Pharmacogenetic Profiling and Polypharmacy Home Health Patients

Polypharmacy, or taking multiple prescription medications concurrently, is a serious medical issue in the elderly population. Drug-drug interactions can lead to serious adverse drug events. Individual genetic differences also play a role in response to medications and can compound side effects caused by drug-drug interactions.

Patients, specifically the elderly, may benefit greatly from pharmacogenetic testing as they are at higher risk for polypharmacy, adverse drug events, and potentially higher health resource utilization (HRU) and its cost. This analysis sought to determine the impact of pharmacogenetic testing via the YouScript® Personalized Prescribing System on readmissions, ED visits, and health-care costs in polypharmacy patients aged 50+ released to a Home Health Agency in a randomized control trial.

Design & Methods

This randomized controlled trial was conducted at one hospital-based home health agency. Subjects were randomized to pharmacogenetic profiling and YouScript recommendations:

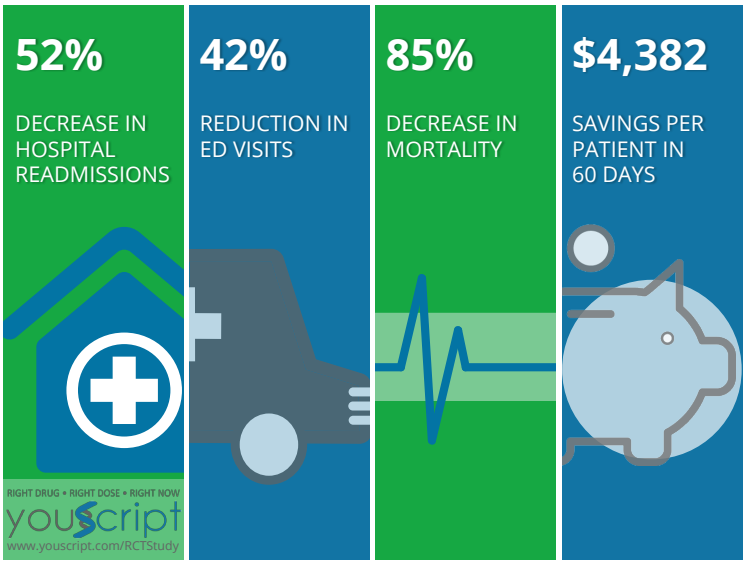
- Tested Group: The study pharmacist reviewed drug-drug, drug-gene, and cumulative drug-drug-gene interactions using the YouScript software to provide drug therapy recommendations to clinicians. (n = 57)
- Control Group: Recieved treatment as usual including pharmacist medication management with a standard drug information resource. (n = 53)

The primary outcome measure was the number of rehospitalizations and ED visits at 30 and 60 days after discharge from the hospital. The potential cost impact of testing was evaluated by applying Medicare average all-cause readmission and ED costs.

The YouScript System includes pharmacogenetic testing and clinical decision support via evidence-based YouScript software with clinical pharmacist interpretation.

Results

- Readmissions were reduced by 52% at 60 days in the tested group.
  - Rehospitalization rate was 33% in the tested group vs. 70% in the control group (RR 0.48; 95% CI, 0.27 - 0.82; p = 0.007).
- ED visits were reduced by 42% in the tested group.
  - ED visit rate was 39% in the tested group vs. 66% in the control group (RR 0.58; 95% CI, 0.34 - 0.99; p = 0.045).
- Total per patient savings in 60-days prior to cost of intervention estimated at $4,382.
- Risk of death was reduced by 85% in the tested group.
  - Death rate was 1.8% in the tested group vs. 11.3% in the control group (RR 0.15; 95% CI, 0.01-0.87; p = 0.054).
  - While not an aim of the study, this data is encouraging and warrants further study.



Conclusion

Patients receiving pharmacogenetic testing and treated according to the YouScript Personalized Prescribing System had a significant decrease in readmissions and emergency department visits, resulting in potential for cost savings.

For more information about this research, contact YouScript at (877) 796-4362 or info@youscript.com

Source: Elliott LS, Henderson JC, Neradilek MB, Moyer NA, Ashcraft KC, Thirumaran RK. (2017) Clinical impact of pharmacogenetic profiling with a clinical decision support tool in polypharmacy home health patients: A prospective pilot randomized controlled trial. PLOS ONE 12(2): e0170905. doi: 10.1371/journal.pone.0170905