



EUROPEAN NURSE

INFORMATION AND
COMMUNICATION GUIDE

on Infection Prevention Control and Curriculum

The European Specialist Nurses Organisation (ESNO) is a non-profit organisation with the goal to facilitate and provide an effective framework for communication and co-operation between the European Specialist Nurses Organisations and its constituent members. ESNO represents the mutual interests and benefits of these organisations to the wider European community in the interest of the public health. Members of ESNO consist of individual European specialist nurses member organizations and associates, both institutional and individual.

The organisation focusses on enhancing the capacity and capability of specialists nurses to deliver high quality healthcare by raising and harmonise specialist nursing education standards and actively contribute to health themes and threats, providing the best possible expertise, both national and in European cross border context.

A publication from the European Specialist Nurses Organisation 2020 - www.esno.org
November 2021

This publication is made possible with the support of the ESNO foundation. FoNSE, the It was founded in 2020 and the goals and mission are the same as those of ESNO. Our specific task is to shape and implement all projects and activities that are entrusted to ESNO with the ultimate aim of providing relevant and high standard professional care in European health to patients and citizens. www.fonse.eu



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GUIDANCE DOCUMENT

A TRIBUTE TO FLORENCE NIGHTINGALE

When a child is born, they get a very precious gift in the very first seconds of life – a gift of their mother’s bacteria. These bacteria help to populate the healthy bacteria in the gut, on the skin and throughout the body, as well as train the immune system. The development of the immune system takes about four years.

The first edition of the Nurses Guide on Microbes: Vaccination, Antimicrobial Resistance and Infection Prevention and Control is a result of a project started three years ago. This was as a response to a number of calls to health professionals to get engaged with urgent health threats related to microbes and specifically to vaccination, antimicrobial resistance and infections. Nurses receive education and training related to microbes, but this is often only at the start of their study and may not be in depth. The fundamental understanding of the balance between health and infection was first best understood by Florence Nightingale. The editors are pleased to publish this in 2020, the ‘Year of the Nurse and Midwife’ in tribute to Florence Nightingale, born in 12th May 1820.

FLORENCE
NIGHTINGALE



Wise and humane management of the patient is the best safeguard against infection



Florence Nightingale made amazing achievements in terms of infection prevention amongst her patients; she was one of the very first infection control champions. While she did not have the modern day understanding of infection control, she managed to introduce the concept of the importance of hospital sanitation. She strongly believed in hospital cleanliness including pure air and water. Florence Nightingale was a true patient advocate as she tried to spread her message to all corners of the world. If Florence Nightingale was alive today, she would perhaps be disappointed by the levels of knowledge and competencies related to infections, prevention, vaccination and preventable healthcare-associated infections, despite the best equipment, staff and facilities.

With this guide -created by nurses- we aim provide nurses and all those interested, with accessible information and education materials to increase their ability to understand microbes and deal with the subject and stay competent professionals. ESNO strongly believe that this information needs to be include in education activities including Continuing Professional Development projects and Life Long Learning throughout career span.

BER **OOMEN** Executive Director

INTRODUCTION TO THIS SERIES MICROBES

Nurses with first-line responsibility for hygiene and infection control are familiar with bacteria, viruses and other microbes. However, there may not always be enough information about this in education and professional development for nurses with general and specialist responsibilities.

This guide aims to provide a compact and comprehensive guide tailored to nurses that includes relevant resources such as communication tools, examples, and frequently asked question with answers.

The increasing levels of antimicrobial resistance (AMR) worldwide are one of the motivations behind this guide. Now and in the future, infections with antimicrobial resistant microbes pose a major threat to the treatment of infections, and will have an impact on the workload of nurses and the health of patients. Combined with increasing vaccine hesitancy, the future for preventing and treating infectious diseases looks challenging. Nurses can play an important role in educating healthcare professionals, ancillary staff, patients and citizens in an overall understanding of microbes, the safe and sustainable use of antibiotics, and the role of vaccinations in preventing microbial infections.

