Supplemental Contents

Supplemental Table S1. ICD-10 Codes Utilized in this Study

Condition	ICD-10 Code
Sepsis	A40.0 (Septicaemia due to Streptococcus, group A)
	A40.1 (Septicaemia due to Streptococcus, group B)
	A40.2 (Septicaemia due to Streptococcus, group D)
	A40.3 (Septicaemia due to Streptococcus pneumoniae)
	A40.8 (Other streptococcal septicaemia)
	A40.9 (Streptococcal septicaemia, unspecified)
	A41 (Other septicaemia)
	A41.0 (Septicaemia due to Staphylococcus aureus)
	A41.1 (Septicaemia due to other specified staphylococcus)
	A41.2 (Septicaemia due to unspecified Staphylococcus)
	A41.3 (Septicaemia due to Haemophilus influenzae)
	A41.4 (Septicaemia due to anaerobes)
	A41.5 (Septicaemia due to other Gram-negative organisms)
	A41.8 (Other specified septicaemia)
	A41.9 (Septicaemia, unspecified)
CKD	N18.0 (End-stage renal disease)
	N18.1 (Chronic kidney disease, stage 1)
	N18.2 (Chronic kidney disease, stage 2)
	N18.3 (Chronic kidney disease, stage 3)
	N18.4 (Chronic kidney disease, stage 4)
	N18.5 (Chronic kidney disease, stage 5)
	N18.8 (Other chronic renal failure)
	N18.9 (Chronic renal failure, unspecified)

Supplemental Table S2. Summary of change in crude number of deaths and AAMR from 1999 to 2023, with percentage change (% change) and AAPC from 1999 to 2023

Category	Crude number of deaths (1999)	AAMR (1999)	Crude number of deaths (2023)	AAMR (2023)	% change in AAMR from 1999 to 2023 (%)	AAPC from 1999 to 2023 (%)
Overall	5016	14.45	11470	20.68	6.23%	1.37%
Sex stratified						
Male	2349	17.43	6032	25.48	8.05%	1.58%
Female	2667	12.93	5438	17.21	4.28%	0.98%
Race stratified						
American Indian or Alaska native	47	37.06	64	19.05	-18.01%	−1.69%
Black or African American	1503	54.38	2199	42.47	-11.91%	−1.35%
White	2871	9.73	7478	18.04	8.31%	2.50%
Asian or Pacific Islander	179	24.86	554	19.26	-5.6%	−0.78%
Hispanic	404	25.5	1113	21.89	-3.61%	−0.87%
Census region						
Northeast	1104	14.96	1837	17.86	2.9%	0.54%
Midwest	1015	12.31	2398	20.56	8.25%	2.02%
South	1999	16.33	4672	22.11	5.78%	1.19%
West	898	13.2	2563	20.64	7.44%	1.72%
Urbanization status (1999-2020)						
Category	**Crude number of deaths (1999)**	**AAMR (1999)**	**Crude number of deaths (2020)**	**AAMR (2020)**	**% change in AAMR from 1999 to 2020 (%)**	**AAPC from 1999 to 2020 (%)**

Metropolitan	4221	15.04	9602	21.61	6.57%	1.01%
Non-Metropolitan	795	11.93	2020	22.41	10.48%	2.71%

Supplemental Table S3. Sepsis-related CKD mortality rates overall, and stratified by sex in the United States, 1999–2023.

	Age-Adjusted Mortality Rate		
Year	**Overall**	**Gender**	
		Male	**Female**
1999	14.45	17.43	12.93
2000	15.29	18.7	13.39
2001	15.78	18.74	14.13
2002	16.81	20.22	14.81
2003	17.06	20.62	15.01
2004	17.78	21.4	15.72
2005	17.93	21.85	15.63
2006	17.37	21.26	15.02
2007	17.03	21.56	14.27
2008	16	19.29	14
2009	15.82	18.93	13.9
2010	15.51	19.84	12.74
2011	23.4	28.46	20.11
2012	23.41	28.37	20.27
2013	16.46	20.5	13.86
2014	16.94	20.87	14.33
2015	18.52	23.29	15.34
2016	19.19	24.36	15.7
2017	19.49	24.24	16.34
2018	19.69	24.73	16.15
2019	19.33	24	16.11
2020	21.75	27.35	17.84
2021	23.08	29.26	18.77

2022	21.42	27.37	17.32
2023	20.68	25.48	17.21

Supplemental Table S4. Sepsis-related CKD mortality rates stratified by race/ethnicity in the United States, 1999–2023.

