

Table S1: Database-specific search strategies

Database	Search Strategy
MEDLINE	1 exp Mandelic Acids/ or Mandelic acid.mp. 2 exp Hippurates/ or Hippuric acid.mp. 3 Hexamine.mp. or exp Methenamine/ 4 methenamine.mp. 5 hexamethylenetetramine.mp. 6 aminoform.mp. 7 hexamethylenetetramine.mp. 8 hexamine silver.mp. 9 methenamine, silver.mp. 10 silver, hexamine.mp. 11 silver methenamine.mp. 12 urotropin.mp. 13 methenamine hippurate.mp. 14 haiprex.mp. 15 hipeksal.mp. 16 hippramine.mp. 17 hippuran.mp. 18 hip-Rex.mp. 19 urotractan.mp. 20 hexydal.mp. 21 lemandine.mp. 22 mandameth.mp. 23 mandelamine.mp. 24 metanamin.mp. 25 cystitis.mp. or exp Cystitis/ 26 urethritis.mp. or exp Urethritis/ 27 exp Pyelonephritis/ or pyelonephritis.mp. 28 (rUTI or rUTI*).mp. 29 Bacteriuria/ or bacteriurea.mp. 30 (recur* or ongoing or repeated or repeat* or recurrent).mp. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word] 31 urinary tract infection.mp. 32 urinary tract infections.mp. or exp Urinary Tract Infections/ 33 31 or 32 34 30 and 33 35 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 36 25 or 26 or 27 or 28 or 29 or 31 or 32 or 34 37 35 and 36 (598 articles)
Embase	1 mandelic acid.mp. or exp mandelic acid/ 2 hippuric acid.mp. or exp hippuric acid/ 3 Hexamine.mp. 4 hexamethylenetetramine.mp. 5 exp methenamine/ or exp methenamine hippurate/ or methenamine.mp. 6 methenamine hippurate.mp. 7 hiprex.mp. 8 urinary tract infection.mp. or exp urinary tract infection/ 9 UTI.mp. 10 rUTI.mp. 11 exp cystitis/ or cystitis.mp. 12 recur* UTI.mp. 13 bacteriuria.mp. or exp bacteriuria/ 14 urethritis.mp. or exp urethritis/ or exp nonspecific urethritis/ 15 pyelonephritis.mp. or exp pyelonephritis/ 16 (methenamine hippurate or methenamine or haiprex or hipeksal or hippramine or hippuran or hip-Rex or urotractan or hexydal or lemandine or mandameth or mandelamine or metanamin).mp. 17 hippurates.mp. or exp hippuric acid derivative/ 18 urinary tract infections.mp. 19 aminoform.mp.

