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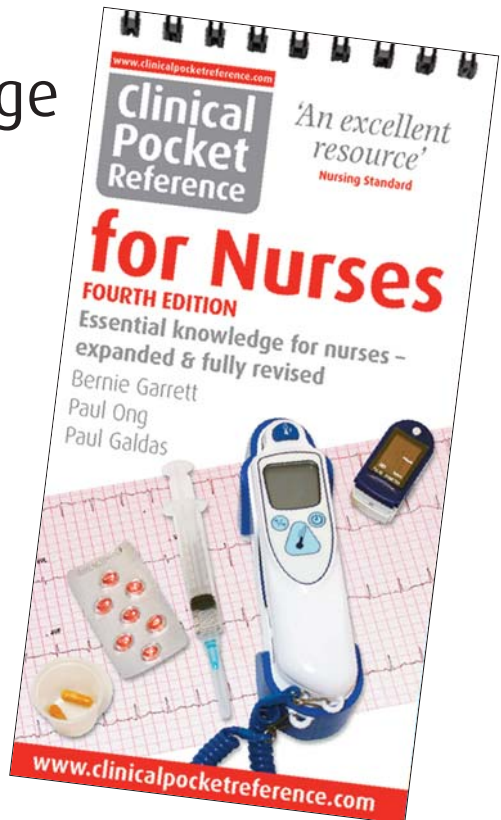
For students, nurses and other healthcare professionals

Infection control

Essential knowledge
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SMARTPHONE VERSION

ESSENTIAL HANDWASHING GUIDELINES

Handwashing technique

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1 Palm to palm



2 Right palm over left dorsum and left palm over right dorsum



3 Palm to palm, fingers interlaced



4 Backs of fingers to opposing palms with fingers interlocked



5 Rotational rubbing of left thumb clasped in right palm and vice versa



6 Rotational rubbing, backwards and forwards with clasped fingers of left hand in right palm and vice versa

Do not forget to include wrists, and dry well using paper towels

Source: Royal College of Nursing

Clinical Pocket Reference for Nurses

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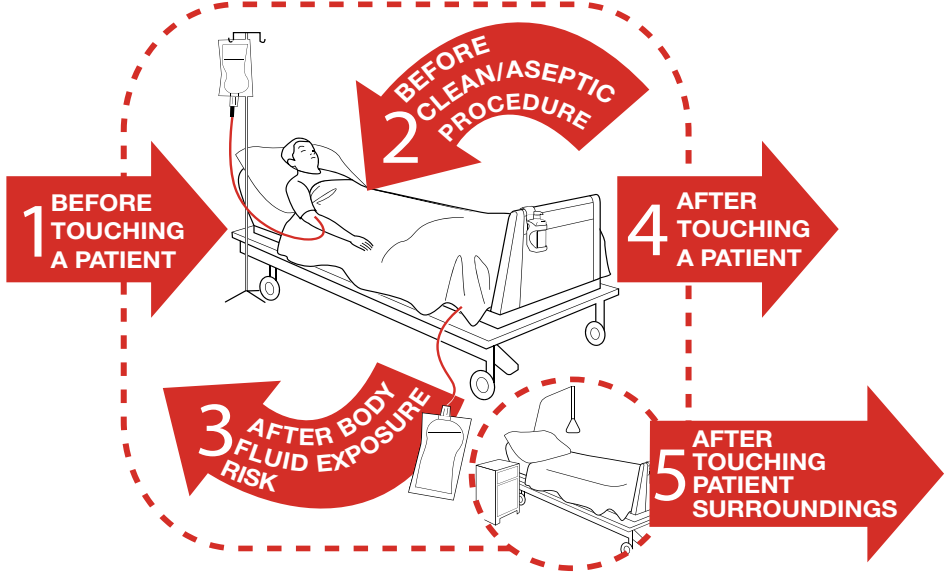
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4.1 Hand hygiene

The 5 moments for hand hygiene at the point of care



1 Before touching a patient

When? Clean your hands before touching a patient when approaching him/her.

Why? To protect the patient against harmful germs carried on your hands.

2 Before clean/aseptic procedure

When? Clean your hands immediately before performing a clean/aseptic procedure.