	Age-Adjusted Mortality Rate				
Year	**Race**				
	American Indian or Alaska Native	**Black or African American**	**White**	**Asian or Pacific Islanders**	**Hispanic or Latino**
1999	37.06	54.38	9.73	24.86	25.5
2000	24.56	57.05	10.51	21.07	25.48
2001	38.09	55.66	11.11	20.67	24.99
2002	42.97	58.34	11.94	21.27	26.24
2003	43.92	58.3	11.98	20.96	27.25
2004	31.64	59.08	12.71	22.37	28.73
2005	30.11	57.35	12.93	22.45	29.8
2006	19.27	54.87	12.63	20.15	28.02
2007	25.56	51.1	12.54	22.91	26.65
2008	32.27	48.32	11.99	18.6	22.46
2009	33.46	46.71	11.75	19.59	23.75
2010	33.04	43.98	11.69	16.87	24.46
2011	42.3	62.1	18	25.52	34.39
2012	39.6	60.96	18.44	26.22	32.24
2013	19.02	43.5	13.21	15.85	19.81
2014	21.16	41.92	13.88	16.95	19.34
2015	24.11	41.19	15.66	16.6	21.5
2016	30.74	43.04	16.17	16.22	22.73
2017	31.81	43.49	16.36	18.53	22.37
2018	29.26	41.9	16.98	16.55	21.29
2019	23.91	40.84	16.31	17.22	23.94
2020	27.15	46.78	18.37	19.18	25.73
2021	28.64	48.77	20.01	19.82	24.51
2022	25.31	45.12	18.48	20.78	22.92

2023	19.05	42.47	18.04	19.26	21.89

Supplemental Table S5. Sepsis-related CKD mortality rates stratified by States in the United States, 1999–2023

State	Age-Adjusted Mortality Rate	
	1999-2020	**2021-2023**
Alabama	18.43	20.08
Alaska	10.53	12.85
Arizona	9.48	10.21
Arkansas	17.18	23.49
California	24.02	28.07
Colorado	10.56	19.28
Connecticut	16.42	18.25
Delaware	16.71	18.35
District of Columbia	46.02	38.15
Florida	11.55	17.22
Georgia	19.21	20.14
Hawaii	15.41	11.67
Idaho	10.63	15.07
Illinois	18.22	20.01
Indiana	20.41	28.07
Iowa	12.64	19.23
Kansas	11.47	17.16
Kentucky	22.37	40.74
Louisiana	21.12	20.88
Maine	10.33	4.49
Maryland	27.16	30.89
Massachusetts	16.59	20.88
Michigan	17.03	18.68
Minnesota	13.06	21.64
Mississippi	22.93	29.38
Missouri	15.21	17.35
Montana	8.05	15.46
Nebraska	13.09	24.4

Nevada	14.04	17.39
New Hampshire	12.42	17.02
New Jersey	22.7	22.15
New Mexico	12.42	13.44
New York	15.36	14.38
North Carolina	21.63	23.33
North Dakota	14.94	20.33
Ohio	19.27	20.2
Oklahoma	18.4	27.86
Oregon	10.19	17.1
Pennsylvania	17.53	23.48
Rhode Island	20.69	13.13
South Carolina	26.37	24.55
South Dakota	15.26	24.89
Tennessee	18.65	25.48
Texas	25.2	26.8
Utah	9.49	19.71
Vermont	11.56	14.12
Virginia	18.1	21
Washington	15.38	21.82
West Virginia	21.74	25.4
Wisconsin	15.25	25.86
Wyoming	10.44	14.51

Supplemental Table S6. Sepsis-related CKD mortality stratified by census regions in the United States for 1999 to 2023

