Web-based Budget Impact Model Estimating Cost Savings of Dialysis Program in the UK

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BACKGROUND

• Models developed in Microsoft Excel have a number of functional and visual communication limitations
• Pharmaceutical and medical devices companies interactions with healthcare budget decision makers may be limited
• This approach requires instant adjustment of the key input parameters to reflect a specific payer setting during a presentation
• Application of user experience best practices and appropriate data visualization methods help to understand models and convey meaning of complex health data and results of economic models simulations

METHOD

• Application of user experience best practices and appropriate data visualization methods help to understand models
• This approach allows instant adjustment of the key input parameters to reflect a specific payer setting during a presentation
• In this interactive modelling study we explored the functional and visual benefits of migrating models developed in Microsoft Excel to mobile and web environments
• Models developed in Microsoft Excel have a number of functional and visual communication limitations
• Economic model estimated that dialysis is a cost saving programme

RESULTS

• Direct medical cost savings following an introduction of a dialysis therapy are estimated to be GBP 4,470 per patient
• Cost savings in outpatient and inpatient settings were GBP 320 and GBP 2,418 respectively
• Sensitivity analysis indicated that efficacy and cost difference parameters had the strongest magnitude of impact on model base case results
• Reductions in the use of concomitant medications and lower disease control cost led to cost savings
• Favorable bioavailability of dialysis program allowed more patients to be treated using oral agents and resulted in cost savings for the healthcare system
• Interactive chart in the Results section allows to change input parameters on the go and observe the corresponding outputs changes in real time. Special price difference slider control allows to quickly switch between multipliers
• The model dynamically generates *.pdf report with custom input data entered by the user and provides an opportunity to download it and/or send via e-mail.
• Model navigation is expandable. On click or tap user can expand or collapse multiple cards and see and modify underlying granular level data that provide a high level summary of key input data. On click or tap user can expand or collapse multiple cards and can expand the card to see and modify underlying granular level data that provide a high level summary of key input data.

CONCLUSIONS

Advantages of Interactive health economics models

Visual communication

• Better context perception due to information architecture design and data visualization best practices [2]
• Interactive data visualization enables user’s interactions with data – the ability to drill down and explore relations between various data points
• Interactive storyboarding approach, by walking users through all the model stages gradually, enables to deliver the value proposition depending on particular audiences, as well as improves overall user interaction and accessibility
• Powerful interfaces supporting multiple storytelling modes (elevator, linear, open-ended) for different internal roles and external audiences

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Functional capabilities

• Expandable. App reading capabilities and API enable easy embedded integration with external services and IT infrastructure
• Data sharing. Cloud-based storage of data and simulations, allows sharing of evidence across user groups and target audiences
• Rapid real-time performance. Modern web-browser engines supported with powerful server capacities guarantees outstanding model calculation speed and responsiveness of the user interface [2,3]

• Economic model estimated that dialysis is a cost saving programme
• An economic model powered with web capabilities and dedicated data visualization libraries is a more effective tool to convey detailed economic value story in a format tailored to the specific needs of the particular audience

REFERENCES