

PREPARATION PRIOR TO ORTHOPAEDIC SURGERY

Protect your patients against
Surgical Site Infection (SSI)



BE INFORMED



BE PREPARED



BE EMPOWERED



BETTER
OUTCOMES



1. PREPARED BY:

AMS Pharmacists: Izyana Munirah binti Idham,
Hannah Md Mahir, Fong Siew Li & Muhammad Zulhafiz
Clinical Pharmacists: Pee Lay Ting & Lai Joanne
TDM Pharmacist: Nur Farhana binti Mohamed Noor



2. IN COLLABORATION WITH:

Infection Control Team &
Orthopaedic Department



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-



For internal circulation only.





UNIVERSAL PREPARATION PRIOR TO SURGERY

Evidence-based strategies to prevent Surgical Site Infection (SSI)

PREPARATION CATEGORY	ALL SURGERY	IMPLANT-RELATED AND ARTHROPLASTY SURGERY	MRSA POSITIVE CASES (FROM NASAL SCREENING OR POSITIVE CULTURE)																												
<p>CHLORHEXIDINE BATH</p>	<p>Chlorhexidine Bath x2</p> <ul style="list-style-type: none"> • 1 day before (pm) • Early morning of surgery 	<p>Chlorhexidine Bath x2</p> <ul style="list-style-type: none"> • 1 day before (pm) • Early morning of surgery 	<p>Chlorhexidine Bath for 5 days</p> <ul style="list-style-type: none"> • Daily cleansing for 5 days prior to surgery 																												
<p>MUPIROCIN NASAL OINTMENT</p>	<p>Not required</p>	<p>Mupirocin for 5 days</p> <ul style="list-style-type: none"> • Apply to both nostrils twice daily (BD) for 5 days • If not completed before surgery, can continue post surgery to complete 5 days 																													
<p>IV SURGICAL ANTIBIOTIC PROPHYLAXIS (SAP)</p>	<p>Usual SAP:</p> <p>IV Cefazolin 2 g (3 g if obese)</p> <p>OR</p> <p>IV Cefuroxime 1.5 g</p>	<p>Give usual SAP, Add IV Vancomycin (as per table below)</p>	<p>Give usual SAP, Add IV Vancomycin (as per table below)</p>																												
		<p>IV VANCOMYCIN DOSING (15 mg/kg x 1 dose)</p> <table border="1"> <thead> <tr> <th>Body weight (Actual BW)</th> <th>Recommended Dose</th> <th>Dilution</th> <th>Duration of Infusion</th> </tr> </thead> <tbody> <tr> <td>40 – 50 kg</td> <td>750 mg</td> <td>Dilute in 200 mL NS or D5</td> <td>Over 1.5 hrs</td> </tr> <tr> <td>51 – 70 kg</td> <td>1000 mg</td> <td>Dilute in 200 mL NS or D5</td> <td>Over 2 hrs</td> </tr> <tr> <td>71 – 80 kg</td> <td>1250 mg</td> <td>Dilute in 250 mL NS or D5</td> <td>Over 2.5 hrs</td> </tr> <tr> <td>81 – 100 kg</td> <td>1500 mg</td> <td>Dilute in 500 mL NS or D5</td> <td>Over 3 hrs</td> </tr> <tr> <td>101 – 115 kg</td> <td>1750 mg</td> <td>Dilute in 500 mL NS or D5</td> <td>Over 3 hrs</td> </tr> <tr> <td>≥ 116 kg</td> <td>2000 mg</td> <td>Dilute in 500 mL NS or D5</td> <td>Over 4 hrs</td> </tr> </tbody> </table>		Body weight (Actual BW)	Recommended Dose	Dilution	Duration of Infusion	40 – 50 kg	750 mg	Dilute in 200 mL NS or D5	Over 1.5 hrs	51 – 70 kg	1000 mg	Dilute in 200 mL NS or D5	Over 2 hrs	71 – 80 kg	1250 mg	Dilute in 250 mL NS or D5	Over 2.5 hrs	81 – 100 kg	1500 mg	Dilute in 500 mL NS or D5	Over 3 hrs	101 – 115 kg	1750 mg	Dilute in 500 mL NS or D5	Over 3 hrs	≥ 116 kg	2000 mg	Dilute in 500 mL NS or D5	Over 4 hrs
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<p>TIMING (BEFORE INCISION)</p>	<p>30 – 60 minutes before incision</p>	<p>2 – 4 hours before incision (depending on dose)</p>																													

