



[Figure 39-11](#) Examples of Volume Rendering with Shadows

Unfortunately, Algorithm 39-3 still produces dark and unrealistic images, because it ignores contributions from light scattering within the volume. Scattering effects can be fully captured through physically based volume lighting models, which are too complex for interactive rendering. It is possible, however, to extend Algorithm 39-3 to approximate certain scattering phenomena. One such phenomenon is *translucency*, which is the result of light propagating into and scattering throughout a material. While general scattering computations consider the incoming light from all directions, for translucency it is sufficient to include the incoming light within a cone in the direction of the light source only, as shown in Figure 39-12. The result of this simplification is that the indirect scattering contribution at a particular sample depends on a local neighborhood of samples computed in the previous iteration of Algorithm 39-3. Thus, translucency effects are possible to incorporate by propagating and blurring indirect lighting components from slice to slice in the volume.