Radiation Exposure: Diagnose and Manage Acute Radiation Syndrome (ARS)

Evaluate for Acute Radiation Syndrome (ARS)
- What is ARS?
- ARS synonyms: Acute Radiation Syndrome, Acute Radiation Sickness
- Is ARS the result of a radiological or nuclear incident?
- More about ARS

Look for Signs of ARS
- Perform targeted physical examination

Estimate Dose from Exposure

Use Any Clinical Data Available (Interactive Tools)
- Lymphocyte depletion kinetics
- Time to onset of vomiting
- Prodromal symptoms
- Chromosome analysis (dicentrics)

Dose Reconstruction by Patient Location
- Match patient location to exposure map

Begin Assessment & Management
- Assess/Manage 4 sub-syndromes of ARS:
  - Hematopoietic, gastrointestinal, cutaneous, neurovascular
- Does patient need outpatient or inpatient management? (Response category tool)
- Plan for evolution of ARS over time
- Expect heterogeneity of signs/symptoms
- Consider using template for hospital orders

Special Issues
- Manage ARS with scarce resources (e.g., after nuclear detonation)
- Consider cytokine treatment for those acutely exposed to myelosuppressive doses of radiation (H-ARS), especially if dose > 2 gray
- Consider multi-organ dysfunction and multi-organ failure syndromes of ARS
- Consider hematopoietic stem cell transplant for severe ARS

Deceased
- Decedents with exposure only and no contamination require no special radiation precautions
- Register decedent in incident database

Survivors
- Discharge with appropriate follow-up instructions
- Register patient in incident database
- Radiation follow-up considerations:
  - Whole-body dose
  - Immune status
  - Risk of cancer
  - Risk of specific organ dysfunction
  - Any future risks from external or internal contamination

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