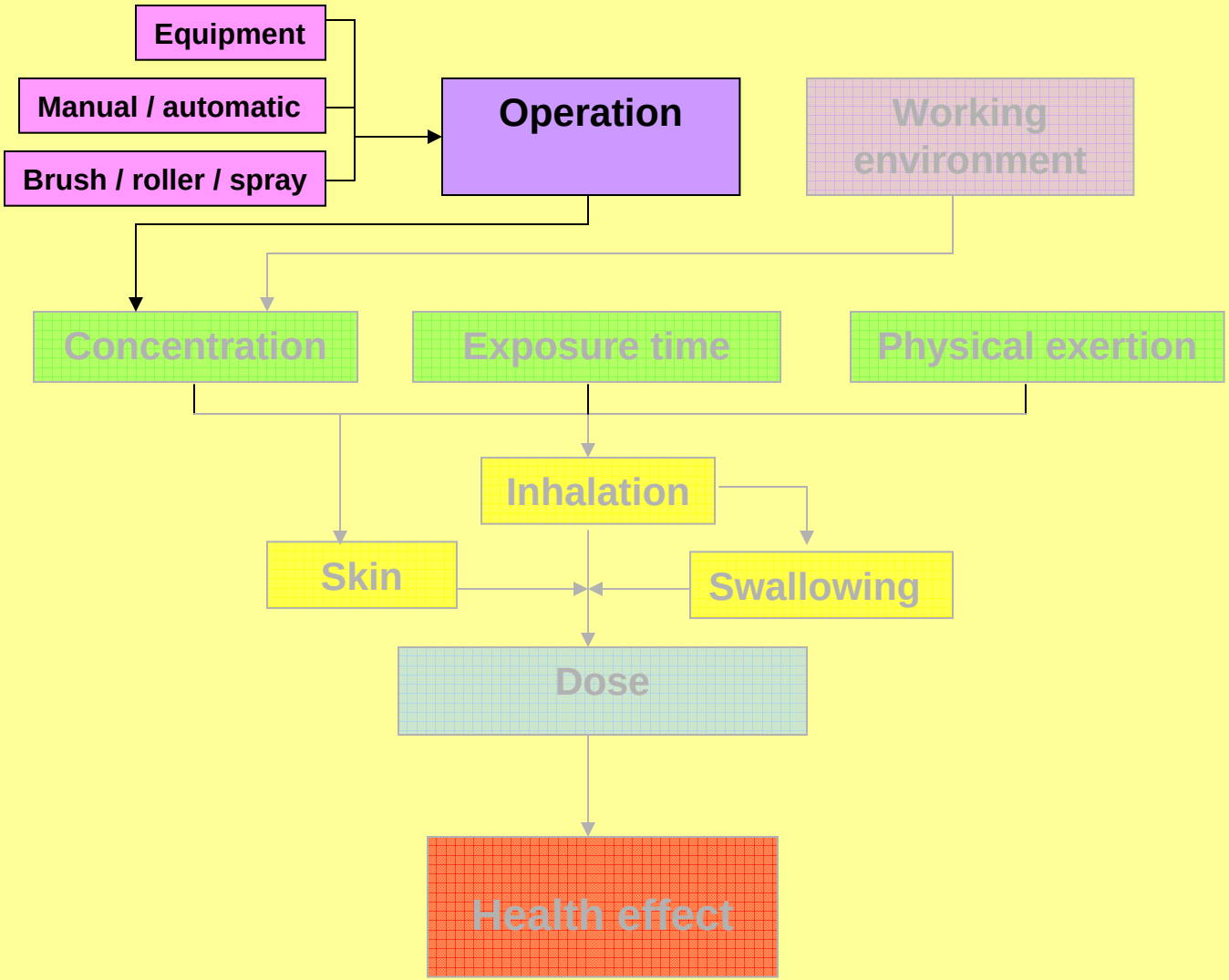
Precautionary approach → Taking measures

