Bombing attacks against civilians have become the primary weapon of terror groups worldwide, and they are likely to remain the primary instrument of terrorism because bombs are easily and inexpensively manufactured, are simple to activate, and require no more than a motivated and determined perpetrator. The explosive can be of military, commercial, or homemade origin. Metal particles of various shapes are often added to the explosive to increase its wounding potential; steel balls, nails, nuts, and the like are the most commonly used. The explosive is detonated by an electrical charge activated remotely or through a switch operated by a suicide bomber. Especially, the new bomb compositions containing metal objects and the use of suicide bombers have characterized the terror attacks in Israel.

The typical suicide bomber carries a vest of explosives around the torso with a typical charge of 5–12 kg of TNT-equivalent. Detonation results in fatal consequences to the bomber, and the damage to people and property in the immediate vicinity of the detonation is often devastating, especially when the explosion occurs in a confined space. Suicide bombers are trained to seek circumstances where the damage can be maximized, and target mass gathering sites such as public buses and bus stations, wedding halls, hotel dining rooms, restaurants, open markets, supermarkets, and discotheques.

During a time period from September 2000 to December 2003 in Israel, a total of 19,948 terrorist incidents were reported; most victims were injured in explosions resulting from suicide bombers. During a 3-year period in Jerusalem district only, 28 terror-related multiple casualty incidents occurred with a total of 2,328 victims and 273 deaths, with an overall fatality rate of 11.7%.

In a retrospective analysis of a number of incidents, injuries, and deaths because of explosive, incendiary, premature, and attempted bombing in the United States from 1983 through 2002, a total of 36,110 bombing incidents, 5,931 injuries, and 699 deaths were reported. Fifty-nine percent were explosive bombings, 17% incendiary bombings, 3% premature bombings, and 21% attempted bombings. In bombings with known materials, nitrate-based fertilizers accounted for 36% of injuries and 30% of deaths, and smokeless powder and black powder for 33% of injuries and 27% of deaths, respectively.
Another characteristic, experienced in London and Madrid, is the occurrence of simultaneous multiple attacks targeting the transport system, which can pose a serious challenge to a medical system.  

**Terrorist Bombings**

*How Terrorist Bombings Differ from Other Explosion Incidents*

Although maximizing the number of casualties might be the main aim of the terrorist bomber, other motifs, such as intimidation, coercion, spreading of fear, creating panic in the public, and gaining wide media attention, could determine the way the bombing is planned. In addition to the magnitude and location of explosion, other factors that can influence the effect of the bomb have to be taken into account when planning a medical response to a terrorist bomb explosion.

The use of *spherical metal pellets* propelled by the explosion increase the severity of injuries, and the possibility of this type of penetrating injury, even in patients remote from the origin, should be kept in mind. Medical teams assessing and treating terrorist bomb victims should be trained to recognize these injuries.  

*Dirty bomb* is a mix of a conventional explosive with radioactive powder or pellets resulting in dispersion of radioactive material in the explosion plume. Although the major medical risk in a “dirty” bomb is blast injury caused by the conventional charge, the casualty profile of such a bomb will include a small group of casualties that may also be contaminated with radioactive material. This may require implementation of decontamination procedures either in the field or at the receiving hospital. There will also be a much larger group of “worried well,” presenting to the healthcare system for evaluation and decontamination, but only a small fraction of these patients will require decontamination.

The effects of a potential *second hit* (a second bomb designed to explode in the vicinity of the first bomb after a short time period to injure helpers and bystanders) must be minimized by strict security procedures when approaching the accident scene and by establishing a secure perimeter as soon as possible, minimizing the number of people in the area under risk as determined by on-scene security and police officials. In two cases recorded from Israel, the second bombs exploded 10–30 minutes after the first detonation. In addition, the discovery in Israel in 2003 of arms and gunmen in some ambulances led to the practice that all ambulances, even those conveying critically injured victims, had to pause for brief inspection at the perimeter of the hospital’s grounds. Another potential security risk for Emergency Medical Services (EMS) personnel entering a “hostile” area is the possibility of a sniper in the area.

Finally, in addition to the conventional injury pattern associated with explosions (primary, secondary, tertiary, and quaternary blast injuries—see Chapter