Why? To protect the patient against harmful germs, including the patient's own, from entering his/her body.

3 After body fluid exposure risk

When? Clean your hands immediately after an exposure risk to body fluids (and after glove removal).

Why? To protect yourself and the healthcare environment from harmful germs from the patient.

4 After touching a patient

When? Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.

Why? To protect yourself and the healthcare environment from harmful germs from the patient.

5 After touching patient surroundings

When? Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving – even if the patient has not been touched.

Why? To protect yourself and the healthcare environment from harmful germs from the patient.

See also the handwashing diagram on the inside front cover.

Adapted from WHO (2009) *World Alliance for Patient Safety*: www.who.int/gpsc/5may/Your_5_Moments_For_Hand_Hygiene_Poster.pdf

4.2 Infection classification

Exogenous infection – patients become infected with organisms from the external environment.

Endogenous infection – from patients' own internal organisms (especially immunocompromised patients).

Nosocomial infection – healthcare-associated infection (HAI). Defined as an infection that is neither present nor incubating before hospital admission or healthcare. In hospital, potential sources of infection include: patients, personnel, visitors, equipment, linen. The most common route of infection is by direct contact, most frequently on the hands of staff. Handwashing is acknowledged to be the main activity for preventing the spread of nosocomial infection.

4.3 Prevention of infection

Exogenous

- Do not provide care when ill.
- Check immunizations are current.
- Ensure effective hand hygiene.
- Use personal protective equipment when handling any body substances.

Environment

- Do not shake bed linen or put it on the floor.
- Ensure correct disposal of waste, including sharps.
- Cleanse and sterilize contaminated articles.
- Ventilation: single rooms should be under negative atmospheric pressure to prevent air leaving room.
- Mop and damp-dust using detergent and hot water.

Endogenous

- Patient education regarding good nutrition/personal hygiene (especially handwashing).
- Antibiotics and chemotherapy affect the normal flora of the patient, allowing colonization. Ensure antibiotics are given as and when directed.
- Patient education: patients must only take antibiotics when prescribed by a physician, and must complete the course.

Standard infection control precautions

Standard infection control precautions are guidelines to protect health-care personnel from the risks of unknown/known pathogenic organisms. They apply to all patients irrespective of whether there is a suspected or known diagnosis, based on a risk assessment when exposure to blood and/or body fluids is expected. The standard sets out guidelines for:

- hand decontamination
- personal protective equipment
- environmental safety (waste and sharps management).

Healthcare personnel must:

- decontaminate their hands on entering and leaving a clinical area
- consider all surfaces touched to be contaminated
- reduce the number of potentially harmful pathogens by:
 - covering cuts or open skin lesions with a waterproof dressing at all times to prevent contamination of non-intact skin
 - keeping fingernails clean and short
 - removing jewellery when on clinical duty
- wash hands when soiled and before and after all patient care to protect patients from infection and to protect healthcare workers from acquiring infection.

Handwashing technique

Handwashing is the single most important measure to reduce the risk of transmission of micro-organisms from one person to another, or from one site to another on the same patient. Follow the RCN six-step handwashing technique for handwashing (see inside front cover) and application of alcohol gel. Pay particular attention to the following:

- Arms should be bare below the elbow.
- Wet wrists and hands under running water.
- Apply liquid soft soap and rub hands together vigorously for minimum of 15 sec to make a lather, ensuring contact with all areas of the hands and wrists. Particular attention should be paid to thumbs, fingertips, between fingers and under wedding ring, as these are the areas most commonly missed.
- Rinse hands thoroughly under warm running water removing all lather (do not use nailbrush). Position your fingertips pointing upwards, elbows out to the side and wrists bent so that the lather is washed away from the fingertips to the wrists.
- Use elbows to turn off water if elbow-operated mixer taps are available. If not, use a paper towel.
- Hands should be dried thoroughly with paper towels in one direction from the fingertips to the wrist.
- Dispose of paper towels in domestic waste bin. Use foot pedal of waste bin to lift the lid, **NOT YOUR CLEAN HANDS!**

Generally, alcohol handrub is an effective alternative to routine handwashing if the hands are visibly clean, but hands should always be washed with liquid soap and water in the following situations:

- hands are visibly soiled
- the patient is experiencing vomiting and/or diarrhoea
- there is direct contact with bodily fluids, i.e. if gloves are not worn
- there is an outbreak of norovirus, *C. difficile* or other diarrhoeal illness.

