

Right-dose medication could save NHS millions and improve patient care, say experts

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Credit: Susan Buck Ms/Public Domain

Twenty-one of the world's leading pharmacologists have urged drugs companies and governments to help change the way that medication is dosed by signing up to a 'roadmap for change'.

Professor Amin Rostami from The University of Manchester – who led the move – says the NHS is slipping behind other healthcare systems in terms of dosing medicines according to individual needs.

That, he argues, costs the NHS millions of pounds, adversely affecting outcomes and [patient care](#) in areas as diverse as oncology, paediatrics, heart failure and renal failure.

According to Professor Rostami, who is also Chief Scientific Officer for biosimulation company Certara, advances in science mean a one size fits all approach is outdated.

Each patient, he argues, requires accurate individual dosing, according to their individual genotype, phenotype, body chemistry, weight, social circumstances, time of day, diet and other personalised factors.

But because drugs are dispensed in standardised units, this is done hardly anywhere in the NHS, says Professor Rostami.

The roadmap is outlined in a paper published in the journal *Clinical Pharmacology and Therapeutics*. The idea was first mooted at a healthcare summit in 2016, held in Manchester.

He said: "It's difficult to accurately calculate the cost to [patients](#) and the NHS, but there is no doubt the figures are significant so there is an urgent need to bring drug dosing into the 21st century.

"Because science has advanced so much nowadays, patients can be dosed far more accurately, relatively easily.

"But though precision dosing is possible in most therapeutic areas, it is more or less not happening anywhere in the NHS."

He added: "We feel there is no overall strategy for health care in precision dosing and certainly a disconnect between academic research and clinical care in this area.

"There needs to be a regulatory system in place. Funding bodies should put more emphasis on cost analysis. There has been little involvement of UK policy makers.

"NHS investment in precision dosing will save millions of pounds in the long run, as well improve outcomes and patient care."

Dr Adam Darwich, also from The University of Manchester, has developed computer models on drug absorption after [weight loss surgery](#)

The models have been used in some research centres across the world to predict [drug](#) exposure in patients before clinical data is produced and to help inform [clinical trial design](#).

He is now to focus on the challenge of bringing personalised dosing models into [health care](#) for a range of conditions.

He said: "Our research demonstrates that it is possible to achieve personalised dosing in healthcare.

"Many of the tools to enable this already exist, the main challenges are to do with how we can practically incorporate these into healthcare and test cost-benefit in clinical practice."

More information: AS Darwich et al. Why Has Model-Informed

Precision Dosing Not Yet Become Common Clinical Reality? Lessons From the Past and a Roadmap for the Future, *Clinical Pharmacology & Therapeutics* (2017). [DOI: 10.1002/cpt.659](https://doi.org/10.1002/cpt.659)

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