Update on the 14\textsuperscript{th} Report on Carcinogens (RoC)

Ruth Lunn, DrPH  
National Institute of Environmental Health Sciences

NTP Board of Scientific Counselors  
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The Report on Carcinogens (RoC) is congressionally mandated

• Public Health Service Act, Section 301(b)(4) (1978, amended 1993).
  – Directs Secretary, Health and Human Services (HHS) to publish a list of carcinogens.
  – Lists substances as “known” or “reasonably anticipated human carcinogens.”
  – U.S. exposure to listed substances

• National Toxicology Program (NTP) prepares the RoC for the Secretary, HHS using a four-part formal process and established listing criteria.

• Each edition of the report is cumulative.

http://ntp.niehs.nih.gov/go/roc
The 14th Report on Carcinogens was released on 11/3/2016

- 248 listings; 7 newly reviewed
  - An industrial solvent
  - A metal and its compounds
  - 5 Viruses

- Media interest
  - Reported by 170 media outlets
Trichloroethylene

- Industrial solvent best known for its use as a metal degreaser; mainly used today for synthesis of hydrofluorocarbon refrigerant
- Environmental contaminant; e.g., Superfund sites and Camp Lejeune
- Known to be a human carcinogen
  - linked to kidney cancer and possibly non-Hodgkin lymphoma
- EPA (TSCA) has proposed to ban certain uses

Cobalt and cobalt compounds that release cobalt in vivo

- Naturally occurring metallic element that exists in different forms
- Used to make alloys for industrial, medical, and military purposes; cemented carbides; as pigments; and for electronics and green energy
- Reasonably anticipated to be a human carcinogen
Epstein-Barr virus (EBV)
- Herpesvirus that causes infectious mononucleosis
- Infects 9 of 10 people worldwide; transmitted via saliva
- Linked to 6 types of cancer in humans: 4 types of lymphoma, nasopharyngeal and gastric cancer
- Development of a vaccine is ongoing and could have a substantial impact on global burden of cancer
  - 200,000 EBV associated cases of cancer/year

Kaposi sarcoma-associated herpesvirus (KSHV)
- Herpesvirus usually causing asymptomatic infections
- Highest prevalence in some parts of Africa and among HIV infected people
- Transmitted via saliva and from mother to child
- Risk factors for infection: unprotected sex (MSM); infected family members
- Linked to Kaposi sarcoma and two types of lymphoma in humans

MSM = men who have sex with men
14th Report on Carcinogens

Viruses: Each listed as known to be a human carcinogen

**Human immunodeficiency virus, type-1 (HIV-1)**
- Retrovirus that causes AIDS
- Transmitted via blood and body fluids; 1.2 million people infected
- Vulnerable populations include MSM, people who inject drugs, female sex workers, and infants in Sub-Saharan Africa
- Linked (or potentially linked) to 12 types of cancers

**Human T-cell lymphototropic virus, type-1 (HTLV-1)**
- Retrovirus that is usually asymptomatic
- Transmitted via body fluids and blood
- Risk factors: breast feeding, unprotected sex, needle sharing
- Linked to adult T-cell leukemia/lymphoma

**Merkel cell polyomavirus (MCV)**
- Polyomavirus discovered in 2008
- Common infection
- Route of transmission not clear but may be transmitted via skin shedding
- Linked to Merkel cell carcinoma
Shift work at night, light at night, and circadian disruption
- Selected for evaluation and monograph in preparation

Haloacetic acids (HAAs) found in drinking water
- 13 individual HAAs or potential class or subclass
- Selected for evaluation and monograph in preparation

H. pylori
- Gram negative, multi-flagellated bacterium
- Selected for evaluation and monograph in preparation

Antimony trioxide
- Proposed for evaluation
Claroifications and adjustments

Process for the Preparation of the RoC

Select substances for evaluation
- Invite nominations
- Conduct scoping and problem formulation activities
  - Scientific and/or public input as needed
- Develop draft concepts
  - Public comment
  - NTP BSC review (public meeting & comment)
  - NTP Director
- Finalize concepts and select substances for review

Prepare draft RoC monographs
- Develop protocol as needed
  - Scientific and/or public input as needed
- Develop draft RoC monograph
  - Interagency review of NTP listing recommendation

Peer review and finalize RoC monographs
- Release draft RoC monograph
  - Public comment
  - Peer review draft RoC monograph
  - NTP Peer review panel* or letter review
  - Present summary of peer review; prepare revised draft RoC monograph
  - NTP BSC mtg.
  - Public mtg.
  - NTP Director
  - Finalize RoC monograph

Approve and release the RoC
- mit substances
  - NTP Executive Committee
  - roval of listing status
  - Secretary, HHS
  - lish and release RoC

Key
BSC = Board of Scientific Counselors
HHS = Health and Human Services
NTP = National Toxicology Program
RoC = Report on Carcinogens
* Federally chartered advisory groups
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