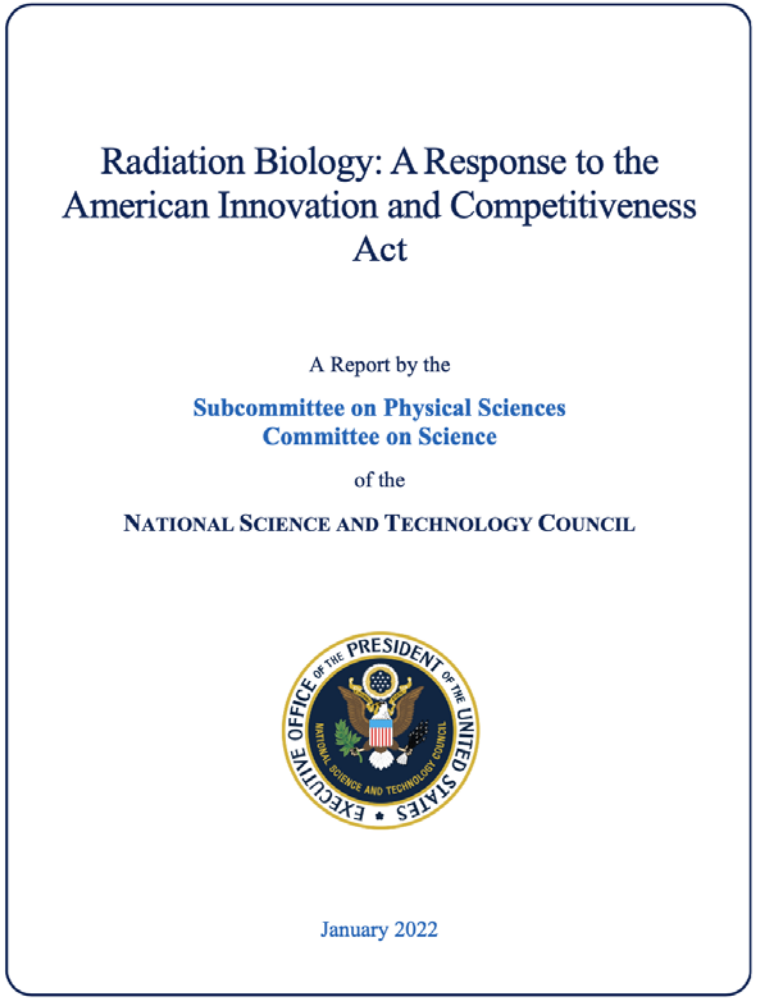


Dr. Kartik Sheth

White House Executive of the President
Office of Science & Technology Policy

Assistant Director for Research Infrastructures & Science Equity

Section 106, American Innovation & Competitiveness Act

(b) RADIATION BIOLOGY.—

(1) IN GENERAL.—The Subcommittee shall continue to coordinate Federal efforts related to radiation biology research to maximize the efficiency and effectiveness of United States investment in radiation biology.

(2) RESPONSIBILITIES FOR RADIATION BIOLOGY.—In regard to coordinating Federal efforts related to radiation biology research, the Subcommittee shall—

> **(A) advise and assist the National Science and Technology Council on policies and initiatives in radiation biology, including enhancing scientific knowledge of the effects of low dose radiation on biological systems to improve radiation risk management methods;**

Section 106, AICA continued…

(B) identify opportunities to stimulate international cooperation and leverage research and knowledge from sources outside of the United States;

(C) ensure coordination between the Department of Energy Office of Science, Foundation, National Aeronautics and Space Administration, National Institutes of Health, Environmental Protection Agency, Department of Defense, Nuclear Regulatory Commission, and Department of Homeland Security;

(D) identify ongoing scientific challenges for understanding the long-term effects of ionizing radiation on biological systems; and

