

OneHealth - Public Health and Environmental Assessments

Environmental Epidemiology (critical review of historical data and literature, cohort studies); *Environmental and Health Monitoring Plans*

Environmental Toxicology related to the Quality of Abiotic (air, water, soil, noise) and Biotic (flora and fauna) matrices, Emission Sources and Personal Exposure (related to occupational and civil exposure profiles): *Environmental Toxicology with Risk Assessments* (US. EPA-EU)

APPROACH
COMPUTATIONAL MODELING
in SILICO

Predictive evaluations of the concentration of pollutants in the environment derived from industrial and civil emission sources; in **AIR** also with Lagrangian particle models (Spray) at the mesoscale and local scale; in the **SOIL**, Subsoil and Groundwater (Pearl-Vulpes)

Predictive assessments of the "HAZARD" toxicological characteristics of all organic chemicals (emerging pollutants) with

ReadAcross-QSAR and modeling with **Specific software**
ANTARES-CALEIDOS-CAESAR-VEGA

(neural networks, fuzzy logic, genetic algorithms, classifiers, multivariate analysis, etc.)

Assessments of potential risk and health damage with approach
Toxicology

Environmental Quality and related **Toxicological Risk** for both **humans** and the **ecosystem** exposed to mixtures of organic and inorganic pollutants

(PPA, PCB, PCDD, PCDF, PFAS, PFOA, BTX, ALDEHYDES, VOCS, PESTICIDES, METALS, ASBESTOS, NITROGEN OXIDES, OZONE)

Qualitative and quantitative evaluation and classification with **INDICES:**

I.T.R.Q.A. – Merlin Expo-INTEGRA

Assessments of potential risk and health damage with an **epidemiological approach**

for the determination of the incidence on human diseases of exposure to particulate pollutants (PM10 PM2.5) gaseous (NO2) and physical (Noise)

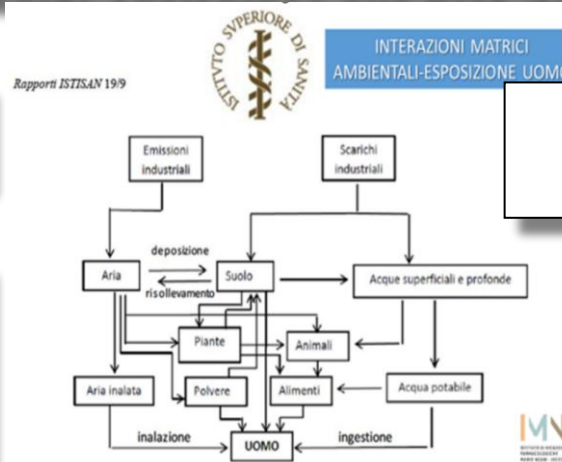


Figura 4. Collegamenti e interazioni tra le varie matrici ambientali e l'esposizione per l'uomo

REPORTI ISTISAN 199

ISTITUTO SUPERIORE DI SANITA'

INTERAZIONI MATRICI AMBIENTALI-ESPOSIZIONE UOMO

SERIE GENERALE
GAZZETTA UFFICIALE
DELLA REPUBBLICA ITALIANA
DECRETO 24 aprile 2013.
Disposizioni volte a stabilire i criteri metodologici utili per la redazione del rapporto di valutazione del danno sanitario (VDS) in attuazione dell'articolo 1-bis, comma 2, del decreto-legge 3 dicembre 2012, n. 207, convertito, con modificazioni, dalla legge 24 dicembre 2012, n. 231. (13A06975) Pag. 37

SERIE GENERALE
GAZZETTA UFFICIALE
DELLA REPUBBLICA ITALIANA
DECRETO 27 marzo 2019.
Linee guida per la valutazione di impatto sanitario (VIS).

MANUALE E LINEE GUIDA

IL RIFERIMENTO NORMATIVO
Linee Guida per la Valutazione di Impatto Sanitario
Decreto Legislativo del 16 giugno 2017 n. 154
Dipartimento Ambiente e Salute
Istituto Superiore di Sanita'
19 dicembre 2018

The WG elaborates the final considerations Taking into account the

VDSLGS VIASISPPA VIS ISS

APPROACH
EXPERIMENTAL DETERMINISTIC
BIOTIC matrix in VIVO in IN VITRO and
ABIOTIC matrix in water, air, soil

Evaluation of contamination in receptors exposed to mixtures of organic and inorganic pollutants using chemical analyses:
PPA, PCB, PCDD, PCDF, PFAS, PFOA, BTX, ALDEHYDES, VOCS, PESTICIDES, METALS, ASBESTOS, NITROGEN OXIDES, OZONE

Evaluation of ecotoxicological damage in receptors using monitoring with model organisms:

Terrestrial: Phyto (Watercress, Sorghum, Cucumber) – Earthworm (Eisenia andrei) – Verme (Celegans)- Ameba (Dictyostelium) Rodents (mouse and rat)

Aquatic: Bacteria (Vibrio fischeri) Algae (Pseudokirchneriella sub capitata) -Crustaceans (Daphnia Magna - Thamnocephalus platyurus)

Atmosphere: Bee (apis mellifera)

Evaluations of toxicological effects for humans inferred from personal biological monitoring with non-invasive techniques: (blood, urine, saliva, hair, exhaled) and with the help of "omics" studies

Toxic Effects Assessments (disambiguation) by **Carcinogeni** of pollutants on humans, using human cell models of the Respiratory System, Hepatic, blood, neuronal (static and dynamic 2D and 3D models)