Supplemental Material 2. Summary of findings of the included studies using the National Health Insurance Database

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| Source | Database | Study Period | Sample Size, No. | Outcome | Type of Operational Definition |
| Ahn et al., 2019 | NHI-SSI | 2005-2015 | 772,534 | colorectal cancer | ICD-10 codes C18.0-C20.9 |
| Ahn et al., 2020 | NHIS-NSC | 2002-2015 | 3,203,487 | colorectal cancer | ICD-10 codes C18-C20 |
| Bae et al., 2020 | NHIS Health Examinee Cohort | 2002-2013 | 514,886 | colon cancer,  rectal cancer | No specific definition |
| Baek et al., 2018 | HIRA | 2009-2016 |  | colorectal cancer | ICD-10 codes C18-C20 in the year of the operation or before |
| Byun et al., 2014 | HIRA | 2010 | 83,594 | colorectal cancer | ICD-10 codes C18-C21, visited clinics for treatment of CRC and had been hospitalized or claimed health insurance benefits |
| Cho et al., 2020 | NHIS-HEALS | 2002-2015 | 514,866 | colorectal cancer | ICD-10 codes C18-C20 or D010-D012 |
| Choe et al., 2020 | NHIS-NHID (Customized) | 2002-2016 | 248,011 | colorectal cancer | ICD-10 codes C18–C20 (≥3) and received any treatment (operation, chemotherapy, or radiotherapy) |
| Choi et al., 2020 | NHIS-HEALS | 2002-2013 | 61,605 | colorectal cancer | ICD-10 codes C18-C20 and 1) at least 3 outpatient visits, 2) hospitalized ≥2 days, 3) died due to causes related to the code |
| Choi et al., 2016 | NHIS-NSC | 2003-2013 | 1,025,340 | colorectal cancer | ICD-10 codes C18-C20 |
| Chung et al., 2018 | NHIS-NSC | 2002-2010 | 1,025,340 | colorectal cancer | ICD-10 codes C18-C21 |
| Heo et al., 2017 | HIRA | 2010-2014 | 2,462 | colorectal cancer | No specific definition |
| Hong et al., 2020 | NHIS-NSC | 2002-2013 | 41,308 | colorectal cancer | ICD-10 codes C18-C20 |
| Jang et al., 2019 | NHIS-ESC | 2002-2015 | 645,594 | colorectal cancer | No specific definition |
| Jee et al., 2019 | NHIS | 2002-2008 | 514,866 | colorectal cancer | KSCDCD codes C19, C20, C21.8, D01.1, D01.2 |
| Jung et al., 2020 | HIRA | 2007-2008 | 202,202 | colorectal cancer | ICD-10 codes C18-21 + V193 (rare incurable disease registration code) |
| Kang et al., 2016 | HIRA | 2009-2013 | 61,485 | colorectal cancer | ICD-10 codes C18-C20 |
| Ki et al., 2017 | NHIS+KCCR+Death registration data | 2005-2011 | 58,124 | rectal cancer | ICD-10 codes C20 |
| Kim et al., 2020 | HIRA | 2012-2016 | 72,563 | colorectal cancer | ICD-10 codes C18-C20 + Radiation therapy (≥1) |
| Kim et al., 2018 | HIRA | 2011 | 1920 | rectal cancer | ICD-10 code C20 |
| Kim et al., 2018 | NHIS-NSC | 2002-2013 | 1,025,340 | colorectal cancer | ICD-10 codes C18.X, C19.X, C20.X |
| Kim et al., 2020 | NHIS | 2011-2015 | 1,237,739 | colorectal cancer | ICD-10 codes C18-C20 + (Outpatient treatment≥3 or hospitalized≥1 within 1 year of diagnosis) |
| Kim et al., 2018 | NHIS-NSC | 2002-2013 | 1,025,340 | colon cancer | ICD-10 codes C18 |
| Kim et al., 2017 | HIRA | 2011-2012 | 5,355 | colorectal cancer | ICD-10 codes C18-C20 |
| Ko et al., 2017 | HIRA | 2012-2013 |  | colon cancer | ICD-10 codes C18.0, C19, C20 |
| Kwon et al., 2019 | NHIS-NSC | 2002-2013 | 1,125,691 | colorectal cancer | No specific definition |
| Lee et al., 2015 | NHIS | 2005-2008 | 302,844 | colorectal cancer | ICD-10 codes C18-C20 |
| Lee et al., 2018 | NHIS-NSC | 2002-2015 | 1,108,369 | colorectal cancer | ICD-10 codes C18-C20 + Code for treatment (surgery, chemotherapy, radiation therapy) |
| Lee et al., 2018 | NHIS-Senior cohort | 2002-2013 | 550,000 | colorectal cancer | No specific definition |
| Lee et al., 2021 | NHIS-HEALS | 2002-2015 | 514,794 | colorectal cancer | ICD-10 codes C18.0-C20.0 |
| Lee et al., 2019 | NHIS-HEALS | 2002-2015 | 514,794 | colorectal cancer | ICD-10 codes C18-C20 |
| Nam et al., 2020 | NHIS | 2009-2017 | 9,959,605 | colorectal cancer, colon cancer,  rectal cancer | Colorectal cancer: ICD-10 codes C18-C20+V193 Colon cancer: ICD-10 codes C18-C19+V193 Rectal cancer: ICD-10 code C20+V193 |
| Nam et al., 2019 | NHIS (Health Examination database) | 2009-2016 | 9,145,961 | colorectal cancer | No specific definition |
| Nam et al., 2019 | NHIS | 2004-2014 | 8,846,749 | colorectal cancer | KCD codes C18-C20 + V193 |