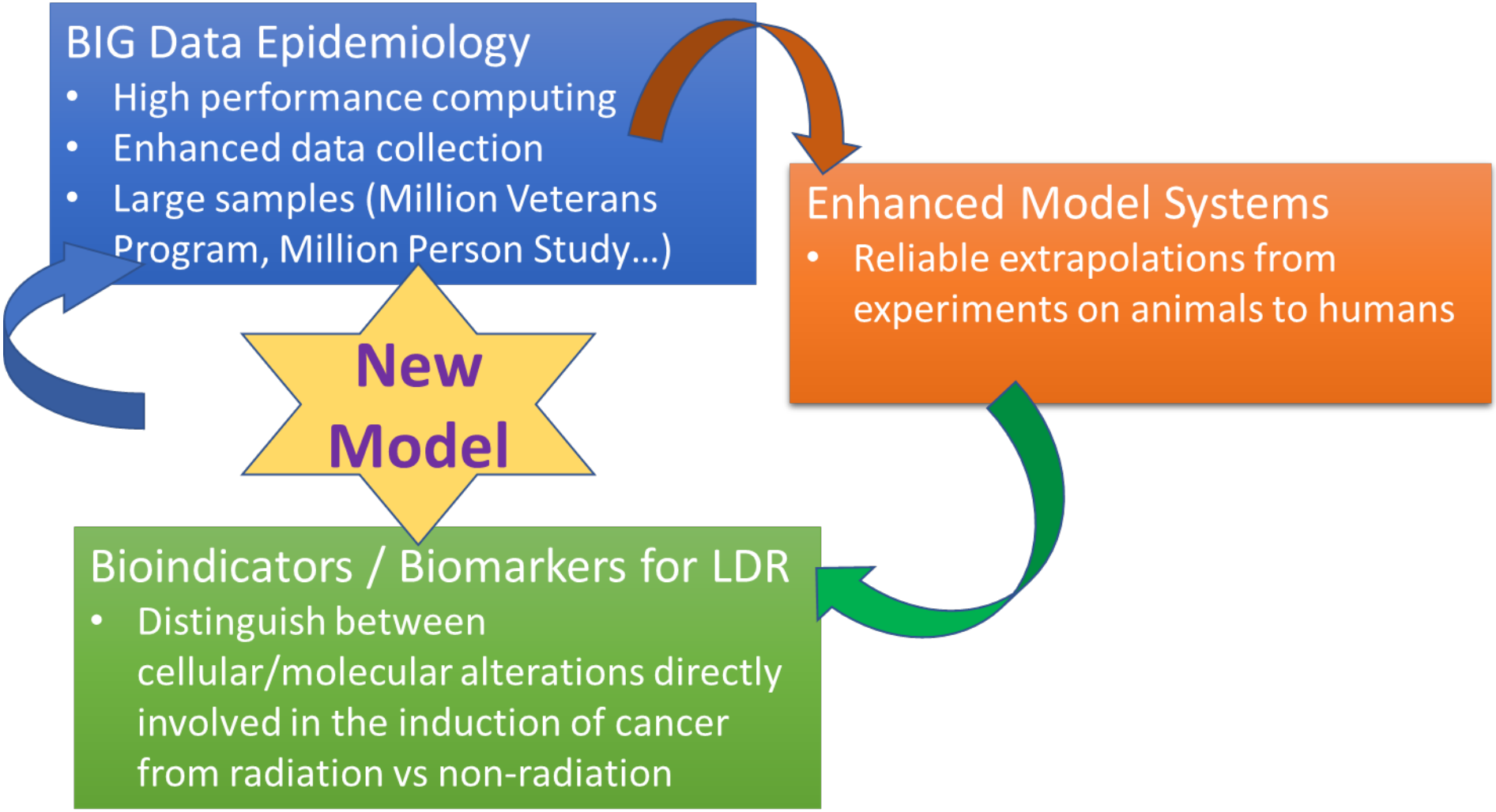
(E) formulate overall scientific goals for the future of low-dose radiation research in the United States.

Process for Preparing the Report

- Kickoff Meeting at EEOB on Jul 30, 2018 to respond to AICA
- Writing team assembled for writing a LDR report
- Membership of team: NIST (DOC), DOD, DOE, DHS, DHHS, OSHA (DOL), EPA, NASA, NRC
- Published after EOP approvals on the NSTC website on Jan 5, 2022

