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Data Science Information Space: New Internship Position @ the Italian Institute for Infectious Diseases "L. Spallanzani"

1 messaggio

Francesco Rinaldi (via STEM) <noreply.elearning@unipd.it> 15 marzo 2023 alle ore 19:19

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Data Science Information Space » Forums » News channel » New Internship Position @ the Italian Institute for Infectious Diseases "L. Spallanzani"

New Internship Position @ the Italian Institute for Infectious Diseases "L. Spallanzani"
by Francesco Rinaldi - Wednesday, 15 March 2023, 6:48 PM

Dear Students,

here is an internship project to be carried out in collaboration with the Italian Institute for Infectious Diseases "L. Spallanzani".

For further info please write an email to rinaldi@math.unipd.it

Cheers,

Francesco Rinaldi

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NOMAL Network for Severe Malaria Treatment.

Severe malaria is a medical emergency carrying a considerable risk for death. Once endemic in Italy, malaria currently affects travellers and migrants from tropical regions, mainly of Sub-Saharan Africa. Each year, around 6000 imported malaria cases are reported in Europe and approximately 10% are classified as “severe”, according to “World Health Organization” clinical criteria. Prompt parasitological diagnosis, immediate start of antimalarial treatment and adequate intensive care, are the key for a successful clinical management. Most of the clinical research concerning severe malaria was conducted in endemic countries, where this condition usually affects young children, pregnant women, elderlies and immunocompromised individuals. In fact, it is well known that adults living in endemic regions develop a condition of partial immune protection, which confers a relative resistance to malaria severe complications. On the other hand, imported severe malaria is commonly observed in healthy nonimmune adults and it usually manifests with clinical syndromes that may differ from those observed in fragile resident individuals. Furthermore, severe malaria mortality rates reported from European and North American centres are considerably lower comparing to those observed in tropical endemic countries, mainly due to the wide availability of high-level intensive care. Consequently, complications and risk factors related to adverse outcomes, which were not been currently elucidated and described in travellers, may be significantly different from those reported by most of the studies. Given this knowledge gap, fifteen of the main Italian “tropical diseases” units built a research network (the NOMAL study group) aimed at increasing the understanding of imported severe malaria clinical phenotypes and at improving clinical care of patients affected by this condition. As a first step to reach these targets, a prospective multicentre cohort of patients diagnosed with severe malaria was established, in order to enrol an adequate number of patients and to reach reliable results. Clinical, epidemiologic and therapeutic

data were collected with the aim to provide an adequate description of severe imported malaria clinical presentation, complications and outcomes.

The main purpose of our cooperation with the Department of Mathematics of the University of Padova is to use Machine Learning approaches to analyse the NOMAL cohort data. We hope that this will allow for the identification of combinations of risk factors related to adverse outcomes and complications. The examples of applications of Machine Learning in infectious diseases data analysis are increasing worldwide with promising results. Therefore, this internship may be an exciting opportunity for the students of the master degree in Data Science, to be involved in the application of modern data analysis techniques in cutting-edge biologic and medical research.

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