CHILDREN'S ONCOLOGY GROUP

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Clinical Practice Guideline on Central Venous Catheter Care for the Patient with Cancer

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The "Clinical Practice Guideline on Central Venous Catheter Care for the Patient with Cancer" was endorsed by the COG Supportive Care Guideline Committee in October 2016.

The source guideline is published (Schiffer CA, Mangu PB, Wade JC, et al. JCO 2013: 31:1357-1370. DOI: 10.1200/JCO.2012.45.5733) and is available at:
http://jco.ascopubs.org/content/31/10/1357.full.pdf+html

The purpose of this guideline is to assist in care and decision making for patients with cancer who often have long-term central venous catheters and to identify areas of controversy, promoting future research and clinical trials.

The recommendations of the endorsed guideline are presented below.

Summary of Recommendations for Central Venous Catheter Care for the Patient with Cancer

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence*
In patients with cancer, does catheter type, insertion site, or placement technique affect complication rates?	
1.1. There is insufficient evidence to recommend one type of CVC routinely for all patients with cancer; the choice of catheter should be influenced by the expected duration of use, chemotherapy regimens, and patient ability to provide care; the minimum number of lumens essential for the management of the patient is recommended; these issues should be discussed with the patient 1.2. There is insufficient evidence to recommend one insertion site or approach (left sided or right sided) for tunneled CVCs for patients with cancer; individual risks and benefits (comfort, security, maintenance of asepsis) of the catheter site should be considered; the Panel recommends that CVC insertion into the femoral vein be avoided because of increased infection risks and concerns about thrombosis, except in certain emergency situations 1.3. Most CVC placement in patients with cancer is performed as an elective procedure; although image-guided insertion (eg, ultrasound guided, fluoroscopy) of CVCs is recommended, well-trained providers who use the landmark method regularly (eg, for subclavian or internal jugular) may have high rate of success and low incidence of acute and/or chronic complications	**No formal grading system used**

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence*
What is effective prophylaxis for the prevention of catheter related infections?	
2.1. CVC care clinical bundle (including hand hygiene, maximal barrier precautions, chlorhexidine skin antisepsis during catheter insertion, optimal catheter site selection, and assessment of CVC necessity) is recommended for placement and maintenance of all CVCs to prevent infections; there is no evidence that particular dressing types or more frequent IV set and/or dressing changes decrease risk of infection; use of topical antibiotic ointment or cream on insertion sites is not recommended because of potential to promote fungal infections and resistance to antimicrobials; scheduled guidewire exchange of CVC may be associated with greater risk of infection versus catheter replacement at new vascular site; thus, guidewire exchange is not routinely recommended, unless access options are limited 2.2. Use of antimicrobial/antiseptic-impregnated or -coated CVCs (CH-SS or minocycline/rifampin) and/or heparin impregnated catheters is recommended to decrease risk of catheter-related infections for short-term CVCs, particularly in high-risk groups such as bone marrow transplantation recipients or patients with leukemia; however, relative benefit and increased cost must be carefully considered before they are routinely used 2.3. Prophylactic use of systemic antibiotics (IV or oral) before insertion of long-term CVCs is not recommended 2.4. There are conflicting data about the relative value of prophylactic heparin with saline flushes to prevent catheter-associated bloodstream infections or thrombosis; data are not sufficient to recommend for or against routine use of antibiotic-flush/antibiotic-lock therapy	**No formal grading system used**
What are effective treatments for the management of catheter related infections?	
3.1. Cultures of blood from the catheter and when appropriate of soft tissues at entrance-exit sites or tunnel should be obtained before initiation of antibiotic therapy; most exit- or entrance-site infections can be treated successfully with appropriate antimicrobial therapy without the need for catheter removal, although removal is usually needed for clinically apparent tunnel or port-site infections; antimicrobial agents should be optimized once pathogens are identified and antibiotic susceptibilities defined	**No formal grading system used**

RECOMMENDATIONS	Strength of Recommendation and Quality of Evidence*
What is effective prophylaxis for the prevention of catheter related thrombosis?	
4.1. Use of systemic anticoagulation (warfarin, LMWH, UFH) has not been shown to decrease incidence of catheter-associated thrombosis; therefore, routine prophylaxis with anticoagulants is not recommended for patients with cancer with CVCs; routine flushing with saline of the CVC to prevent fibrin buildup is recommended 4.2. Data are insufficient to recommend routine use of urokinase (not available in the United States) and/or other thrombolytics to prevent catheter occlusion	**No formal grading system used**
What are effective treatments for the management of catheter related occlusions?	
5.1. Instillation of 2-mg t-PA is recommended to restore patency and preserve catheter function 5.2. Although it is appropriate to try to clear thrombosis with the CVC in place, if there is radiologically confirmed thrombosis that does not respond to fibrinolytic therapy or if fibrinolytic or anticoagulation therapy is contraindicated, catheter removal is recommended; prolonged retention of unneeded CVCs can lead to significant problems associated with thrombosis and fibrosis; 3 to 6 months of anticoagulant therapy with LMWH or LMWH followed by warfarin (INR, 2.0 to 3.0) is recommended for treatment of symptomatic CVC thrombosis, with duration depending on clinical issues in individual patients	**No formal grading system used**

Appendix 1: GRADE

Strength of Recommendations:

Strong Recommendation	When using GRADE, panels make strong recommendations when they are confident that the desirable effects of adherence to a recommendation outweigh the undesirable effects.
Weak Recommendation	Weak recommendations indicate that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects, but the panel is less confident.

Strength of Recommendations Determinants:

Factor	Comment
Balance between desirable and undesirable effects	The larger the difference between the desirable and undesirable effects, the higher the likelihood that a strong recommendation is warranted. The narrower the gradient, the higher the likelihood that a weak recommendation is warranted
Quality of evidence	The higher the quality of evidence, the higher the likelihood that a strong recommendation is warranted
Values and preferences	The more values and preferences vary, or the greater the uncertainty in values and preferences, the higher the likelihood that a weak recommendation is warranted
Costs (resource allocation)	The higher the costs of an intervention—that is, the greater the resources consumed—the lower the likelihood that a strong recommendation is warranted

Quality of Evidence

High Quality	Further research is very unlikely to change our confidence in the estimate of effect
Moderate Quality	Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate
Low Quality	Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate
Very Low Quality	Any estimate of effect is very uncertain

Guyatt, G.H., et al., *GRADE: an emerging consensus on rating quality of evidence and strength of recommendations.* BMJ, 2008; 336: 924-926.
Guyatt, G.H., et al., *GRADE: going from evidence to recommendations.* BMJ, 2008; 336: 1049-1051.