

Supplementary File

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Supplementary Table 1: Annual deaths, population, crude rates, and age-adjusted mortality rates for CRC patients with paralytic ileus in the U.S. from 1999 to 2023.

Year	Deaths	Population	Crude Rate	Crude Rate Lower 95% Confidence Interval	Crude Rate Upper 95% Confidence Interval	Crude Rate Standard Error	Age-Adjusted Rate	Age Adjusted Rate Lower 95% Confidence Interval	Age-Adjusted Rate Upper 95% Confidence Interval	Age Adjusted Rate Standard Error
1999	1399	95153686	1.47	1.39	1.55	0.04	1.48	1.41	1.56	0.04
2000	1262	96944389	1.3	1.23	1.37	0.04	1.33	1.25	1.4	0.04
2001	1287	99781854	1.29	1.22	1.36	0.04	1.33	1.26	1.41	0.04
2002	1233	102217733	1.21	1.14	1.27	0.03	1.24	1.17	1.31	0.04
2003	1230	104692428	1.17	1.11	1.24	0.03	1.22	1.15	1.29	0.03
2004	1233	107138553	1.15	1.09	1.22	0.03	1.2	1.13	1.26	0.03
2005	1175	109787199	1.07	1.01	1.13	0.03	1.11	1.05	1.18	0.03
2006	1173	112380379	1.04	0.98	1.1	0.03	1.12	1.05	1.18	0.03
2007	1197	114894084	1.04	0.98	1.1	0.03	1.11	1.05	1.18	0.03
2008	1121	117395131	0.95	0.9	1.01	0.03	0.98	0.92	1.04	0.03
2009	1167	119895863	0.97	0.92	1.03	0.03	1.03	0.97	1.09	0.03
2010	1124	121757429	0.92	0.87	0.98	0.03	0.97	0.91	1.03	0.03
2011	1168	124174484	0.94	0.89	0.99	0.03	0.99	0.93	1.04	0.03
2012	1104	126000296	0.88	0.82	0.93	0.03	0.91	0.86	0.97	0.03
2013	1140	127788037	0.89	0.84	0.94	0.03	0.93	0.88	0.99	0.03
2014	1235	129779643	0.95	0.9	1	0.03	0.95	0.9	1	0.03
2015	1238	131826832	0.94	0.89	0.99	0.03	0.93	0.88	0.98	0.03
2016	1285	133494018	0.96	0.91	1.02	0.03	0.94	0.89	0.99	0.03
2017	1239	135229289	0.92	0.87	0.97	0.03	0.92	0.87	0.97	0.03
2018	1272	136335528	0.93	0.88	0.98	0.03	0.89	0.84	0.94	0.03
2019	1394	137381702	1.01	0.96	1.07	0.03	0.99	0.94	1.05	0.03
2020	1343	138429175	0.97	0.92	1.02	0.03	0.93	0.88	0.98	0.03
2021	1355	139339453	0.97	0.92	1.02	0.03	0.97	0.92	1.03	0.03
2022	1465	140311934	1.04	0.99	1.1	0.03	0.98	0.93	1.03	0.03
2023	1524	141596553	1.08	1.02	1.13	0.03	1	0.95	1.05	0.03
Total	31363	3043725672		1.02						

Supplementary Table 2: Mortality trends among CRC patients with paralytic ileus aged 45–64 years, showing yearly deaths, population estimates, and adjusted rates from 1999 to 2023.

