

**Numbers and Types of Casualties from Computer Modeling of  
Various Nuclear Detonation Scenarios: for Medical Resource Planning Only\***

Injury Type	Severity of Injury	Ground burst			Air burst			Composite burst		
		50 <sup>th</sup> % tile <sup>¶</sup>	85 <sup>th</sup> % tile	95 <sup>th</sup> % tile	50 <sup>th</sup> % tile	85 <sup>th</sup> % tile	95 <sup>th</sup> % tile	50 <sup>th</sup> % tile	85 <sup>th</sup> % tile	95 <sup>th</sup> % tile
Trauma (using ISS <sup>°</sup> value)	Mild (1-9)	18,000	53,000	79,000	28,000	48,000	89,000	20,000	53,000	80,000
	Moderate (10-14)	34,000	119,000	121,000	36,000	80,000	132,000	34,000	118,000	121,000
	Severe (> 15)	14,000	62,000	143,000	18,000	75,000	109,000	14,000	63,000	143,000
Burn (% of TBSA with partial- to full-thickness burn)	Mild (5-10)	0	0	0	0	0	0	0	0	0
	Moderate (10-30)	0	0	60	0	1000	3,000	0	0	1,000
	Severe (> 30)	0	0	0	0	0	0	0	0	0
Radiation dose (cGy)	Mild (75-150)	5,000	32,000	91,000	2,000	8,000	13,000	4,000	23,000	72,000
	Moderate (150-530)	7,000	29,000	51,000	1,000	12,000	20,000	6,000	25,000	41,000
	Severe (> 530-830)	3,000	9,000	12,000	200	3,000	5,000	3,000	6,000	12,000
	Expectant (> 830)	10,000	28,000	47,000	80	5,000	10,000	5,000	16,000	47,000
Combined injury	Trauma and/or burn (mild → severe) AND > 150 cGy	3,000	20,000	44,000	300	18,000	49,000	2,000	20,000	45,000

\*Adapted from Knebel AR, Coleman CN, Cliffer KD, Murrain-Hill P, McNally R, Oancea V, Jacobs J, Buddemeier B, Hick J, Weinstock D, Hrdina CM, Taylor T, Matzo M, Bader JL, Livinski A, Parker G, Yeskey K. Allocation of Scarce Resources Following a Nuclear Detonation: Setting the Context. Disaster Med Public Health Prep. 2011 Mar; (5) Suppl 1: S20-31.

<sup>¶</sup>% tile: the % of all 185 nuclear detonation scenarios modeled that would have up to this many victims.

<sup>°</sup>ISS: Injury Severity Score, a numerical score assigned to victims based on the type and severity of physical injury; there have been various iterations of the systems; see Stevenson M, Segui-Gomez M, Lescohier I, DiScala C, McDonald-Smith G, An overview of the injury severity score and the new injury severity score, Injury Prevention 2001; 1(7):10-13.

**TBSA:** total body surface area

**Important caveats about this table:**

[Casualty data were generated expressly for the "Scarce Resources for a Nuclear Detonation Project"](#)

- Do not represent comprehensive modeling for all potential consequences of a nuclear detonation.
- Do not represent data for any specific city
- Represent only a general order of magnitude useful for medical resource planning considerations, and not for specific city planning.
- Represent US government interagency computer modeling and calculations of 185 distinct nuclear detonation scenarios using many parameters including
  - Nuclear detonation yields (0.1-10 kT)
  - Heights of burst (ground and air)
  - Weather conditions
  - US cities