**Supplementary Table 1** List of studies excluded from systematic review and meta-analysis

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| **Paper Number** | **Citation** | **Reason for exclusion** |
| 1 | Kajbaf F, Lalau J-D (2013) The prognostic value of blood pH and lactate and metformin concentrations in severe metformin-associated lactic acidosis. BMC Pharmacol Toxicol 14:. https://doi.org/10.1186/2050-6511-14-22 | Study did not have a control group without metformin |
| 2 | Sales A, Mayhew M (2017) Medication-wide association study in sepsis and suspected infection. American Journal of Respiratory and Critical Care Medicine. Conference: American Thoracic Society International Conference, ATS 2017. United States. 195 (no pagination), 2017. Date of Publication: 2017. Embase AN: 617706667 | Conference abstract |
| 3 | Jeschke MG, Abdullahi A, Burnett M, et al (2016) Glucose Control in Severely Burned Patients Using Metformin: An Interim Safety and Efficacy Analysis of a Phase II Randomized Controlled Trial. Ann Surg 264:518–527. https://doi.org/10.1097/SLA.0000000000001845 | No premorbid exposure of metformin |
| 4 | Ekström N, Schiöler L, Svensson A-M, et al (2012) Effectiveness and safety of metformin in 51 675 patients with type 2 diabetes and different levels of renal function: a cohort study from the Swedish National Diabetes Register. BMJ Open 2:e001076. https://doi.org/10.1136/bmjopen-2012-001076 | Study did not have a control group without metformin |
| 5 | Pelizzaro E, Natali N (2017) Could metformin associated lactic acidosis have a role in deposition of oxalates? Blood Purification. Conference: 35th Vicenza Course on AKI and CRRT. Italy. 44 (3) (pp 183), 2017. Date of Publication: October 2017. | Case study |
| 6 | Koren S, Zilberman-Itskovich S, Koren R, et al (2017) Metformin Does Not Induce Hyperlactatemia in Patients Admitted to Internal Medicine Ward. Isr Med Assoc J IMAJ 19:300–303 | Patient mortality was not part of study |
| 7 | Mariano F, Pozzato M, Inguaggiato P, et al (2017) Metformin-Associated Lactic Acidosis Undergoing Renal Replacement Therapy in Intensive Care Units: A Five-Million Population-Based Study in the North-West of Italy. Blood Purif 44:198–205. https://doi.org/10.1159/000471917 | Study did not have a control group without metformin |
| 8 | Mortensen E, Alvarez C (2018) Prior metformin use is associated with lower mortality for patients with diabetes who are hospitalized with pneumonia. Journal of General Internal Medicine. Conference: 41st Annual Meeting of the Society of General Internal Medicine, SGIM 2018. United States. 33 (2 Supplement 1) (pp 312), 2018. Date of Publication: 2018. | Conference abstract |
| 9 | Carey IM, Critchley JA, DeWilde S, et al (2018) Risk of Infection in Type 1 and Type 2 Diabetes Compared With the General Population: A Matched Cohort Study. Diabetes Care 41:513–521. https://doi.org/10.2337/dc17-2131 | Authors were not able to provide sepsis incidence data. |
| 10 | van den Nouland DPA, Brouwers MCGJ, Stassen PM (2017) Prognostic value of plasma lactate levels in a retrospective cohort presenting at a university hospital emergency department. BMJ Open 7:e011450. https://doi.org/10.1136/bmjopen-2016-011450 | Authors did not reply to requests for mortality data |
| 11 | Lee EY, Hwang S, Lee Y, et al (2017) Association between Metformin Use and Risk of Lactic Acidosis or Elevated Lactate Concentration in Type 2 Diabetes. Yonsei Med J 58:312. https://doi.org/10.3349/ymj.2017.58.2.312 | Authors did not reply to requests for mortality data |
| 12 | Shih C-J, Wu Y-L, Chao P-W, et al (2015) Association between Use of Oral Anti-Diabetic Drugs and the Risk of Sepsis: A Nested Case-Control Study. Sci Rep 5:. https://doi.org/10.1038/srep15260 | Authors did not reply to requests for mortality data |