

**NSW  
TAG**

# Revitalising hospital evaluation of medicines use – the case for DUE

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NSW  
Therapeutic  
Advisory  
Group Inc.

Advancing  
quality use  
of medicines  
in NSW

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## Executive summary

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Drug use evaluations (DUEs), structured and ongoing audit and feedback processes designed to improve the quality and cost-effectiveness of medicine use, have been essential components of clinical pharmacy practice in Australian hospitals since the 1990s.<sup>1</sup> Resource depletion, altered priorities and lack of a multidisciplinary approach threaten the sustainability of DUE activities.

In January 2015, NSW Therapeutic Advisory Group (NSW TAG) conducted a survey in order to investigate the current support, resource allocation and perceptions towards DUE, and the barriers and enablers for DUE activity in NSW and ACT public hospitals. Pharmacy directors, DUE and Antimicrobial Stewardship (AMS) pharmacists at 67 NSW and ACT hospitals with on-site pharmacy services were invited to an online survey requesting a) descriptions of current DUE activities; b) recommended knowledge and skills of DUE pharmacists; and c) ways to improve DUE activity. Responses were analysed for emergent themes.

Twenty-five hospitals (of a potential 67) responded. Less than one-third of these hospitals (8/25) had a dedicated DUE position in their hospital, whilst over three-quarters of these hospitals (19/25) had a dedicated AMS position. Allocations of DUE positions ranged from 0.1 to 1.0 full-time equivalent pharmacist and were usually combined with other special clinical pharmacist activities, including AMS. The number of completed DUE activities during the previous year for individual hospitals ranged from 0 to 9, with almost half of the responding hospitals (12/25) completing between 1 and 3 projects. Four hospitals reported that no DUE activities were completed over the previous year.

Participants indicated that the accreditation cycle leads to a greater awareness of DUE activity, as it provides evidence required to meet National Safety and Quality Health Service (NSQHS) Standard 4 "Medication Safety" and AMS requirements in Standard 3 "Preventing and Controlling Health Care Associated Infections".<sup>2</sup> Despite this, it is apparent that additional resources dedicated for DUE activities have not been forthcoming. Participants suggested that accreditation bodies should mandate DUE activity. To formally introduce DUE activity into accreditation standards would require the development of funding models that underpin this activity.

The most frequent theme from participants was the lack of dedicated resources and time allocated to DUE activity. Staff shortages for frontline services and competing priorities such as AMS activities, discharge medication dispensing, medication reconciliation, medication chart review and patient medication counselling were provided as examples, and indicate that DUE activity sits low in prioritisation of clinical duties. In hospitals that had dedicated DUE pharmacist positions, there was repeated commentary that these pharmacists were frequently diverted to backfill other frontline pharmacy services. Use of casual pool or locum staff could potentially be a more cost-efficient way of backfilling short term staff shortages affecting front line services, and preserve the DUE resource.

Lack of appropriate DUE skills and competency was also a recurring theme, in particular amongst early career pharmacists. Limited knowledge of research methodology was a particular concern. Lack of clinician motivation, engagement and support for DUE activities was reported and the need for clinical champions was identified. The enhancement of clinical leadership skills for hospital pharmacists is recommended. Several potential solutions were identified, included incorporating DUE project skills in pharmacy undergraduate syllabuses and hospital internship training programs. There are existing links between university pharmacy schools and hospital pharmacy that could be readily utilised to test these concepts.

Data collection for DUE activity was described by participants as problematic. It is often time intensive and engaging clinicians and medical records to facilitate data collection is challenging. Monitoring the impact of changes was also difficult. There is a gap in the availability of a specifically developed tools for DUE activities. Centralised data collection tools and other templates for project design, stakeholder briefing or business cases could potentially be developed, and could standardise the approach to and reporting of DUE activity.

Participants reported that dissemination of DUE findings was challenging. The onerous process of ethics approvals required to publish DUE findings externally was a particular obstacle that few were prepared to negotiate. Simplifying

this process would facilitate the sharing of DUE findings and potentially provide improved patient safety and cost savings across the broader health system.

The number of survey responses received and the carefully considered suggestions from participants identified a strong desire to improve the situation. A driver diagram has been developed to visually present a shared theory of how this could be achieved.

The capacity of many hospitals to undertake targeted individual hospital-focused improvement has diminished. While the implementation of electronic medication management may facilitate patient identification and data collection, change management strategies are required to translate DUE findings into clinical practice. For the valuable outcomes to the patient and healthcare system that DUE activities provide, a 'fresher' more collaborative approach to clinical practice research, training, promotion and funding models with support from executive and medicines governance is now required.

## Background

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Drug use evaluations (DUEs) are useful structured quality improvement activities that, when applied optimally, use a multidisciplinary methodology for ensuring co-ordinated action to improve the quality and cost-effectiveness of medicine use.<sup>1</sup> They have been essential components of clinical pharmacy practice in Australian hospitals since the 1990s, and have been shown to influence prescribing patterns resulting in improved patient outcomes.<sup>3</sup>

DUE is underpinned by quality and safety principles, and in countries such as the USA, Canada and South Africa, DUE programs are mandated by institutional accrediting bodies.<sup>1,4</sup> Currently, DUE programs in Australian hospitals are not mandated by national safety and quality health service standards (NSQHS), although output from DUE activities can provide evidence for accreditation. In contrast, the implementation and development of antimicrobial stewardship (AMS) programs for the safe and appropriate prescribing of antimicrobials has been mandated since 2012.<sup>2</sup> Hospitals and Local Health Districts (LHDs) have responded by allocating dedicated resources to AMS programs, including the introduction of AMS pharmacist positions in many facilities. AMS pharmacists focus on antimicrobial use in a clinical setting and could be described as a subgroup of DUE practitioners. It is hypothesised that as a consequence, DUE activity in hospitals is shifting towards the undertaking of AMS related projects.

