Utilization of Mathematical Modeling to Determine Possible Cost Savings and Cost Avoidance for Implementation of MTM Services in a Specialty Population

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Abstract

Background: While the Cost Savings and Associated with Medication Therapy Management (MTM) services have been well documented in general medical populations, there is little data on these measures in specialty high cost populations. Unpublished published data and results, a mathematical model was used to predict financial impact of MTM services in a specialty population.

Objectives: Unboring clinical outcomes of published data in clinical and specialty populations of HIV therapy could be measured in detail and allow for the implementation of evidence-based clinical interventions in this specialty population. The model was designed with the intention of forecasting the financial impact of MTM services in this high cost specialty population.

Methods: All data used in the mathematical model were obtained from previously published peer-reviewed journals. The costs of ARV failure were compared with the costs of ARV adherence. HIV specific MTM services are projected to have or be:

- Increased ARV adherence
- Lower ARV regimen failure
- Improved patient adherence
- Decreased incidence of opportunistic infections when failure of ARV regimen due to non-adherence was avoided
- More time and money saved
- Lower adherence to antiretroviral therapy (ARV) and the clinical outcome relationship between the two and general medical cost data from progressive case studies.

Conclusion: While the model used is limited by using data from various, unrelated sources, and utilizing data from different time points and stages in the evolution of ARV therapy, it does allow us to get some sense of the cost avoidance that can be achieved when MTM services are offered to this high cost specialty population.

Conclusions

HIV Specific MTM Services are projected to have or be:
- Produce a cost avoidance of $789 per year, on average, for direct drug and adherence related costs
- Produce an average ROI of 7:1 for all cost avoidance
- Produce an average ROI of 3.5 for all cost avoidance
- Produce an average ROI of 2.36 for all direct drug and adherence costs
- Are cost effective at $500 per year (9/4/2019) based on previously determined cost-effectiveness thresholds

HIV Specific MTM services have been rigor for later stage patients and may not be cost effective in ARV naive patients (patients without any risk factors) (e.g. poor adherence, substance abuse, etc)., but initial data is needed for further quantification.

Limitations of this study:
- Estimate only based previously published data
- Data sources are diverse and heterogeneous in nature
- Actual costs may vary depending on service model and provider knowledge in the area of HIV care.

Resources