

## HISTORIES OF GUIDELINE DEVELOPMENT FOR THE FOURTH EDITION

### 12. Chemical fact sheets

#### 12.1 Chemical contaminants in drinking-water

##### Lead

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

The 1958 WHO *International Standards for Drinking-water* recommended a maximum allowable concentration of 0.1 mg/l for lead, based on health concerns. This value was lowered to 0.05 mg/l in the 1963 International Standards. The tentative upper concentration limit was increased to 0.1 mg/l in the 1971 International Standards, because this level was accepted in many countries and the water had been consumed for many years without apparent ill effects, and it was difficult to reach a lower level in countries where lead pipes were used. In the first edition of the *Guidelines for Drinking-water Quality*, published in 1984, a health-based guideline value of 0.05 mg/l was recommended. The 1993 Guidelines proposed a health-based guideline value of 0.01 mg/l, using the PTWI established by JECFA for infants and children, on the basis that lead is a cumulative poison and that there should be no accumulation of body burden of lead. As infants are considered to be the most sensitive subgroup of the population, this guideline value would also be protective for other age groups. The Guidelines also recognized that lead is exceptional, in that most lead in drinking-water arises from plumbing, and the remedy consists principally of removing plumbing and fittings containing lead. As this requires much time and money, it is recognized that not all water will meet the guideline immediately. Meanwhile, all other practical measures to reduce total exposure to lead, including corrosion control, should be implemented. JECFA reassessed lead and confirmed the previously derived PTWI. The guideline value of 0.01 mg/l was brought forward to the third edition of the Guidelines, published in 2004. In the fourth edition of the Guidelines, published in 2011, the guideline value of 0.01 mg/l was retained, but it was made provisional on the basis of treatment performance and analytical achievability. This change was due to a 2010 JECFA evaluation that concluded that the PTWI could no longer be considered health protective, and the PTWI was withdrawn. The fourth edition noted that lead is exceptional, in that most lead in drinking-water arises from plumbing in buildings, and the remedy consists principally of removing plumbing and fittings containing lead, which requires much time and money. It was emphasized that all other practical measures to reduce total exposure to lead, including corrosion control, should be implemented.