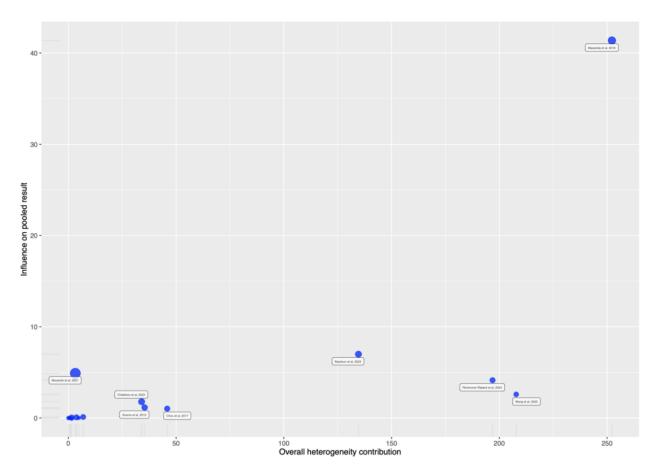


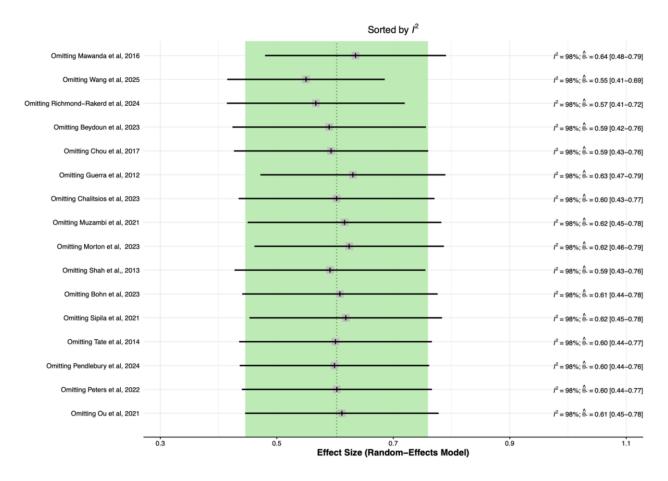
Supplementary Figure 1. PRISMA Flowchart.

Study	logHR	Standard error	Risk of De	mentia	HR	95%-CI	Weight
Beydoun et al, 2023	0.7793	0.0292	1	+	2.18	[2.06; 2.31]	6.9%
Bohn et al, 2023	0.5306	0.0465				[1.55; 1.86]	6.8%
Chalitsios et al, 2023	0.6098	0.0291		-	1.84	[1.74; 1.95]	6.9%
Chou et al, 2017	0.7372	0.0438			2.09	[1.92; 2.28]	6.8%
Guerra et al, 2012	0.2231	0.0365		-	1.25	[1.16; 1.34]	6.9%
Mawanda et al, 2016	0.1655	0.0173			1.18	[1.14; 1.22]	7.0%
Morton et al, 2023	0.3075	0.0506		-	1.36	[1.23; 1.50]	6.8%
Muzambi et al, 2021	0.4253	0.0084		•	1.53	[1.51; 1.56]	7.0%
Ou et al, 2021	0.4700	0.1100			1.60	[1.29; 1.98]	6.2%
Pendlebury et al, 2024	0.7031	0.2875	-		2.02	[1.15; 3.55]	3.7%
Peters et al, 2022	0.5988	0.2714	-	-	1.82	[1.07; 3.10]	3.9%
Richmond-Rakerd et al, 2024	1.0750	0.0452			2.93	[2.68; 3.20]	6.8%
Shah et al,, 2013	0.8065	0.1664		-	2.24	[1.62; 3.10]	5.4%
Sipila et al, 2021	0.3920	0.0396		-+-	1.48	[1.37; 1.60]	6.9%
Tate et al, 2014	0.6419	0.1692		-	1.90	[1.36; 2.65]	5.3%
Wang et al, 2025	1.2837	0.0585		+	3.61	[3.22; 4.05]	6.7%
Random effects model Heterogeneity: $I^2 = 98\%$, $\tau^2 = 0.0$	916, <i>p</i> <	0.01		<u></u>	1.83	[1.56; 2.14]	100.0%
		Lauranti		_	maile		
	916, <i>p</i> <		0.5 1	2 ligher risk of Deme		[1.30, 2.14]	100.0 /6

