

The Eurobact 2 study, research report.

Eurobact 2 was an international multicenter cohort study on hospital-acquired bloodstream infections conducted from 2019 to 2021. The study included 2,600 patients from 333 ICUs across fifty-two countries and was led by Alexis Tabah (Australia), Niccolò Buetti (Switzerland), François Barbier (France) and Jean-François Timsit (France). The study group involved more than six hundred contributors worldwide and was supported and funded by the European Society of Intensive Care Medicine (ESICM), the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) Study Group for Infections in Critically Ill Patients (ESGCIP), the Norva Dahlia foundation, the Redcliffe Hospital Private Practice Trust Fund, and the OUTCOMEREA Network.

- The main database description, “Epidemiology and outcomes of hospital-acquired bloodstream infections in intensive care unit patients: the EUROBACT-2 international cohort study” was one of the six most cited Intensive Care Medicine journal articles of 2023.
- The study was presented at the ESICM LIVES meeting 2021 and received the best abstract award.

The international collaboration is ongoing, and the following papers have been published.

- Tabah, A., Buetti, N., Staiquily, Q., Ruckly, S., Akova, M., Aslan, A. T., ..., Barbier F, & Timsit, J. F. (2023). Epidemiology and outcomes of hospital-acquired bloodstream infections in intensive care unit patients: the EUROBACT-2 international cohort study. *Intensive Care Medicine*, 1-13. <https://doi.org/10.1007/s00134-022-06944-2>
- Buetti, N., Tabah, A., Loiodice, A., Ruckly, S., Aslan, A. T., Montrucchio, G., ... Barbier, F. & Timsit, J. F. (2022). Different epidemiology of bloodstream infections in COVID-19 compared to non-COVID-19 critically ill patients: a descriptive analysis of the Eurobact II study. *Critical Care*, 26(1), 319. <https://doi.org/10.1186/s13054-022-04166-y>
- Aslan, A. T., Tabah, A., Köylü, B., Kalem, A. K., Aksoy, F., Erol, Ç., Karaali, R., ... Buetti, N., Barbier, F., Timsit, J. F. & Akova, M. (2023). Epidemiology and risk factors of 28-day mortality of hospital-acquired bloodstream infection in Turkish intensive care units: a prospective observational cohort study. *Journal of Antimicrobial Chemotherapy*, 78(7), 1757-1768. <https://doi.org/10.1093/jac/dkad167>
- Wozniak, H., Tabah, A., Barbier, F., Ruckly, S., Loiodice, A., Akova, M., ... & Timsit, J. F.(2024). Hospital-acquired bloodstream infections in critically ill cirrhotic patients: a post-hoc analysis of the EUROBACT-2 international cohort study. *Annals of Intensive Care*, 14(1), 70. <https://doi.org/10.1186/s13613-024-01299-x>
- Buetti, N., Tabah, A., Setti, N., Ruckly, S., Barbier, F., Akova, M., ... & Timsit, J. F. (2024). The role of centre and country factors on process and outcome indicators in critically ill patients with hospital-acquired bloodstream infections. *Intensive Care Medicine*, 1-17. <https://doi.org/10.1007/s00134-024-07348-0>
- Margalit, I., Yahav, D., Hoffman, T., Tabah, A., et al. Presentation, management, and outcomes of older compared to younger adults with hospital-acquired bloodstream

infections in the intensive care unit: a multicenter cohort study. *Infection* (2024).

