

No evidence or evidence of no effect

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A Cochrane review¹ with the title ‘medication review in hospitalised patients to reduce morbidity and mortality’ and published in 2013 has raised concerns among a number of hospital pharmacists. The conclusions in the abstract state: “It is uncertain whether medication review reduces mortality or hospital readmissions, but medication review seems to reduce emergency department contacts. However the cost effectiveness of this intervention is not known.”

So should we pack up and forget about medication review? The paper needs a bit more unpicking because what can seem like evidence that something does not work can often be just a lack of evidence.

In this case, the PICO was as follows: participants (P) were hospitalised patients (ie, admitted to hospital). In practice, most were elderly but not all. The intervention (I) was medication review defined by the authors as: “any systematic assessment of the pharmacotherapy of an individual patient that aims to evaluate and optimise patient medication by a change in prescription either by a recommendation or by a direct change”. Comparisons (C) were either usual care or a different type of medication review (not specified). The primary outcome (O) was mortality (all cause) and secondary outcomes included hospital readmission, hospital emergency department contacts or adverse drug effects. While we know that pharmacist interventions can save lives, such a dramatic outcome is probably rare

and the optimisation of treatment carries other benefits not considered.

The authors only looked for randomised controlled trials (RCTs)—that is fine as a start, but they could also have looked for other types of studies such as interrupted time series or controlled before and after studies. These are particularly useful when making changes to service delivery as shown in a different Cochrane review² showing the benefits of pharmacist interventions (among others) in improving antibiotic use in hospital.

What did they find? After heroically screening over 4600 studies, five studies of 1186 participants were included. Essentially not much evidence to work with. Ten studies were excluded as not being RCTs, but the study designs are not stated. Follow-up was from 30 days to 1 year, one study was conducted in the USA and the rest in Europe. The results show that patients died during the follow-up period in both groups (all-cause mortality), but there was no significant difference; this was also true for hospital readmission (all cause). When the readmission rates for adverse drug events are analysed separately, medication review produces far better results relative risk (RR) 0.128 95% CI 0.14 to 0.57). This is encouraging but the numbers are small—9 were re-admitted in the medication review group and 33 in the control group. There was also benefit in terms of reducing the number of people going to emergency departments due to adverse events. There is much to criticise the included literature in this review but this is what it is. The authors could have chosen to include other types of studies as mentioned above, but they cannot be criticised for the availability of such a small

number of studies and the small number of participants in those studies.

It is likely that as a Cochrane review, the findings will have some negative impact; however, it needs to be argued that the evidence is so limited that this constitutes a lack of evidence rather than proof that medication review is ineffective. The review authors call for a more rigorous evaluation of medication review while admitting that such an intervention may well have a positive effect on morbidity and mortality.

As I have said before, pharmacists cannot be complacent in assuming the services they run will go on forever. We have to demonstrate effectiveness and value. Only high-quality research, based on the types of studies that are valued in evidence-based practice, will do that requiring a major change in the way we think and carry out research. Maybe it is time to more closely align academia with hospital practice to ensure that services we consider valuable are properly evaluated. There are pockets of such collaboration, but we need more. An issue of this journal will cover medicines review at the end of this year—a spur to initiate some useful research and share some wisdom.

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