Sustainable and value based intensive care medicine: connecting MONITOR-IC, NICE, and Vektis data to evaluate the cost effectiveness of intensive care medicine and to improve patient outcomes (ICU-RI)

Abstract
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Proposed Research Infrastructure (RI):
Intensive care medicine is expensive and can have a tremendous and long-term impact on patient’s life. With the investment, a FAIR, dynamic population based research-infrastructure (RI) will be built by connecting three large and national databases (MONITOR-IC, NICE and Vektis) including patient characteristics, treatment data, short and long-term health outcomes (mortality, patient reported outcomes measures (PROMs)), socio-economic characteristics, and health care consumption. The ICU-RI enables to evaluate the effectiveness, cost effectiveness and budget impact of intensive care medicine and to answer relevant and urgent societal and scientific research questions focused on the improvement of patient outcomes and the sustainability of intensive care medicine.

The main goal of this investment is to organize a FAIR RI including an adequate ICT data infrastructure, data collection logistics process including apps, and data management system that can handle the inclusion and follow-up of thousands of intensive care unit (ICU) patients. Moreover, the ICT data infrastructure is needed to merge, standardize and manage large and complex data sets from different sources with different type of data; i.e. patient reported outcomes from questionnaires (MONITOR-IC), medical data from electronic patient records converted into a quality registry (NICE), and health care consumption data from insurers (Vektis).

The ICU-RI will be built by a consortium including MONITOR-IC/Radboudumc, Stichting NICE/AmsterdamUMC, Vektis, NVIC, V&S/VN-IC and FCIC (patient organisation) and is intended to be beneficial for all ICU related care professionals, researchers and policy makers, and ultimately for patients.

The ICU-RI facilitates:
- researchers to evaluate the effectiveness, cost effectiveness and budget impact of ICU treatment for input for guidelines and policy making
- researchers to develop and validate prediction models regarding short- and long-term outcomes
- patients, relatives and healthcare professionals in treatment decisions supported by prediction models
- healthcare providers to give patients personalised health care tailored to their experienced health problems and to their personal values and needs
- healthcare providers to improve ICU care by collaborative learning
- policy makers for decisions about the sustainability of intensive care medicine based on valid data from the RI
- innovations in e-health by using PROMs in ICU practice, post-ICU services and by patients’ themselves in order to further improve personalized ICU care

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The ICU-RI fits to the Health-RI of the NFU (https://www.health-ri.nl/).

**Organisation responsible for the application**

**Confirm letter of intent**
With submitting this form via ISAAC I declare to have filled in this form completely and truthfully.

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**Applicant**