Executive Summary

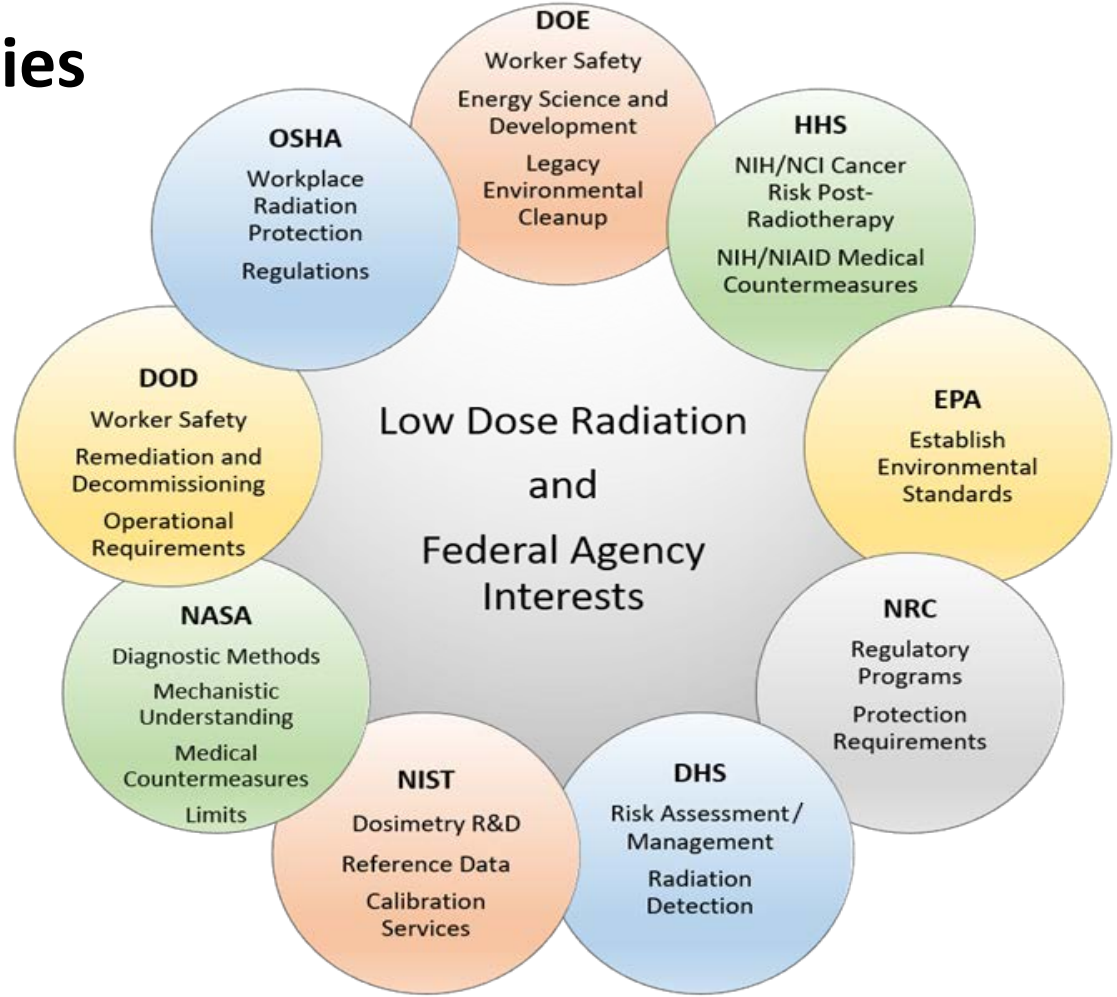
- **Risks from low-doses (< 100mGy) + low-dose rates of radiation (< 6 mGy/h) are not well-understood → leads to uncertainty in regulations for protection from radiation.**
- **New science / evidence-based model needed. One that will incorporate:**
  - **New methods for focused radiation exposure**
  - **Advanced genome-enabled biological techniques**
  - **Large epidemiological data sets with new computational approaches for analyzing large data sets**


BIG Data Epidemiology
• High performance computing
• Enhanced data collection
• Large samples (Million Veterans Program, Million Person Study…)
Enhanced Model Systems
• Reliable extrapolations from experiments on animals to humans
New Model
Bioindicators / Biomarkers for LDR
• Distinguish between cellular/molecular alterations directly involved in the induction of cancer from radiation vs non-radiation

Executive Summary

- Risks from low-doses (< 100mGy) + low-dose rates of radiation (< 6 mGy/h) are not well-understood → leads to uncertainty in regulations for protection from radiation.
- New science / evidence-based model needed. One that will incorporate:
  - New methods for focused radiation exposure
  - Advanced genome-enabled biological techniques
  - Large epidemiological data sets with new computational approaches for analyzing large data sets
- **Domestic + international coordination needed including a shared database**
- **Federal agencies need to coordinate via a new group that will**
  - **set priorities for low-dose radiation research**
  - **identify research gaps among agency programs and help guide research to address those gaps**
  - **serve as a vehicle for interagency communication of research results**

Stakeholder Agencies in LDR Research



Scope of Activities of New Group

- **Prioritize defining the threshold of impact for low-dose / low-dose rate.**
- **Perform research progress reviews and portfolio gap analyses.**
- **Investigate the creation of a web-based collaboration platform/portal for reproducible analyses, data, and research report sharing.**
- **Host an annual research forum to discuss on-going research.**
- **Update research priorities for federally funded low-dose research periodically.**
- **Address competing priorities and redundancies in research to improve efficiency of effort.**
- **Coordinate with national and international stakeholders.**
- **Encourage alignment of radiation protection regulations with up to date radiation biology findings and recommendations.**
- **Collaborate on best practices for implementation due to any changes in regulations.**
- **Innovate to build leadership teams and a workforce that reflects the diversity of America in terms of gender, race, ethnicity, geography, and other characteristics.**
- **Promote education and training opportunities that are equitable and inclusive in cultivating the next generation of radiation biologists, epidemiologists, statisticians and physicists.**
- **Strategize and implement creative measures to counter misinformation and disinformation about radiation science.**

Possible Next Steps & Synergy w/ Low Dose Group

- **The PSSC is in the process of establishing the IWG**
- **Once the IWG is established, we will establish the workstream, milestones and timeline based on the recommendations from the LDR report.**

- **We would like to ensure that we are not duplicating work between our efforts.**
- **We are open to best ways to communicate between NAS group and the expected IWG**