	20 aminoformaldehyde.mp. 21 ammoform.mp. 22 antihydral.mp. 23 cystamin.mp. 24 formamine.mp. 25 formin.mp. 26 hexaloid.mp. 27 hexamethylene tetramine.mp. 28 hexamethyleneamine.mp. 29 hexamethylenetetramine.mp. 30 hexamine.mp. 31 hexamine soap.mp. 32 methenamine hydrochloride.mp. 33 metramine.mp. 34 mictasol.mp. 35 naphthamine.mp. 36 uralysol.mp. 37 uraseptine.mp. 38 urisol.mp. 39 uritone.mp. 40 urogenine.mp. 41 urotropin.mp. 42 utropine.mp. 43 vesalvine.mp. 44 (recur* or ongoing or repeated or repeat* or recurrent).mp. 45 1 or 2 or 3 or 4 or 5 or 6 or 7 or 16 or 17 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 46 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 18 47 44 and 46 48 46 or 47 49 45 and 48 <i>(1094 articles)</i>
Scopus	(INDEXTERMS (methenamine) OR TITLE-ABS-KEY (hiprex) OR TITLE-ABS-KEY (hiprex) OR TITLE-ABS-KEY ("methenamine hippurate") OR TITLE-ABS-KEY (methenamine) OR TITLE-ABS-KEY (hiprex) OR TITLE-ABS-KEY (dispersal) OR TITLE-ABS-KEY (hippadine) OR TITLE-ABS-KEY (hippuran) OR TITLE-ABS-KEY (hip-rex) OR TITLE-ABS-KEY (neurotractin) OR TITLE-ABS-KEY (hexyl) OR TITLE-ABS-KEY (leueandine) OR TITLE-ABS-KEY (mandameth) OR TITLE-ABS-KEY (mandelamine) OR TITLE-ABS-KEY (metanamin) OR INDEXTERMS (hippurates) OR TITLE-ABS-KEY ("Hippuric acid") OR TITLE-ABS-KEY (hexamine) OR INDEXTERMS (methenamine)) AND (INDEXTERMS (bacteriuria) OR INDEXTERMS ("Urinary Tract Infections") OR TITLE-ABS-KEY (cystitis) OR INDEXTERMS (cystitis) OR TITLE-ABS-KEY (urethritis) OR INDEXTERMS (urethritis) OR TITLE-ABS-KEY (ruti) OR TITLE-ABS-KEY (ruti*) OR INDEXTERMS (pyelonephritis) OR TITLE-ABS-KEY (pyelonephritis) OR TITLE-ABS-KEY ("urinary tract infection") OR TITLE-ABS-KEY ("urinary tract infections") OR INDEXTERMS ("Urinary Tract Infections")) <i>(1108 articles)</i>
Cochrane Central Register of Controlled Trials	#1 MeSH descriptor: [Methenamine] explode all trees #2 MeSH descriptor: [Bacteriuria] explode all trees #3 MeSH descriptor: [Cystitis] explode all trees #4 MeSH descriptor: [Pyelonephritis] explode all trees #5 MeSH descriptor: [Urinary Tract Infections] explode all tree #6 MeSH descriptor: [Urethritis] explode all trees #7 bacteriuria:ti,ab OR cystitis:ti,ab OR pyelonephritis:ti,ab OR urinary NEXT tract NEXT infection*:ti,ab OR UTI*:ti,ab OR urethritis:ti,ab #8 methenamine:ti,ab OR hiprex:ti,ab OR methenamine NEXT hippurate:ti,ab #9 #2 OR #3 OR #4 OR #5 OR #6 OR #7 #10 #1 OR #8 #11 #9 AND #10 <i>(79 articles)</i>
ProQuest Dissertation and Theses	((methenamine OR "methenamine hippurate" OR hiprex OR hexamine OR "methenamine mandelate" OR "methenamine hippurate" OR haiprex) AND (bacteriuria OR cystitis OR pyelonephritis OR urethritis OR "urinary tract infection" OR "urinary tract infections" OR UTI OR UTIs OR "recurrent urinary tract infections")) <i>(247 articles)</i>

Table S2: Data extraction fields for systematic reviews

Category	Data Extraction Fields
Study characteristics	• Study citation • Year of publication • Country of origin • PROSPERO ID • Databases searched • Search period • Key research questions as per protocol/final text
Eligibility (PCC framework)	• Inclusion criteria relating to population (i.e. patients, and indication for antimicrobial treatment) • Exclusion criteria relating to population • Inclusion criteria relating to concept (i.e. intervention – methenamine hippurate regimen) • Exclusion criteria relating to concept • Inclusion criteria related to context (i.e. study setting) • Exclusion criteria related to context
Outcomes	• Total number of retrieved articles • Number of articles included • Key outcomes interpreted, including relevant summary statistics • Key conclusions from review
Meta-analysis	• Was a meta-analysis conducted? (Y/N) • Description of meta-analysis (narrative) and primary effects (eg. Odds ratios, Risk ratios, standardised mean differences) obtained from pooled results and accompanying markers of between-study heterogeneity.

Table S3: Data extraction fields for qualitative studies

Category	Data extraction fields
Study characteristics	• Study citation • Year of publication • Country of origin
Description of source population	• Description of source population as per the PCC framework • Origin of population (e.g. primary or secondary care) • Sampling method and recruitment time frame
Questionnaire methodology	• Modality of questionnaire dissemination • Response rate (%) including proportion of partial and complete responses, if applicable • Key outcomes investigated within questionnaire
Outcomes	• Narrative description of key results with relevant summary statistics and between-group differences