Figure S1. PRISMA diagram for a systematic review of apramycin resistance in bacteria isolated from animals.

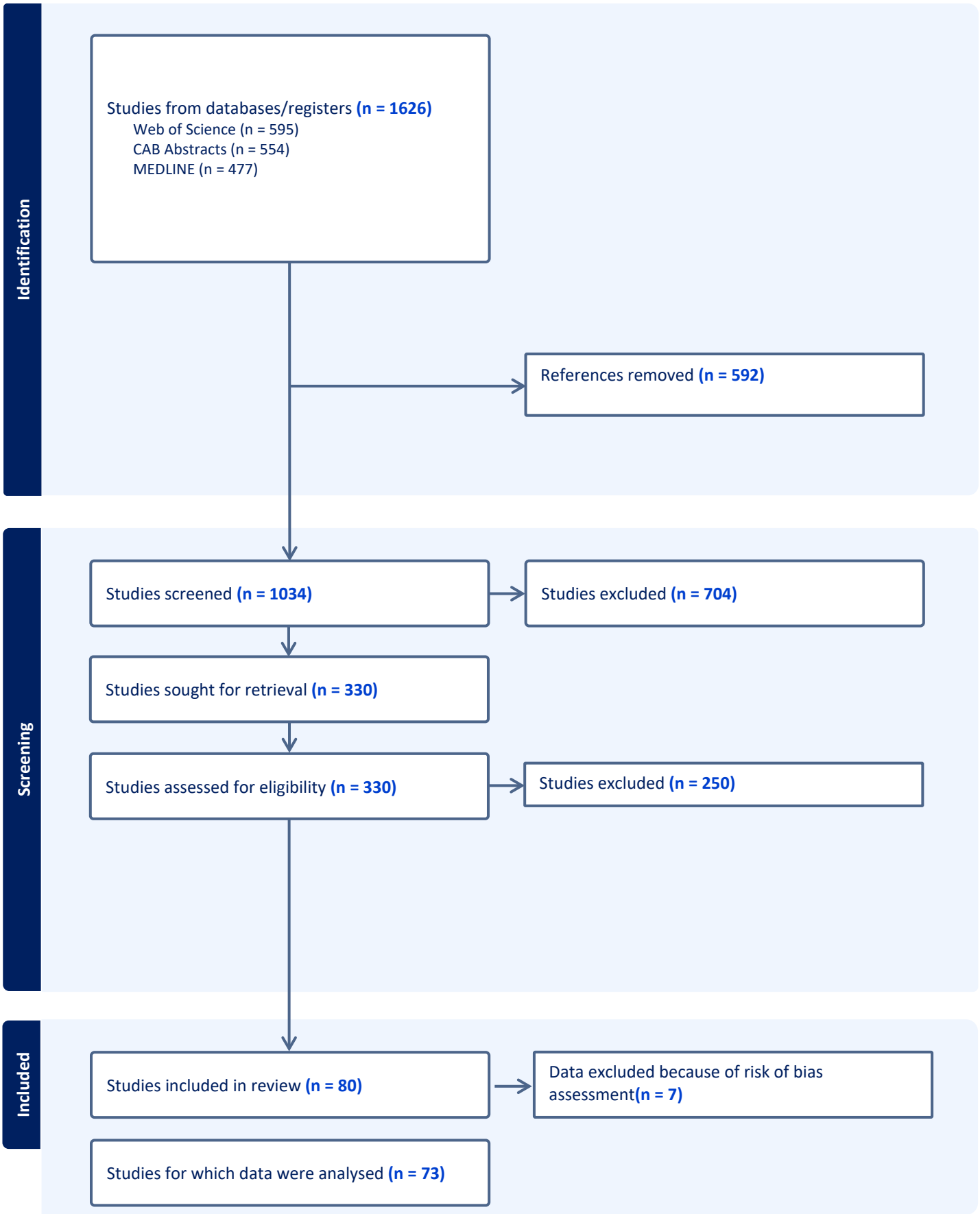

Figure S2. Forest plot of meta-analysis presenting the pooled prevalence and 95% confidence intervals for apramycin resistance in *E. coli* from healthy pigs, poultry, and cattle, by regional subgroup.