Year	Deaths	Population	Crude Rate	Crude Rate Lower 95% Confidence Interval	Crude Rate Upper 95% Confidence Interval	Crude Rate Standard Error	Age-Adjusted Rate	Age Adjusted Rate Lower 95% Confidence Interval	Age-Adjusted Rate Upper 95% Confidence Interval	Age Adjusted Rate Standard Error
1999	239	60355845	0.4	0.35	0.45	0.03	0.4	0.35	0.45	0.03
2000	181	61952636	0.29	0.25	0.33	0.02	0.32	0.27	0.36	0.02
2001	189	64491563	0.29	0.25	0.33	0.02	0.32	0.27	0.36	0.02
2002	210	66695526	0.31	0.27	0.36	0.02	0.32	0.27	0.36	0.02
2003	205	68828899	0.3	0.26	0.34	0.02	0.32	0.27	0.36	0.02
2004	219	70935234	0.31	0.27	0.35	0.02	0.32	0.28	0.36	0.02
2005	207	73137401	0.28	0.24	0.32	0.02	0.28	0.24	0.32	0.02
2006	214	75216272	0.28	0.25	0.32	0.02	0.32	0.27	0.36	0.02
2007	228	77068373	0.3	0.26	0.33	0.02	0.32	0.28	0.36	0.02
2008	207	78617510	0.26	0.23	0.3	0.02	0.22	0.19	0.25	0.02
2009	230	80272688	0.29	0.25	0.32	0.02	0.28	0.24	0.32	0.02
2010	262	81489445	0.32	0.28	0.36	0.02	0.32	0.28	0.36	0.02
2011	233	82780343	0.28	0.25	0.32	0.02	0.28	0.24	0.32	0.02
2012	248	82854940	0.3	0.26	0.34	0.02	0.32	0.28	0.36	0.02
2013	234	83083963	0.28	0.25	0.32	0.02	0.28	0.24	0.32	0.02
2014	272	83536432	0.33	0.29	0.36	0.02	0.28	0.25	0.31	0.02
2015	292	84065980	0.35	0.31	0.39	0.02	0.32	0.28	0.35	0.02
2016	298	84249823	0.35	0.31	0.39	0.02	0.32	0.28	0.35	0.02
2017	286	84370610	0.34	0.3	0.38	0.02	0.34	0.3	0.38	0.02
2018	307	83904335	0.37	0.32	0.41	0.02	0.32	0.28	0.35	0.02
2019	360	83323439	0.43	0.39	0.48	0.02	0.42	0.37	0.46	0.02
2020	348	82769810	0.42	0.38	0.46	0.02	0.38	0.34	0.42	0.02
2021	344	83491500	0.41	0.37	0.46	0.02	0.42	0.37	0.46	0.02
2022	373	82517082	0.45	0.41	0.5	0.02	0.42	0.37	0.46	0.02
2023	381	82348192	0.46	0.42	0.51	0.02	0.42	0.37	0.46	0.02
Total	6567	1942357841								

Supplementary Table 3: Age-specific mortality data for CRC patients with paralytic ileus aged ≥65 years, including deaths, crude rates, and adjusted rates from 1999 to 2023.

