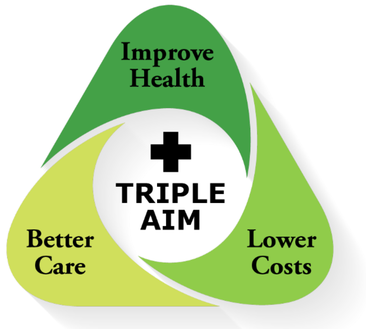
Teleretinal Diabetic Retinopathy Screening is Cost Saving in a Rural Accountable Care Organization

Christopher J Brady MD, MHS[1,2]; Delaney Curran[2]; Brian Y Kim MD[1,2]
[1]Division of Ophthalmology, University of Vermont Medical Center, Burlington VT
[2]Department of Surgery, Larner College of Medicine, Burlington, VT

PURPOSE

- We hypothesize that annual teleretinal screening for diabetic retinopathy will be cost-effective compared to annual live exam using decision-tree and probabilistic sensitivity analysis
- The use of teleretinal screening (TRS) increases diabetic retinopathy (DR) screening adherence and reduces vision loss
- However, it is unclear if TRS is cost-effective when DR management includes expensive intravitreal anti-VEGF injections in an Accountable Care Organization (ACO) in which incentives for care are shifted

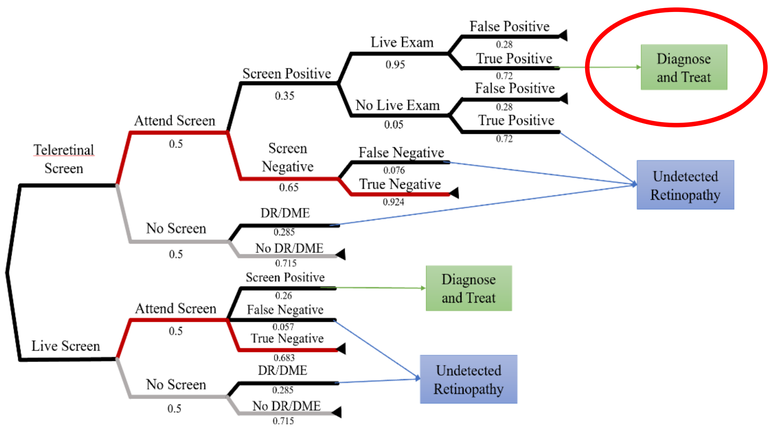


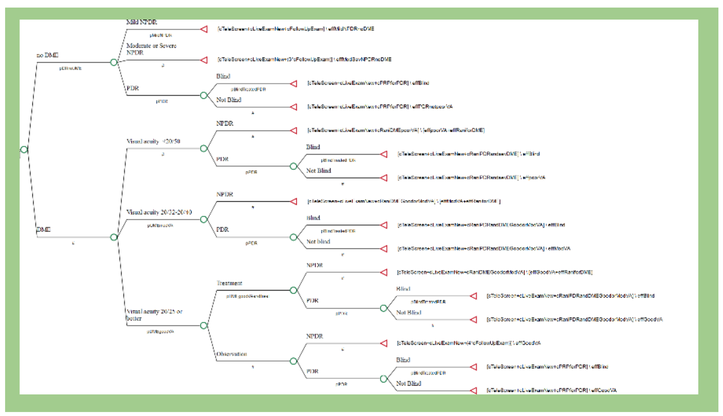
METHODS

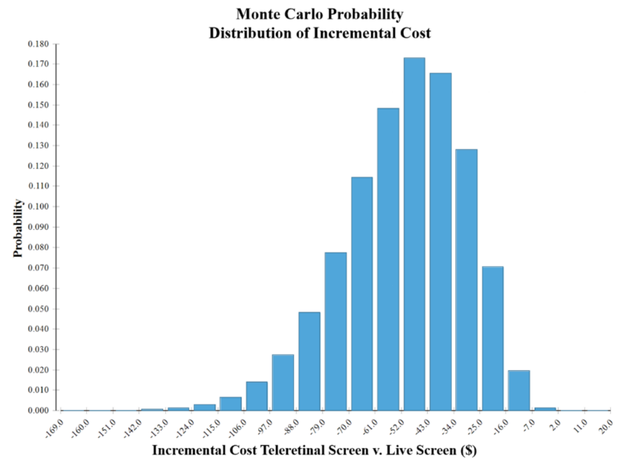
- TRS and live screening were compared using decision-tree analysis with TreeAge Pro software
- The disability weight (DW) of vision impairment and the one-year direct medical costs of managing patients who screen positive were considered, based on epidemiologic studies, Medicare allowable costs, clinical trials listing DR treatment costs, and other decision-tree analyses
- Probabilistic sensitivity analysis with Monte Carlo simulation for 100,000 trials was used to account for the uncertainty. Outcomes include average incremental costs ($) and DW and the probability that TRS is cost-saving and more effective
- One-way sensitivity analysis was used to determine the impact of varying TRS costs

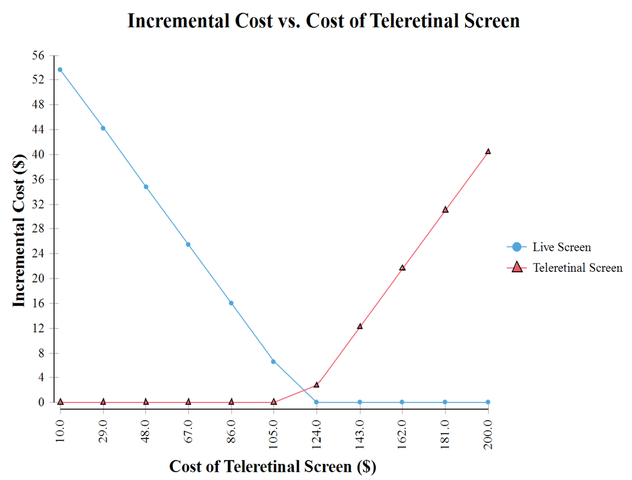
RESULTS

- Including all potential outcomes and treatments, the average cost/person is $230 in the TRS intervention and $292 in the live screen intervention
- On average, TRS saves $62 compared to live screening and is cost-saving 98.4% of the time
- The average DW outcome is 0.001 for both groups, with TRS resulting in a lower DW 55.9% of the time
- When all other variables are constant, the TRS group has a lower average cost/person when the cost of screening is less than $160









CONCLUSIONS

- Based on this model, TRS was cost-saving and equally effective compared to live screening, largely driven by the lower cost of the TRS encounter
- An ACO is also responsible for the patient experience of care, which is likely improved by TRS, but difficult to quantify in decision tree analysis
- Future work needs to be done, however, to characterize the indirect and long-term costs of TRS for DR

cbrady3@uvm.edu
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