

Life as a Post-doc at the National Cancer Institute

Pavel Chernyavskiy, Ph.D.
Alpha Seminar

Nov 21nd, 2016

About me

- Born in the Ukraine in 1985, immigrated to New York City in 1996
- BS in Economics from SUNY - Binghamton in 2007
- MS in Statistics from UNL in 2012; PhD in 2015
- Post-doc at the National Cancer Institute (NCI) since July 2015

What I do

- As a post-doc, my main job is to conduct research and publish papers
 - Publishing my dissertation is part of my job
 - Finding a permanent position is part of my job

What I do

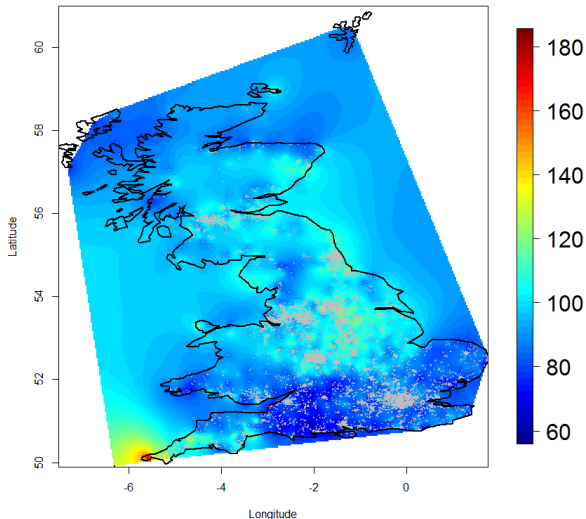
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- My research broadly:
 - Methods and applications using spatial and spatio-temporal statistics
 - Incorporate spatial thinking into problems where spatial thinking has not been used before

Dissertation

- Spatio-temporal modeling of EEG data collected from college athletes
- Used model parameters to differentiate between athletes with and without traumatic brain injuries (*submitted to JASA*)

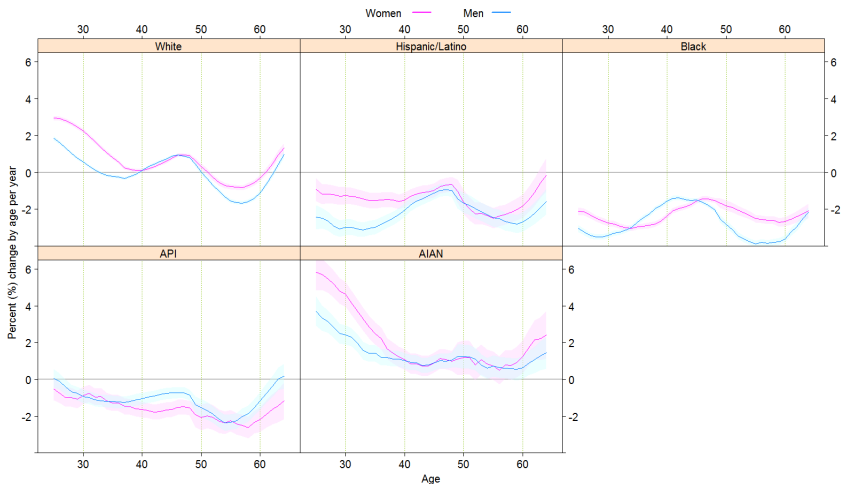
Post-doctoral projects

- Spatial interpolation of indoor background gamma radiation in the United Kingdom (Chernyavskiy et al., 2016; *Journal of Env Rad*)



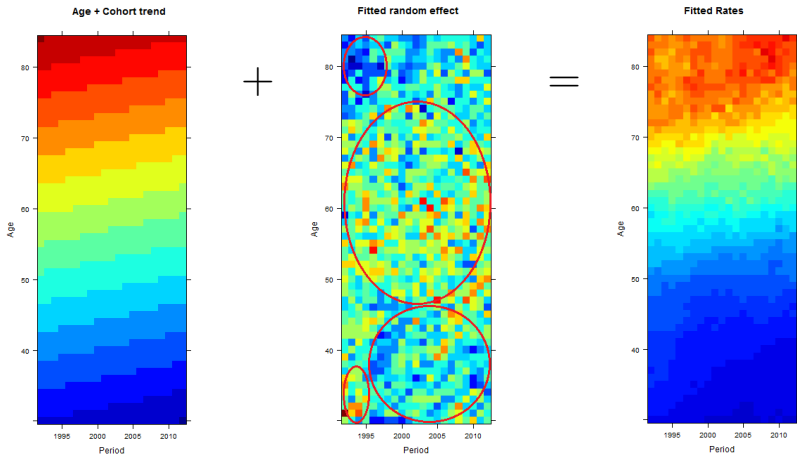
Post-doctoral projects

- Premature mortality in the U.S. by race and sex use standard age-period-cohort models (Shiels et al., 2016; *in revision for The Lancet*)
- % change per year in total mortality for men and women of different ages, races (1999-2014)

