



**Royal  
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Society**  
of Great Britain

**The  
Pharmacy  
Practice  
Research  
Trust**



## **Media Release**

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### **Identifying and quantifying the costs and benefits of pharmacogenetics Practice Research Award winner describes work to understand their added value**

“There should be advantages to using pharmacogenetic data to inform the safe, effective and cost-effective use of medicines in the NHS by using this data to target medicines only to patient populations that will derive a positive benefit, ie health improvement,” said Professor Katherine Payne in her keynote lecture as the winner of the Pharmacy Practice Research Trust (the Trust) 2010 Practice Research Award at the Royal Pharmaceutical Society’s Conference today. “In theory, it is the perfect solution to the challenge of maximising value for money from medicines and targeting medicines in this way could stop scarce healthcare resources being wasted.”

Professor Payne, recently awarded a Personal Chair in Health Economics in the School of Community Based Medicine, The University of Manchester described her research work in this area: “There are theoretical advantages and patient benefits that genetic information can potentially offer by targeting the safe and effective use of medicines through the use of DNA-based ‘companion’ diagnostic tests to inform prescribing decisions. To understand the added value of pharmacogenetics tests it is necessary to identify and quantify the true costs and benefits of introducing such companion diagnostics and medicines into healthcare systems. “

Professor Payne, who started her career as a hospital pharmacist, expressed the health economist’s challenge as providing information, for decision makers, about how to allocate scarce healthcare resources such that maximum patient benefit is obtain from every point(dollar/euro) spent and how recent work with NICE has reinforced the importance of having robust information to make resource allocation decisions.

Professor Payne described some of the hopes that pharmacogenetics could offer towards achieving better response rates to medicines. Medicines never achieve a 100% response rate, they are risky and adverse

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drug reactions (ADRs) are costly. By understanding the enzymes involved in drug metabolic pathways and how genetic variation affects their activity, it is possible to design diagnostic tests that predict those patients that will respond well and those at risk of ADRs. Professor Payne then cautioned that the reality is that the current focus is on identifying a genetic variation in a specific (single) enzyme – although new technologies may allow multiple genes to be test at once – and also only specific ADRs are linked to the genetic variation. Decision makers need to know if a pharmacogenetic test is safe, effective and cost-effective but there is a paucity of economic and patient data to support such decisions.

Professor Payne's research programme has focussed on providing a robust evidence base to inform: pharmacogenetic technology development, the introduction of pharmacogenetic technology into clinical practice and the formalisation of services to deliver pharmacogenetic technology. This programme included economic evaluations of pharmacogenetic tests, such as the CYP2D6 test to inform the prescription of anti-psychotic medicines and tamoxifen prescribing in breast cancer, and the CYP2C19 test for clopidogrel.

Professor Payne also described The TARGET study, which is a prospective evaluation to establish the clinical and cost-effectiveness of thiopurine methyltransferase (TMPT) genotyping in reducing the number of ADRs associated with azathiopine. The economic data analysis is currently underway but Professor Payne considers that TARGET represents the first prospective economic evaluation of a clinical service of pharmacological testing. Another element of the TARGET study compared the preferences of patients and healthcare professionals for the key attributes of a pharmacogenetic testing service to identify patients' risk of developing a side-effect (neutropaenia) from the immunosuppressant azathioprine. Using a discrete choice experiment survey, the results showed that whilst both patients and healthcare professionals had similar preferences for predictive accuracy and turnaround time of results, patients wanted accurate and timely information about why the test was needed and what the results meant compared with healthcare professionals who appeared to focus upon predictive accuracy and test result waiting time.

Looking forward, Professor Payne cited the recent report from the House of Lords Science and Technology Committee which called for extending the remit of NICE to include evaluating the validity, utility and cost-effectiveness of new genomic tests for common diseases including pharmacogenetic tests along with ring-fenced NIHR funding for further research in this area.

In conclusion, Professor Payne reiterated the lack of robust evidence and the need for further evaluation to move from the current focus on sensitivity/specificity to looking at the predictive value and impact on therapeutic decisions and the place of tests in the care pathway and alternative treatment pathways.

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She said: "Important questions remained unanswered and given the potential for reduced research funding, we need to consider the value of additional research and direct our efforts into areas that will generate the maximum benefit for patients."

Following the lecture, Professor Payne, who firmly believes that health economics should have a key role in pharmacy practice research, was presented with the Practice Research Award and a cheque for £1,000 from Mr Marshall Davies, chair of the Pharmacy Practice Research Trust, sponsors of the award. The award is presented to an individual who has made a significant contribution to a field of pharmacy practice research and has the potential to become a leader in the field.

He commented: "Katherine Payne's research and work to further health economics in pharmacy and in particular to studying the place of pharmacogenetics in providing the safe and cost-effective use of medicines makes her a worthy winner of this award. The need for a robust evidence base in pharmacy and indeed in all areas of healthcare provision is now ever more vital if we are to make the most of the resources available to the NHS. This recognition of her work reflects well the Trust's objective of promoting and developing the field of pharmacy practice research and the recent appointment as Professor of Health Economics surely marks her out as a leader in the field. "

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**Notes for editors:**

1. The winner of the Pharmacy Practice Research Trust Practice Research Award receives a cheque for £1,000. The winner of the award will also be asked to write an abstract of their proposed talk for a supplement to the International Journal of Pharmacy Practice and a summary of their lecture given to the conference which will appear in the Pharmaceutical Journal.

**2. The Royal Pharmaceutical Society's Conference 2010: Supporting patient and professional decision making** will be held on 5-6 September 2010 at Imperial College London. For further information go to: <http://www.rpharms.com/development/rps-conference.asp>

**3. The Pharmacy Practice Research Trust** was established by the Royal Pharmaceutical Society of GB in July 1999 as an independent research charity with a broad objective to promote and develop the field of pharmacy practice research. Its trustees are drawn from senior health policy makers, leading academics, industry and retailers.

The Trust has invested over £2m in research; 30% supporting capacity building in pharmacy practice research and 70% on commissioned research. The Trust receives financial support from the Leverhulme Trade Charities Trust and the Galen Trust, as well as a gift in kind from the Royal Pharmaceutical Society of Great Britain. For further information and to access reports of Trust commissioned research or for funding/grant opportunities go to: [www.pprt.org.uk](http://www.pprt.org.uk)