Ensure that timely removal of PVCs is considered i.e. if in longer than 72 hours

What is recommendation based on

The HPS PVC maintenance quality improvement tool currently recommends that consideration should be given to removal of PVCs in situ longer than 72 hours. This was based on evidence which showed that the longer a PVC is in situ the greater the risk of complication.4;12-14 A recent study examined the effect of increasing the routine replacement from 48-72 hours to 72-96 hours, and although it concluded that this extension was not a risk factor for complication, e.g. phlebitis or infection, it was noted that the absence of a dedicated intravenous (IV) team was a risk.15 Further uncertainties have arisen resulting from a recent debate regarding the routine removal of PVCs after 72 or 96 hours versus removal only when clinically indicated.16;17 A Cochrane review has been published which concluded that there was insufficient evidence of benefit from routinely removing catheters every 72 to 96 hours and suggested that catheters including PVCs, should be changed on clinical indication.18 Conversely, the recently updated CDC guidelines, states that replacement of PVCs in adults as clinically indicated is as an unresolved issue and cites insufficient current evidence specifically on CRBSIs to recommend this.8

Due to the ambiguous nature of these recommendations, the evidence which underpins the Cochrane review was further reviewed and critically appraised to determine if it could impact on this key recommendation. Further examination of the evidence underpinning the recommendations that PVCs should be changed when clinically indicated1;7;16;19;20 reveals that it stems largely from studies carried out in Australia and the majority used a dedicated intravenous (IV) team in their studies, which are rare within NHSScotland.17;19;20
The main outcome evaluated within all the studies included was phlebitis, and although CRBSI was measured in five studies, there were only 11 cases in total described in both the intervention and non intervention groups. Despite the reasonably high number of PVCs (~2000) included within the studies in the Cochrane review, it may not currently provide sufficient evidence that moving from away from routine to clinical indication replacement of PVCs would not result in increased CRBSIs. As PVCs are the most commonly used invasive medical devices within all acute care settings this therefore needs to be taken into account when interpreting these data/studies.\(^5\)

The nature of the inclusion and exclusion criteria for Cochrane reviews means that only evidence considered high quality, e.g. randomised control trials (RCTs) are included in the assessment of evidence. While the results of RCTs when available in this field are valuable, there are some limitations and challenges that result from taking this approach to the review of literature and assessment of evidence, particularly within the field of infection prevention and control as it can cause some difficulties in assessing the effect of interventions when examined within the wider clinical context. Although interventions have been well described, they are often within a structured, formal study. In this situation, much of the evidence included results from studies where a dedicated intravenous (IV) team trained in recognition of clinical complications of PVC use, were present. NHSScotland quality improvement tools however are designed to be used in clinical settings, which are unlikely to have such specialist staff. In addition, much of the existing evidence for infections associated with PVC use results from outbreak reports and observational studies. This evidence is considered as low quality customarily within the field of evidence based methodology, however in order to form a sound recommendation for practice, the ‘body of evidence’ resulting from these studies needs to be considered alongside the RCTs to ensure there is a full clinical context of the effect of the suggested interventions. Any key recommendations need to be cognisant of this overall clinical context. It is possible therefore that a change in the recommendation may result in less active monitoring/care of the PVC, which would not be desirable. The recommendation given results from all evidence considerations and after applying the framework described in Appendix 2.
References:


(18) Rickard CM, McCann D, Munnings J, McGrail MR. Routine resite of peripheral intravenous devices every 3 days did not reduce complications compared with clinically indicated resite: a randomised controlled trial. BMC Medicine 2010;8:53.


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<tr>
<th>Recommendation for review</th>
<th>Ensure that timely removal of PVCs is considered i.e. if in longer than 72 hours</th>
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<td>Grade of recommendation (based on review of evidence)</td>
<td>Category 1B</td>
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| Health impact contribution (based on Healthcare Quality Strategy for NHSScotland) | **Safe**: This recommendation encourages timely removal of a PVC, reducing the chance of associated infectious complications  
**Effective**: This recommendation reduces the risk of complications from this invasive device, including on occasions systemic (blood stream) infections.  
**Efficient**: This recommendation reduces the risk of infectious complications by ensuring that a PVC is only in place if there is a clinical need, this may result in releasing time for other care and a reduction in associated NHS costs  
**Equitable**: This recommendation promotes a standard of care for all patients, that may result in a reduction in avoidable personal and NHS costs, which is beneficial for all  
**Timely**: This recommendation, daily checking, fits with other aspects of care required on a daily basis, contributing to streamlining of care  
**Person Centred**: This is a person centred action to reduce harm which could be caused by the invasive device; in every patient with a PVC and provides the opportunity to undertake simple, safe checks and care on each and every patient with a PVC |
| Expert opinion/consultation and practical considerations | Measurement and feedback (Y/N/?) | Feasibility and sustainability (Y/N/?) | Applicability and reach (Y/N/?) | Training and informing (Y/N/?) |
| Potential for measurement through e.g. observation | Easily implemented within current culture and will improve the quality of care now | Potential for consistent delivery | Easily implemented based on reliably available resources/products/prompts | Stealth integration into natural workflow/logical clarity of concept (also see Cause & Effect Chart) | Unambiguous | Potential for applicability to a wide range of settings | Avoids unintended consequences/perverse behaviour | Potential for congruency in design and meaning, with HCW, trainer and observer training and education |
| Y | ? | Y | Y | ? | Y | ? | Y |
| Is this a key recommendation? | Yes |