| Oh et al., 2018 | NHIS-NSC | 2003-2013 | 898,140 | colorectal cancer | ICD-10 codes C18-C20 |
| Oh et al., 2020 | NHIS-Health Examination Cohort | 2002-2013 | 514,795 | colorectal cancer | ICD-10 codes C18–C20 + Hospitalization |
| Oh et al., 2020 | NHIS | 2007-2018 | 179,930 | colon cancer | ICD-10 codes C18-C20 |
| Park et al., 2018 | NHIS | 2005-2016 |  | rectal cancer | ICD-10 codes C20 |
| Park et al., 2020 | HIRA | 2013-2018 | 117,320 | colorectal cancer | KCD codes C18.0-18.9, C19, and C20 |
| Park et al., 2016 | NHIS+National Cancer Registry | 2003-2010 | 239,615 | colorectal cancer | No specific definition |
| Rim et al., 2019 | HIRA | 2012-2013 | 31,756 | colorectal cancer | Insurance codes C18-C20 and surgery due to CRC |
| Seo et al., 2018 | HIRA | 2010-2012 | 24,645 | colon cancer | ICD-10 codes C18.0-C18.7 and regional colectomy |
| Seo et al., 2018 | HIRA | 2010-2012 | 24,645 | colon cancer | ICD-10 codes C18.0-C18.7 and regional colectomy |
| Seo et al., 2018 | HIRA | 2011-2015 | 66,183 | colorectal cancer | ICD-10 codes C18-C20 + Radiation therapy (≥1) |
| Shin et al., 2017 | NHIS-NSC | 2003-2013 | 408,931 | colorectal cancer | ICD-10 codes C18-C20 or D010-D012 and a colonoscopy or sigmoidoscopy with biopsy within 3 months before CRC diagnosis |
| Sohn et al., 2016 | HIRA | 2008-2012 |  | colon cancer | No specific definition |
| Song et al., 2020 | NHIS | 2002-2017 | 202,723 | colorectal cancer | ICD-10 codes C18.0-C20.0 and surgical treatment |
| Yhim et al., 2014 | HIRA | 2007-2011 |  | colorectal cancer | KCD-5 codes and CRC surgery |
| You et al., 2020 | NHIS | 2005-2014 | 1,322,981 | colon cancer | ICD-10 codes C18-C21 |
| Yun et al., 2020 | NHIS | 2007-2016 | 81,777 | colorectal cancer | ICD-10 codes C18-C20 |
| Bae et al., 2019 | NHIS | 2007-2016 | 303,234 | colorectal cancer | ICD-10 codes C18-C20, contacts with a physician (≥2) |
| Choi et al., 2017 | NHIS | 2009-2012 | 23,503,802 | colorectal cancer | ICD-10 codes C180-C200 and National Cancer Registry database |
| Ha et al., 2017 | HIRA | 2011-2012 | 8,412 | colon cancer | ICD-10 codes C18-C20, underwent curative resection and diagnosed with stage II or III disease |
| Hwang et al., 2017 | NHIS-NSC | 2002-2013 | 514.,866 | colorectal cancer | ICD-10 codes C18-C20 and 1) outpatient visit (≥3) or 2) admission (≥3days) or 3) any curative cancer treatment claimed via HDRG code “G60-Digestive Malignancy” or 4) died of causes related to the code |
| Jang et al., 2020 | NHIS (Customized) | 2002-2016 | 248,011 | colorectal cancer | ICD-10 codes C18-C20 + Code for treatment (operation, chemotherapy, radiotherapy) |
| Jeong et al., 2020 | HIRA | 2003-2016 | 18,822 | colorectal cancer | No specific definition |
| Kim et al., 2021 | NHIS | 2009-2012 | 23,503,802 | colorectal cancer | ICD-10 codes C180-C200 and National Cancer Registry database |
| Kim et al., 2017 | NHIS | 2007-2015 | 110,573 | colorectal cancer | ICD-10 codes C18-C20 |
| Lee et al., 2019 | NHIS | 2009-2015 | 2,591,149 | colorectal cancer | ICD-10 codes C180-C200 and National Cancer Registry database |
| Lee et al., 2020 | NHIS | 2009-2017 | 10,490,491 | colon cancer | ICD-10 codes C18-C20, a reimbursement code for severe disease, or censoring for death |
| Park et al., 2019 | HIRA | 2010-2015 | 312,054 | colorectal cancer | ICD-10 codes C18-C21 |
| Shin et al., 2020 | NHIS | 2002-2015 | 2,084,602 | colorectal cancer | ICD-10 codes C18-C20 or D010-D012 and a colonoscopy or sigmoidoscopy with biopsy within 3 months before CRC diagnosis |
| Shin et al., 2018 | NHIS | 2007-2015 | 372,287 | colorectal cancer | ICD-10 codes C18-C20 |

NHI, National Health Insurance; NHID, National Health Insurance Database; NHIS-ESC, National Health Insurance Service-Elderly Sample Cohort; NHIS-HEALS, National Health Insurance Service-National Health Screening Cohort; NHIS-NSC, National Health Insurance Service-National Sample Cohort; HIRA, Health Insurance Review and Assessment Service; ICD-10, International Classification of Diseases 10th revision; KCCR, Korea Center Cancer Registry; SSI, Support for Serious Illness; DRG, Korean Diagnosis-Related Group