

BMJ Open Quality **How did they do that?**

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The study by DiDiodato and McArthur¹ describes work to improve the care of patients admitted to hospital with community-acquired pneumonia. They compare length of stay of patients after the implementation of an antimicrobial stewardship programme that was initially led by an infectious disease-trained pharmacist and then transitioned to a ward-based pharmacist. To estimate the impact on length of stay, they used a stepped-wedge design, where the transition to a ward-based pharmacist in four medical wards was staggered in 2 monthly intervals over an 8-month period. This quasi-experimental approach allowed the investigators to create reasonable comparator groups and meant that all wards eventually received the intervention. Consequently, DiDiodato and colleagues provided a compelling estimate of the impact of transitioning to a ward-based pharmacist indicating a 19.4% relative reduction in length of stay for patients admitted with community-acquired pneumonia. Such efforts to design improvement work in a way that allows an estimate of the impact relative to a comparison group remain uncommon in the published improvement field. DiDiodato and colleagues should be congratulated on designing and carrying out this type of study.

Having demonstrated a positive impact of a ward-based pharmacist-led approach to antimicrobial stewardship, the question then becomes, what next? Others working in a hospital setting may hear about the impact, motivating them to consider trying a ward-based pharmacist-led approach in their institution. Translating the approach to a new setting will benefit from insights into how DiDiodato and colleagues introduced the ward-based pharmacist, what steps to take and what steps to avoid. Improvement work often involves taking models that have shown evidence of working in another setting, and testing, tailoring and adapting to explore whether they can work in a new setting. Frequently, improvement methods such as the Model for Improvement are used to guide teams in this process.² Whether improvement occurs involves more than the application of

improvement methods—improvement has been described as a complex function of the intervention (the what), the improvement or implementation approach (the how) and the context within which the work takes place.^{3 4} Where the context can include many factors, for example, cover payment structures, policy structures, improvement experience, will, motivation and leadership engagement. This suggests those seeking to reproduce results in their setting will benefit from knowing more about what the active components of an intervention are and how complex were they? For example, were there factors related to relationships and teamwork that underpin the transition to a ward-based pharmacist? Were all of the components under the control of one or two local agents or did people across the organisation need to come together to agree and design them? Were the changes embedded into the local system and sustained over time? In DiDiodato's setting, how were they able to transition from one approach to another approach? If they used a rapid-cycle testing approach, what setbacks did they face and what enabled them to move forward? How familiar were local teams with improvement methods and how open were they to using them? Were there factors related to the setting that made it easier, or more challenging for the ward-based model to be implemented, and for it to lead to a reduction in length of stay. For example, was the leadership of the organisation supportive? Were there wider organisational priorities focused on reducing length of stay? Were local staff supportive and did they see the benefits of changing?

The questions above take nothing away from the impressive results DiDiodato and colleagues achieved. The improvement field remains relatively new to expanding the description of improvement work from quantitative results to including more of the social factors often explored through qualitative approaches. There are encouraging examples and work underway to help provide guidance on how to do this. For example, the Model for Understanding Success in Quality (MUSIQ)



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tool focusing on micro-level and macro-level context issues such as leadership, motivation and improvement experience can provide some insights into local context.⁵ Approaches for describing the components of improvement initiatives have been developed.^{6–8} Moreover, the recently updated Standards for Quality Improvement Reporting Excellence (SQUIRE) guidelines recommend providing a broader description of the improvement experience.⁹

To grow the improvement field, we need to galvanise and develop approaches and build our capability for sharing the results and the experience of undertaking improvement—how can we clearly and succinctly summarise a series of rapid-cycle tests in a way that will help others navigate a similar route more quickly? By encouraging improvement teams to share both their quantitative results and their qualitative experiences, the SQUIRE guidelines can help and the *BMJ Open Quality* can provide a peer-reviewed forum for broad dissemination.

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