

Background	Aim
<ul style="list-style-type: none">➤ 95% of the population carry at least one genetic variant that confers an actionable phenotype.¹➤ A high volume of drugs frequently prescribed in primary care have a gene-drug interaction as endorsed by the Dutch Pharmacogenetics Working Group (DPWG) and the Clinical Pharmacogenetics Implementation Consortium (CPIC).²	<ul style="list-style-type: none">➤ To estimate the national volumes of new prescriptions with gene-drug interactions, which, if the patient were tested for a panel of genes, would lead to an actionable recommendation of change in drug regimen.

Methods
<ul style="list-style-type: none">➤ For this study, dispensing data concerning all drugs with an actionable drug-gene interaction for the period January 1-Decemeber 31, 2019, in England, were combined with phenotype frequency data obtained in the ‘U-PGx’ study³ and first prescription frequency data from a community pharmacy dispensing database to estimate the occurrence of actionable gene-drug interactions nationally in community pharmacies.➤ Ages for patients newly dispensed drugs with actionable drug- gene interactions in England for the period January 1- December 31, 2019 were extracted from a large community pharmacy dispensing database.➤ Ethical and governance approvals were obtained from the Faculty of Medicine and Health Sciences Research Ethics Committee, University of East Anglia.

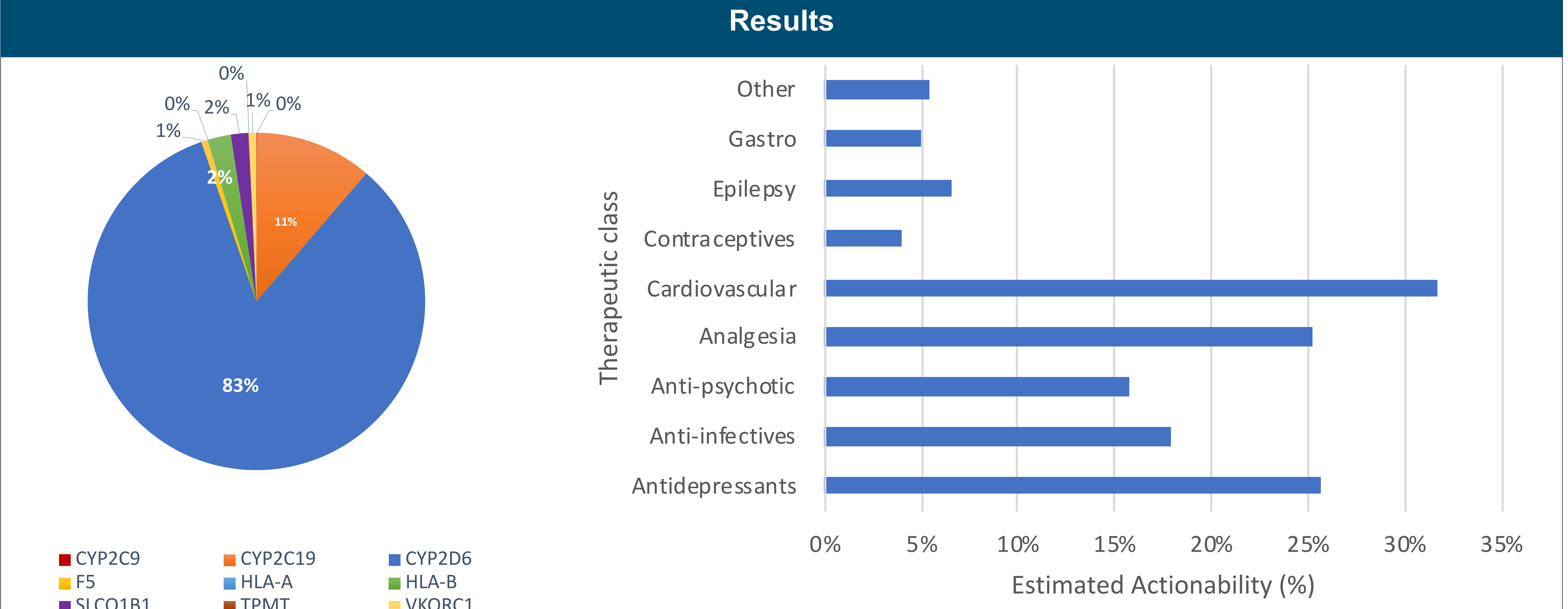


Figure 1 % Volumes of dispensed medicines sorted by gene

Figure 2 Estimated proportion of dispensed medicines that would require a dose/drug change sorted by therapeutic areas.