	Age-Adjusted Mortality Rate			
Year	**Northeast**	**Midwest**	**South**	**West**
1999	14.96	12.31	16.33	13.2
2000	15.93	12.78	17.58	13.52
2001	16.74	13.24	17.9	13.93
2002	17.13	14.6	19.06	15.08
2003	16.21	15.09	19.36	16
2004	17.08	16.09	19.3	17.66

2005	17.77	15.86	19.47	17.53
2006	16.87	16.01	18.94	16.56
2007	16.52	15.53	18.43	16.72
2008	15.36	14.89	17.13	15.95
2009	14.83	14.28	17.3	15.77
2010	14.96	14.26	16.45	15.77
2011	22.28	21.08	24.69	24.37
2012	22.3	21.63	24.58	24.39
2013	16.2	15.41	17.4	16.13
2014	16.04	16.24	17.76	16.91
2015	17.45	17.77	19.24	18.86
2016	17.6	18.17	20.25	19.78
2017	17.03	18.82	21.15	19.45
2018	17.04	18.83	21.52	19.57
2019	16.78	19.26	20.62	19.36
2020	18.85	22.11	23.51	20.92
2021	19.41	23.01	25.18	22.77
2022	18.4	19.76	23.12	22.55
2023	17.86	20.56	22.11	20.64

Supplemental Table S7. Sepsis–related CKD mortality rates stratified by urban-rural classification in the United States for 1999-2020

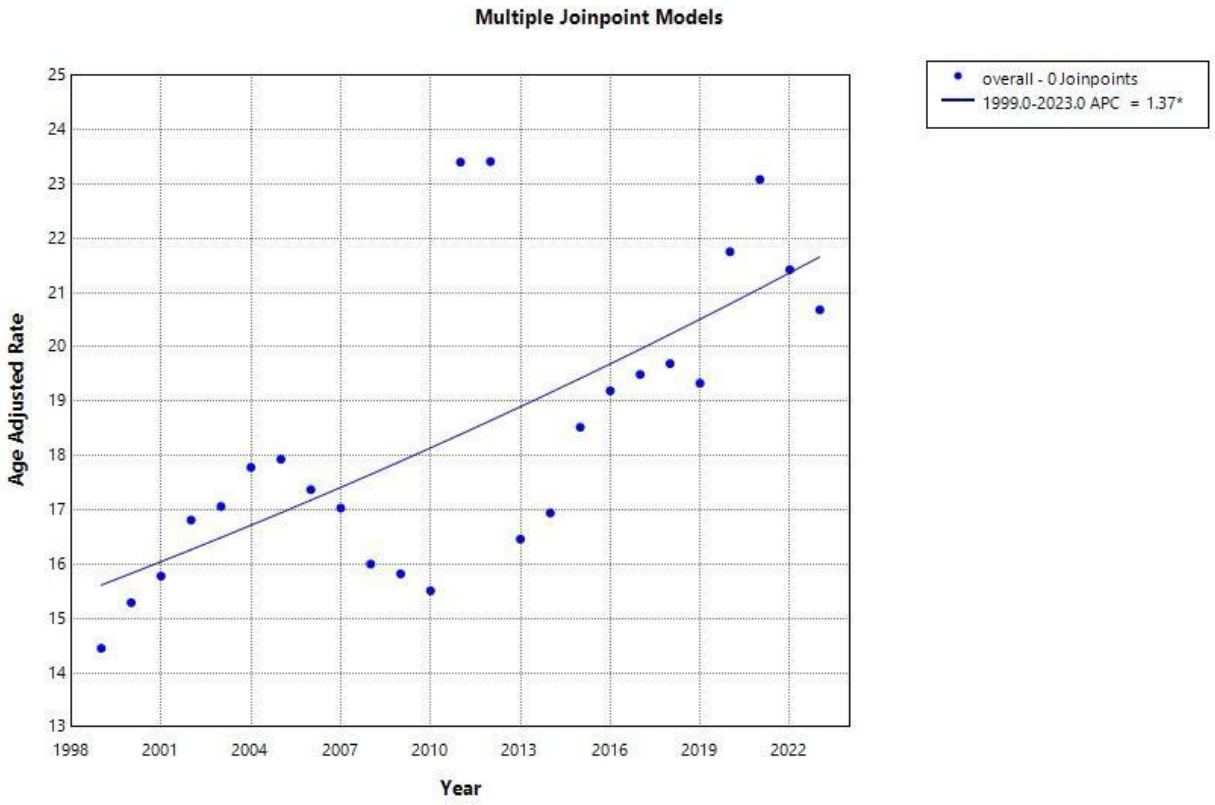
	Age-Adjusted Mortality Rate	
Year	**Metropolitan**	**Non-Metropolitan**
1999	15.04	11.93
2000	15.95	12.55
2001	16.4	13.14
2002	17.56	13.61
2003	17.73	14.23
2004	18.41	15.07
2005	18.57	15.19
2006	18.09	14.2
2007	17.6	14.64
2008	16.52	14.01

