**Searching terms**

 (("Stomach Neoplasms"[MeSH Terms] OR (("gastric"[Title/Abstract] OR "stomach"[Title/Abstract]) AND ("cancer\*"[Title/Abstract] OR "neoplasm\*"[Title/Abstract] OR "tumor\*"[Title/Abstract] OR "tumour\*"[Title/Abstract]))) AND ((("upper gastrointestinal series"[All Fields] OR “barium”[MeSH Terms] OR fluoroscopy[All Fields] OR x-ray[all Fields]) OR ("endoscopie"[All Fields] OR "endoscopy"[MeSH Terms] OR "endoscopy"[All Fields] OR "endoscopies"[All Fields] OR "endoscopy s"[All Fields])) AND ("diagnosis"[MeSH Subheading] OR "diagnosis"[All Fields] OR "screening"[All Fields] OR "mass screening"[MeSH Terms] OR ("mass"[All Fields] AND "screening"[All Fields]) OR "mass screening"[All Fields] OR "early detection of cancer"[MeSH Terms] OR ("early"[All Fields] AND "detection"[All Fields] AND "cancer"[All Fields]) OR "early detection of cancer"[All Fields] OR "screen"[All Fields] OR "screenings"[All Fields] OR "screened"[All Fields] OR "screens"[All Fields]))) AND (systematicreview[Filter]).