IMPORTANT – ALL SURGERY

- IV Cefazolin or Cefuroxime: sent to OT to be given prior to operation.
- Re-dose if operation duration > 4 hours

IMPORTANT – IMPLANT-RELATED, ARTHROPLASTY & MRSA

- Administer Vancomycin in the ward (using regulator) 2-4 hours before OT and ensure infusion is completed before incision.
- If op is delayed, no need to re-dose if op is done within 12 hours.
- For patients on prolonged IV Cefuroxime, consider Vancomycin + Gentamicin (1 dose) as SAP.

REFERENCES:

- ASHP Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery
- NICE Surgical Site Infection: Prevention and Treatment (NG125)



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The Skill to Heal. The Spirit to Care.

DISCLAIMER:

Based on HSgB Consensus with the Infection Control and Orthopaedic Teams.

IV VANCOMYCIN

AS SURGICAL ANTIBIOTIC PROPHYLAXIS (SAP)

IV VANCOMYCIN SEBAGAI ANTIBIOTIK PROFILAKSIS SEBELUM PEMBEDAHAN

INDICATION

Use IV Vancomycin for SAP in patients colonized or at risk of MRSA, or with β -lactam allergy

INDIKASI

Antibiotik profilaksis untuk pesakit yang mempunyai atau berisiko dengan jangkitan MRSA, atau mempunyai alahan kepada antibiotic Beta-lactam

IV VANCOMYCIN DOSING (15 mg/kg STAT)

Body Weight (Actual BW)	Recommended Dose (15 mg/kg)	Dilution	Duration of Infusion (MINIMUM)	Infusion Rate (using regulator)
40 – 50 kg	750 mg	Dilute in 200 mL NS or D5	Over 1.5 hrs	133 mL/hr
51 – 70 kg	1000 mg	Dilute in 200 mL NS or D5	Over 2 hrs	100 mL/hr
71 – 80 kg	1250 mg	Dilute in 250 mL NS or D5	Over 2.5 hrs	100 mL/hr
81 – 100 kg	1500 mg	Dilute in 500 mL NS or D5	Over 3 hrs	167 mL/hr
101 – 115 kg	1750 mg	Dilute in 500 mL NS or D5	Over 3 hrs	167 mL/hr
≥ 116 kg	2000 mg	Dilute in 500 mL NS or D5	Over 4 hrs	125 mL/hr

i Use actual body weight for dose calculation. Do not exceed a single dose of 2g



ALWAYS INFUSE SLOWLY USING A REGULATOR

to prevent infusion-related reaction (Red Man Syndrome)



SENTIASA INFUS SECARA PERLAHAN MENGGUNAKAN REGULATOR

untuk mencegah reaksi berkaitan infusi (Red Man Syndrome)



GIVE IN THE WARD (NOT IN THE OT)

IV Vancomycin requires a long administration time (2 – 4 hours or more depending on dose) and should be given in the ward.



BERI DI WAD (BUKAN DI OT)

Ubat IV Vancomycin memerlukan masa pemberian yang lama (2 – 4 jam atau lebih, bergantung pada dos) dan harus diberikan di wad.



CONSIDER GIVING EARLY IN THE MORNING FOR PLANNED OT

- ✓ Allows sufficient time for infusion before incision.
- ✓ Enables early detection and management of any potential issues



PERTIMBANGKAN MEMBERI AWAL PADA WAKTU PAGI BAGI OT YANG TELAH DIJADUALKAN

- ✓ Memberi masa yang mencukupi untuk infusi habis sebelum OT.
- ✓ Membolehkan pengesanan awal reaksi infusi atau alahan dan pengurusannya



TIMING

Start infusion 2 - 4 hours before incision*
*Depending on dose



MASA

Mulakan infusi 2 - 4 jam sebelum insisi*
*Bergantung pada dos

RED MAN SYNDROME (RMS) / VANCOMYCIN INFUSION REACTION (VIR)

NOT an allergy reaction.
It is an infusion rate-related reaction.