The NSW Therapeutic Advisory Group (NSW TAG) has a long held interest in DUE activity. The NSW TAG DUE Support Group continues to provide a forum for clinicians with an interest in DUE that enables the exchange of ideas, resources and information on activities being undertaken in NSW hospitals. In 2007, NSW TAG, in collaboration with the Clinical Excellence Commission (CEC), developed a set of indicators to measure and monitor quality use of medicines (QUM) in Australian hospitals.<sup>5</sup> These QUM indicators were reviewed, revised and expanded in 2014 with funding support from the Australian Commission in Safety and Quality in Health Care.<sup>6</sup> QUM indicators target known gaps in hospital-based QUM and facilitate DUE (and AMS) activities by identifying areas for investigation, assisting data collection and evaluating interventions.<sup>5</sup> A NSW TAG survey of Australian hospitals in 2011 showed there was good uptake of QUM indicators to assess quality improvement (QI). Despite this, there appears to be growing concern that resource depletion, altered priorities and lack of a multidisciplinary approach threaten the sustainability of DUE activities, and therefore a review of the direction of DUE is now timely.

## Aims

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The project sought to:

- investigate the current support, resource allocation and perceptions towards DUE; and,
- identify the barriers and enablers for DUE activity in NSW and ACT public hospitals.

## Methods

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Pharmacy directors, DUE and Antimicrobial Stewardship (AMS) pharmacists at NSW and ACT hospitals with on-site pharmacy services were invited to participate in an online survey requesting: a) descriptions of current DUE activities; b) recommended knowledge or skills of DUE pharmacists; and c) ways to improve DUE activity. Responses were analysed for emergent themes.

## Results

Responses from 25 of 67 eligible hospitals were received (response rate, 37%), including 20 metropolitan area hospitals and 5 rural area hospitals. Participants were pharmacists working in a variety of roles, including senior management, DUE, AMS and clinical pharmacy. Two hospitals provided more than one response (AMS and senior clinical pharmacists) which were combined to provide one response per hospital.

### Hospital DUE positions

Approximately one third (8/25) of responding hospitals had a dedicated DUE position. The majority of these DUE positions were shared with AMS, medication safety or other specialist clinical pharmacist positions and only one hospital reported having a full time position dedicated solely to DUE activities. A further four of the responding hospitals reported that although they did not have a dedicated DUE position, there was a dedicated DUE position within their local health district (LHD). All of the dedicated DUE positions were filled by pharmacists.

There was a wide variation in the actual pharmacist resources dedicated to DUE activity reported by those hospitals with a dedicated DUE position. This ranged from 0.1 to 1.0 full time equivalent (FTE) position, with the average being 0.4 FTE. When asked to indicate an ideal pharmacist FTE allocation to DUE activity, responses received from 16/25 hospitals ranged from 0.4 to 2.0 FTE (average = 0.9 FTE).

### Essential qualifications, knowledge and skills criteria for DUE positions

Participants were asked to describe essential qualifications, knowledge and skills criteria for DUE positions. Free-text responses were analysed and are summarised in Table 1.

**Table 1: Essential criteria for DUE practitioners identified by respondents**

Criteria	Examples
Research skills	<ul style="list-style-type: none"><li>• Research design</li><li>• Critical appraisal of literature</li><li>• Statistical analysis</li><li>• Drug information</li><li>• Knowledge of ethics requirements</li></ul>
Good clinical knowledge	<ul style="list-style-type: none"><li>• Extensive clinical experience in a variety of disciplines</li><li>• Awareness of current clinical guidelines</li><li>• Knowledge of prescribing patterns</li></ul>
Personal skills	<ul style="list-style-type: none"><li>• Leadership and change management skills</li><li>• Ability to work with multidisciplinary teams</li><li>• Good written communication</li><li>• Ability to define goals and objectives and engage others</li><li>• Ability to educate others</li></ul>
DUE related experience	<ul style="list-style-type: none"><li>• Specific training in DUE</li><li>• Experience in developing, undertaking, reviewing and reporting on drug utilisation activities</li><li>• Design and use of data collection tools</li><li>• Experience in audit/data analysis</li><li>• Knowledge of clinical indicator tools</li></ul>
Post graduate qualification	<ul style="list-style-type: none"><li>• Clinical pharmacy</li><li>• Pharmacy practice</li><li>• Research</li></ul>

## Training to enhance DUE skills

Nine participants specifically reported that there was no hospital or LHD-based training provided to enhance DUE skills at their facility. It was generally reported that training of DUE pharmacists was performed on-the-job by more experienced pharmacists. Other training methods reported by participants included external research skills seminars for pharmacists and knowledge sharing (via staff meetings, LHD teleconferences, in-services and the NSW TAG DUE Support Group). There was one instance of LHD-based training reported, provided by a quality use of medicines (QUM) pharmacist in the form of site visits.