Up-to-date guidance can be found on the RCN website: www.rcn.org.uk.

Use of personal protective equipment

Gloves: disposable gloves are important in reducing risk of transmission of potentially harmful pathogens. Gloves are worn for all procedures with risk of contamination from blood or other body fluids. They must be changed between patient contact. Hands should be washed before and after gloves are used. Gloves must be disposed of as clinical waste.

Aprons: aprons offer protection to clothing from exposure to blood and body fluids during routine patient care activities. Aprons must be disposed of as clinical waste.

Face masks: water-repellent masks should be worn if there is risk of blood or body fluids splashing the face. Individually fitted N95 disposable particulate respirators must be worn for airborne organisms such as tuberculosis (N95 masks are not effective against viruses, particulates or bacteria smaller than 0.3 microns).

Goggles or safety glasses: goggles are worn when there is risk of splashing of blood or body fluids into the eyes and/or mucous membranes.

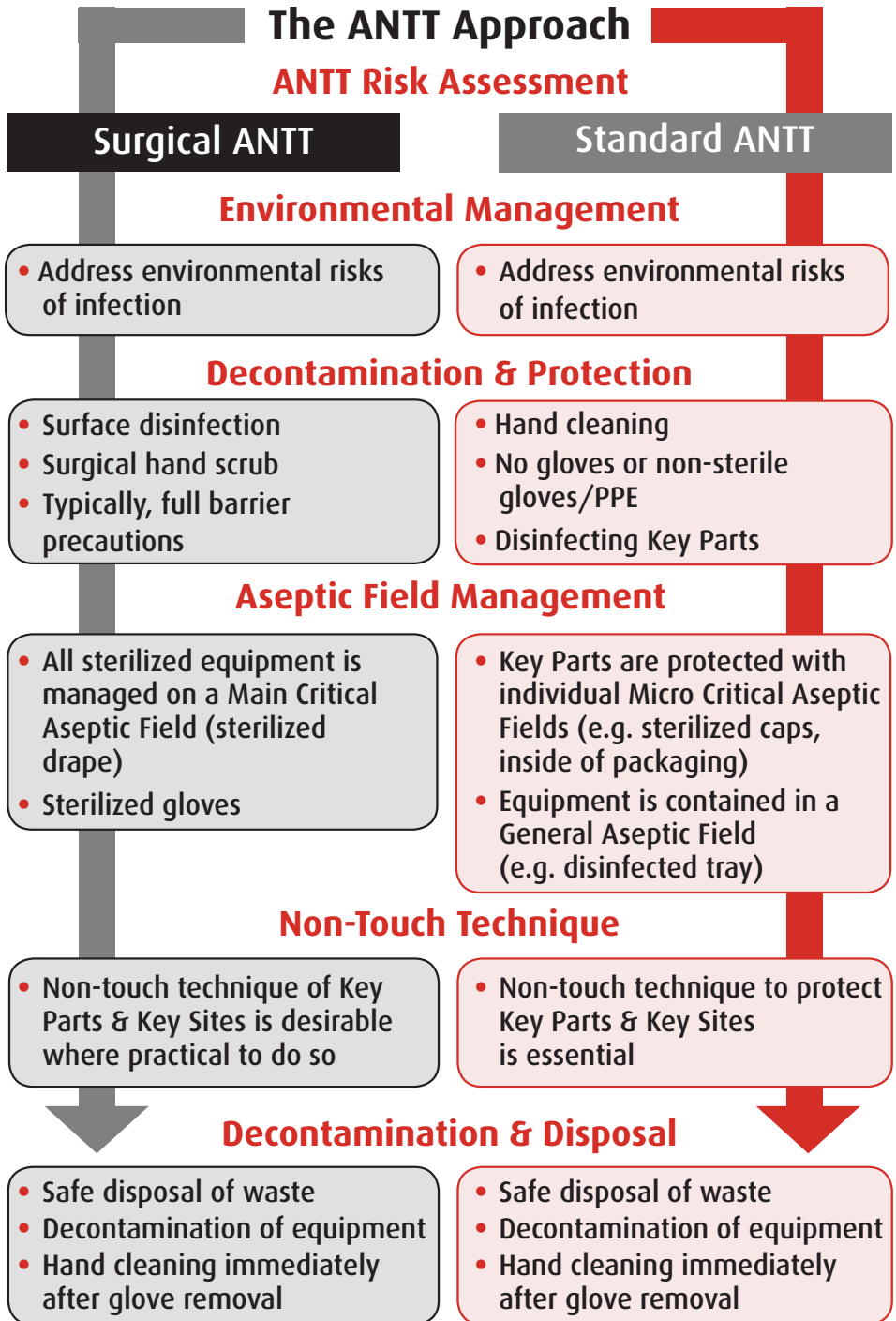
Waste disposal

- Staff must have received training to ensure that the relevance of appropriate waste disposal is understood.
- Employers should provide equipment (personal protective equipment [PPE] for staff and appropriate disposal receptacles) to enable national and global policy adherence.
- Staff must adhere to local and national guidance (NICE, 2012) to safeguard themselves and others.
- Pedal-operated bins must be available and staff must wear PPE (aprons and gloves) to avoid cross-contamination.
- Linen must be segregated into clean or soiled/infectious and collected in bags for washing; soiled linen is collected in separate plastic bags for decontamination.
- Department of Health guidance regarding washing and disinfection, whether by thermal or chemical action, must be observed, since some infectious material, such as *Bacillus cereus* and *Clostridium difficile* spores, may remain after decontamination at temperatures between 65°C and 71°C.
- Clinical waste must be segregated from non-clinical waste into plastic bags.
- Sharp equipment must be collected in specific lockable containers.
