Will Machines Soon Make Health Economists Obsolete?

ISPOR Europe 2018 Issue Panel (IP03)

21 May 2018

Moderator & Panelist Introductions

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- Editor-in-Chief, *Value & Outcomes Spotlight*

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- Chief Data Strategist, Watson Health / Truven, Boston

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Poll: Coming into this Issue Panel, what would you predict the percentage of HEOR database analyses that are fully automated (ie, performed entirely by machines) to be by 2025?

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What do *homo ISPORiens* do that machines might replace?

Economic Modeling

- Choose most appropriate modeling approach for given problem?
- Spec out model of disease progression & cost and intervention impact?
- Determine model parameters and identify data sources & gaps?
- Estimate model parameters using best-available sources?
- Choose suitable software or language & program model?
- Conduct base-case model analyses
- Conduct probabilistic sensitivity analysis?
- Assess model results & specific additional sensitivity analyses?
- Written report preparation?

Retrospective Database Analysis

- Identify most appropriate database for given problem?
- Prepare specifications for initial data cut?
- Develop analytic files from initial raw data?
- Spec out approach to study sample creation?
- Select study variables & specify variable creation from data elements?
- Choose suitable methods for statistical analysis of study measures?
- Assess sources of bias/confounding and specify methods for resolution (eg, propensity scoring)?
- Data processing & conduct of analyses?
- Table & figure shell creation & reporting of results?
- Written report preparation?

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Historical Approach to HEOR Data Generation & Use

HEOR analyst does the work

Study findings get disseminated at conferences & peer-reviewed journals

Article reprints get shared with payers & providers

HEOR insights get incorporated into provider decision making

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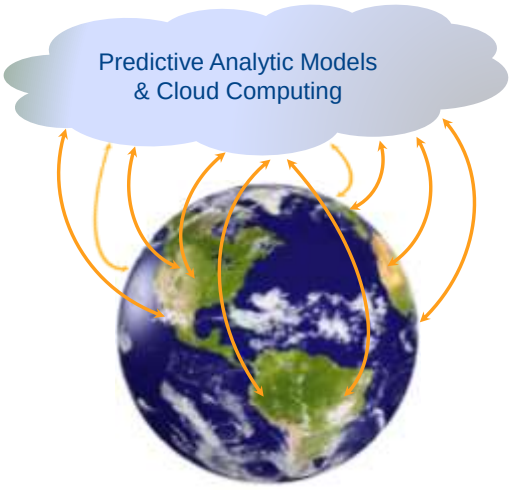
Future Approach to HEOR Data Generation & Use (the Holy Grail?)



HEOR analyst creates model & programs initial parameter estimates

Health IT professional uploads model to cloud & develops linkages with EMR data systems

Physician-patient encounters contribute data to & receive custom insights from the cloud in real time

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Some Questions for the Panel

- Which aspects of HEOR can and should be offloaded to machines & artificial intelligence?
- What are the risks of machines replacing humans for performance of HEOR?
- Where do you see machines & AI already replacing humans in HEOR?
- Will we get to the holy grail of real-time HEOR custom insights available to providers at the point of care? How far from that are we now?
- What aspects of HEOR training need to change to adjust to the future state?

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