SIGNS & SYMPTOMS

- Flushing (face, neck, upper body)
- Itching
- Rash / erythema
- Hives (may occur)
- Hypotension
- Tachycardia



VIR is **TOTALLY PREVENTABLE** by infusing IV Vancomycin correctly as recommended

SINDROM RED MAN (RMS) / REAKSI INFUSI VANCOMYCIN (VIR)

BUKAN reaksi Alahan
Reaksi berkaitan kadar infusi



TANDA & GEJALA

- Flushing (muka, leher, bahagian atas badan)
- Gatal
- Ruam / kemerahan
- Hives (mungkin berlaku)
- Hypotension
- Tachycardia



VIR **BOLEH DIELAKKAN** sepenuhnya dengan kadar infusi yang betul seperti disyorkan

HOW TO MANAGE VIR

- 1 STOP the infusion immediately.
- 2 Assess the patient.
- 3 Give antihistamine if needed (e.g. IV Chlorpheniramine 10 mg).
- 4 Once symptoms resolve, RESTART the infusion at half (½) the previous rate.
- 5 Gradually increase the rate as tolerated, ensuring the minimum duration is achieved.

CARA MENGURUS VIR

- 1 HENTIKAN infusi dengan segera.
- 2 Nilai keadaan pesakit.
- 3 Beri antihistamin jika perlu (cth: Chlorpheniramine IV 10 mg)
- 4 Setelah gejala reda, MULAKAN SEMULA infusi dengan separuh kadar sebelumnya.
- 5 Tingkatkan kadar infusi secara beransur-ansur mengikut toleransi pesakit untuk memastikan tempoh minimum dicapai



**PROTECT
YOUR PATIENTS
AGAINST SSI**
LINDUNGI PESAKIT
ANDA DARIPADA SSI

METHOD OF ADMINISTRATION CHLORHEXIDINE 4% BATH

PATIENT INSTRUCTIONS FOR PREPARATION PRIOR TO OPERATION

ARAHAN PESAKIT UNTUK PERSIAPAN SEBELUM PEMBEDAHAN

1

Regular wash first:

Wash your hair, face and body with your regular shampoo and soap. Rinse completely. Then turn off the shower to apply the chlorhexidine bath.

Mandi seperti biasa terlebih dahulu:

Cuci rambut, muka dan badan anda dengan syampu dan sabun biasa terlebih dahulu. Bilas sehingga bersih. Kemudian, tutup pancuran air.



2

Apply the chlorhexidine bath to your whole body from the neck down.

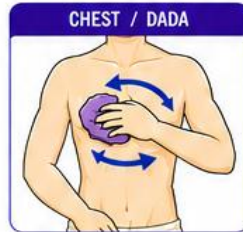
Tuangkan dan sapu mandian chlorhexidine 4% pada seluruh badan dari paras leher sehingga ke kaki.



i

FOCUS ON THESE AREAS:

- **Underarms:** Lift your arm and scrub thoroughly.
- **Ketiak:** Angkat lengan dan gosok dengan teliti.
- **Breasts / Chest (All around):** Gently clean all around, including under the breasts.
- **Dada:** Bersihkan seluruh bahagian dada, termasuk di bawah payudara.
- **Groin:** Pay special attention to the groin area and skin folds.
- **Kelanggang:** Pastikan seluruh kawasan kelanggang dan lipatan kulit juga disapu.
- **Where legs meet torso:** Clean the area where your legs meet your body.
- **Kawasan kaki bertemu badan:** Bersihkan tempat pertemuan paha dengan badan.