Use of other designated DUE resources such as the Society of Hospital Pharmacists of Australia (SHPA) DUE Starter Kit and DUE tools developed by other hospitals and shared via NSW TAG was reported by one participant.

## Collaboration between DUE and AMS pharmacists

Approximately three-quarters of responding hospitals (19/25) had a dedicated AMS position. Additionally, three hospitals that did not have a dedicated AMS position had a dedicated AMS position within their LHD. All of the dedicated AMS positions were filled by pharmacists.

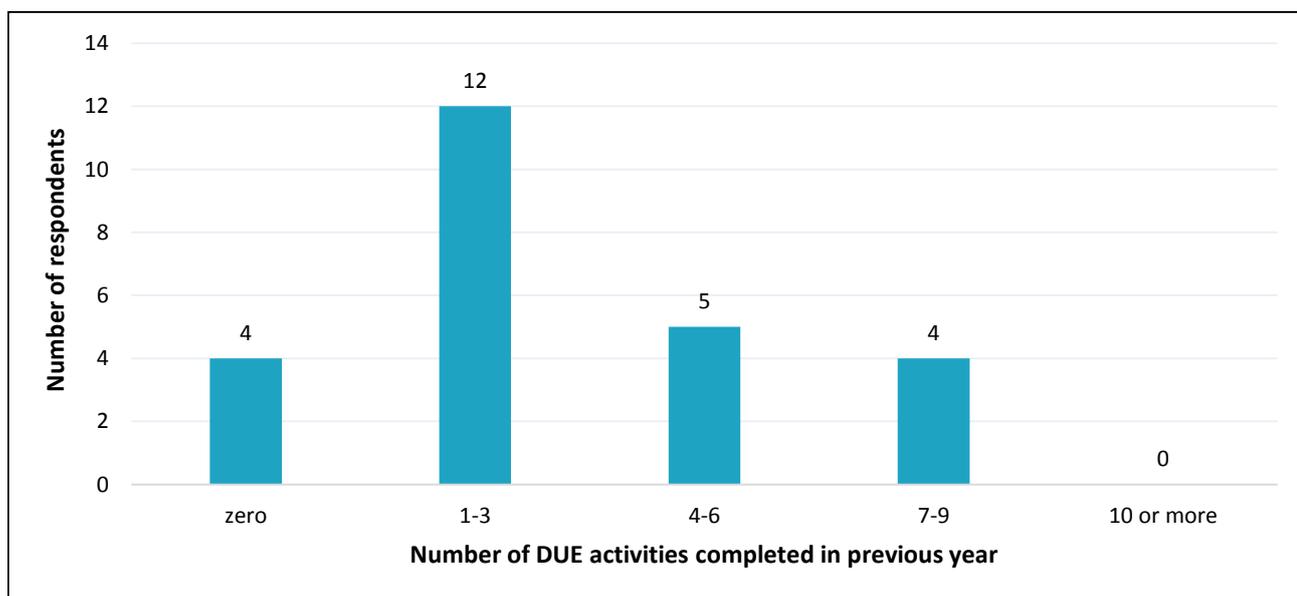
Hospitals with both DUE and AMS positions (7/25) were asked to describe if and how the positions were linked. Overall the positions were not linked and collaboration varied. Examples of collaboration provided included working together on formulary matters; information sharing; support and guidance for antimicrobial-related DUE; and attendance at AMS meetings. In hospitals where there was a dedicated AMS role and no dedicated DUE role, other pharmacists undertook DUE activities in addition to their regular duties as time permitted.

## Support for DUE activities

Generally participants reported that their hospital or LHD executive provided support-in-principle for DUE activity (e.g. identification of intervention strategies and acknowledgement of potential benefits that DUE activities could provide). However, only three participants reported executive support provided in the form of funding for DUE.

## DUE activities per year

The number of completed DUE activities during the previous year for individual hospitals ranged from 0 to 9. Almost half (12/25) of the responding hospitals completed between 1 and 3 projects; one-fifth of hospitals (5/25) completed between 4 and 6 projects and approximately one-sixth of hospitals (4/25) completed between 7 and 9 activities. The remainder of responding hospitals (4/25) reported that no DUE activities were completed over the previous year. The responses are summarised in Figure 1.