**Supplementary Table 1. Crude and age-adjusted mortality of gastric cancer in Japan from 1958 to 2019**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ICD** | **ICD code** | **Year** | **Crude mortality rate (/100,000)** | **Age-adjusted mortality rate (/100,000)** |
| **All** | **Male** | **Female** | **All** | **Male** | **Female** |
| ICD-7 | 151 | 1958 | 44.3  | 55.6  | 33.3  | 72.7  | 98.3  | 51.3  |
| ICD-7 | 151 | 1959 | 45.1  | 56.4  | 34.1  | 73.1  | 98.4  | 51.9  |
| ICD-7 | 151 | 1960 | 45.8  | 57.3  | 34.6  | 73.1  | 98.5  | 51.8  |
| ICD-7 | 151 | 1961 | 45.9  | 57.2  | 35.0  | 71.9  | 96.7  | 51.2  |
| ICD-7 | 151 | 1962 | 45.7  | 56.9  | 34.9  | 70.5  | 94.7  | 50.4  |
| ICD-7 | 151 | 1963 | 46.3  | 57.8  | 35.3  | 70.9  | 95.9  | 50.3  |
| ICD-7 | 151 | 1964 | 47.0  | 59.1  | 35.3  | 70.9  | 96.8  | 49.5  |
| ICD-7 | 151 | 1965 | 47.2  | 59.4  | 35.5  | 70.5  | 96.0  | 49.4  |
| ICD-7 | 151 | 1966 | 47.2  | 59.5  | 35.4  | 69.2  | 94.7  | 48.3  |
| ICD-7 | 151 | 1967 | 47.8  | 59.6  | 36.5  | 68.8  | 93.5  | 48.7  |
| ICD-8 | 151 | 1968 | 48.9  | 60.7  | 37.5  | 69.5  | 94.5  | 49.4  |
| ICD-8 | 151 | 1969 | 48.6  | 60.5  | 37.0  | 68.1  | 93.4  | 47.9  |
| ICD-8 | 151 | 1970 | 47.3  | 58.6  | 36.5  | 65.3  | 88.9  | 46.5  |
| ICD-8 | 151 | 1971 | 47.4  | 58.3  | 36.8  | 64.2  | 87.4  | 45.8  |
| ICD-8 | 151 | 1972 | 47.2  | 58.6  | 36.3  | 63.2  | 87.1  | 44.5  |
| ICD-8 | 151 | 1973 | 46.9  | 57.7  | 36.4  | 61.9  | 85.0  | 44.0  |
| ICD-8 | 151 | 1974 | 46.1  | 57.0  | 35.5  | 59.9  | 83.0  | 42.2  |
| ICD-8 | 151 | 1975 | 44.8  | 55.6  | 34.4  | 56.9  | 79.4  | 39.8  |
| ICD-8 | 151 | 1976 | 44.6  | 55.2  | 34.3  | 55.6  | 77.6  | 38.9  |
| ICD-8 | 151 | 1977 | 44.2  | 54.3  | 34.4  | 53.9  | 74.9  | 38.0  |
| ICD-8 | 151 | 1978 | 43.3  | 53.5  | 33.4  | 51.6  | 72.3  | 36.1  |
| ICD-9 | 151 | 1979 | 43.8  | 54.1  | 33.8  | 51.1  | 71.8  | 35.7  |
| ICD-9 | 151 | 1980 | 43.4  | 53.9  | 33.2  | 49.4  | 69.9  | 34.1  |
| ICD-9 | 151 | 1981 | 42.8  | 53.6  | 32.3  | 47.6  | 68.0  | 32.4  |
| ICD-9 | 151 | 1982 | 41.5  | 51.7  | 31.7  | 45.0  | 64.1  | 30.9  |
| ICD-9 | 151 | 1983 | 41.6  | 52.4  | 31.1  | 43.9  | 63.3  | 29.5  |
| ICD-9 | 151 | 1984 | 41.7  | 52.5  | 31.1  | 42.9  | 62.2  | 28.8  |
| ICD-9 | 151 | 1985 | 40.7  | 51.1  | 30.6  | 40.8  | 59.1  | 27.5  |
| ICD-9 | 151 | 1986 | 39.9  | 50.7  | 29.5  | 38.8  | 56.9  | 25.7  |
| ICD-9 | 151 | 1987 | 39.8  | 50.6  | 29.3  | 37.5  | 55.2  | 24.7  |
| ICD-9 | 151 | 1988 | 39.3  | 50.0  | 29.0  | 36.0  | 53.1  | 23.7  |
| ICD-9 | 151 | 1989 | 39.4  | 50.3  | 28.8  | 35.1  | 51.9  | 22.9  |
| ICD-9 | 151 | 1990 | 38.7  | 49.6  | 28.1  | 33.4  | 49.5  | 21.6  |
| ICD-9 | 151 | 1991 | 38.9  | 50.1  | 28.1  | 32.6  | 48.7  | 20.9  |
| ICD-9 | 151 | 1992 | 38.9  | 50.3  | 27.9  | 31.6  | 47.4  | 20.1  |
| ICD-9 | 151 | 1993 | 38.2  | 49.4  | 27.5  | 30.1  | 45.2  | 19.2  |
| ICD-9 | 151 | 1994 | 38.5  | 50.2  | 27.2  | 29.5  | 44.7  | 18.4  |
| ICD-10 | C16 | 1995 | 40.3  | 52.6  | 28.5  | 29.8  | 45.4  | 18.5  |
| ICD-10 | C16 | 1996 | 40.2  | 53.0  | 28.0  | 28.9  | 44.3  | 17.6  |
| ICD-10 | C16 | 1997 | 39.8  | 52.6  | 27.5  | 27.7  | 42.6  | 16.8  |
| ICD-10 | C16 | 1998 | 40.5  | 53.6  | 27.9  | 27.3  | 42.1  | 16.4  |
| ICD-10 | C16 | 1999 | 40.4  | 53.4  | 27.9  | 26.4  | 40.8  | 15.9  |
| ICD-10 | C16 | 2000 | 40.3  | 53.3  | 27.8  | 25.5  | 39.1  | 15.3  |
| ICD-10 | C16 | 2001 | 39.7  | 52.4  | 27.5  | 24.2  | 37.1  | 14.6  |
| ICD-10 | C16 | 2002 | 39.1  | 51.6  | 27.1  | 23.0  | 35.3  | 13.8  |
| ICD-10 | C16 | 2003 | 39.3  | 52.2  | 27.0  | 22.4  | 34.5  | 13.2  |
| ICD-10 | C16 | 2004 | 40.1  | 53.3  | 27.4  | 22.2  | 34.2  | 13.2  |
| ICD-10 | C16 | 2005 | 39.9  | 53.0  | 27.4  | 21.2  | 32.7  | 12.5  |
| ICD-10 | C16 | 2006 | 40.0  | 53.2  | 27.4  | 20.7  | 31.9  | 12.0  |
| ICD-10 | C16 | 2007 | 40.1  | 53.9  | 27.0  | 20.0  | 31.1  | 11.5  |
| ICD-10 | C16 | 2008 | 39.8  | 53.7  | 26.6  | 19.3  | 30.0  | 11.0  |
| ICD-10 | C16 | 2009 | 39.8  | 53.4  | 26.7  | 18.7  | 29.0  | 10.7  |
| ICD-10 | C16 | 2010 | 39.7  | 53.5  | 26.5  | 18.1  | 28.2  | 10.2  |
| ICD-10 | C16 | 2011 | 39.5  | 53.3  | 26.3  | 17.6  | 27.4  | 9.9  |
| ICD-10 | C16 | 2012 | 39.0  | 52.5  | 26.2  | 16.9 | 26.1 | 9.6 |
| ICD-10 | C16 | 2013 | 38.7  | 52.3  | 25.8  | 16.3  | 25.2  | 9.2  |
| ICD-10 | C16 | 2014 | 38.2  | 51.6  | 25.5  | 15.6  | 24.1  | 9.0  |
| ICD-10 | C16 | 2015 | 37.2  | 50.5  | 24.7  | 14.8  | 22.9  | 8.3  |
| ICD-10 | C16 | 2016 | 36.4  | 49.0  | 24.4  | 14.0  | 21.6  | 8.0  |
| ICD-10 | C16 | 2017 | 36.3  | 49.0  | 24.2  | 13.5  | 20.9  | 7.6  |
| ICD-10 | C16 | 2018 | 35.6  | 47.7  | 24.1  | 12.9  | 19.7  | 7.4  |
| ICD-10 | C16 | 2019 | 34.7  | 46.6  | 23.4  | 12.2  | 18.7  | 7.0  |

