

Assignment 6

The environmental, social and economic implications of blood-sampling at home

Problem statement

Kidney transplant receivers use immunosuppressants to prevent organ rejection. However, these immunosuppressants need to be dosed very precisely. If the dose is too low; the kidney will be rejected. If dosed too high; toxicity and organ failure may occur. Several measurements are needed to make a single dose adjustment. Therefore, these patients need to give blood samples frequently, and consequently spend a lot of time in the blood sampling facility of the hospital.

Dried blood spot sampling (DBS) is a new means of blood sampling which the patients can do at home. This research assignment is an investigation of the environmental, social and economic implications of DBS in comparison to traditional blood sampling at the hospital. Some of the implications to consider may be: reduction of patient travel-time, different use of equipment, cost-savings.

Research question(s)

What are the environmental, economic and social impacts of DBS sampling, and how do they compare to traditional methods for blood samples?

Expected type of work

Literature review, interviews in the lab and/or with commercial supplier

Suggested academic backgrounds

This research assignment is open to any graduating Master students from Leiden University, TU Delft and Erasmus Rotterdam

- MSc Healthcare Management
- MSc Innovation Management
- MSc Governance of Sustainability
- MSc Health Sciences

Available data/reports or other relevant information sources for the assignment

McAlister S, Barratt AL, Bell KJ, McGain F. The carbon footprint of pathology testing. Med J Aust. 2020 May;212(8):377-382. doi: 10.5694/mja2.50583. Epub 2020 Apr 18. PMID: 32304240.

The carbon footprint of treating patients with septic shock in the intensive care unit. McGain F, Burnham JP, Lau R, Aye L, Kollef MH, McAlister S. Crit Care Resusc. 2018 Dec;20(4):304-312.

<https://www.lumc.nl/org/transplantatie-centrum/patienten/praktische-informatie/2007342/>