**Figure 1: Number of DUE activities completed over the previous year, as reported by 25 participants.**

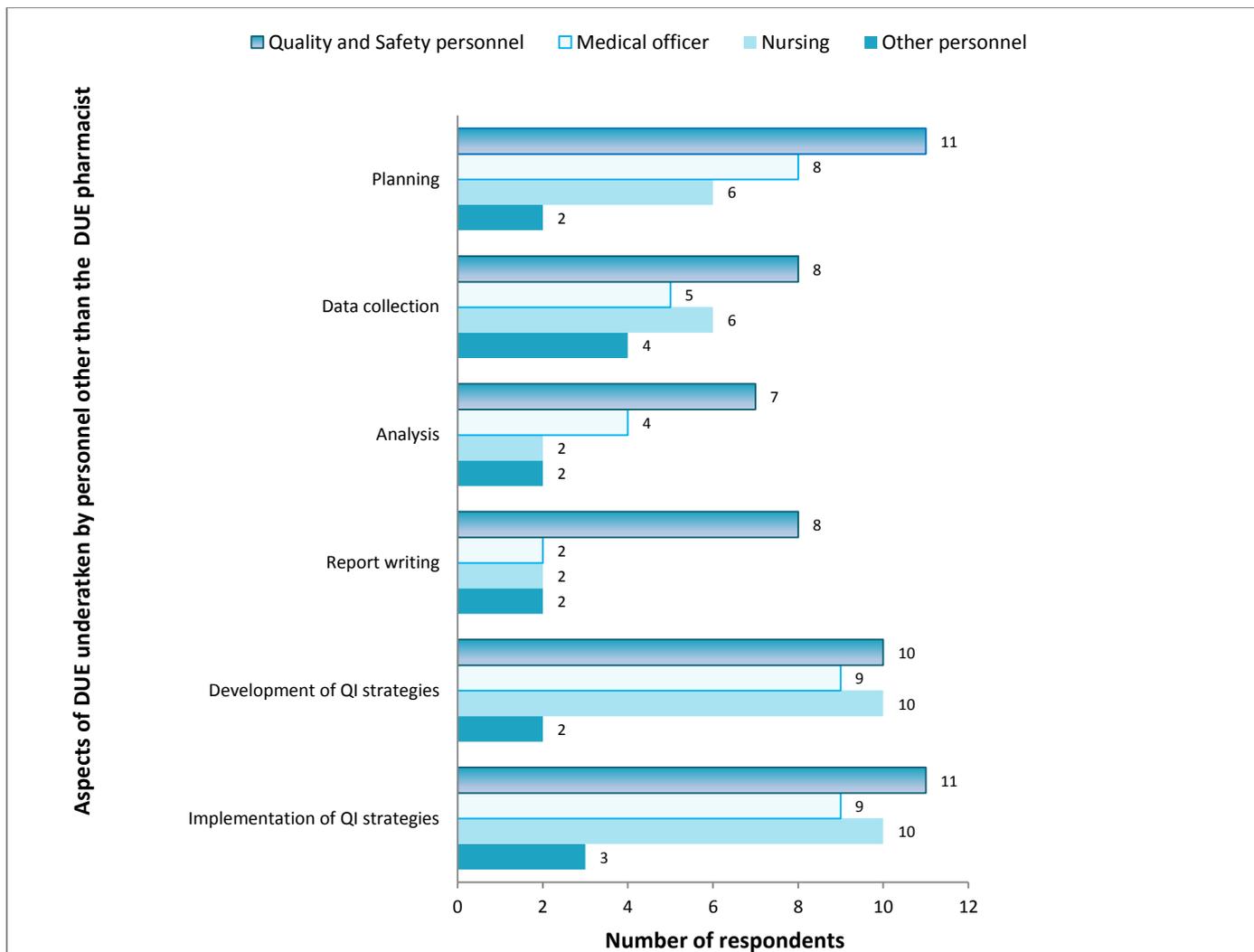
Participants were also asked to indicate the optimal number of DUE activities to be completed at their facility per year. Responses ranged from 1 to 10 activities per year. An optimal number of 10 or more completed activities was suggested by 8 participants; between 4 and 6 activities per year was suggested by a further 8 participants; and between 1 and 2 activities per year was suggested by another 3 participants. In addition, two participants did not specify an optimal number, however provided general comment that this was difficult to quantify as it would be context-driven.

## **Reporting of DUE activities**

Nine participants reported that DUE activity was a standing item on their Drug and Therapeutics Committee (DTC) meeting agenda. Seven more participants reported that DUE activity was added to the DTC agenda as required and another two participants indicated that DUE activities were reported to a medication safety committee. The remainder of participants did not specify a reporting structure for DUE activities.

## Multidisciplinary participation in DUE activities

Participants were asked to indicate the involvement of multidisciplinary personnel (besides pharmacists), in DUE project activities such as project planning, data collection, data analysis, report writing, development of quality improvement strategies and implementation of these strategies. Quality and safety managers/teams were the most highly represented group across all of these tasks. The responses are summarised in Figure 2.



**Figure 2: Involvement of personnel other than DUE pharmacists in aspects of DUE.**

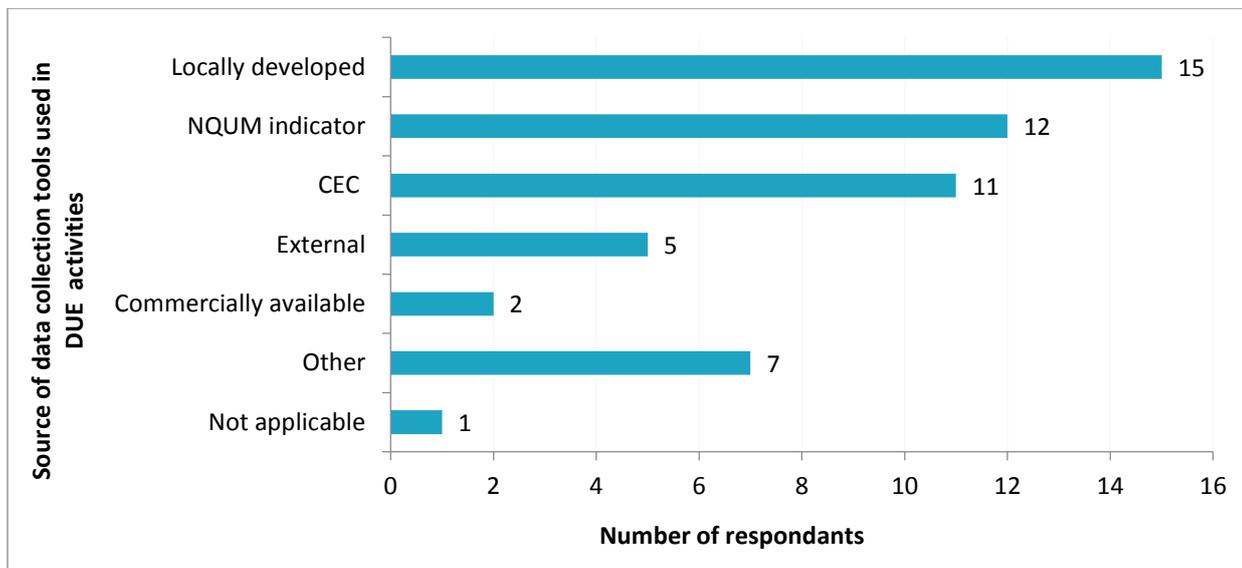
‘Other’ personnel specified included pharmacy students and medical records staff, as well as members of AMS committees, DTCs and Medication Safety committees. Of note was that in two respondent hospitals, pharmacists undertook all of these tasks in isolation.

