Scottish Health Technologies Group (SHTG) Technical Assessment Summary:

Genotype testing to guide clopidogrel use after an ischaemic stroke or transient ischaemic attack (TIA)

Published: 31 October 2024
Referred by: The Accelerated National Innovation Adoption (ANIA) collaborative
Reference: https://shtg.scot/our-advice/clopidogrel-genotype-testing-after-ischaemic-stroke-or-transient-ischaemic-attack-tia/

Key findings

- Clopidogrel is prescribed to prevent recurrent strokes in patients following an ischaemic stroke or TIA. Its effectiveness is reduced by loss of function (LoF) CYP2C19 gene variants.
- CYP2C19 genotype-guided therapy can reduce the risk of recurrent stroke in clopidogrel-resistant patients.
- Alternative antiplatelets should be used for clopidogrel-resistant patients.
- **Using the Genedrive CYP2C19 ID Kit could prevent 961 recurrent strokes, saving NHS Scotland £18 million over 5 years.**

Who is SHTG?

The Scottish Health Technologies Group (SHTG) is a national health technology assessment (HTA) agency that provides impartial, evidence-based advice to NHSScotland on the use of health technologies. This advice aims to inform effective, safe, and best value use of health technologies, supporting informed decision making that improves healthcare across Scotland.

Purpose of the assessment

This assessment was performed in response to enquiry from the Accelerated National Innovation Adoption (ANIA) collaborative that works within NHSScotland to fast-track the adoption of proven healthcare innovations. Assessment findings will be used to inform an ANIA value case for the potential implementation of CYP2C19 genotype testing in Scotland.

What was assessed?

- Clinical and cost-effectiveness, safety, and patient experience of CYP2C19 testing for guiding antiplatelet therapy after ischaemic stroke or TIA.
- Comparison of genotype-guided therapy with standard care.
- Impact of point-of-care vs laboratory testing.

Why is this important?

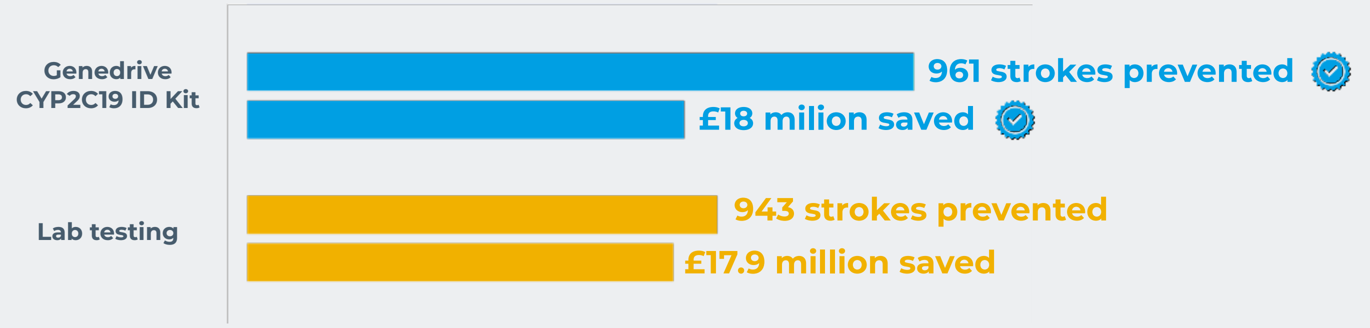
- In 2023, Scotland saw 9,373 ischaemic strokes and 3,763 TIAs, with 28.7% of patients showing clopidogrel resistance due to LoF CYP2C19 variants.
- Clopidogrel resistance increases the risk of recurrent stroke, which can be reduced with targeted therapy.

Genedrive System Diagnostic Accuracy	
Sensitivity	100% (95% CI: 96%-100%)
Specificity	100% (95% CI: 98%-100%)
Test fail rate	0.6% *

*No discordant results were found

CYP2C19

Clinical and cost effectiveness



Implementation

- National Clinical Guidelines for Stroke and TIA recommend dual antiplatelet therapies are given within 24 hours of stroke/TIA.
- Genedrive CYP2C19 ID Kit provides results in approximately 1 hour, compared to up to 7 days for lab tests.
- Point-of-care testing improves accessibility in rural or remote areas with limited lab facilities.
- National adoption will require equipment distribution and staff training.

Conclusions

Genotype-guided therapy is a clinically and cost-effective solution for preventing recurrent strokes in clopidogrel-resistant patients. The Genedrive CYP2C19 ID Kit offers greater savings and more strokes prevented over five years compared to lab testing.
It provides timely treatment, particularly in rural areas, making it a viable option for NHS Scotland.

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