**Abbreviation.** ICD, International Classification of Diseases.

**Supplementary Table 2. Expected mortality reduction of screening and relative risk of no screening for gastric cancer death according to the effectiveness and the proportion of endoscopy screening.**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Expected mortality reduction of gastric cancer screening** | **Relative risk for gastric cancer death in no screening**  |
|  |  |
|  |  | **Mortality reduction of endoscopy screening** |
|  |  | **0.20** | **0.30** | **0.60** | **0.20** | **0.30** | **0.60** |
| **Proportion of endoscopy screening** | **0.00** | 0.50 | 0.50 | 0.50 | 2.00 | 2.00 | 2.00 |
| **0.10** | 0.47 | 0.48 | 0.51 | 2.13 | 2.08 | 1.96 |
| **0.20** | 0.44 | 0.46 | 0.52 | 2.27 | 2.17 | 1.92 |
| **0.30** | 0.41 | 0.44 | 0.53 | 2.44 | 2.27 | 1.89 |
| **0.40** | 0.38 | 0.42 | 0.54 | 2.63 | 2.38 | 1.85 |
| **0.50** | 0.35 | 0.40 | 0.55 | 2.86 | 2.50 | 1.82 |
| **0.60** | 0.32 | 0.38 | 0.56 | 3.13 | 2.63 | 1.79 |
| **0.70** | 0.29 | 0.36 | 0.57 | 3.45 | 2.78 | 1.75 |
| **0.80** | 0.26 | 0.34 | 0.58 | 3.85 | 2.94 | 1.72 |
| **0.90** | 0.23 | 0.32 | 0.59 | 4.35 | 3.13 | 1.69 |
| **1.00** | 0.20 | 0.30 | 0.60 | 5.00 | 3.33 | 1.67 |

**Note.** Expected mortality reduction of gastric cancer screening changed according to the effectiveness and the proportion of endoscopy and fluoroscopy screenings and ranged from 0.20 (80% mortality reduction) to 0.60 (40% mortality reduction). The relative risk of no screening to gastric cancer screening for gastric cancer death was estimated from 1.67 to 5.00.