

## 14. Total Food Intake

### 14.1 Introduction

Contamination of foods may occur as a result of environmental pollution of the air, water, or soil, or the intentional use of chemicals such as pesticides or other agrochemicals. Ingestion of contaminated foods is a potential pathway of exposure to such contaminants. To assess chemical exposure through this pathway, information on dietary composition is sometimes needed. Chapter 14 of the *Exposure Factors Handbook* provides data on total food intake and diet composition. Recommended values for total food intake are highlighted here, and information on the proportion of the total diet made up by the major food groups is provided in Section 14.3.1 of the Handbook.

### 14.2 Recommended Exposure Factors

The recommended values for total food intake are based on the U.S. EPA analysis of NHANES 2003-2006 data. Total food intake was defined as intake of the sum of all foods, beverages, and water ingested. A summary of recommended values for total food intake is presented in Table 14-1. Total intake recommendations are provided as per capita rates, which are generated by averaging consumer-only intakes over the entire population. Overall confidence in the recommendations for total food intake is medium.

In an earlier analysis, U.S. EPA (2007) derived distributions to characterize (1) total food intake among various groups in the U.S. population, subdivided by age, race, geographic region, and urbanization; (2) the contribution of various food categories (e.g., meats, grains, vegetables) to total food intake among these populations; and (3) the contribution of various food categories to total food intake among individuals exhibiting low- or high-end consumption patterns of a specific food category (e.g., individuals below the 10<sup>th</sup> percentile or above the 90<sup>th</sup> percentile for fish consumption). This analysis was based on data from USDA's CSFII 1994-1996, 1998 (USDA, 2000). Data on these specific contributions to total intake are provided in Tables 14-4 through 14-11 in the *Exposure Factors Handbook*.



**For more information** about the key study used to derive the total food intake values, refer to **Chapter 14 of the *Exposure Factors Handbook*** at <http://www.epa.gov/ncea/efh/pdfs/efh-chapter14.pdf>. Detailed information on the key study for total intake as well as a key study on the composition of the diet are provided in Section 14.3 of the *Exposure Factors Handbook*.

**Table 14-1. Recommended Values for Per Capita Total Food Intake**

| Age Group                    | Mean     | 95 <sup>th</sup> Percentile <sup>a</sup> |
|------------------------------|----------|--|
|                              | g/kg-day |  |
| <b>Children</b>              |          |  |
| Birth to <1 year             | 91       | 208 <sup>b</sup>                         |
| 1 to <3 years                | 113      | 185 <sup>b</sup>                         |
| 3 to <6 years                | 79       | 137                                      |
| 6 to <11 years <sup>c</sup>  | 47       | 92                                       |
| 11 to <16 years <sup>d</sup> | 28       | 56                                       |
| 16 to <21 years <sup>d</sup> | 28       | 56                                       |
| <b>Adults</b>                |          |  |
| 20 to <50 years              | 29       | 63                                       |
| 50 years and older           | 29       | 59                                       |

Note: Total food intake was defined as intake of the sum of all foods, beverages, and water ingested.

<sup>a</sup> For multiple percentiles, see Table 14-12 of the *Exposure Factors Handbook*.

<sup>b</sup> Estimates are less statistically reliable based on guidance published in the *Joint Policy on Variance Estimation and Statistical Reporting Standards on NHANES III and CSFII Reports: NHIS/NCHS Analytical Working Group Recommendations* (NCHS, 1993).

<sup>c</sup> Based on data for ages 6 to <13 years.

<sup>d</sup> Based on data for ages 13 to <20 years.

Source: U.S. EPA analysis of NHANES 2003-2006 data.