## Accreditation and DUE activities

Participants were asked how accreditation processes influenced planning for DUE activities. Responses indicated that the accreditation cycle leads to a greater awareness that DUE can facilitate provision of evidence and documentation needed to meet NSCHCS Standard 4 "Medication Safety" and AMS requirements in Standard 3 "Preventing and Controlling Health Care Associated Infections".<sup>2</sup> DUE activities are used to identify gaps, risks, need for improvement and to plan quality improvement activities. One respondent reported that, whilst accreditation highlights an appreciation for the need to enhance DUE, no additional resources have been dedicated for DUE activities. Another respondent reported that their hospital could not allocate any resources to DUE as other priorities needed improvement such as medication reconciliation statistics.

## DUE audit tools

Participants were asked to identify clinical audit tools currently used for DUE activities. More than one answer could be provided. The responses are summarised in Figure 3.



**Figure 3: Source of DUE audit tools used**

The most commonly used were locally developed tools, followed by the National QUM indicators, Clinical Excellence Commission tools and National Antibiotic Prescribing Survey tools. A minority of participants reported using a commercially available tool (Auditmaker™).

## Current gaps and barriers in the delivery of DUE activities and projects

Participants were asked a series of open questions to ascertain current gaps and other barriers in the conduct of local DUE projects. Free-text responses were analysed for emergent themes.

### Lack of dedicated resources and engagement of stakeholders in DUE activity

Generally participants reported good support for identifying areas that would benefit from DUE, as well as good support for intervention strategies. However this support did not translate into the provision of extra resources or personnel dedicated to DUE activity.

Competing clinical pharmacy duties such as discharge medication dispensing, medication reconciliation, medication chart review and patient medication counselling were more likely to have resources directed towards them, suggesting that DUE activity sits low in the order of clinical priorities. In addition, the dedicated DUE resources were often required to undertake mandatory benchmarking audits and AMS activities rather than identifying and addressing local quality use of medicines (QUM) gaps.

It was robustly communicated that pharmacy staff shortages have significant impact on DUE activities by either stopping or delaying them. In hospitals that had dedicated DUE positions, it was reported that these pharmacists were regularly diverted from DUE activities in order to backfill other frontline pharmacy services, due to a lack of pharmacists/technicians and delays in re-filling vacant positions. In addition, the lack of dedicated resources and time directly impacts the capacity to train staff in DUE competencies and expand DUE activity.

Conversely, one respondent reported that the capacity to perform DUE activity was not impacted by pharmacy staff shortages, as the funding for the DUE position at their facility was based on cost savings achieved by the position. Hence there was a focus on the financial benefits associated with the utilisation of the dedicated DUE resource.

## **DUE skillset of hospital pharmacists is sub-optimal**

Participants reported a lack of appropriate DUE skills and limited knowledge of research methodology amongst pharmacists. There was particular mention of early career pharmacists not having acquired the necessary skills to undertake DUE activities. Hence, considerable investment is required, generally in-house, to up-skill these pharmacists. On-the-job training can be labour intensive, and rural hospitals in particular, may have higher numbers of early career pharmacists, making up-skilling more burdensome.

A shortfall in pharmacists' change management and leadership skills was also identified, resulting in challenges in achieving or implementing real change as a result of DUE activity findings.

## **Lack of multidisciplinary involvement**

Participants commented that DUE activities are time intensive and require long term multidisciplinary commitment. Lack of clinician motivation to undertake DUE activities was reported, due to an anticipated increase in workload required to drive DUE projects and assess the impact of intervention and change. The rapid turnover of junior medical officers means their involvement is likely limited even though they may be the medical professional most likely to effect change. There were reports of DUE pharmacists working in isolation to complete DUE activities, due to difficulty in recruiting multidisciplinary staff. The need for clinical champions was also identified.

## **Ethics processes**

The dissemination of DUE findings outside the specific clinical setting where the activity was performed was also reported to be problematic. The onerous process of ethics approvals required to publish DUE findings outside of individual hospitals was a particular obstacle. Involvement with and conduct of multisite studies is also problematic.

