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COLLOQUES DU DFRI* 2019 Forum de statistique

Jeudi 21 mars 2019
de 11h00 à 12h00

Estimating overdiagnosis in cancer screening studies: a statistical conversation about bias, identifiability and biologic mechanism

Abstract: It is generally accepted that some screen-detected cancers are overdiagnosed and would not progress to symptomatic cancer if left untreated. However, because overdiagnosis is not directly observable, obtaining precise estimates constitutes a methodological challenge. In the first part of the talk we discuss the most common methods used to estimate overdiagnosis, namely excess-incidence and model-based approaches. We explain why most excess-incidence studies are prone to bias and consider model-based approaches that build on and extend methods for interval censored incidence as observed in cancer screening trials. Our extension permits preclinical tumors that are non-progressive but raises parameter identifiability issues. We discuss identifiability and model misspecification and propose concrete solutions to address these challenges. In the second part of the talk, we revisit the problem of cancer overdiagnosis through the lens of cancer biology. In particular, we seek to reconcile the current paradigm of cancer initiation and progression with the statistical overdiagnosis estimates from cancer screening studies and highlight the need for multi-scale approaches that integrate evidence from multiple sources.

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Lieu de la conférence : salle Delachaux, Unisanté, Le Biopôle, secteur Vennes-A (SV-A), Rte de la Corniche 10, niveau 1, 1010 Lausanne

Les colloques sont publics !

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