

## POSITION STATEMENT

# Perioperative Antibiotic Prophylaxis for the Prevention of Surgical Site Infection

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### Background

While antimicrobial therapy is required for treatment of contaminated and dirty wounds, administering antibiotic prophylaxis in accordance with evidence-based standards and guidelines has been demonstrated to decrease surgical site infections for specific class 1 (clean) and class 2 (clean-contaminated) surgeries.

### Position Statement: Guiding Principles

Administer the initial dose of antimicrobial agent, timed so that a bactericidal concentration of the drug is established in the serum and tissues when the initial surgical incision is made (there may be additional special preparations required for specific surgeries, e.g., colorectal surgeries):

- Ensure the agent used for antimicrobial prophylaxis is safe (as indicated by Health Canada) and bactericidal with an *in vitro* spectrum that covers the most probable intraoperative contaminants for the operation.
- Maintain therapeutic levels of the antimicrobial agent in serum and tissues throughout the operation.
- Monitor process measures for antimicrobial prophylaxis and disseminate findings to the appropriate personnel for action, as required.
- Preoperative-dose timing:
  - The optimal time for administration of the first dose of antimicrobial prophylaxis is within 60 minutes (start and completely infuse) before the initial surgical incision to ensure adequate serum and tissue levels.<sup>2,3,4</sup>
  - If vancomycin or fluoroquinolones are used, the infusion should begin within 120 minutes before the incision because of the prolonged infusion times required for these drugs.<sup>2,3,4</sup> It should still be completed within 60 minutes of incision.
- Selection and dosing:
  - Follow current evidence-based published recommendations specific to the surgical procedure.<sup>2</sup>
  - Use weight-based dosing.
  - Administer intraoperative re-dosing if the duration of the procedure exceeds two half-lives of the drug, or there is excessive blood loss<sup>2,3,4</sup> (dependent upon the procedure and patient) during the procedure. This will ensure adequate serum and tissue concentration of the antimicrobial.

- Duration of prophylaxis:
  - The duration of antimicrobial prophylaxis should be a single pre-operative dose or continuation for less than 24 hours post-operatively for most procedures.<sup>2,3,4</sup>

## Stakeholders

This position statement is directed to health care providers in hospitals and surgical clinics.

## Participants in Development of Position Statement

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## Bibliography

1. Mangram AJ, Horan TC, Pearson ML et al. Guideline for prevention of surgical site infection, 1999. Hospital Infection Control Practices Advisory Committee. *Infect Control Hosp Epidemiol* 1999;20: 25-278. (in revision) Retrieved from <http://www.cdc.gov/hicpac/pdf/SSIguidelines.pdf>. Draft revision at <http://www.regulations.gov/#!documentDetail;D=CDC-2014-0003-0002>.
2. ASHP Therapeutic Guidelines: Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery. 2013. Pages 682-667. <http://www.ashp.org/surgical-guidelines>
3. Safer Healthcare Now! (2014). *Prevent Surgical Site Infections: Getting Started Kit*. Canada: Canadian Patient Safety Institute. Retrieved from <http://www.saferhealthcarenow.ca/EN/Interventions/SSI/Documents/SSI%20Getting%20Started%20Kit.pdf>.
4. Strategies to Prevent Surgical Site Infections in Acute Care Hospitals. *Infect Control Hosp Epidemiol* 2008;29 (Sup 1):S51. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4267723/>.

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