## **Data collection for DUE activity is problematic**

Data collection was reported by a number of participants as being time consuming and challenging. A gap in the use and/or availability of a specifically developed tool for DUE activities was identified. Engaging clinicians and medical records personnel to facilitate data collection (particularly with paper based records) was reported as challenging. Monitoring the impact of changes was also reported to be difficult.

## Strategies to enhance DUE activity

Participants identified several strategies to maximise DUE activity and outcomes in NSW/ACT hospitals. These have been summarised and are presented in Table 2.

**Table 2: Strategies to maximise DUE activity**

Strategy	Suggestions
Prioritise DUE activity	<ul style="list-style-type: none"> <li>• Strategic planning by hospital pharmacy services to incorporate and prioritise DUE activity</li> <li>• Create designated DUE positions</li> <li>• Address pharmacy workforce issues</li> <li>• Preserve dedicated DUE resources by backfilling appropriately</li> <li>• Develop stakeholder briefing resources</li> <li>• Use financial and patient safety outcomes of DUE-led interventions as evidence to build generic business cases</li> </ul>
Build collaborative partnerships	<ul style="list-style-type: none"> <li>• Engage hospital executives and other clinicians to secure support for DUE</li> <li>• Promote multidisciplinary ownership of DUE projects and associated improvements in patient outcomes</li> <li>• Identify DUE champions</li> </ul>
Up-skill clinicians	<ul style="list-style-type: none"> <li>• Incorporate DUE activities into pharmacy and medical intern training programs</li> <li>• Develop learning modules</li> <li>• Utilise experienced DUE/QUM pharmacists to lead workshops and educational sessions</li> <li>• Enhance research methodology and publication skills</li> </ul>
Simplify ethics requirements	<ul style="list-style-type: none"> <li>• Promote central co-ordination of multisite DUE</li> <li>• Create opportunities for broader dissemination of DUE findings</li> <li>• Promote consistent site governance procedures</li> <li>• Develop relationship with local ethics officers to facilitate applications and problem solving</li> </ul>
Develop data collection tools and project resources	<ul style="list-style-type: none"> <li>• Prioritise development of validated centralised data collection tools and other templates</li> </ul>
Accreditation standards to include DUE	<ul style="list-style-type: none"> <li>• Add explicit requirement for DUE activity to accreditation standards to increase awareness of its benefits at executive level.</li> <li>• Incorporate DUE into existing general quality systems framework.</li> </ul>

## Discussion

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The survey results confirmed that DUE activity in NSW and ACT hospitals is diminishing. Difficulty engaging key stakeholders to support and conduct DUE activity was a recurrent theme identified. Particularly, lack of clinician motivation, engagement and support for DUE activities was reported and the need for clinical champions was identified. Development of a strategic approach to enhancing DUE activity, that incorporates effective business models and measurement of patient outcomes is warranted, and requires the support of hospital/LHD executive.

### DUE activity reporting

Only nine participants indicated that DUE activity reporting was a standing item on the DTC agenda. A survey of DUE services in Australia and New Zealand in 2008 by Avent et al. found that only 33% (5/15) of hospitals with DUE pharmacist positions reported DUE activities and results to the DTC.<sup>7</sup> This supports our finding that DTC involvement (or interest) in DUE activity was sub-optimal. Although our survey did not specifically request information about AMS activity reporting, DUE and AMS activity should be equally recognised and should require the same level of reporting. The CATAG *Achieving effective medicines governance: Guiding Principles for the roles and responsibilities of DTCs in Australian public hospitals*, published in 2013, state that DTCs are responsible for ensuring the quality use of medicines within their organisations, and that quality improvement plans should be developed and implemented.<sup>8</sup> DUE is listed as a quality improvement process that can be used by the DTC as part of its systems improvement plan. The World Health Organisation (WHO) published a practical guide for DTCs in 2003, which states that it is the responsibility of the DTC to implement and monitor a DUE program, ideally with annual planning that outlines the medicines or clinical conditions to be evaluated.<sup>9</sup>

### DUE resource allocation

A lack of dedicated resources and allocated time for DUE activities were the main barriers identified. Staff shortages for frontline services and competing priorities such as AMS activities, discharge medication dispensing, medication reconciliation, medication chart review and patient medication counselling were provided as examples, and indicate that DUE activity sits low in prioritisation of clinical duties. In hospitals that had dedicated DUE positions, it was often commented that these pharmacists were diverted from DUE activities to backfill other frontline pharmacy services, and to undertake mandatory tasks such as benchmarking audits and AMS activities. Use of casual pool or locum staff could potentially be a more cost-efficient way of backfilling short term staff shortages affecting front line services, and preserve the DUE resource. However, there appears to exist an organisational culture expectation that DUE activities are performed regardless of the lack of designated resources. Using financial and patient safety outcomes of DUE-led interventions as evidence to build generic business cases for creating dedicated DUE positions was another solution proposed by participants.

### DUE skills and training

Lack of appropriate DUE skills and competency was another recurring theme, particularly amongst early career pharmacists. Limited knowledge of research methodology was a particular concern. An apparent lack of hospital pharmacists with the necessary clinical experience and skills required to fill DUE positions was also reported by Avent et al.<sup>7</sup> Participants in our survey suggested incorporating DUE project skills in pharmacy undergraduate syllabuses and hospital internship programs. Recently introduced pharmacy residency programs may also provide an opportunity to develop DUE skills. There are existing links between university pharmacy schools, professional organisations and hospital pharmacy that could be readily utilised to test these concepts.