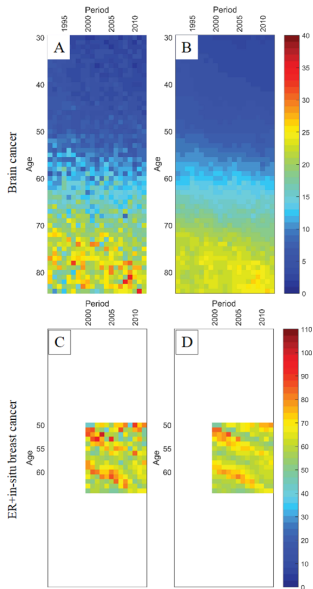


Post-doctoral projects

- Developed a more efficient parameterization of the age-period-cohort model (*in review, Stat in Med*)
- Used a spatial random effect to capture what is left over after age trend and temporal trend were estimated.



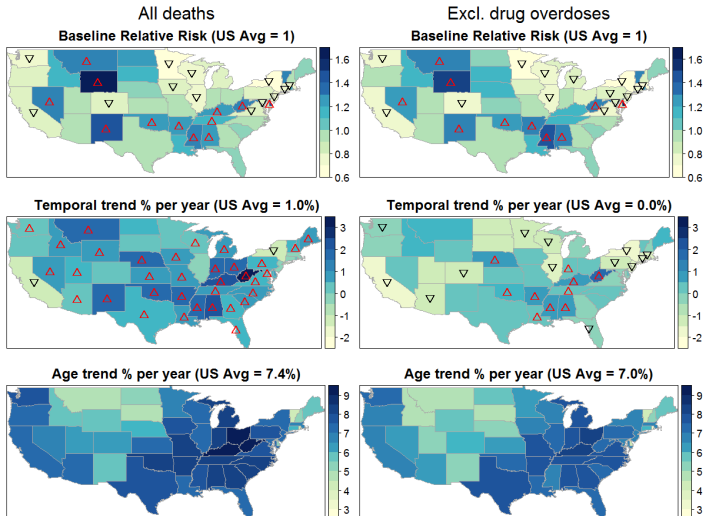
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- Applied new model to brain cancer and breast cancer incidence rates (A, C are observed rates; B,D are predicted rates)

Post-doctoral projects

- Spatially-varying age-period-cohort model with random effects specified using multivariate disease mapping
- U.S. state-level mortality for white non-Hispanic women aged 25-50



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- Favorite things about post-doc:
 - ① No work hours per se, time off not tracked very closely

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 - 3 Responsive, engaged, accomplished mentors
 - 4 Intelligent, diverse fellows
 - 5 My computer, “Alice”. Alice has 16 cores and 192GB of memory and she is all mine 😊

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- Less-than favorite things about post-doc:
 - ① Not the *best* preparation for academic career:
 - ① Most investigators don't publish in Statistics journals
 - ② Pressure to publish quickly; review time in Statistics journals too long
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 - ③ Internal review process can be annoying
 - ④ I don't get to bring Alice with me after post-doc ☹

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- Statistical skills:
 - Ability to read & understand papers in Statistics journals, medical journals, etc.
 - Ability to write, verbally communicate with statistical & non-statistical audience
 - Generalized Linear Mixed Models (especially the Poisson)
 - Matrix algebra (not integration)
 - Multivariate Normal distribution (because of spatial statistics)

What I wish I learned

- Bayesian statistics
- Sparse matrices
- E-M algorithm
- A “lower-level” programming language like C or Fortran
- Genetics

General advice

- Graduate school and academic lifestyle:
 - Learn to fail “better”, learn to “get over” failures quickly
 - Stand up for your research: argue (respectfully) with your mentors/advisers/co-authors
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 - Embrace the nomadic lifestyle!

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 - Embrace the nomadic lifestyle!
- Publishing:
 - Quality > quantity
 - Avoid “measuring contests”: # of pubs, impact factors, citations
 - There are many good journals: your work doesn't have to be in *Science* to be impactful
 - Publishing in Statistics journals take a long time (my *Stat in Med* paper was submitted in March)

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 - Save R workspaces every so often
 - Make sure all IRB documents are signed if you use someone's data
- Make friends:
 - Other grad students/post-docs know *exactly* what you are going through

Thank you! Questions?