Year	Deaths	Population	Crude Rate	Crude Rate Lower 95% Confidence Interval	Crude Rate Upper 95% Confidence Interval	Crude Rate Standard Error	Age-Adjusted Rate	Age Adjusted Rate Lower 95% Confidence Interval	Age-Adjusted Rate Upper 95% Confidence Interval	Age Adjusted Rate Standard Error
1999	1160	34797841	3.33	3.14	3.53	0.1	3.4	3.2	3.59	0.1
2000	1081	34991753	3.09	2.91	3.27	0.09	3.1	2.92	3.29	0.09
2001	1098	35290291	3.11	2.93	3.3	0.09	3.12	2.94	3.3	0.09
2002	1023	35522207	2.88	2.7	3.06	0.09	2.85	2.68	3.03	0.09
2003	1025	35863529	2.86	2.68	3.03	0.09	2.81	2.64	2.98	0.09
2004	1014	36203319	2.8	2.63	2.97	0.09	2.74	2.58	2.91	0.09
2005	968	36649798	2.64	2.47	2.81	0.08	2.58	2.42	2.74	0.08
2006	959	37164107	2.58	2.42	2.74	0.08	2.53	2.37	2.69	0.08
2007	969	37825711	2.56	2.4	2.72	0.08	2.51	2.35	2.67	0.08
2008	914	38777621	2.36	2.2	2.51	0.08	2.33	2.18	2.48	0.08
2009	937	39623175	2.36	2.21	2.52	0.08	2.36	2.21	2.51	0.08
2010	862	40267984	2.14	2	2.28	0.07	2.11	1.97	2.25	0.07
2011	935	41394141	2.26	2.11	2.4	0.07	2.23	2.09	2.38	0.07
2012	856	43145356	1.98	1.85	2.12	0.07	1.96	1.83	2.1	0.07
2013	906	44704074	2.03	1.89	2.16	0.07	2.08	1.94	2.21	0.07
2014	963	46243211	2.08	1.95	2.21	0.07	2.13	1.99	2.27	0.07
2015	946	47760852	1.98	1.85	2.11	0.06	2.01	1.88	2.14	0.07
2016	987	49244195	2	1.88	2.13	0.06	2.03	1.9	2.16	0.07
2017	953	50858679	1.87	1.75	1.99	0.06	1.93	1.81	2.06	0.06
2018	965	52431193	1.84	1.72	1.96	0.06	1.9	1.78	2.02	0.06
2019	1034	54058263	1.91	1.8	2.03	0.06	2.01	1.88	2.13	0.06
2020	995	55659365	1.79	1.68	1.9	0.06	1.9	1.78	2.02	0.06
2021	1011	55847953	1.81	1.7	1.92	0.06	1.95	1.83	2.07	0.06
2022	1092	57794852	1.89	1.78	2	0.06	1.97	1.85	2.09	0.06
2023	1143	59248361	1.93	1.82	2.04	0.06	2.03	1.91	2.15	0.06
Total	24796	1101367831								

Supplementary Table 4: Comparison of mortality rates among CRC patients with paralytic ileus based on gender, showing annual deaths, crude rates, and age-adjusted rates from 1999 to 2023.

Year Code	Deaths	Population	Crude Rate	Crude Rate Lower 95% Confidence Interval	Crude Rate Upper 95% Confidence Interval	Crude Rate Standard Error	Age-Adjusted Rate	Age Adjusted Rate Lower 95% Confidence Interval	Age-Adjusted Rate Upper 95% Confidence Interval	Age Adjusted Rate Standard Error
1999	785	51508398	1.52	1.42	1.63	0.05	1.36	1.26	1.46	0.05
2000	710	52392178	1.36	1.26	1.45	0.05	1.2	1.12	1.29	0.05
2001	735	53774936	1.37	1.27	1.47	0.05	1.23	1.14	1.32	0.05
2002	693	54969469	1.26	1.17	1.35	0.05	1.12	1.04	1.21	0.04
2003	660	56185672	1.17	1.09	1.26	0.05	1.09	1	1.17	0.04
2004	679	57385565	1.18	1.09	1.27	0.05	1.1	1.02	1.18	0.04
2005	644	58684798	1.1	1.01	1.18	0.04	0.99	0.92	1.07	0.04
2006	640	59974491	1.07	0.98	1.15	0.04	0.99	0.91	1.07	0.04
2007	640	61223235	1.05	0.96	1.13	0.04	1	0.92	1.08	0.04
2008	597	62473012	0.96	0.88	1.03	0.04	0.86	0.79	0.93	0.04
2009	594	63725146	0.93	0.86	1.01	0.04	0.85	0.78	0.92	0.04
2010	594	64650962	0.92	0.84	0.99	0.04	0.87	0.8	0.94	0.04
2011	602	65853661	0.91	0.84	0.99	0.04	0.83	0.76	0.9	0.03
2012	609	66775487	0.91	0.84	0.98	0.04	0.84	0.77	0.9	0.03
2013	566	67662257	0.84	0.77	0.91	0.04	0.75	0.69	0.81	0.03
2014	655	68681425	0.95	0.88	1.03	0.04	0.89	0.82	0.96	0.04
2015	621	69723092	0.89	0.82	0.96	0.04	0.82	0.75	0.88	0.03
2016	650	70596015	0.92	0.85	0.99	0.04	0.84	0.78	0.91	0.03
2017	662	71500445	0.93	0.86	1	0.04	0.81	0.74	0.87	0.03
2018	638	72088645	0.89	0.82	0.95	0.04	0.81	0.75	0.88	0.03
2019	735	72636227	1.01	0.94	1.09	0.04	0.91	0.84	0.98	0.03
2020	665	73193541	0.91	0.84	0.98	0.04	0.82	0.76	0.89	0.03
2021	669	72850633	0.92	0.85	0.99	0.04	0.83	0.77	0.9	0.03
2022	765	73431057	1.04	0.97	1.12	0.04	0.94	0.87	1.01	0.03
2023	745	74124059	1.01	0.93	1.08	0.04	0.88	0.82	0.95	0.03
Female total	16553	1616064406								