Developing hospital pharmacists' clinical leadership skills should also be prioritised, as the success of DUE relies on the ability of pharmacists to lead multidisciplinary teams to complete projects and translate the findings into practice. It appears that DUE pharmacists may not recognise and therefore utilise other DUE team member's skills (e.g. advocacy, data analysis, research experience, change management involvement) and that they often work in isolation to complete DUE activities. Avent et.al also found that the majority of surveyed hospitals did not have a

multidisciplinary team approach to DUE.<sup>7</sup> Rather they reported having clinician input and oversight. There are existing comprehensive leadership programs and resources available to pharmacists which could be utilised immediately (such as those provided by the CEC and the Health Education and Training Institute) and have the additional benefit of providing valuable networking opportunities.<sup>10,11</sup>

## Translation of DUE findings into practice change

DUE activity is a component of frontline clinical research. Participants reported that obtaining the appropriate ethics approvals was an obstacle to publication of DUE results outside of their institution. Whilst hospitals have ethics committees and QI recording systems in place, it would be worthwhile investigating if the ethics processes relating to DUE activity could potentially be simplified. This would facilitate the sharing of DUE findings and potentially provide improved patient safety and cost savings across the broader health system. Promoting central co-ordination of multi-site DUE activities to simplify ethics requirements was suggested by participants. Successful national multi-site DUE projects were previously co-ordinated by NSW TAG with support from the National Prescribing Service (NPS), however funding for this partnership ceased in 2011. Ongoing multi-site projects continue to be supported and co-ordinated by NSW TAG albeit in a more limited scale. Inconsistent application of local governance remains an impediment to recent NSW TAG multi-site projects.

The development of validated centralised data collection tools and other standardised resources to assist in the undertaking and reporting of DUE activity were desired. This could potentially reduce duplication of tasks in similar projects, produce more robust findings, and provide cost-efficiencies across the wider health system. The implementation of electronic medication management systems presents a further opportunity to enhance DUE activity. Up-skilling of relevant staff may be required for optimal extraction, analysis and interpretation of eMeds data and reporting of eMeds data for research and quality improvement purposes.

## Accreditation as an enabler for DUE activity

Participants indicated that the accreditation cycle leads to a greater awareness of DUE activity, as it provides evidence needed to meet NSQHCS Standard 4 "Medication Safety" and AMS requirements in Standard 3.<sup>4</sup> Despite this, it appears that additional resources dedicated for DUE activities have not been forthcoming. A number of participants identified the opportunity to enhance DUE activity via incorporation into NSQHS accreditation standards. This would be in line with international accreditation requirements.<sup>1</sup> To formally introduce DUE activity into accreditation standards would require the development of funding models that underpin this activity, and could possibly align with activity-based funding (ABF) policy. It could be worthwhile to investigate how other allied health disciplines are approaching the funding of quality improvement activity, with the pending introduction of ABF.

## Strategies to enhance DUE activity

Carefully considered suggestions from participants identified a strong desire to enhance DUE activity in their respective hospitals. A driver diagram was developed to visually present a shared theory of how DUE activity could be revitalised (see Appendix 1). Prioritisation of DUE activity, up-skilling clinicians, publication of DUE findings and embedding DUE in quality improvement frameworks are high level elements identified by the survey that must be addressed to enact change. The secondary drivers are processes that can potentially be utilised to enable change, whilst the solutions are specific ideas or interventions that could be acted upon to introduce change.

## Limitations

The survey targeted hospitals with known on-site pharmacy services only. The response rate of 37% (25/67) as well as the omission of answers by some participants may limit the generalisation of our findings. A plausible explanation may be that hospitals lacked designated DUE resources. A further limitation was that survey invitations were sent to pharmacists only. However, as pharmacists are primarily concerned with the quality use of medicines, it is reasonable to assume they would be involved in DUE activity undertaken within their hospital and/or LHD.