**TO BATHE
2X PRE OP
MANDI
2X SEBELUM
PEMBEDAHAN**



Two baths are needed before the operation:

- The night before operation
- Early morning on the day of operation

Dua (2) kali mandian diperlukan sebelum pembedahan:

1. Malam sebelum pembedahan
2. Awal pagi pada hari pembedahan

3

Let it stand for a minimum of 5 minutes, then rinse off your body. Do not use soap to rinse.

Biarkan selama minimum 5 minit, kemudian bilas seluruh badan dengan air. **Jangan bilas dengan sabun.**



4

Gently blot your skin dry with a clean towel.

Keringkan kulit anda dengan tuala bersih



5

Do NOT use lotions, creams, powders, perfumes or oils after the shower. You may apply deodorant.

JANGAN gunakan losyen, bedak, minyak, wangi-wangian selepas mandi. Anda boleh menggunakan deodorant.



!

This helps reduce the risk of infection at the operation site.

Ini membantu mengurangkan risiko jangkitan di kawasan pembedahan.

SCAN TO WATCH INSTRUCTIONAL VIDEO

IMBAS UNTUK MENONTON VIDEO CARA PENGGUNAAN



METHOD OF ADMINISTRATION (BEDBOUND PATIENT)
CHLORHEXIDINE 2% SPONGING
PATIENT INSTRUCTIONS FOR PREPARATION PRIOR TO OPERATION

PERSIAPAN PESAKIT SEBELUM PEMBEDAHAN

**NO RINSE
REQUIRED**
TIDAK PERLU
DIBILAS



1 Prepare 2% Chlorhexidine.

- Mix 1 part Chlorhexidine 4% with 1 part clean water (1:1 ratio).
- Use one Chlorhexidine bottle for each sponging.

Sediakan Chlorhexidine 2%.

- Campurkan 1 bahagian Chlorhexidine 4% dengan 1 bahagian air bersih (nisbah 1:1).
- Gunakan satu botol Chlorhexidine untuk setiap 'sponging'.



1 part Chlorhexidine 4%
(120 mL)

1 part clean water
(120 mL)

Diluted Chlorhexidine 2%
(240 mL)

1 bhg. Chlorhexidine 4%
(120 mL)

1 bhg. air bersih
(120 mL)

Larutan Chlorhexidine 2%
(240 mL)



i Important

- Use fresh 2% Chlorhexidine solution each time.
- Discard any leftover solution.
- Do not use on eyes, ears or open wounds.

Penting

- Gunakan larutan Chlorhexidine 2% yang baru dibancuh setiap kali.
- Buang baki larutan yang tidak digunakan.
- Jangan gunakan pada mata, telinga atau luka terbuka.

! If you are using ready-made 2% Chlorhexidine wipes, you may omit this step.

Abaikan langkah ini sekiranya anda menggunakan tisu basah Chlorhexidine 2% sedia guna.

2 Apply to the patient.

- Moisten a clean cloth, gauze or disposable wipe with the Chlorhexidine 2% solution.
- Gently wipe the patient's whole body from neck down.
- Pay extra attention to armpits, groin, skin folds and bony areas.

Sapukan pada pesakit.

- Lembapkan kain bersih atau tisu pakai buang dengan larutan Chlorhexidine 2% yang telah disediakan.
- Sapu pada seluruh badan pesakit dari leher ke bawah.
- Beri perhatian khusus pada ketiak, kawasan kemaluan dan kawasan tulang yang menonjol.

i Focus on underarms, under breasts, groin, skin folds and bony areas.

Avoid face, genitals and broken skin.

Fokus pada ketiak, bawah payudara, kawasan kelangkang, lipatan kulit dan kawasan tulang yang menonjol.

Elakkan muka, alat kelamin dan luka terbuka.



Underarms
Ketiak



Groin
Kawasan kelangkang



Skin folds
Lipatan kulit

3 Allow to air dry.

- Do not wipe off and do not rinse.

Biarkan kering dengan semula jadi.

- Jangan lap dan jangan bilas.



4 Do NOT apply lotions, creams, powders, perfumes or oils afterwards.

- You may apply deodorant only.

JANGAN sapu losyen, krim, bedak, minyak wangi atau minyak selepasnya.

- Anda hanya boleh menggunakan deodorant.



