

**Foreløbig titel:**

Subclinical iron deficiency in Danish blood donors and its possible association with infections and self-rated Health Related Quality of Life (HRQL)

**Førsteforfatter/ medforfattere/ sidsteforfatter:**

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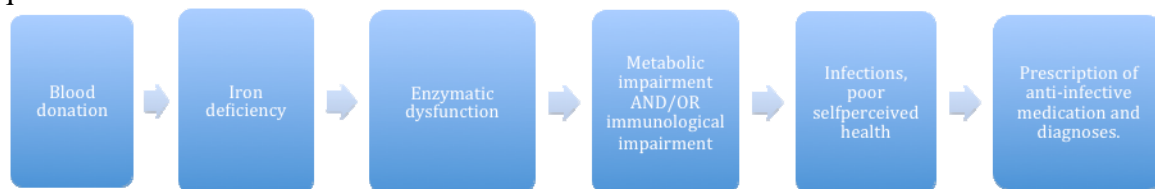
**Synopse** (Kort beskrivelse af baggrund, formål, metode og evt. forventede resultater)

**Baggrund:**

It has been estimated that as much as 5 billion people worldwide suffers from iron deficiency. Blood donors are at increased risk of developing iron deficiency due to their blood donation. Iron deficiency can lead to anemia and it has been associated with neuropsychological changes, restless leg syndrome, hair loss and impaired innate as well as specific immunity. *In vitro* test from iron deficient patients have, to name a few, shown decreased neutrophil function, decreased bactericidal activity, impaired natural killer cell activity and impaired interleukin 2 production (IL-2). These findings have all been reversible with iron supplementation. Theoretically this would lead to an increased susceptibility towards infections. Due to the scarce clinical important knowledge of iron deficiency and infectious morbidity this would have to be investigated, preferably as a non-iron intervention study on otherwise healthy iron deficient people (e.g. blood donors).

**Hypotese:**

As shown below, blood donation can lead to iron deficiency. This will then cause enzymatic dysfunction (e.g. myeloperoxidase) leading to immunological and metabolic impairment that will eventually result in the subjects being more prone to infections and having a poorer self-perceived health. The end product of this chain of events will be evaluated by prescription of medications, doctor's diagnoses and response to the SF-12 questionnaire



- 1) Iron deficiency is associated with an increased risk of infections evaluated by number of and time to prescriptions of anti-infective medication with 3 months and 1-year follow-up, respectively.
- 2) Iron deficiency is associated with an increased risk of infections evaluated by number of and time to action diagnosis given at hospitals with 3 months and 1-year follow-up, respectively.
- 3) Iron deficient blood donors have poorer self-perceived health evaluated by Short Form 12.

**Metode:**

The study is a prospective cohort study using baseline cross sectional data and follow up data from National Health Registries (*The Danish National Prescription Registry, The Danish National Patient Register*).

**Forventede resultater:**

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**Plan for projektets udførelse:**

Funding and application for scholarship have been applied for. Collected data will be assessed through october, november and december 2012, statistical analyses and write up of article will be done through until august 2013.

**Materiale:**

Data from the 20,000 first participants in The Danish Blood Donor Study (DBDS) have already been obtained. Data from The Danish National Prescription Registry and The Danish National Patient Register, provided by Statistics Denmark, will hopefully be obtained within latest end November.

**Statistiske analyser:**

The main outcome measurements will primarily be analysed by survival statistics focusing on: Time-to-first prescription of antibiotics, antifungal medicine, antiviral drugs and time-to-first relevant action diagnosis given at hospitals. Number of anti-infective prescriptions will be dealt with by calculating means and detect possible differences

**Tidsperspektiv:**

One year from august 2012 to august 2013

**Persons ansvarlig for udformning af synopsen/kontaktperson(er):**

Andreas Stribolt Rigas (Supervisor: Henrik Ullum)

**Finansiering** (*allerede opnået / skal søges / finansieres af DBDS midler*):

Funding possibilities will be checked.

**Godkendt af styregruppen** (*dato*):**Yderligere kommentarer:**