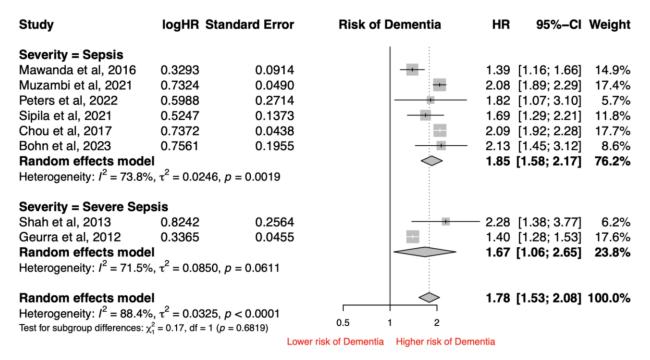
Supplementary Figure 2. Forest Plot of pooled Hazard Ratio (HR) for risk of all-cause Dementia in patients hospitalized with infections.



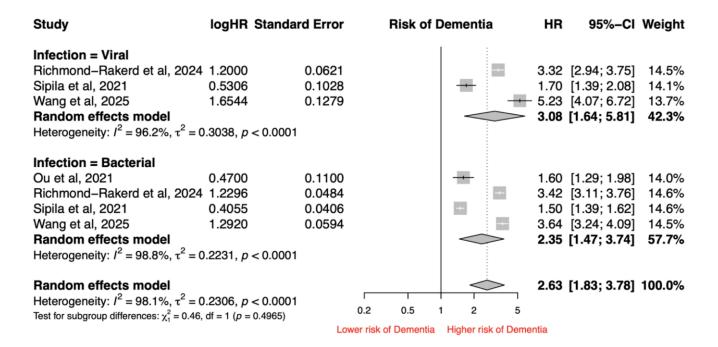
Supplementary Figure 3. Baujat Plot for hospitalization with infection and risk of all-cause Dementia based on pooled hazard ratios of 16 studies.



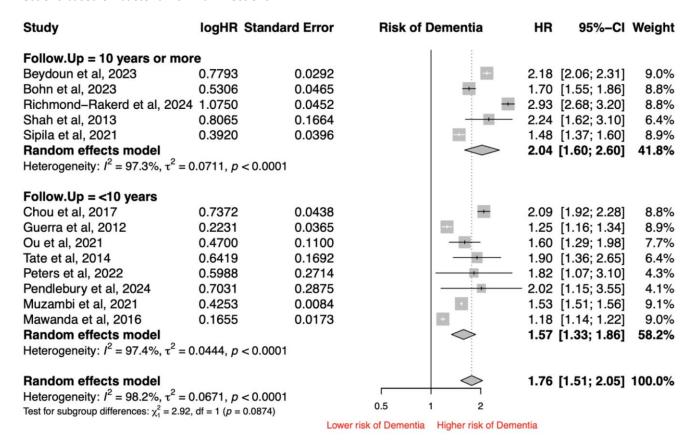
Supplementary Figure 4. Leave one out analysis for hospitalization with infection and risk of all-cause Dementia based on pooled hazard ratios of 16 studies. Effect size refers to treatment effect (logHR).



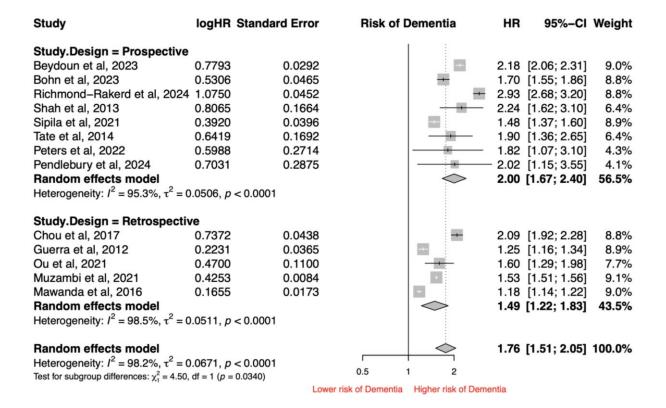
Supplementary Figure 5. Forest Plot of pooled Hazard Ratio (HR) for risk of all-cause Dementia in patients hospitalized with infections based on severity of sepsis.