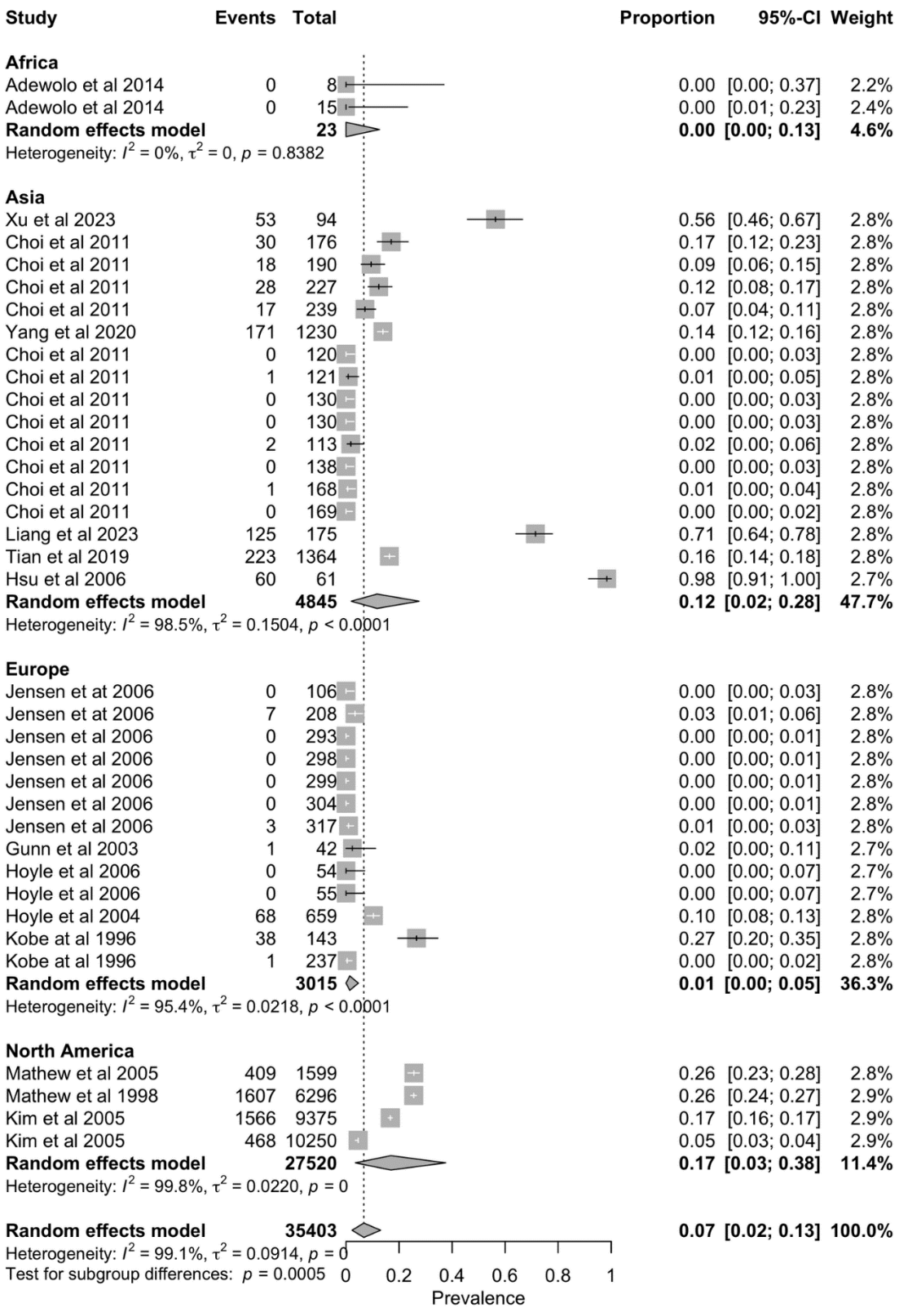

Table S1: Studies that were included in a systematic review of apramycin resistance in bacteria isolated from animals (n=73).

Study (author/year)	Country	Animals	Bacterium
Aarestrup et al 1997(1)	Denmark	Pigs, Cattle, Poultry	*Campylobacter*
Adewolo et al 2014(2)	Nigeria	Pigs, Poultry	*E. coli*
Al-Baqir et al 2019(3)	Egypt	Poultry	*Salmonella*
Amezcua et al 2002(4)	Canada	Pigs	*E. coli*
Bischoff et al 2004(5)	US	Cattle	*Salmonella*
Boerlin et al 2005(6)	Canada	Pigs	*E. coli*
Borella et al 2020(7)	Italy	Farmed fish	*Aeromonas* spp
Chao Xi et al 2013(8)	China	Poultry, Dogs, Yaks	*Salmonella*
Choi et al 2011(9)	Korea	Pigs, Cattle, Poultry	*E. coli*
da Costa et al 2008(10)	Brazil	Pigs	*E. coli*
Dipineto et al 2005(11)	Italy	Poultry	*Salmonella*

Do et al 2006(12)	Vietnam	Pigs	*E. coli*
Edrington et al 2001(13)	US	Pigs	*Salmonella*
Edrington et al 2004(14)	US	Cattle	*Salmonella*
El-Adawy et al 2018(15)	Germany	Poultry	*Gallibacterium*
Escalante et al 2022(16)	Peru	Pigs	*E. coli*
Fahmy et al 2023(17)	Egypt	Poultry	*Salmonella*
Farzan et al 2008(18)	Canada	Pigs	*Salmonella*
Frank et al 2021(19)	UK	Zoo ungulates	*E. coli*
Gakuya et al 2001(20)	Kenya	Rats	*Aeromonas, Burkholderia cepacia, Chryseomonas, E. coli, Pseudomonas*
Garcia-Feliz et al 2008(21)	Spain	Pigs	*Salmonella*

