

# Study highlights rising tide in adverse drug reactions

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In a study published in *BMJ Open*, researchers at the University of Liverpool have identified an increasing trend in medicine-related harm leading to hospital admission.

The trend is connected to a rising tide of multiple long-term health conditions (called multimorbidity) associated with the use of many medicines simultaneously (called polypharmacy).

This prospective observational study from researchers at the University of Liverpool and Bangor University was undertaken at Liverpool University Hospitals NHS Foundation Trust. It involved two-physician review of the medical notes of 1,187 medical admissions across a one month period in 2019.

It formed an update to the original seminal study published by Professor Sir Munir Pirmohamed and colleagues in the *BMJ* in 2004. At that time, 6.5% of hospital admissions were found to be associated with [adverse drug reactions](#) (ADRs). This updated figure identifies a significant increase in that burden, rising to 16.5% of admissions being caused by, or complicated by, an adverse reaction to a medicine.

Polypharmacy is usually defined as taking five or more regular medicines. The researchers identified that those who suffered an ADR were on average taking more medicines and had more comorbid conditions than those without an ADR.

Polypharmacy can become burdensome for [patients](#), particularly when it occurs in the context of overprescribing, that is, where people are given medicines they don't need or want, or which may do them harm. Overprescribing has grown dramatically over the last 25 years. This was highlighted in a recent NHS report on overprescribing which stated that 10% of prescriptions (approximately 110 million) should not have been issued.

This updated study confirms that the problem is increasing and that a whole-systems approach is needed to address the societal, systemic and cultural contributors to overprescribing.

Dr. Rostam Osanlou, specialist registrar in [clinical pharmacology](#), said: "Our work suggests adverse drug reactions place a significant burden on patients and hospital admissions. This has a large associated cost to the NHS (over £2 billion pounds per year) and further efforts in this area could both improve [patient care](#) and save money for the NHS".

Dr. Lauren Walker, senior clinical lecturer at the University of Liverpool said: "It is important for patients to report any adverse drug reactions to the MHRA via the yellow card system. It is important for patients to discuss any side effects with their healthcare professional, and they should not stop medicines of their own accord".

Professor Sir Munir Pirmohamed, David Weatherall Chair of Medicine said: "Our updated analysis highlights the continuing burden placed on patients and the NHS by adverse drug reactions. There is no single simple solution to prevent this, and therefore a multi-layered approach, ranging from education on better prescribing through to the use of technologies is needed. This would be consistent with the aims of the NHS long-term plan."

The researchers' analysis suggests that the annual cost of ADRs causing [hospital](#) admission is at least £2 billion. A concerted national effort, beyond those outlined in the NHS overprescribing report, is needed to improve the benefit-risk balance of prescribed medicines, and thereby reduce the burden of ADRs on patients and healthcare services.

**More information:** Rostam Osanlou et al, Adverse drug reactions, multimorbidity and polypharmacy: a prospective analysis of 1 month of medical admissions, *BMJ Open* (2022). [DOI: 10.1136/bmjopen-2021-055551](#)

Provided by University of Liverpool

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