2009	16.09	14.47
2010	15.9	13.8
2011	23.78	21.5
2012	23.76	22.11
2013	16.51	16.15
2014	17.14	16.03
2015	18.43	18.88
2016	19.29	18.85
2017	19.47	19.76
2018	19.47	20.72
2019	19.1	20.54
2020	21.61	22.41

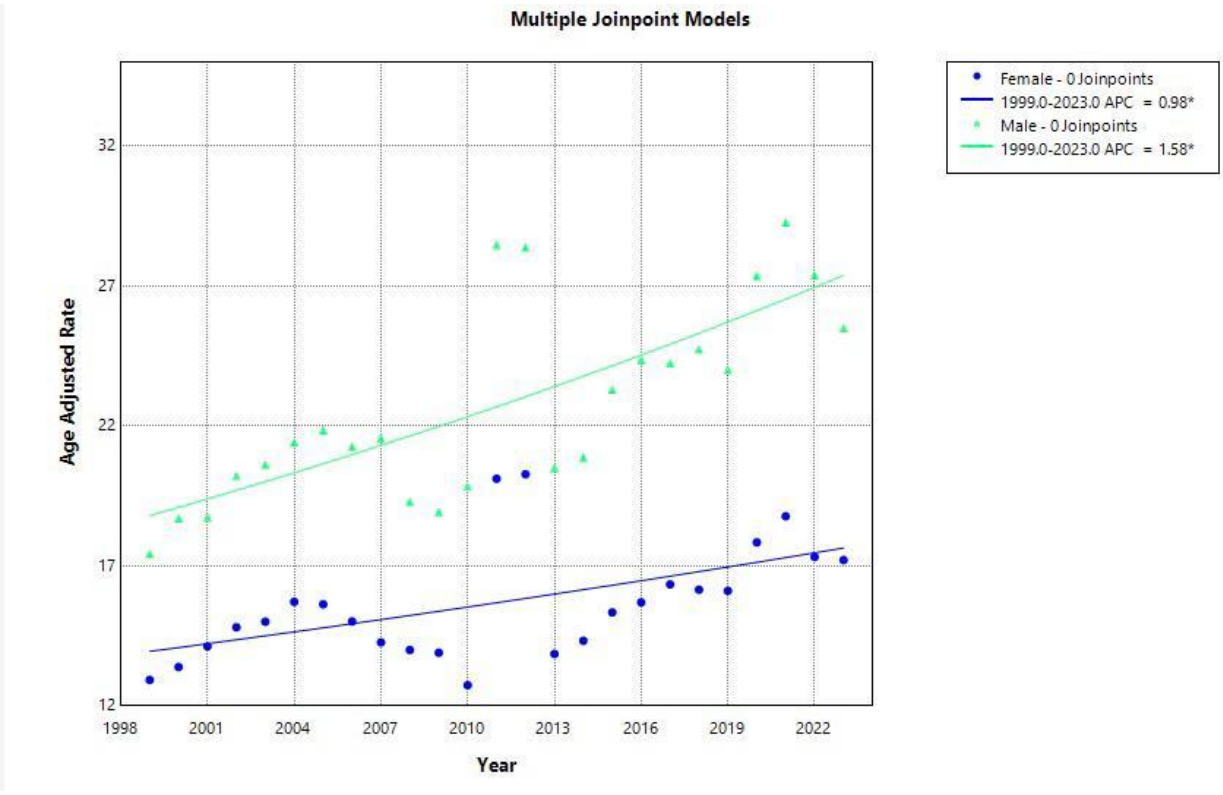
Supplemental Table S8. Sepsis-related CKD mortality stratified by place of death in the United States for 1999-2023