Controling exposure

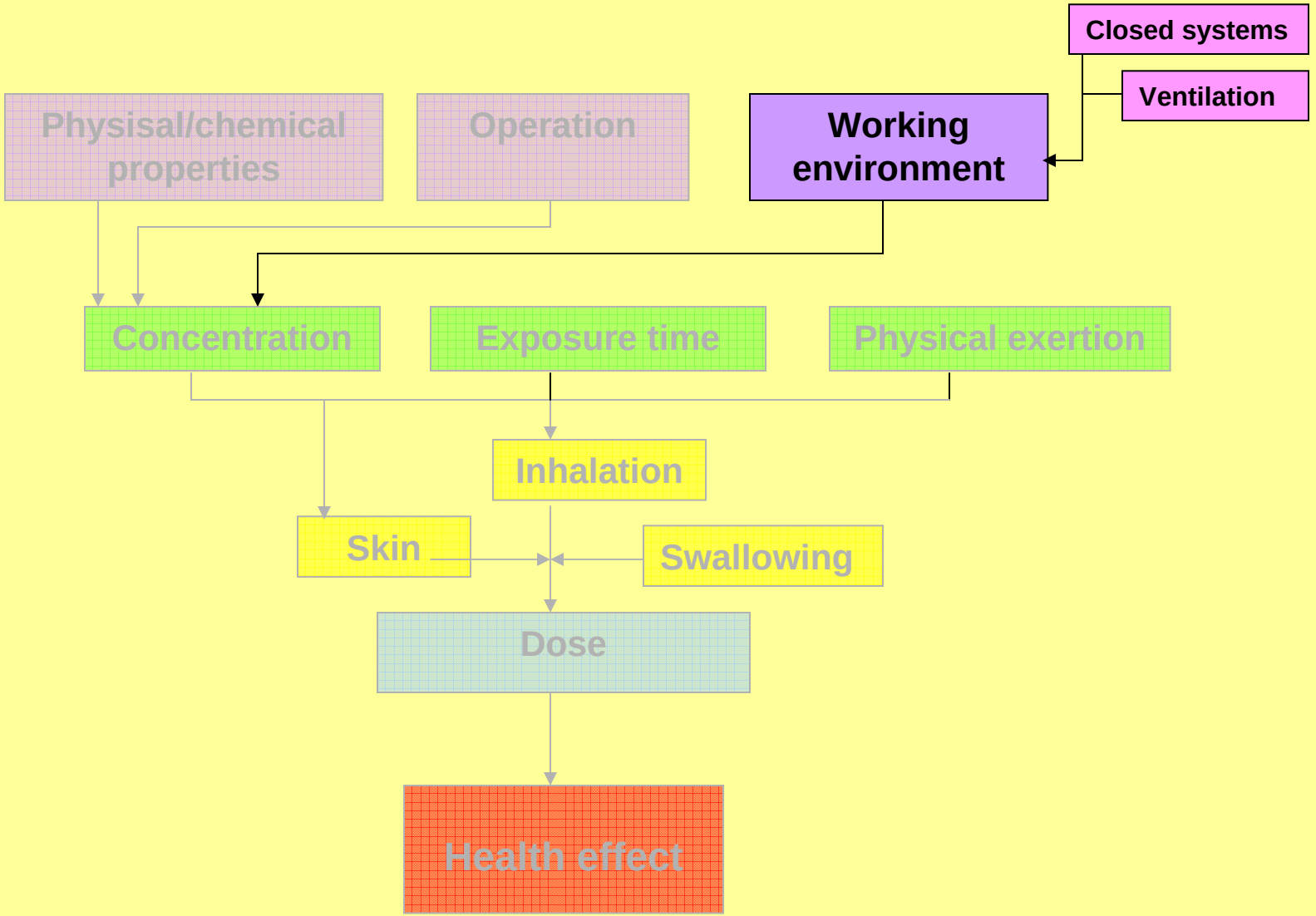


Precautionary approach → Taking measures

