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Pharmacy Genomic Champions Network

Issue 1
10th June 2022

North Thames GMS Alliance

PHARMACY AND GENOMIC MEDICINE

Welcome!

We would like to welcome you all to the first pharmacy genomic champion newsletter.
Over the last year the North Thames GMS Alliance have implemented both national and regional transformational projects to mainstream genomic medicine into routine clinical care. We would like to take this opportunity to update you all on the key achievements and the future projects we will be implementing across our region.
But before we start, we want to say a huge **THANK YOU** to everyone involved in completing the **National DPYD Clinical Pathway Survey** and contributing to the **National DPYD Retrospective Audit,** especially in a time where everyone continues to work under increasing clinical pressures.
The results of the DPYD survey and audit will enable us to better understand both the testing and clinical pathway to identify areas which are not working so well and where we can help to improve and safely implement pharmacogenetic testing into routine practice.

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National: DPYD Transformational Project

Fluoropyrimidines (5-fluorouracil, capecitabine and tegafur) are medicines widely used to treat a variety of cancers. Dihydropyrimidine dehydrogenase (DPD) is the enzyme that inactivates 80-90% of 5-Fluorouracil into 5,6-dihydrofluorouracil. DPD is encoded by the DPYD gene.
Since October 2020 all cancer patients prior to initiation of treatment with these chemotherapy agents should be tested for DPD deficiency, in line with the medicines health and regulatory agency (MHRA) recommendations (5-fluorouracil (intravenous), capecitabine, tegafur: DPD testing recommended before initiation to identify patients at increased risk of severe and fatal toxicity - GOV.UK (www.gov.uk).
At North Thames we have been analysing the DPYD diagnostic pathway alongside the clinical pathway. This led to a national collaboration on developing a gold standard pathway that could be used as an exemplar model for future pharmacogenetic tests.

We have also studied retrospectively the prevalence of non-identified DPYD variants which may be linked to fluoropyrimidine toxicity within our region and if this is related to certain people of different ancestry backgrounds. This is because the current testing panel of the four DPYD variants currently being tested is based predominantly on white European ancestry research data. However, more studies are required to confirm the preliminary data as we are committed to provide equity of access to all our patients.

Pharmacogenetics and Mental Health

A Regional Transformational Project

Pharmacogenomic guidelines have been developed by the Clinical Pharmacogenetics Implementation Consortium (CPIC) for tricyclic antidepressants (TCAs) and selective serotonin reuptake inhibitors (SSRIs), amongst other drugs.

However, implementation into routine care has not been established and the Genomic Medicine Service (GMS) Alliances will be prioritising how to implement pharmacogenetic testing into routine NHS care via both regional and national transformational projects.

In North Thames GMS Alliance, a specialist interest group for mental health pharmacogenetics will be established to improve genomic literacy via interpreting genomic reports for anti-psychotic treatments within a clinical trial led by Professor Elvira Bramon.

The clinical trial will recruit 2000 patients, in which 400 patients will have pharmacogenetic testing undertaken for CYP2D6 and CYP2C19, amongst other CYP enzymes to help guide treatment.

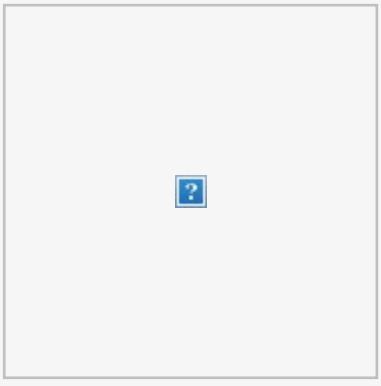
Within the clinical trial, pharmacists within the North Thames Specialist Mental Health Group will be key to help interpret pharmacogenomic reports alongside pharmacokinetic and pharmacodynamic principles.

As experience builds, MDT workshops will be developed to share learning and best practice through case studies, and by the end of the project a pharmacogenetic manual for SSRIs and/or TCAs will be produced.

Aminoglycoside Pharmacogenetic Test for m.1555A>G

Aminoglycosides can cause ototoxicity in patients exposed to them. There is a gene called mitochondrial 1555A>G which is linked to this side effect and carriers can develop deafness and/or vestibular problems after one dose of an aminoglycoside. This test was commissioned in January 2021.

Not every patient is eligible for this test but the patients who are likely to be exposed to aminoglycosides (e.g., cystic fibrosis) can have the test requested. We are in discussion with specialty groups to include different cohorts for testing and we would like to hear from you if you work in a unit where patients are exposed to these antibiotics.



At present the test is commissioned for either:

1. Individuals with a predisposition to gram negative infections due to known respiratory disease, for example: bronchiectasis, cystic fibrosis or due to structural or voiding genitourinary tract disorders

OR

2. Individuals with hearing loss who have been exposed to aminoglycosides.
However, any patient with family history from the maternal side would be eligible to test and these referrals are more likely to come through via the audiologist pathway.
We held two educational and training sessions (April and May) to raise awareness of this test and was well attended by antimicrobial, paediatric and neonatal pharmacists.
We discussed the elements of turnaround times for testing (10 days), and how this is different to the point of care test which has been piloted at a Manchester neonatal unit. Currently this point of care test is **not** commissioned.
If you have any questions on this pharmacogenetic test, please do not hesitate to get in touch with us for further information!

Upcoming Educational Events:

Pharmacy Champion Engagement Session 29th June 2022 4pm to 5.30pm

Theme: Diversity and Pharmacogenomics. We will also provide an update on both national and regional transformational projects. Contact dharmisha.chauhan1@nhs.net for more information.

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Mainstreaming Genomic Medicine Programme – June and September dates announced!
For more information on the programme and to register, please visit the Event page:https://www.eventbrite.co.uk/e/mainstreaming-genomic-medicine-june-september-2022-tickets-354508613807and do

forward to your networks and any colleagues who may be interested. If you have any questions please contactcorinnetrim@nhs.net. This programme is organised by the North Thames Genomic Laboratory Hub and the North Thames Genomic Medicine Service Alliance.

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Let's Talk: Genomic Medicine Across a Lifetime Webinar Series: 21-23 June 2022

Find out more and register on our event page: https://www.eventbrite.co.uk/e/lets-talk-genomic-medicine-across-a-lifetime-tickets-352533024767

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Showcase of Genomic Medicine Across North Thames: 14th July 2022

In our one-day showcase, we will be exploring how genomic medicine is changing healthcare in our region and presenting on some of the new pathways now in place across many services. For more information and to register, please visit our event page:https://www.eventbrite.co.uk/e/showcase-of-genomics-across-north-thames-tickets-337925804177 . If you have any questions at all, or would like any support registering for the event, please reach out to:Hannah.clarke@uclpartners.com.

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North Thames Genomic Medicine Service Alliance
Hosted by UCLPartners