

Dear colleague,

The next Bergen biostatistical seminar will be given

Wednesday 14 Des 2016, 11.00-12.00

By

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Title:

Impact of Screening and ART on Anal Cancer Incidence in HIV-Positive Men who have Sex with Men: Mathematical Modeling Study

Abstract:

Background: In HIV-positive men who have sex with men (MSM), the incidence of anal cancer is estimated to be 60-190 times higher than in the general population. We modeled the impact of different screening strategies and of universal combination antiretroviral therapy (cART) coverage in Switzerland.

Methods: Individual-based, dynamic mathematical simulation model parameterized with data from the Swiss HIV Cohort Study (SHCS) and the literature. CD4 cell count trajectories were the main predictors of anal cancer risk. From 2016 we either modeled cART coverage as stable (corresponding to 2010-2015) or as 100%, and considered no screening, yearly anal cytology (Pap smears), yearly anoscopy and targeted anoscopy five years after the first CD4 count was <200 cells/ μ l.

Results: Nadir CD4 cell count of 6,411 MSM increased from 229 cells/ μ l during 1980-89 to 394 cells/ μ l during 2010-15; cART coverage increased from 0% to 83.4%. Model estimates were consistent with anal cancer incidence observed in the SHCS. Modeled incidence peaked at 81.7 in 2009, plateaued 2010-2015 and decreased to 58.7 by 2030 with stable cART coverage, and to 52.0 per 100,000 with 100% cART coverage. With yearly cytology incidence declined to 38.2 by 2030, with yearly anoscopy to 32.8 and with CD4 count guided anoscopy to 51.3 per 100,000. The numbers needed to screen over 15 years to prevent one case (NNS) were 3974 for yearly cytology, 324 for yearly anoscopy and 242 for CD4 count dependent screening.

Conclusions: Anal cancer incidence in HIV-positive MSM has been rising for many years despite the roll out of cART. Since 2010, anal cancer incidence decreases and future cART uptake will have little effect on anal cancer incidence. Yearly screening of HIV-positive MSM may reduce anal cancer incidence substantially, with a NNS that is comparable to other screening interventions to prevent cancer.

Place:

Realfagsbygget 4th floor, Allégaten 41, 5007 Bergen (([Map](#)) room 4A9f "lunsjrommet")

The seminar is open for everyone interested. After the seminar there will be a light lunch.

Welcome!

Geir Drage Berentsen, Department of Mathematics, University of Bergen