**Appendix 1: search strategy**

(("Drug Substitution"[Mesh] OR pathogen directed[tw] OR small spectrum[tw] OR narrow spectrum[tw] OR (tailored[tw] AND (therapy[tw] OR therapies[tw] OR treatment\*[tw])) OR ((broad[tw] OR empiric\*[tw]) AND (narrow[tw] OR change\*[tw] OR switch\*[tw] OR substitut\*[tw])) OR streamlin\*[tw] or de-escalat\*[tw]) AND ((("Anti-Bacterial Agents"[Mesh] OR "Anti-Bacterial Agents" [Pharmacological Action] OR "Antifungal Agents"[Mesh] OR "Antifungal Agents" [Pharmacological Action] OR anti-bacterial\*[tw] OR antibacterial\*[tw] OR anti-mycobacterial\*[tw] OR antimycobacterial\*[tw] OR antibiotic\*[tiab] OR anti-infective[tiab] OR antifungal[tiab] OR anti-fungal[tiab] OR bactericid\*[tw] OR bacteriocid\*[tw]) AND ("Outcome Assessment (Health Care)"[Mesh] OR outcome\*[tw] OR "Drug-Related Side Effects and Adverse Reactions"[Mesh] OR "adverse effects" [Subheading] OR adverse effect\*[tw] OR adverse reaction\*[tw] OR adverse drug reaction\*[tw] OR adverse event\*[tw] OR adverse drug event\*[tw] OR undesirable effect\*[tw] OR side effect\*[tw] OR "Mortality"[Mesh] OR mortalit\*[tw] OR "mortality"[Subheading] OR death\*[tw] OR fatal\*[tw] OR "Morbidity"[Mesh:NoExp] OR morbidit\*[tw] OR "Drug Resistance"[Mesh] OR resistan\*[tw] OR "Costs and Cost Analysis"[Mesh] OR cost\*[tw])) NOT case reports[pt]) NOT ("HIV Infections"[Mesh] OR HIV[Mesh] OR HIV[ti] OR human immunodeficiency virus[ti])) AND 2014/04:2019/02 [edat]))