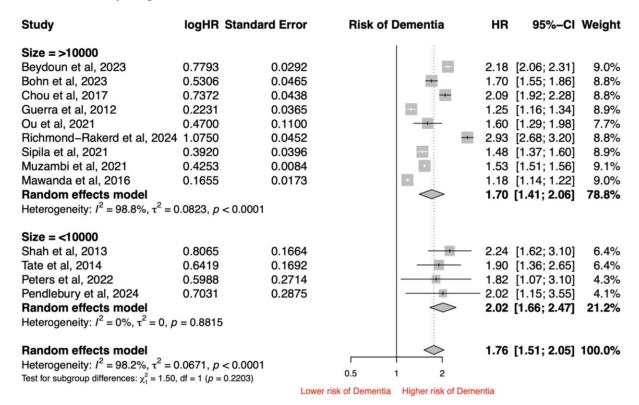
Supplementary Figure 6. Forest Plot of pooled Hazard Ratio (HR) for risk of all-cause Dementia in patients hospitalized with infections based on bacterial vs. viral infections.



Supplementary Figure 7. Forest Plot of pooled Hazard Ratio (HR) for risk of all-cause Dementia in patients hospitalized with infections based on median duration of follow-up.



Supplementary Figure 8. Forest Plot of pooled Hazard Ratio (HR) for risk of all-cause Dementia in patients hospitalized with infections based on study design.



Supplementary Figure 9. Forest Plot of pooled Hazard Ratio (HR) for risk of all-cause Dementia in patients hospitalized with infections based on total sample size of study.

Study	logHR Standa	rd Error	Risk of I	Dementia	HR	95%-CI	Weight
Region = North-America				1 :			
Beydoun et al, 2023	0.7793	0.0292		-	2.18	[2.06; 2.31]	9.0%
Bohn et al, 2023	0.5306	0.0465		-	1.70	[1.55; 1.86]	8.8%
Guerra et al, 2012	0.2231	0.0365			1.25	[1.16; 1.34]	8.9%
Shah et al, 2013	0.8065	0.1664		-	2.24	[1.62; 3.10]	6.4%
Tate et al, 2014	0.6419	0.1692		- 1	1.90	[1.36; 2.65]	6.4%
Mawanda et al, 2016	0.1655	0.0173		+	1.18	[1.14; 1.22]	9.0%
Random effects model					1.66	[1.32; 2.08]	48.4%
Heterogeneity: $I^2 = 98.6\%$, $\tau^2 =$	0.0722, <i>p</i> < 0.0001						
Region = Asia-Pacific							
Chou et al, 2017	0.7372	0.0438		-	2.09	[1.92; 2.28]	8.8%
Ou et al, 2021	0.4700	0.1100		-		[1.29; 1.98]	7.7%
Richmond-Rakerd et al, 202	4 1.0750	0.0452		-		[2.68; 3.20]	8.8%
Random effects model					2.16	[1.54; 3.03]	25.3%
Heterogeneity: $I^2 = 95.3\%$, $\tau^2 =$	0.0841, <i>p</i> < 0.0001						
Region = Europe							
Sipila et al, 2021	0.3920	0.0396			1.48	[1.37; 1.60]	8.9%
Peters et al, 2022	0.5988	0.2714				[1.07; 3.10]	4.3%
Pendlebury et al, 2024	0.7031	0.2875				[1.15; 3.55]	4.1%
Muzambi et al, 2021	0.4253	0.0084		•	1.53	[1.51; 1.56]	9.1%
Random effects model				V	1.53	[1.50; 1.55]	26.3%
Heterogeneity: $I^2 = 0\%$, $\tau^2 = 0$,							
Random effects model					1.76	[1.51; 2.05]	100.0%
Heterogeneity: $I^2 = 98.2\%$, $\tau^2 =$			0.5	1 2			
Test for subgroup differences: $\chi_2^2 = 4.5$	1, df = 2 ($p = 0.1051$)	Laurenstat					
		Lower risk	of Dementia	Higher risk of Deme	entia		

Supplementary Figure 10. Forest Plot of pooled Hazard Ratio (HR) for risk of all-cause Dementia in patients hospitalized with infections based on region of study conducted.