1999	614	43645288	1.41	1.3	1.52	0.06	1.65	1.51	1.78	0.07
2000	552	44552211	1.24	1.14	1.34	0.05	1.5	1.37	1.63	0.06
2001	552	46006918	1.2	1.1	1.3	0.05	1.44	1.32	1.57	0.06
2002	540	47248264	1.14	1.05	1.24	0.05	1.37	1.25	1.49	0.06
2003	570	48506756	1.18	1.08	1.27	0.05	1.41	1.29	1.53	0.06
2004	554	49752988	1.11	1.02	1.21	0.05	1.34	1.23	1.45	0.06
2005	531	51102401	1.04	0.95	1.13	0.05	1.26	1.15	1.37	0.06
2006	533	52405888	1.02	0.93	1.1	0.04	1.26	1.15	1.36	0.06
2007	557	53670849	1.04	0.95	1.12	0.04	1.26	1.16	1.37	0.05
2008	524	54922119	0.95	0.87	1.04	0.04	1.16	1.06	1.26	0.05
2009	573	56170717	1.02	0.94	1.1	0.04	1.19	1.09	1.29	0.05
2010	530	57106467	0.93	0.85	1.01	0.04	1.1	1	1.19	0.05
2011	566	58320823	0.97	0.89	1.05	0.04	1.15	1.06	1.25	0.05
2012	495	59224809	0.84	0.76	0.91	0.04	0.98	0.9	1.07	0.04
2013	574	60125780	0.95	0.88	1.03	0.04	1.09	1	1.18	0.05
2014	580	61098218	0.95	0.87	1.03	0.04	1.07	0.98	1.16	0.05
2015	617	62103740	0.99	0.92	1.07	0.04	1.08	0.99	1.16	0.04
2016	635	62898003	1.01	0.93	1.09	0.04	1.11	1.03	1.2	0.04
2017	577	63728844	0.91	0.83	0.98	0.04	0.98	0.9	1.06	0.04
2018	634	64246883	0.99	0.91	1.06	0.04	1.04	0.96	1.13	0.04
2019	659	64745475	1.02	0.94	1.1	0.04	1.06	0.98	1.14	0.04
2020	678	65235634	1.04	0.96	1.12	0.04	1.1	1.02	1.18	0.04
2021	686	66488820	1.03	0.95	1.11	0.04	1.08	1	1.17	0.04
2022	700	66880877	1.05	0.97	1.12	0.04	1.06	0.98	1.14	0.04
2023	779	67472494	1.15	1.07	1.24	0.04	1.16	1.08	1.25	0.04
male total	14810	1427661266								
Total	31363	3043725672								

Supplementary Table 5: Mortality trends among CRC patients with paralytic ileus by race/ethnicity, presenting annual deaths, crude rates, and age-adjusted rates from 1999 to 2023.

