

## HISTORIES OF GUIDELINE DEVELOPMENT FOR THE FOURTH EDITION

### 12. Chemical fact sheets

#### 12.1 Chemical contaminants in drinking-water

##### Benzene

##### ***History of guideline development***

The 1958, 1963 and 1971 WHO *International Standards for Drinking-water* did not refer to benzene. In the first edition of the *Guidelines for Drinking-water Quality*, published in 1984, a health-based guideline value of 0.01 mg/l was recommended for benzene based on human leukaemia data from inhalation exposure applied to a linear multistage extrapolation model. The 1993 Guidelines estimated the range of benzene concentrations in drinking-water corresponding to an upper-bound excess lifetime cancer risk of  $10^{-5}$  to be 0.01–0.08 mg/l based on carcinogenicity in female mice and male rats. As the lower end of this estimate corresponds to the estimate derived from epidemiological data, which formed the basis for the previous guideline value of 0.01 mg/l associated with a  $10^{-5}$  upper-bound excess lifetime cancer risk, the guideline value of 0.01 mg/l was retained. This guideline value was brought forward to the third edition of the Guidelines, published in 2004, and the fourth edition of the Guidelines, published in 2011.