- Harmful liquids and leftover medications must be disposed of in suitable receptacles to avoid disposal via sinks into the sewerage system.
- Waste awaiting collection must be stored in designated areas away from the public to avoid potential for contamination or injury.

Children's Nursing Team, Kingston University and St George's, University of London (2018) *Nursing Care of Children and Young People*, Oxford: Clinical Pocket Reference.

Aseptic Non-Touch Technique (ANTT®)

ANTT® is: 'A specific type of aseptic technique with a unique theory and practice framework' (NICE, 2012). It was originated by Rowley (2001) for all invasive clinical procedures from major surgery to maintenance of invasive devices. The aim is always asepsis, achieved by a concept called 'Key-Part and Key-Site Protection'. To be efficient as well as safe, there are two approaches to ANTT®: Standard ANTT and Surgical ANTT.



Kindly provided by www.antt.org

Sharps disposal: responsibility for safe disposal of the sharp lies with the person using it. The following points must be adhered to:

- Discard the needle and syringe as one unit, whenever possible.
- Dispose of sharps into a rigid sharps container that meets national and international standards, immediately after use.
- Ensure sharps boxes are located close to point of use.
- Make sure all sharps bins are easily accessible and there are plenty.
- Do not transfer used sharps from person to person by hand – use a receiver or container.
- Do not overfill sharps bins. When three-quarters full, sharps bins must be properly closed and sealed.
- Sharps bins must be labelled with the source department/unit.
- Do not resheath needles after use – consider the use of needlestick injury prevention devices. If a needlestick injury occurs, follow the local protocol immediately.

Sources/bibliography: Rowley S (2001) Aseptic Non-Touch Technique, *Nursing Times*, **97**(7):VI–VIII; NICE (2012, 2017) *Healthcare-associated infections: prevention and control in primary and community care*, Guideline CG139: www.nice.org.uk/guidance/cg139; Rowley S *et al.* (2010) ANTT v2: An updated practice framework for aseptic technique, *Br J Nurs*, **19**(5):S5–S11; Rowley S, Clare S (2011) ANTT: a standard approach to aseptic technique, *Nursing Times*, **107**(36):12–13.