Giacomelli et al 2014(22)	Italy	Poultry	*Campylobacter*
Gunn et al 2003(23)	UK	Cattle	*E. coli*
Gunn et al 2003b(24)	UK	Cattle	*E. coli*
Hariharan et al 2004(25)	Canada	Pigs	*E. coli*
Hoyle et al 2004(26)	UK	Cattle	*E. coli*
Hoyle et al 2006(27)	UK	Cattle	*E. coli*
Hsu et al 2006(28)	Taiwan	Pigs	*E. coli*
Intorre et al 2005(29)	Italy	Pigs, Pigeons, Reptiles, Sheep	*Salmonella*
Jensen et al 2006(30)	Denmark	Pigs	*E. coli*
Johnson et al 2005(31)	Canada	Pigs, Cattle	*Salmonella*
Kim et al 2005(32)	US	Pigs	*E. coli*
Kobe at al 1996(33)	Germany	Poultry	*E. coli*
Kusumoto et al 2023(34, 35)	Japan	Pigs	*E. coli*

Lambie et al 2000(35)	Trinidad	Poultry	*E. coli*
Li et al 2020(36)	China	Poultry	*E. coli*
Liang et al 2023(37)	China	Poultry	*E. coli*
Lim et al 2013(38)	Korea	Pigs	*Salmonella*
Lizarazo et al 2006(39)	Spain	Pigs	*Pasteurella multocida*
Low et al 1997(40)	UK	Pigs, Cattle, Sheep	*Salmonella*
Luppi et al 2015(41)	Italy	Pigs	*E. coli*
Luque et al 2009(42)	Spain	Sheep	*Salmonella*
Mackie et al 1996(43)	Australia	Cattle	*Salmonella*
Malgarin et al 2018(44)	Brazil	Pigs	*E. coli*
Malik et al 2011(45)	US	Pigs	*E. coli, Salmonella*
Mateu et al 2000(46)	Spain	Pigs	*E. coli*
Mathew et al 1998(47)	US	Pigs	*E. coli*
Mathew et al 2005(48)	US	Pigs	*E. coli*

Moennighoff et al 2020(49)	Germany	Pigs	*E. coli*
Molla et al 2006(50)	Ethiopia	Pigs	*Salmonella*
Nadeau et al 2000(51)	Canada	Pigs	*E. coli, Salmonella*
Oliveira et al 2022 (52)	Portugal	Poultry	*E. coli*
Orden et al 2000 (53)	Spain	Cattle	*E. coli*
Pedersen et al 2002 (54)	Denmark	Poultry	*Salmonella*
Plumb et al 1995 (55)	US	Catfish	*Aeromonas* spp, *Edwardsiella* spp, *Pseudomonas* spp
Radwan et al 2020 (56)	Egypt	Poultry	*E. coli*
Scullion et al 2010 (57)	UK	Pigeons	*E. coli*
Sellyei et al 2009 (58)	Hungary	Pigs, Poultry	*Pasteurella multocida*

Seyfarth et al 1997 (59)	Denmark	Pigs, Cattle, Poultry	*Salmonella*
Smith et al 2014 (60)	Australia, Vietnam	Pigs	*E. coli*
Sojka et al 1986 (61)	UK	Cattle	*Salmonella*
Su Jen et al 1997 (62)	Taiwan	Poultry	*E. coli*
Sun et al 2012 (63)	China	Poultry	*Riemerella anatipestifer*
Tian et al 2019 (64)	China	Poultry	*E. coli*
Varga et al 2018 (65)	Canada	Poultry	*E. coli*
Wasyl et al 2004 (66)	Poland	Pigs, Poultry	*Salmonella*
White et al 2002 (67)	US	Pigs, Cattle, Poultry	*E. coli*
Wray et al 1993 (68)	UK	Pigs, Cattle, Poultry, Sheep	*Salmonella*
Wu et al 1997 (69)	US	Pigs	*Mycoplasma hyopneumoniae*
Xu et al 2023 (70)	China	Pigs	*Pasteurella multocida, Bordetella, Glasserella parasuis,*

			Streptococcus suis, *E. coli*
Yang et al 2020 (71)	China	Pigs	*E. coli*
Zhang et al 2021 (72)	China	Poultry	*E. coli*
Zhang et al 2024 (73)	China	Cattle	*Proteus mirabilis*

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Table S2: Minimum inhibitory concentration (MIC) breakpoints for apramycin in studies included in the systematic review.

MIC breakpoint for resistance	*Escherichia coli* (n=86)	*Salmonella* (n=44)
≥ 4 ug/ml	10 (12%)	0
≥ 8 ug/ml	1 (1.2%)	0
≥ 16 ug/ml	3 (3.5%)	2 (4.5%)
≥ 32 ug/ml	18 (21%)	2 (4.5%)
≥ 64 ug/ml	5 (5.8%)	2 (4.5%)
Not specifically reported	46 (53%)	38 (86%)