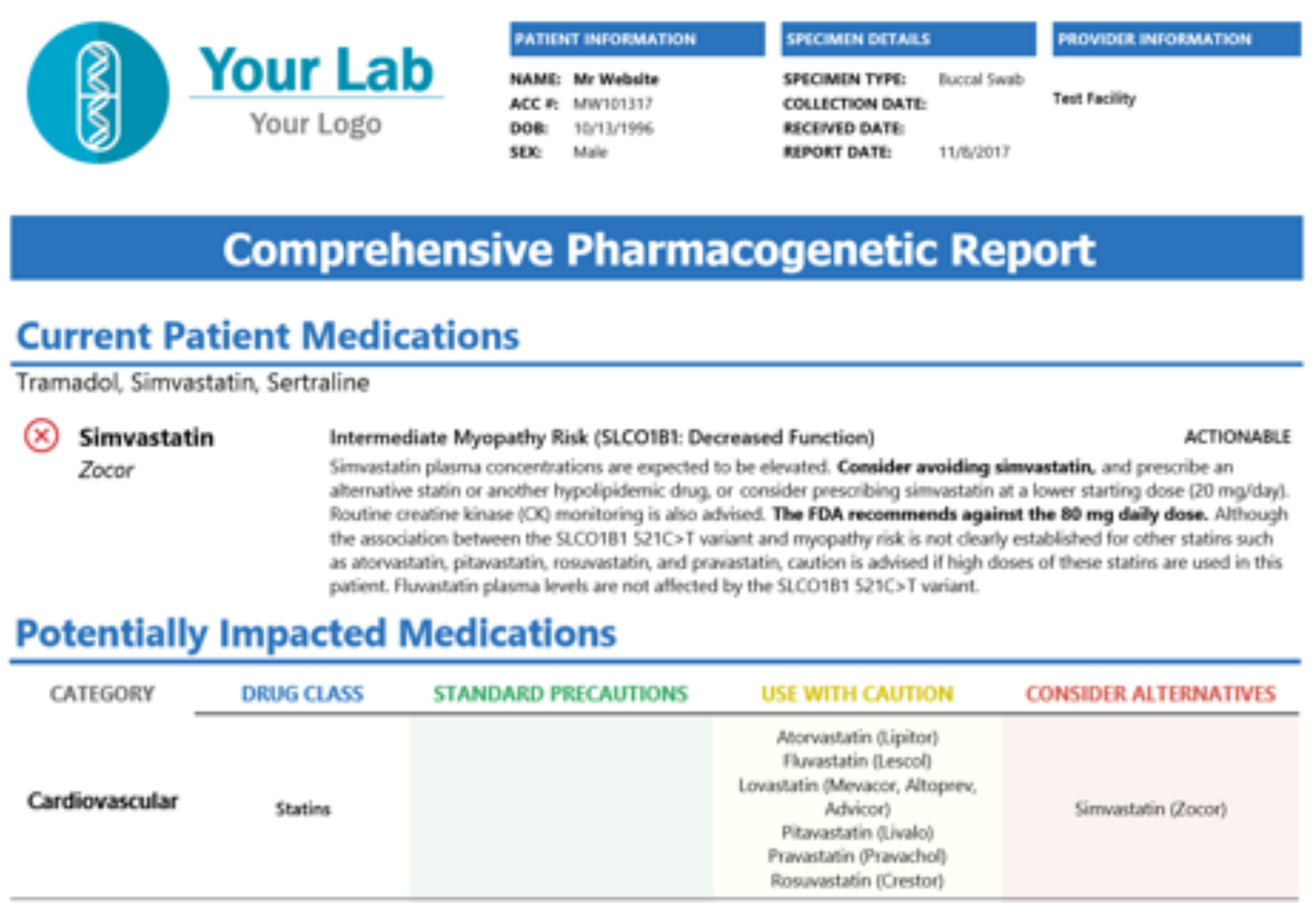


Figure 3 Example Pharmacogenetic report

Conclusion
<ul style="list-style-type: none">➤ High volumes of medicines dispensed in community pharmacy have actionable drug-gene interactions.➤ National screening programmes targeting patients on antidepressants, analgesics or cardiovascular medicines may provide the most cost-effective approach to testing.➤ This is a pilot study; the next step will be to extract dispensing volumes for the whole of the UK and undertake a health economics analysis.