



Saving lives by fighting neonatal sepsis

Creating a model to support rapid diagnosis and early treatment of sepsis among newborn babies

IN STEP achieved this using

- SAS® Viya® in Microsoft Azure

SAS Hackathon 2023 • Specialty Winner for Trustworthy AI • Healthcare & Life Science Track

Challenge

Sepsis is a major problem among newborn babies, especially premature infants.

- Sepsis is very challenging to diagnose because it often does not have any very specific symptoms.
- It has a very high mortality rate, especially among the smallest and most premature babies.
- Children who survive may develop lasting neurological problems.

Innovation

This solution created a model to support faster diagnosis of neonatal sepsis, and therefore enable timely treatment.

IN STEP:

- Created a model bringing together data from laboratory results, information about vital signs and other sources such as gestational age and birth weight.
- Identified the factors associated with late-onset and early-onset sepsis.
- Correctly diagnosed sepsis up to three hours before a blood culture could be submitted and checked.

Impact

This model could be used in other pediatric units to help to diagnose sepsis among newborn babies.

- The model has potential to save lives among neonates by faster identification and treatment of sepsis.
- The model will help to standardize care by reducing dependence on the analytical abilities of individual doctors.
- It will also free up staff time for research on other important questions such as the effectiveness of antibiotics.

“It is very important, this study, because it will create a model that allows [us] to reach [an] earlier diagnosis and earlier intervention.”

Dr. Madalena Lopo Tuna • Director of Pediatric Services • Hospital de São Francisco Xavier, Lisbon, Portugal