4.4 Isolation (barrier) nursing

Guidelines for isolation nursing care

The purpose of isolation nursing is to contain and prevent the spread of pathogenic organisms to and from patients, visitors or staff. Patients who are identified as colonized or infected with the same organism may be cared for in the same room/ward (cohort nursing). It is important that healthcare personnel adhere to local infection control and isolation precaution policies. Advice should be sought from the infection control team on the appropriateness of isolating patients.

Source isolation

The procedure below should be followed when it is necessary to isolate a patient in order to contain and prevent the spread of infection.

- Place a sign (isolation notification) on the outside of the door of the affected patient's room. This sign must explain the special precautions that all staff caring for the patient must follow (following local guidelines). The sign must also include advice for visitors.
- The following PPE should be made available outside the room: disposable gloves and aprons, alcohol hand rub or gel. Depending upon the outcome of the assessment carried out around risk of

transmission of micro-organisms, other PPE equipment such as masks and goggles/visors may also be needed.

- Before putting on PPE, decontaminate hands using correct handwashing technique (see p.76) using alcohol hand rub/gel, if hands are visibly clean, or wash hands using liquid soap and running water if hands are visibly soiled or potentially contaminated with body fluids.
- Put on a disposable plastic apron and gloves if having direct contact with patients, their body fluids, equipment and their immediate environment in the room.
- The equipment in the patient's room should be kept to a minimum to prevent unnecessary contamination. Equipment essential for patient care should, where possible, remain in the patient's room.
- Where there is a potential risk of airborne transmission of infections (e.g. from open pulmonary tuberculosis, influenza) from aerosol-generating procedures or exposure to body fluids, eye protection and face masks may be indicated. Follow local policy/guidelines.
- Maintain appropriate conversation and support (person-centred care) with the patient when carrying out care in the isolation room to avoid the patient feeling isolated, anxious or stigmatized.
- When care is completed and before leaving the room, remove PPE in the order of disposable gloves first, then apron (dispose of them as hazardous/infectious waste according to local guidelines), then eye and respiratory mask protection (if used). Then immediately decontaminate hands before leaving the room.
- Use hand-wash basin in the isolation room to decontaminate hands with soap and water, or if hands are visibly clean and are not contaminated with body fluids, use alcohol hand rub. However, if the patient in isolation has potentially infective diarrhoea, such as that caused by *C. difficile*, or diarrhoea and vomiting caused by norovirus, then hands must be washed with soap and water.
- If hand-wash basins in the isolation room have elbow-operated mixer taps use elbows to control flow of water to prevent hands from becoming recontaminated.
- Following decontamination of hands leave the isolation room and ensure the door is closed.
- If the patient needs to be transported to another department, appropriate barrier measures need to be maintained to protect other patients and healthcare personnel, so discuss this with your local infection control team.
- When the patient is ready for discharge, inform the infection control nurse so that advice on any special precautions can be given.

Protective isolation

Also known as reverse barrier nursing. Immunosuppressed patients are kept separate to protect them from acquiring an exogenous infection.

Prevention of spread of infection in hospitals

Infections are transmitted from person to person and from reservoirs in the environment (fomites, e.g. stethoscopes, clothing, curtains, dust, floor) by touch, droplets and dust.

Whenever a patient has a confirmed infection such as methicillin-resistant *Staphylococcus aureus* (MRSA) bacteraemia, *C. difficile* or other life-threatening infections, the nurse should:

React: early action is essential. What were the critical problems?

Record: what were the main contributory factors, root causes?

Respond: identify what needs to be done.

Sources/bibliography: Bissett L (2007) Skin care: an essential component of hand hygiene and infection control, *Br J Nurs*, **16**(16):976–81; Department of Health (DH) (2016) *Decontamination of linen for health and social care – HTM 01-04*, London: DH: www.gov.uk/government/publications/decontamination-of-linen-for-health-and-social-care; Department of Health (2013) *Health Building Note 00-09: Infection Control in the Built Environment*, London: DH: www.gov.uk/government/uploads/system/uploads/attachment_data/file/170705/HBN_00-09_infection_control.pdf; Gould D, Drey N (2008) Hand hygiene technique, *Nurs Stand*, **22**(34):42–6; Gould D (2009) Infection control: Hand hygiene, *Br J Healthcare Assistants*, **3**(3):110–13; Hinkin J *et al.* (2008) Review of personal protection equipment used in practice, *Br J Community Nurs*, **13**(1):14–19; Loveday HP *et al.* (2014) Epic 3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England, *J Hosp Infect*, **86**(Suppl 1):S1–70; NICE (2012) *Healthcare-associated infections: prevention and control in primary and community care*, Guideline CG139: www.nice.org.uk/guidance/cg139; Pittet D *et al.* (2009) The World Health Organization Guidelines on Hand Hygiene in Health Care and their consensus recommendations, *Infect Control Hosp Epidemiol*, **30**(7):611–22; Roodhouse A, Wellsted A (2006) Safety in urine sampling: Maintaining an infection-free environment, *Br J Nurs*, **15**(16):870–2; Smith SM (2009) A review of hand-washing techniques in primary care and community settings, *J Clin Nurs*, **18**(6):786–90.