Controling exposure

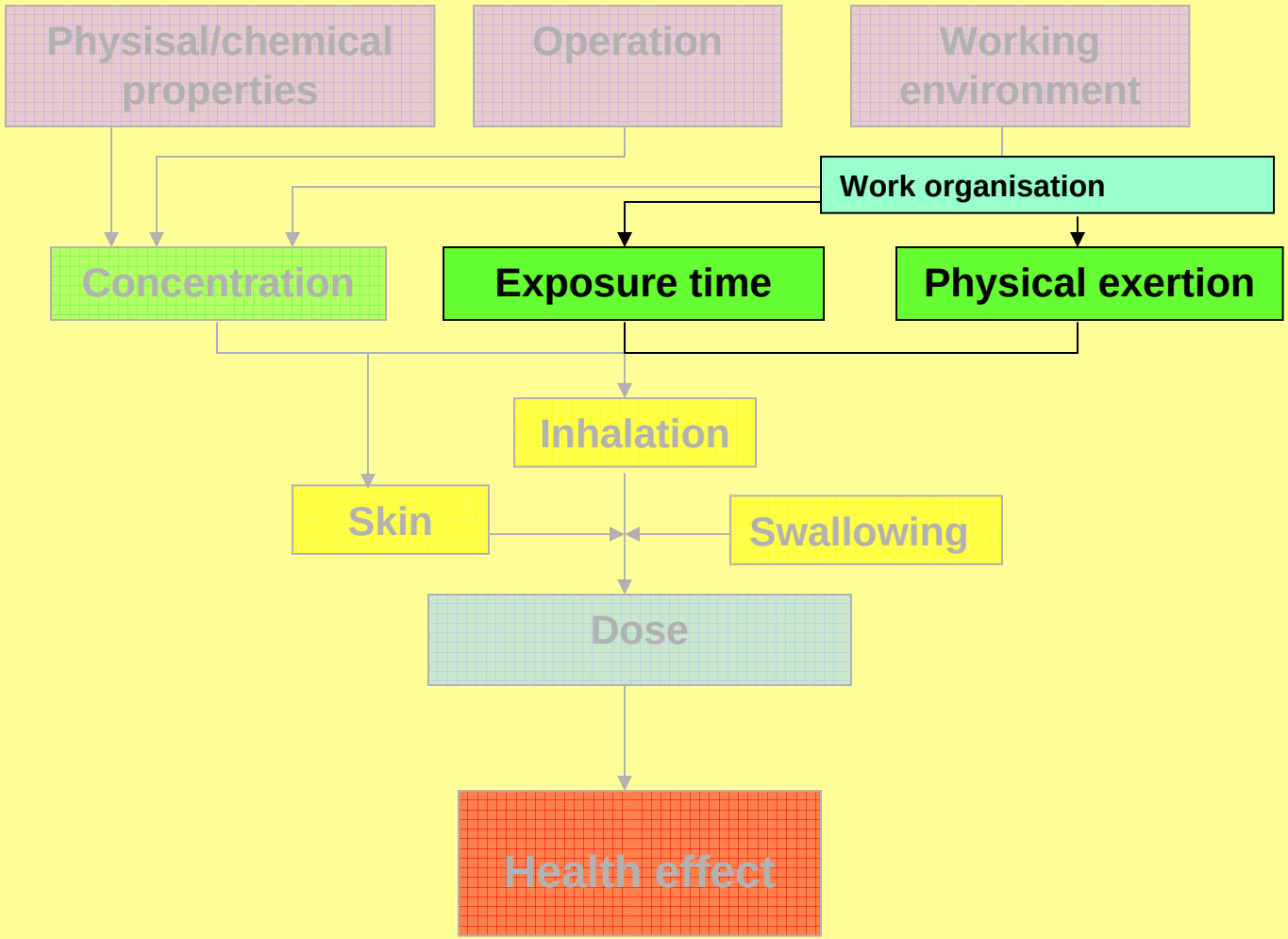


Precautionary approach → Taking measures