When to use:

Two (2) times before the operation:

- The night before the operation.
- Early morning of the day of operation

Bila perlu digunakan:

Dua (2) kali sebelum pembedahan:

- Malam sebelum pembedahan
- Awal pagi pada hari pembedahan



! This helps reduce the risk of infection at the operation site.

Ini membantu mengurangkan risiko jangkitan di kawasan pembedahan.

SCAN TO WATCH
INSTRUCTIONAL VIDEO

IMBAS UNTUK MENONTON
VIDEO CARA PENGGUNAAN

SCAN HERE





**PROTECT
YOUR PATIENT
AGAINST MRSA**

METHOD OF ADMINISTRATION MUPIROCIN OINTMENT

**SUMMARY OF APPLICATION METHODS
RINGKASAN KAEDAH PENGGUNAAN**

OPTION 1: USING COTTON BUD (Q-TIP) PILIHAN 1: MENGGUNAKAN PUTIK KAPAS

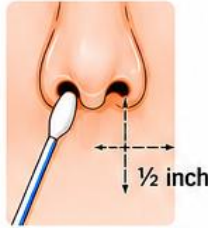
- 1** Place a pea-sized amount of the ointment on the end of a cotton bud.

Letakkan sedikit salap (sebesar kacang pea) pada hujung putik kapas.



- 2** Gently insert the head of the cotton bud about ½ inch (about the size of the head of a q-tip) into each nostril.

Masukkan hujung putik kapas kira-kira ½ inci (saiz hujung putik kapas) ke dalam setiap lubang hidung dengan lembut.



- 3** Rotate gently to spread the ointment.

Pusing perlahan-lahan untuk menyapu salap dengan rata di dalam lubang hidung.



- 4** Remove the cotton bud.

Keluarkan putik kapas.



- 5** Repeat for the other nostril

Ulangi pada lubang hidung satu lagi.



Use each end only once. Discard after use.

Gunakan setiap hujung putik kapas hanya sekali. Buang selepas digunakan.

OPTION 2: USING CLEAN FINGER PILIHAN 2: MENGGUNAKAN JARI YANG BERSIH

- 1** Place a pea-sized amount of the ointment on a clean little finger.

Letakkan sedikit salap (sebesar kacang pea) pada hujung jari kelinking yang bersih.



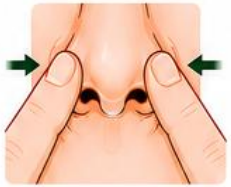
- 2** Gently apply inside each nostril about ½ inch (towards the front of the inner wall).

Sapukan salap ke dalam setiap lubang hidung kira-kira ½ inci (ke arah bahagian hadapan dinding lubang hidung)



- 3** Press the sides of the nose together and massage gently for a few seconds to spread the ointment.

Tekan kedua-dua belah hidung dan urut dengan perlahan selama beberapa saat untuk meratakan salap.



- 4** Repeat for the other nostril.

Ulangi pada lubang hidung satu lagi.



- 5** Wash your hands after application.

Basuh tangan selepas penggunaan.



Ensure hands are clean. Keep fingernails short.

Pastikan tangan bersih. Pastikan kuku pendek.

- 6** Apply two (2) times a day, starting 5 days prior to the operation (or continue after operation to complete 5 days).

Sapukan **dua (2) kali sehari**, bermula **5 hari** sebelum pembedahan (atau sambung selepas pembedahan untuk lengkapkan jumlah 5 hari)



START 5 DAYS PRIOR TO OPERATION
(or complete TOTAL 5 days).

MULA 5 HARI SEBELUM PEMBEDAHAN
(atau sehingga melengkapkan jumlah 5 hari).

This helps reduce the risk of MRSA and other infections.

Ini membantu mengurangkan Risiko MRSA dan jangkitan lain.

SCAN TO WATCH
INSTRUCTIONAL VIDEO
(FAST FORWARD TO MINUTE)

▶▶ **MIN 2:35**
IMBAS UNTUK MENONTON
VIDEO ARAHAN
(LANGKAH PANTAS KE MINIT)

SCAN HERE