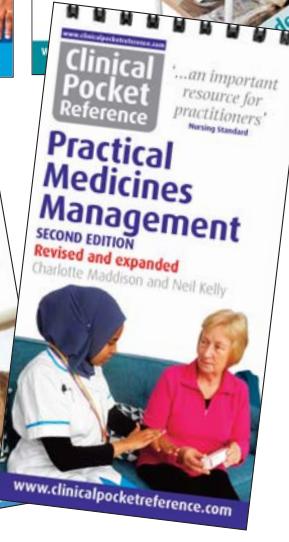
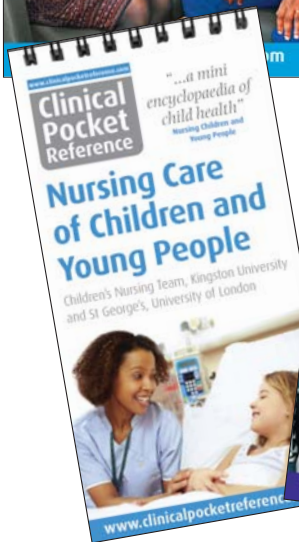
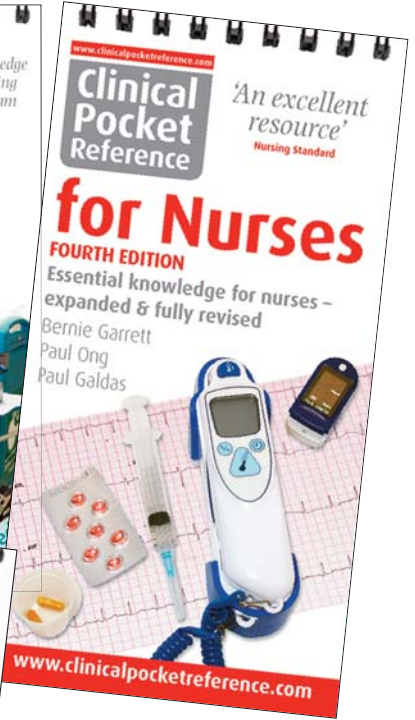
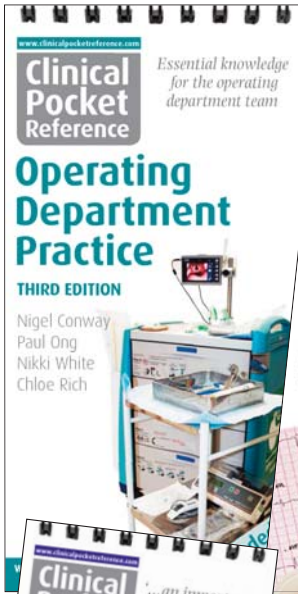
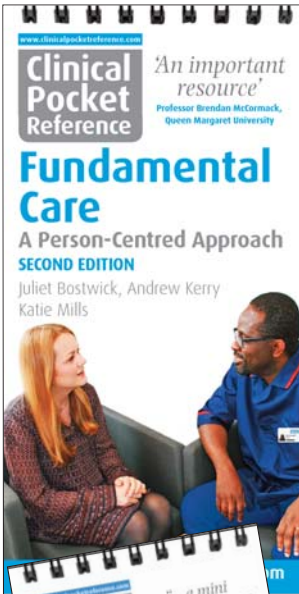
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