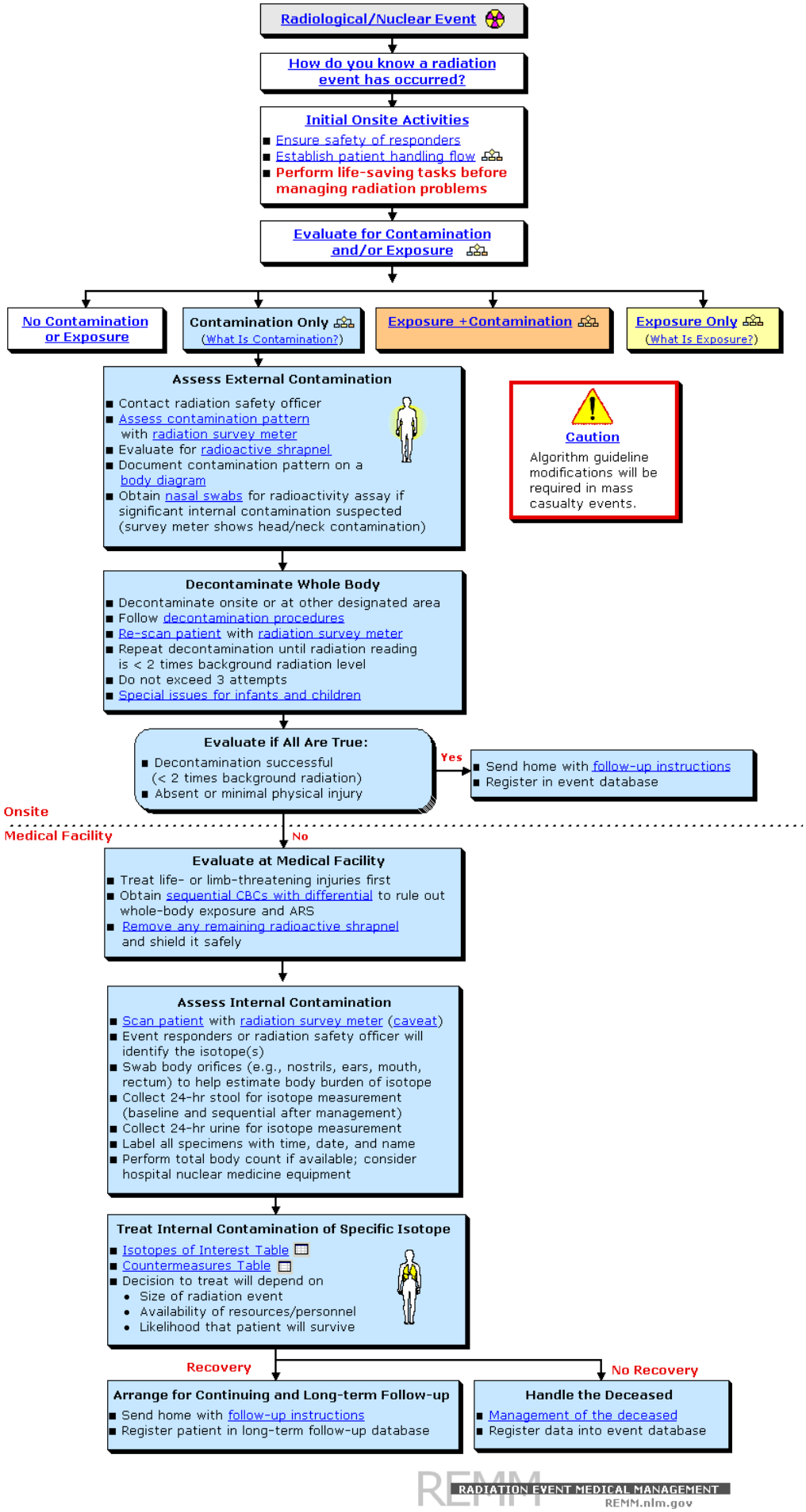
Radiological/Nuclear Event
How do you know a radiation event has occurred?
Initial Onsite Activities
Ensure safety of responders
Establish patient handling flow
Perform life-saving tasks before managing radiation problems
Evaluate for Contamination and/or Exposure
No Contamination or Exposure
Contamination 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
Obtain nasal swabs for radioactivity assay if significant internal contamination suspected (survey meter shows head/neck contamination)
Caution
Algorithm guideline modifications will be required in mass casualty events.
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 body orifices (e.g., nostrils, ears, mouth, rectum) to help estimate body burden of isotope
Collect 24-hr stool for isotope measurement (baseline and sequential after management)
Collect 24-hr urine for isotope measurement
Label all specimens with time, date, and name
Perform total body count if available; consider hospital nuclear medicine equipment
Treat Internal Contamination of Specific Isotope
Isotopes of Interest Table
Countermeasures Table
Decision to treat will depend on
Size of radiation event
Availability of resources/personnel
Likelihood that patient will survive
Recovery
No Recovery
Arrange for Continuing and Long-term Follow-up
Send home with follow-up instructions
Register patient in long-term follow-up database
Handle the Deceased
Management of the deceased
Register data into event database
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RADIATION EVENT MEDICAL MANAGEMENT
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