<https://doi.org/10.1007/s15010-024-02304-y>

- Wozniak, H., Tabah, A., De Waele, J. J., Timsit, J. F., Buetti, N., & EUROBACT-2 Study Group, ESICM, ESCMID ESGCIP and the OUTCOMEREA Network. (2024). Variability in forgoing life-sustaining treatment practices in critically ill patients with hospital-acquired bloodstream infections: a secondary analysis of the EUROBACT-2 international cohort. *Crit Care*, 28(1), 287. <https://doi.org/10.1186/s13054-024-05072-1>
- Liodice, A., Bailly Pharm, D. S., Ruckly, S., Buetti, N., Barbier, F., Staiquly, Q., Tabah, A., Timsit, J. F., & Eurobact-2 Study Group, E. E. E. (2024). Effect of adequacy of empirical antibiotic therapy for hospital-acquired bloodstream infections on ICU patient prognosis: a causal inference approach using data from the Eurobact2 study. *Clin Microbiol Infect*. <https://doi.org/10.1016/j.cmi.2024.09.011>
- Hoffman, T., Margalit, I., Tabah, A., Ruckly, S., Barbier, F., Singer, P., Timsit, J. F., Prendki, V., Hassoun-Kheir, N., Buetti, N., Yahav, D., & Eurobact-2 Study Group, the European Society of Intensive Care Medicine the European Society of Clinical Microbiology Infectious Diseases Study Groups for Infections in Critically Ill Patients Infections in the Elderly the Outcomerea Network. (2025). Risk Factors for Mortality Among Older Adults with Hospital-Acquired Bloodstream Infections in the Intensive Care Unit: A Multicenter Cohort Study. *Infect Dis Ther*. <https://doi.org/10.1007/s40121-024-01104-z>
- Gajdos, L., Buetti, N., Tabah, A., Ruckly, S., Akova, M., Sjöval, F., Arvanti, K., De Waele, J., Bracht, H., Barbier, F., & Timsit, J.-F. (in press). Shortening antibiotic therapy duration for hospital-acquired bloodstream infections in critically ill patients: A causal inference model from the international EUROBACT-2 database. *Intensive Care Medicine*.

The following ancillary studies are ongoing, at various stages of development from data management to submission for publication and different stages of peer review:

- Kauzonas, E., Torisson, G., Merlo, J., Perez, R., Tabah, A., Buetti, N., Ruckly, S., Barbier, F., Timsit, J.-F., & Sjövall, F. (2025). Determinants of empiric combination antibiotic therapy for hospital-associated bloodstream infections in the intensive care unit: A retrospective cohort study ancillary to EUROBACT-2. *Critical Care*, (Manuscript submitted for publication).
- Duclos, G., Boucekine, M., Tabah, A., Ruckly, S., Buetti, N., Timsit, J.-F., & Leone, M. (2025). Effect of corticosteroids on the outcome of sepsis patients with hospital-acquired bloodstream infections: An ancillary case-control study of EUROBACT-2 cohort. *Critical Care*, (Manuscript submitted for publication).
- A target trial investigating the association between empirical combination therapy and outcomes is led by Maxime Desgrouas, Francois Barbier and Jean-Francois Timsit.
- Epidemiology and outcomes of hospital-acquired bloodstream infection in critically ill patients with cancer (In preparation). The study is led by François Barbier from France.
- An analysis of patients with solid organ transplant (In preparation). The study is led by Marc Doman and Jean-François Timsit from France.
- How to measure the association between appropriateness of antibiotic treatment and clinical outcomes of patients with drug-resistant bloodstream infections? (In preparation).

The study is led by Nasreen Hassoun-Kheir, Marlieke De Kraker, and Niccolò Buetti. (In preparation). The study is led by Nasreen Hassoun-Kheir, Marlieke De Kraker, and Niccolò Buetti.

- Association between knowledge of MDR colonization and adequacy of antimicrobial therapy
- What is the impact of early versus late intravascular catheter removal on mortality of catheter associated HA-BSI in the ICU. (In preparation). The study is led by Alexis Tabah.
- Characteristics and outcomes of delirium associated with HA-BSI. (In preparation). The study is led by Robert Nicholson and Alexis Tabah.
- Impact of empirical treatment and treatment duration of candida BSI and mortality. (In preparation). The study is led by Hannah Wozniak and Niccolo Buetti
- An ongoing project merging the Eurobact I and II databases is in preparation to investigate the changing epidemiology of *Acinetobacter* spp, *Stenotrophomonas* spp, *Pseudomonas* spp and *Candida* spp is led by Jean-Francois Timsit and David Mokrani.