Place Of Death	Number of Deaths	% of Total Deaths
Medical Facility – Inpatient	167,376	83.00%
Medical Facility - Outpatient	4,373	2.17%
Medical Facility – Dead on Arrival	115	0.06%
Hospice Facility	7,652	3.80%
Decedent's Home	7,108	3.53%
Nursing Home/long-term care	12,318	6.11%
Others	2,695	1.34%

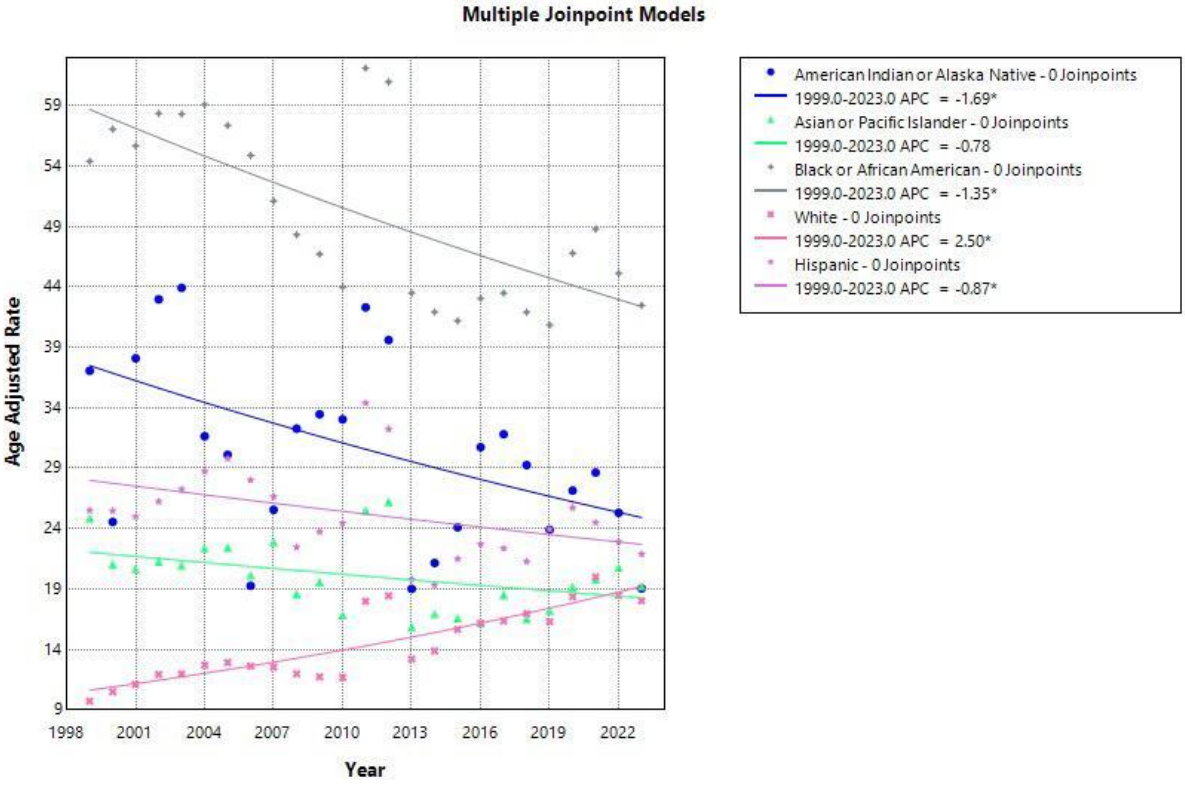
Supplementary Figure S9. Overall joinpoint regression model of age-adjusted sepsis mortality rates among U.S. adults aged ≥65 years with chronic kidney disease, 1999–2023.