Year	Deaths	Population	Crude Rate	Crude Rate Lower 95% Confidence Interval	Crude Rate Upper 95% Confidence Interval	Crude Rate Standard Error	Age-Adjusted Rate	Age Adjusted Rate Lower 95% Confidence Interval	Age-Adjusted Rate Upper 95% Confidence Interval	Age Adjusted Rate Standard Error
1999	52	6259983	0.83	0.62	1.09	0.12	1.06	0.78	1.4	0.15
2000	37	6580134	0.56	0.4	0.78	0.09	0.82	0.57	1.14	0.14
2001	39	7070982	0.55	0.39	0.75	0.09	0.78	0.54	1.07	0.13
2002	58	7487936	0.77	0.59	1	0.1	1.2	0.9	1.57	0.16
2003	45	7917552	0.57	0.41	0.76	0.08	0.78	0.55	1.06	0.12
2004	46	8367035	0.55	0.4	0.73	0.08	0.82	0.59	1.11	0.13
2005	36	8873327	0.41	0.28	0.56	0.07	0.57	0.39	0.81	0.1
2006	50	9375864	0.53	0.4	0.7	0.08	0.77	0.57	1.02	0.11
2007	43	9897531	0.43	0.31	0.59	0.07	0.56	0.4	0.78	0.09
2008	59	10439920	0.57	0.43	0.73	0.07	0.81	0.61	1.06	0.11
2009	57	11010535	0.52	0.39	0.67	0.07	0.67	0.5	0.88	0.09
2010	58	11458969	0.51	0.38	0.65	0.07	0.67	0.5	0.88	0.09
2011	58	12142766	0.48	0.36	0.62	0.06	0.65	0.49	0.85	0.09
2012	57	12667975	0.45	0.34	0.58	0.06	0.62	0.46	0.81	0.09
2013	55	13231734	0.42	0.31	0.54	0.06	0.49	0.36	0.65	0.07
2014	73	13935612	0.52	0.41	0.66	0.06	0.67	0.52	0.85	0.08
2015	75	14602865	0.51	0.4	0.64	0.06	0.7	0.55	0.88	0.08
2016	74	15123465	0.49	0.38	0.61	0.06	0.62	0.49	0.79	0.07
2017	83	15801642	0.53	0.42	0.65	0.06	0.62	0.49	0.78	0.07
2018	89	16334084	0.54	0.44	0.67	0.06	0.66	0.53	0.82	0.07
2019	101	16844102	0.6	0.48	0.72	0.06	0.72	0.58	0.87	0.07
2020	89	17387980	0.51	0.41	0.63	0.05	0.63	0.51	0.78	0.07
2021	111	18107643	0.61	0.5	0.73	0.06	0.76	0.61	0.91	0.07
2022	122	18616870	0.66	0.54	0.77	0.06	0.75	0.61	0.88	0.07
2023	107	19402007	0.55	0.45	0.66	0.05	0.66	0.53	0.79	0.07
Total	1674	308938513								

Supplementary Table 6: Distribution of CRC patient deaths with paralytic ileus by place of death (hospital, home, hospice, nursing facilities, etc.) across the study period.

Place of Death	Place of Death Code	Deaths	Population	Crude Rate	Crude Rate Lower 95% Confidence Interval	Crude Rate Upper 95% Confidence Interval	Crude Rate Standard Error	Age-Adjusted Rate	Age-Adjusted Rate Lower 95% Confidence Interval	Age-Adjusted Rate Upper 95% Confidence Interval	Age-Adjusted Rate Standard Error
Medical Facility - Inpatient	1	17698	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Medical Facility - Outpatient or ER	2	471	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Medical Facility - Dead on Arrival	3	32	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Medical Facility - Status unknown	10	27	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Decedent's home	4	5957	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Hospice facility	5	2670	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nursing home/long-term care	6	3389	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Other Place of death	7	1017	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
unknown	9	97	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		31358	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

1. AAMR = Age-Adjusted Mortality Rate per 100,000 population, standardized to the 2000 U.S. standard population.
2. CI = Confidence Interval; SE = Standard Error.
3. Rates calculated from CDC WONDER multiple cause-of-death data (ICD-10: C18–C20 + K56).
4. Year-to-year variation with overlapping 95% CIs should be interpreted as descriptive; statistical significance is determined by Joinpoint regression ($p < 0.05$).
5. Totals may vary slightly due to rounding and suppression of counts <10 per CDC disclosure policy.
6. Urban–rural analyses restricted to 1999–2020 due to data availability for the 2013 NCHS county classification.