## Conclusions

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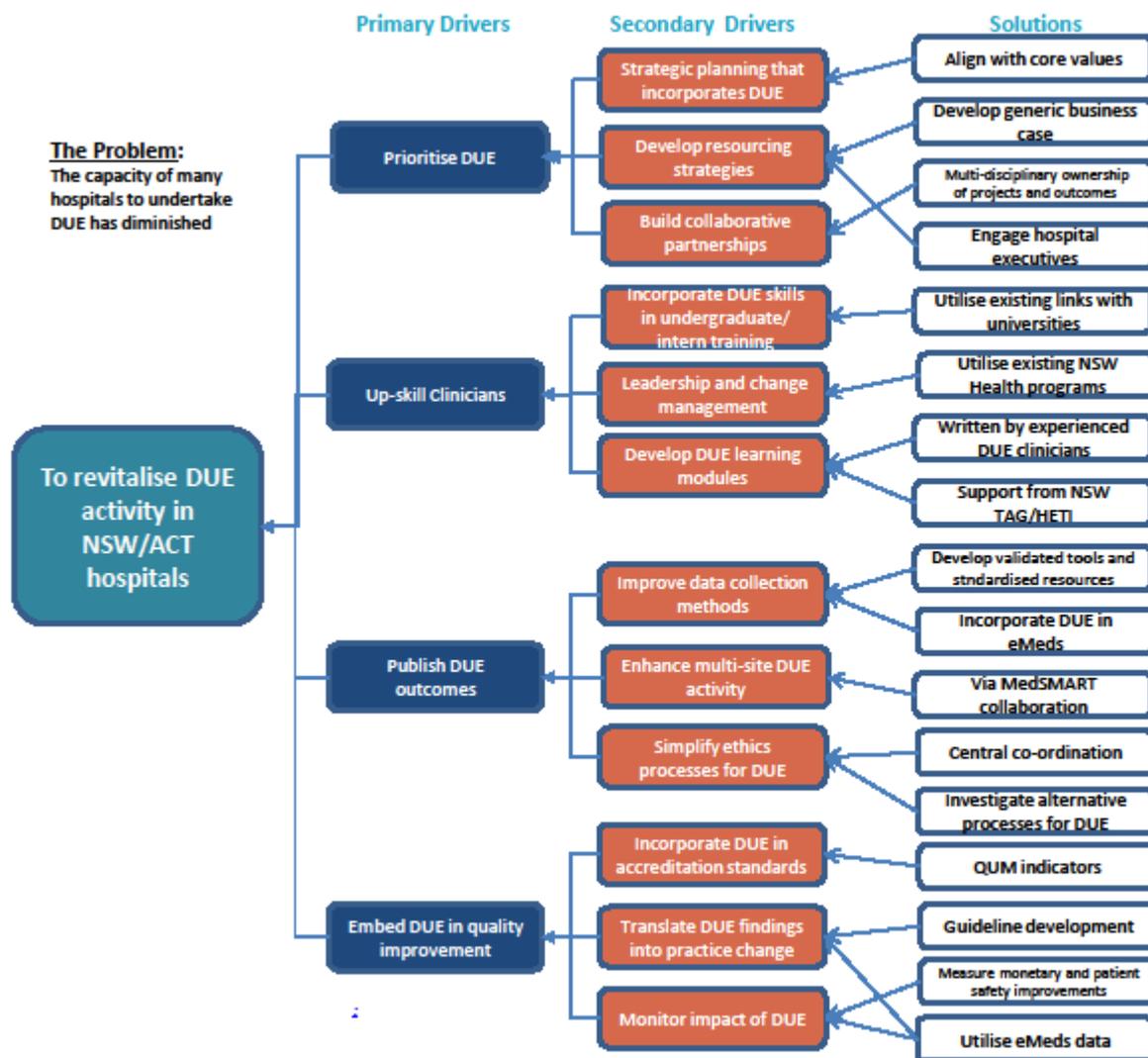
Many 'traditional' DUE activities have been replaced by activities promoting appropriate use of antimicrobials, and mandatory benchmarking audits; albeit utilising DUE principles as a framework. The capacity of many hospitals to undertake targeted individual hospital-focused improvement has diminished, however there appears to be a desire by NSW and ACT hospital pharmacists to resurrect DUE activity from the bottom of the clinical activity or service provision priority list. While the implementation of electronic medication management (EMM) may facilitate patient identification and data collection, change management strategies are required to translate DUE findings into clinical practice. To realise the valuable outcomes to the patient and healthcare system that DUE activities provide, a 'fresher' more collaborative approach to clinical practice research, training, promotion and funding models with support from executive and medicines governance is now required.

## References

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1. J Dartnell. Understanding, influencing and evaluating drug use. Therapeutic Guidelines Limited, 2001.
2. Australian Commission on Safety and Quality in Health Care, *National Safety and Quality Health Service Standards (September 2012)*. Sydney. ACSQHC, 2012.
3. Kaye K, Welch SA, Graudins LV, Rotem T, Davis SR, Day RO. Pethidine in emergency departments: promoting evidence-based prescribing. *MJA* Aug 2005, 183 (3):129-133
4. J Ireland. Medicines use evaluation: a guide to implementation. Version 1, 2013. Available at: [http://www.positiveimpact4health.com/uploads/1/3/0/0/13000052/mue\\_guide.pdf](http://www.positiveimpact4health.com/uploads/1/3/0/0/13000052/mue_guide.pdf)
5. Indicators for Quality USE of Medicines In Australian Hospitals: NSW Therapeutic Advisory Group, 2007.
6. Australian Commission on Safety and Quality in Health Care and NSW Therapeutic Advisory Group Inc. (2014), *National Quality Use of Medicines Indicators for Australian Hospitals*. ACSQHC, Sydney.
7. Avent, M. L., Pattullo, C., Dines, A., Martin, J. and Kubler, P. (2010), Drug Use Evaluation Services in Australia and New Zealand: a Neglected Area of Research?. *Journal of Pharmacy Practice and Research*, 40: 15–18.
8. Council of Australian Therapeutic Advisory Groups. Achieving effective medicines governance. Guiding Principles for the roles and responsibilities of Drug and Therapeutic Committees in Australian public hospitals. Council of Australian Therapeutic Advisory Groups; 2013.
9. Drug and Therapeutics Committees – A Practical Guide. World Health Organisation, 2003 Available at: <http://apps.who.int/medicinedocs/en/d/Js4882e/8.5.html#Js4882e.8.5>
10. Clinical Excellence Commission Foundational Clinical Leadership Program <http://www.cec.health.nsw.gov.au/quality-improvement/improvement-academy/qi-academy-curriculum/tailored-f2f-training/foundational-clp>
11. Health Education Training Institute Springboard Leadership and Management Portal <http://www.springboard.health.nsw.gov.au/>

# Appendix 1: Driver diagram



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