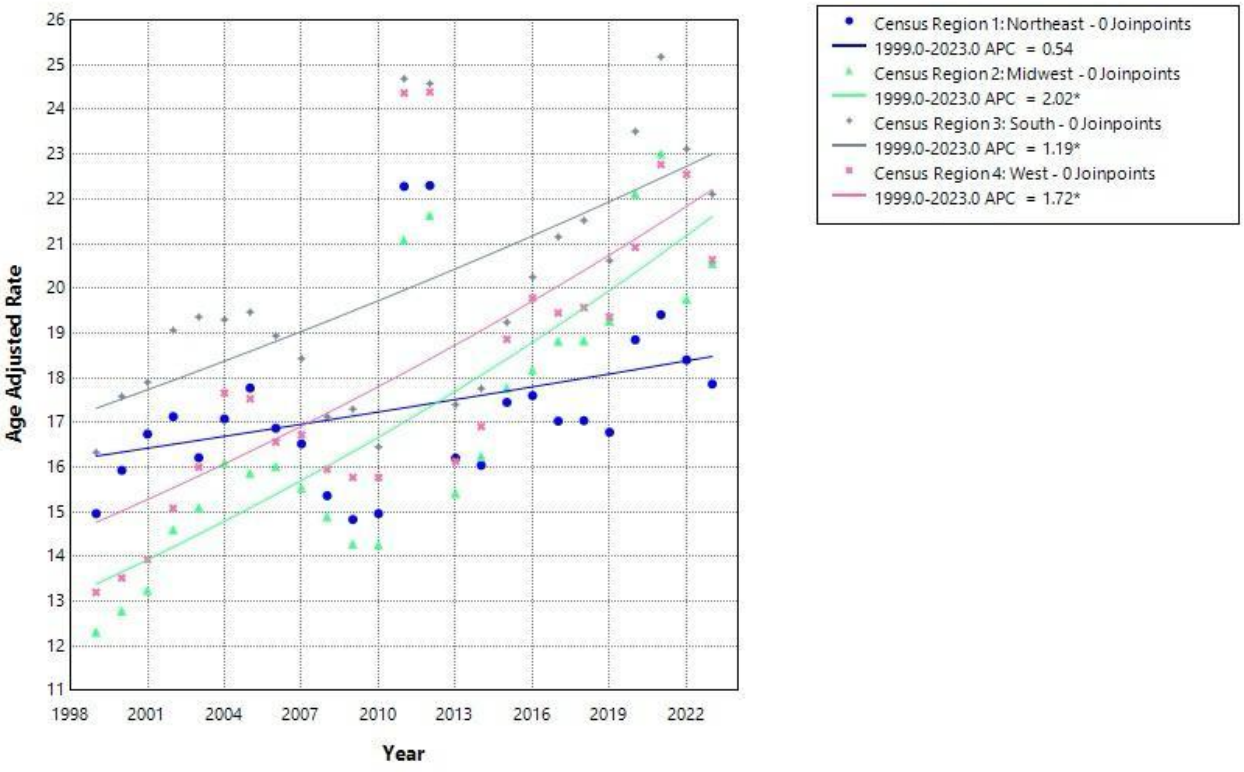
Supplementary Figure S2. Sex-specific joinpoint regression model of age-adjusted sepsis mortality rates among U.S. adults aged ≥65 years with chronic kidney disease, 1999–2023.



Supplementary Figure S3. Race-specific joinpoint regression model of age-adjusted sepsis mortality rates among U.S. adults aged ≥65 years with chronic kidney disease, 1999–2023.



Supplementary Figure S4. Census region–specific joinpoint regression model of age-adjusted sepsis mortality rates among U.S. adults aged ≥65 years with chronic kidney disease, 1999–2023.



Supplementary Figure S5. Urbanization-specific joinpoint regression model of age-adjusted sepsis mortality rates among U.S. adults aged ≥65 years with chronic kidney disease, 1999–2023.