Controling exposure



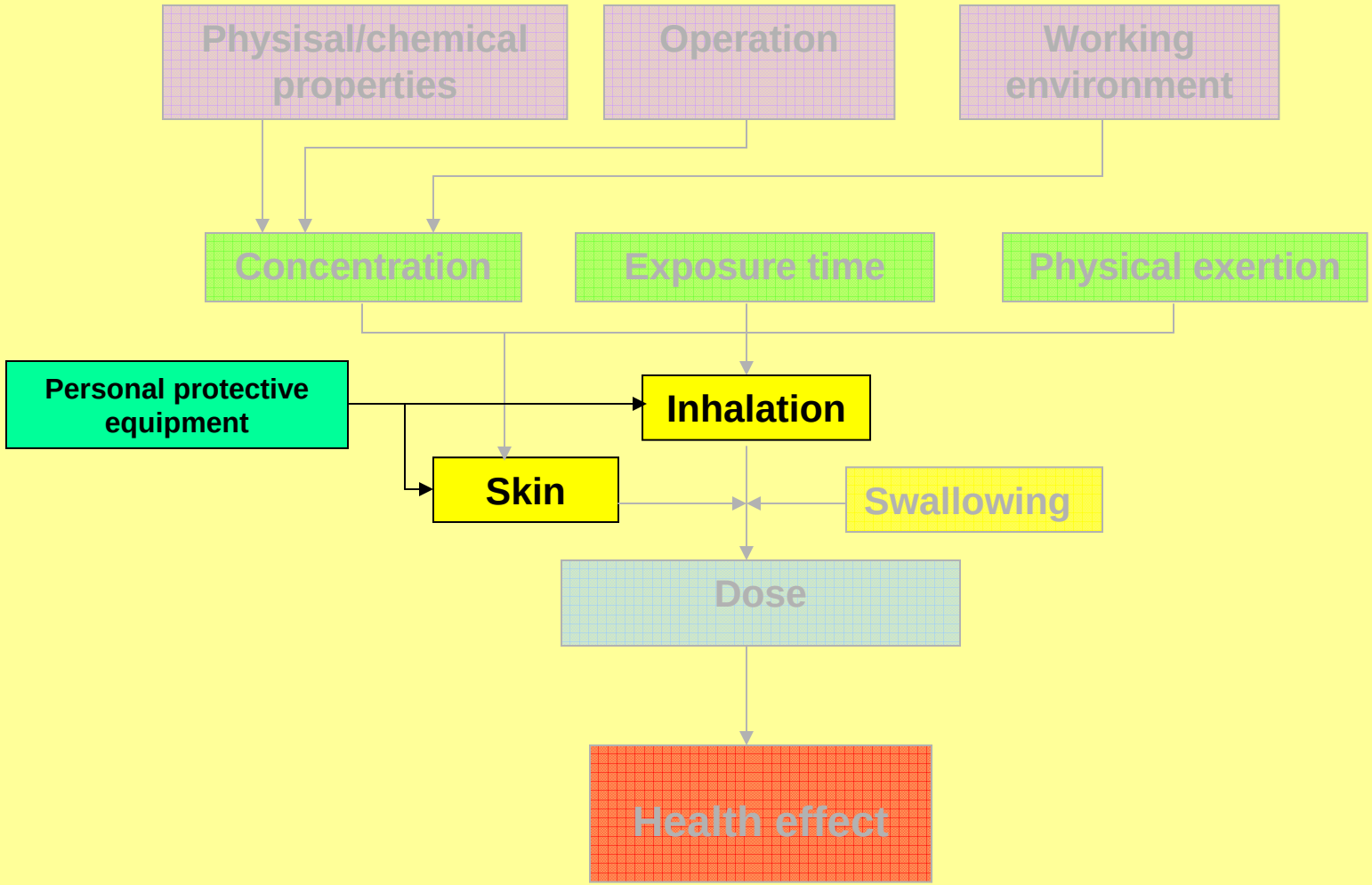
Precautionary approach → Taking measures

