Ballistic missiles equipped with nuclear warheads and other mechanisms of mass destruction are the most potent weapons that America's defenders face. The number of ballistic missiles in global arsenals has declined considerably since the end of the Cold War, but the number of nations possessing such weapons has increased. At least nine countries today have both ballistic missiles and nuclear warheads, raising doubts about whether the traditional approach to deterrence can work over the long run.

Ballistic missile defense has the potential to strengthen deterrence by discouraging smaller nuclear nations from acquiring or launching weapons of mass destruction. While current U.S. defensive efforts pose little danger to the attack capabilities of Russia and China, they could completely defeat attacks by North Korea or Iran. That is especially true if enemy missiles can be intercepted in the earliest and most vulnerable stage of their trajectory, known as boost phase.

Interception of ballistic missiles in boost phase or the "ascent phase" that immediately follows rocket motor burnout enables defenders to destroy payloads before they separate into numerous, hard-to-track objects. This maximizes the effectiveness of any defensive system, thinning out or eliminating the threat faced by subsequent layers of defense.

The U.S. Missile Defense Agency currently is funding several boost-phase interception programs. The Kinetic Energy Interceptor is a mobile, fast-reacting missile that can be quickly deployed worldwide for early interception of ballistic missiles. The Airborne Laser is an aircraft-mounted beam weapon that can hit lofting missiles at the speed of light and will be demonstrated against a live target in 2009.

The Network Centric Airborne Defense Element and Air Launched Hit-to-Kill programs are less costly adaptations of existing weapons to the boost-phase interception mission.

Copyright 2009 The Heritage Foundation. www.heritage.org Reproduced with permission. All rights reserved.