



**Figure 1** Probabilistic age pyramid of the European Union (25 members) for 2030. The *grey line* refers to the demographic situation in 2004. The *black line* predicts the EU-25 population age structure in 2030, including fractiles of the uncertainty distributions for the full age pyramid. The largest amount of uncertainty involves the ages below 10, while the graphic clearly demonstrates the increase of the population aged 60 years and above. *Source:* Courtesy of Vienna Institute of Demography, Data Sheet 2006.

Infection with *Streptococcus pneumoniae* is an important cause of invasive clinical manifestations, such as pneumonia, meningitis, and septicemia, and is the most common bacterial cause of community-acquired pneumonia in the elderly in developed countries. In the United States, the incidence of pneumococcal bacteremia and meningitis as well as associated mortality is highest among persons older than 65 years. An existing primary disease such as diabetes mellitus, liver disease, or chronic cardiovascular disease may even increase lethality up to 30%. The high mortality rates, in part, due to the increased occurrence of multiple drug-resistant pneumococcal strains are in favor of the current pneumococcal vaccine recommendations for all persons older than 65 years. Polysaccharide pneumococcal vaccines offer protection against invasive pneumococcal disease in 65% of the general elderly population, whereas it has only a moderate effect in high-risk groups. However, the still unsatisfying vaccine efficacy and the high costs of the vaccine are responsible for the low vaccination coverage among the elderly.

Infection with the VZV, an alphaherpesvirus, causes chickenpox, which is usually a mild disease in childhood. Thereafter, VZV remains latent in the dorsal root or cranial sensory ganglia until its reactivation because of decreased cell-mediated immunity. Hence, the incidence of Herpes zoster is high in persons older than 50 years, persons suffering from chronic diseases or receiving immunosuppressive therapy. The clinical manifestations are characterized by painful shingles and postherpetic neuralgia. Early initiation of antiviral therapy can reduce the severity of Herpes zoster, but it does not prevent the development of postherpetic neuralgia. Since 2006, a live-attenuated VZV vaccine has been on the market, which reduces the burden of illness due to Herpes zoster disease by 61.1% and the incidence of its most common sequela, postherpetic neuralgia, by 66.5% in adults aged 60 years or older (7). However, vaccine efficacy among persons older than 80 years is only around 18%.

About 8 million people are infected worldwide by *M. tuberculosis* and most infected persons develop a latent infection, which can be reactivated in approximately 50% of the