Varying working organisation



Precautionary approach → Taking measures

Last choice PPE



Workers' interests in nanotechnologies

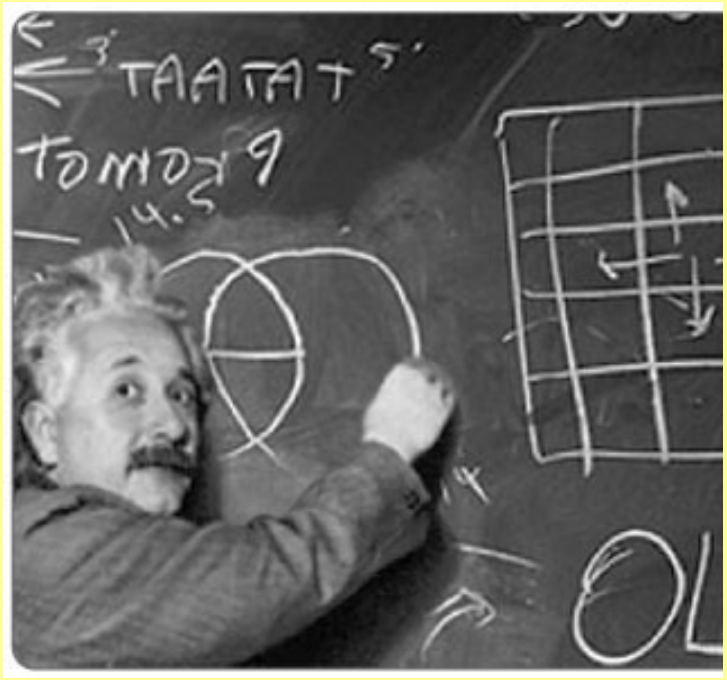
Safe Workplace

- Exposure control
  - Identify workers potentially exposed
- Full information on chemicals and products at the workplace
- Full information on lacking (eco)toxicological data
  - indication on SDS!
- Selection of low- / non-toxic chemicals (substitution)
- Involvement in risk assessment and risk management
- Involvement in exposure monitoring
- Nano-adapted occupational health surveillance
- Appropriate training

Workers' interests in nanotechnologies

Precautionary approach

- **Transparency on lacking data and knowledge**
  - Statement on SDS informing about lack of data
  - Introduction R-phrase stating "insufficient knowledge to determine risks"
  - No data → no exposure



- **Formalise the role of**:
  - ***Workers' representatives*** in design and monitoring of a safe workplace
  - ***Labour Inspectorate*** in control and enforcement of compliance with the "voluntary" agreements made in Code of Conducts.

Workers' interests in nanotechnologies

Compliance with legislation

- **Full compliance with REACH:**
  - Most "popular" NPs can be considered as existing substances, "only the size is special"
  - Therefore substances with production volumes >10 tpa
    → **Chemical Safety Report** (CSR) *for intended use* …. also for the use as NP!!

- **Demand:**
  - CSR obligatory for *all* substances used at nanoscale (also those <10 tpa)
  - DNEL for *all* substances used at the nanoscale (also those <10 tpa)

- *No data → no market*

Workers' interests in nanotechnologies

Responsible Nanotechnologies

- Complying with codes of conduct
  - EC CoC for responsible nanoscience and nanotechnology research and development
  - (UK-Industries') Responsible NanoCode
  - "Company specific CoC
  - Swiss retailers code of conduct IG DHS
- Production of safe nanoproducts
- Identify users potentially exposed
- Transparent ethical considerations concerning product design and development
- Don't over-emphasize the potential NT benefits

Workers' interests in nanotechnologies

Environmentally Compatible

- Identify nanotechnological activities
  - that may cause harm
    along the whole life cycle
  - *and* don't allow products at the market without proper environmental safety assessment containing or generating NP:
    - Toxic
    - Non-soluble
    - Badly biodegradable
    - Disperse use or disperse fate
- Don't allow non-sense nanoproducts at the market

Thank you for your attention

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