Workshop of the EAPS Health, Morbidity and Mortality Working Group "Improving mortality forecasts" – 31 August 2016, Mainz

Discussion &

Brainstorm session

Discussion and brainstorm session

Topics discussions (each 30 minutes)

- Including additional (epidemiologic) evidence when forecasting (reporter: Nikoletta Vidra)
- Coherent forecasting (reporter: Lenny Stoeldraijer)
- Forecasts using the age at death distribution instead of (log) age-specific mortality rates (reporter: Sergi Trias Llimos)
- Probablistic forecasting (reporter: Anastasios Bardoutsos)

15.30-16.00 Summary of the discussion based on reports

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Proposed groups of participants for afternoon discussion

Group A	Group B	Group C	Group D
Jon Anson	Lajos Balint	Sam Hyun Yoo	Gbemisola Adetoro
Tommy Bengtsson	Ugofilippo Basellini	Ilya Kashnitsky	Michael Boissonneault
Heather Booth	Marie-Pier Bergeron Boucher	Kamellia Lillova	Edviges Coelho
Giancarlo Camarda	Agnieszka Fihel	Vera Graovac Matassi	Viorela Diaconu
Vladimir Canudas Romo	Alla Ivanova	Ross McMillan	Klára Hulíková
Marianne Frank Hansen	Søren Kjærgaard	Anthony Medford	Ahbab Mohammad Fazle Rabbi
Örjan Hemström	Melissa C.B.S.Lima	Tamara Sabgayda	Nanditia Sankia
Fanny Janssen	Indera Literato	Jeroen Spijker	Victoria Semyonova
Giampaolo Lanzieri	Michael Mühlichen	Sergey Timonin	Pia Wohland
Roland Rau	Laszlo Nemeth		
Valentin Rousson	Sarahi Rueda Salazar		
Coen van Duin	Alyson van Raalte		

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- Group A: convergence; age-at death distribution; epidemiologic info; probabilistic
- Group B: age-at death distribution; epidemiologic info; probabilistic; convergence
- Group C: epidemiologic info; probabilistic; convergence; age-at death distribution
- Group D: probabilistic; convergence; age-at death distribution; epidemiologic info

Some teasers (1)

- Coherent Forecasts: are highly dependent on the selection of within-group populations. The trend for the within-group populations should be “cleaned” from lifestyle “epidemics”.
- Including (epidemiologic) evidence: is actually more about excluding. To identify the most robust long-term trend to base the projections on, we should first exclude the effects of determinants with very irregular trends.

Some teasers (2)

- Mortality projections using the patterns in the age-at-death distribution (compression, delay) are an improvement over the Lee-Carter framework
- Probabilistic: have the tendency to ignore the effect of explicit assumptions, such as the calibration period and the within-the group populations

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Key messages Convergence

- How to choose the within-group population? Optimal group is country specific
- Epidemics are still there, even if you take the average
- Not only pooling, but also alignment is important (or some smoothing)
- Errors are homogenous for the whole group: important for coherent forecasts
- How can we clean the group? Differences in epidemic development around the world, very different between countries
- A lot of countries give enough heterogeneity

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Key messages
Probabilistic forecasts

- Assumption on fitting period does not depend on the calibration technique.
- Prior knowledge vs Expert knowledge.
- Projection intervals and higher uncertainty.
- Give more weight in recent years.
- Sensitivity of parameters in fitting period.

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Key messages Epidemiologic info

- Instead of removing evidence with irregular trends, include variables with regular trends
- Dummy variables as policy effects, legislations(include)
- Counterfactual analysis: exclude causes of death from the analysis(e.g. smoking, drinking, smoking+ drinking)
- Consider epidemics relevant for countries, e.g. HIV in Africa
- At what a threshold is an epidemic important and predictable?
- Include epid. Information (covariates) in disease-specific models is OK, but for all-cause mortality not. In the latter case we need to exclude epidemics
- Medical care/ SES improvements should be considered differently (not excluded)

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Key messages
Forecasts using other measures

- Compression-delay
- Model mortality before, and after the mode age at death (or even using a large number of groups)
- Using other indicators: e0, e0 rates, age at which RLE=15, or RLE at modal age-at-death
- In model with multiple parameters:
  - Correlation between them
  - More sensible to the time period used?