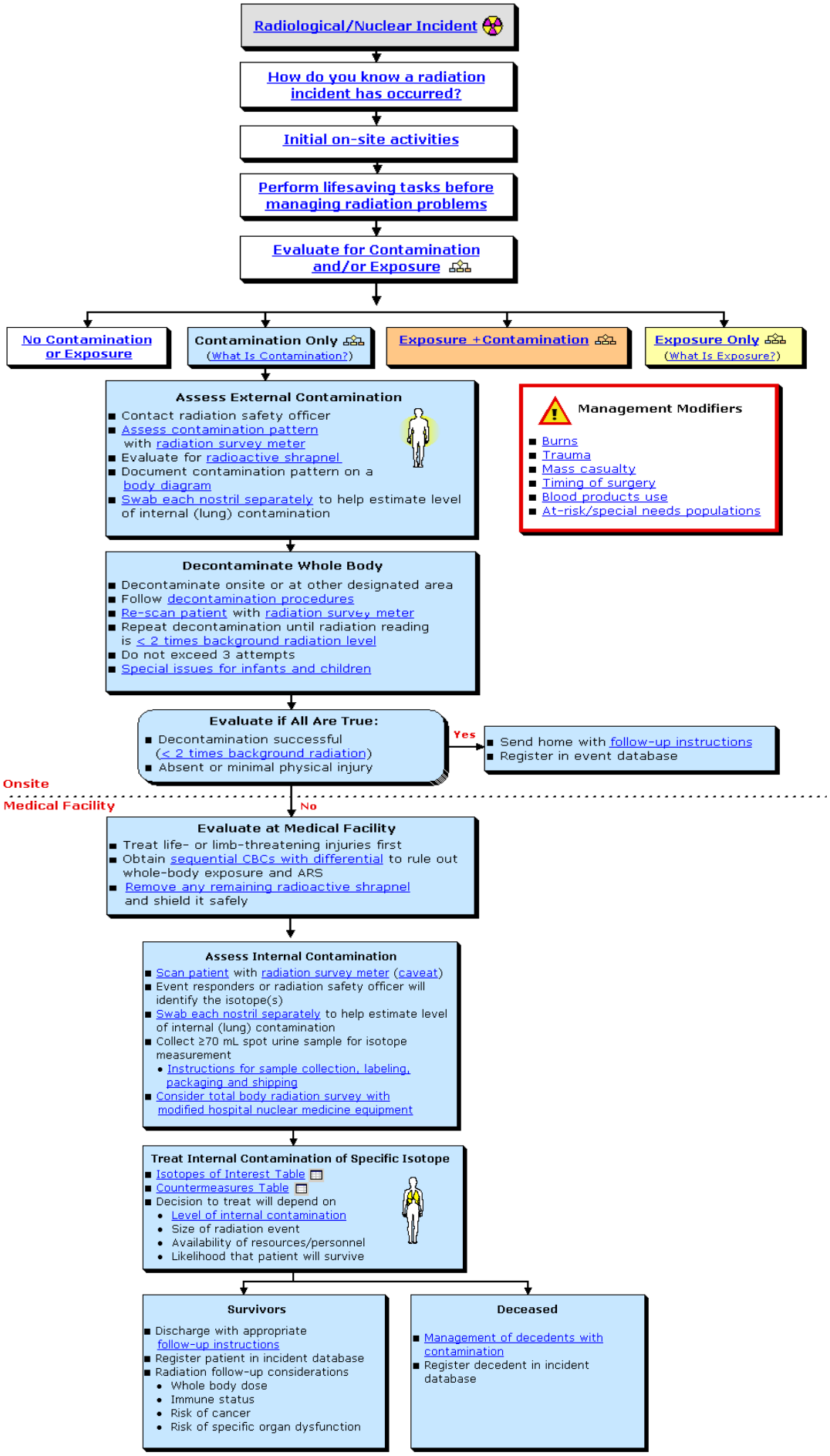
Radiological/Nuclear Incident
How do you know a radiation incident has occurred?
Initial on-site activities
Perform lifesaving tasks before managing radiation problems
Evaluate for Contamination and/or Exposure
No Contamination or Exposure
Contamination Only
(What Is Contamination?)
Exposure +Contamination
Exposure Only
(What Is Exposure?)
Assess External Contamination
Contact radiation safety officer
Assess contamination pattern with radiation survey meter
Evaluate for radioactive shrapnel
Document contamination pattern on a body diagram
Swab each nostril separately to help estimate level of internal (lung) contamination
Management Modifiers
Burns
Trauma
Mass casualty
Timing of surgery
Blood products use
At-risk/special needs populations
Decontaminate Whole Body
Decontaminate onsite or at other designated area
Follow decontamination procedures
Re-scan patient with radiation survey meter
Repeat decontamination until radiation reading is < 2 times background radiation level
Do not exceed 3 attempts
Special issues for infants and children
Evaluate if All Are True:
Decontamination successful (< 2 times background radiation)
Absent or minimal physical injury
Yes
Send home with follow-up instructions
Register in event database
Onsite
Medical Facility
No
Evaluate at Medical Facility
Treat life- or limb-threatening injuries first
Obtain sequential CBCs with differential to rule out whole-body exposure and ARS
Remove any remaining radioactive shrapnel and shield it safely
Assess Internal Contamination
Scan patient with radiation survey meter (caveat)
Event responders or radiation safety officer will identify the isotope(s)
Swab each nostril separately to help estimate level of internal (lung) contamination
Collect ≥70 mL spot urine sample for isotope measurement
Instructions for sample collection, labeling, packaging and shipping
Consider total body radiation survey with modified hospital nuclear medicine equipment
Treat Internal Contamination of Specific Isotope
Isotopes of Interest Table
Countermeasures Table
Decision to treat will depend on
Level of internal contamination
Size of radiation event
Availability of resources/personnel
Likelihood that patient will survive
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
Deceased
Management of decedents with contamination
Register decedent in incident database
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