This guide to antimicrobial resistance and vaccination for nurses will cover the essential information about microbial infections and the methods of treatment, as well as issues around AMR. The guide will provide information and support optimal communication around topics such as vaccination and infection prevention and control.



MODULE 1 MICROBES AND MEDICATION

Part 1 - **An introduction to microbes** such as bacteria, viruses, fungi, yeasts, parasites, and prions highlights where patients are most at risk of infection.

Part 2 - **On medication** begins with an overview of antibiotics and other antimicrobials and the different ways in which they work. Antibiotics are only effective against bacterial infections, and this can be an education and communication challenge



MODULE 2 VACCINATION

Takes a closer focus on infections and preventable measures by vaccination, exploring the different types of vaccines, their role in infection prevention, and their storage and handling. Vaccines are used to prevent both bacterial and viral infections. Vaccines are also in development against fungi and parasites. One of the arguments often used by people hesitant to use vaccines relates to their safety and effectiveness. This module covers the monitoring mechanisms for vaccine safety, and discusses ways to improve people's confidence in vaccines



MODULE 3 ANTIMICROBIAL RESISTANCE AND STEWARDSHIP

Part 1 - **Outlines the issues of AMR**, how it develops and spreads, and includes a number of case studies. The module discusses how patients with AMR infections should be treated. It also looks at prevention and containment of AMR, including the role of the One Health approach, which co-ordinates actions across sectors, including veterinary health, agriculture and environmental health. Part 2 - **All about stewardship curricula programs**, and the engagement in European Union initiatives and international health organisations of specialist nurses.



MODULE 4 INFECTION PREVENTION CONTROL AND CURRICULUM

Part 2 - **Provides an overview of infection prevention and control**, and how this can be put in place within healthcare settings. It introduces the chain of infection, and then discusses the principles of hygiene. These begin with hand hygiene and personal protective equipment, and continue with the role of aseptic no-touch techniques to safeguard both patients and healthcare professionals.

Part 1 - **Nurses Curricula on Infection Prevention**. Nurses play a critical role in infection control, both through practical roles, and as educators for healthcare professionals, patients and carers.

Introduction

To the reader of this Module 4 on Infection Prevention Control and Curriculum.

This is both an update and an extension of the first edition of the Information and Communication guide on Infection Prevention and Control. In the time of a global pandemic, there is so much changing where vaccines are concerned. This includes discussions of the availability and efficacy of the COVID-19 vaccines, as well as debates on other vaccines, and it's important to keep up-to-date.

Over the centuries, we have seen how disruptive infection diseases can be to the society, and we have also seen how vaccines have made a significant contribution to fighting disease and protecting individuals and families. With the onset of the COVID-19 pandemic in 2019, we have seen once again how dangerous infections can be and how vital is the role of vaccination.

The goal of this information and communication guide is to increase knowledge, understanding and skills around the topic of vaccination. There is so much information on vaccines circulating at the moment, ranging from non-expert opinions to scientific research. This fragmentation of information does not help good communication between nurses, with other healthcare providers and especially to the European public and patients. This guide cannot cover everything. Instead, we hope to provide nurses with the best possible information to equip them to practice their profession to the best of their ability, and trigger curiosity to find out more. The information is collected from the best and most credible sources, enriched with examples and pointers for further reading. The guide is created for nurses but we also advise this to all professionals related to education such as teachers, carers and daycare centers staff.

The module sits alongside Module 1 on Microbes and Medications, Module 2 on Vaccines and Module 3 on AMR and Stewardship. It touches on COVID-19 in general terms as things are still changing.

Thank you very much for taking your valuable time to read this guide.

ESNO Microbial Project team

Enrique, Alessia, Jeanette, Noel and Ber.

PART I

Infection Prevention Control

1 Introduction

Ignaz Semmelweis (1818-1865) began the modern understanding of infection prevention and control. Born in Buda (now Budapest) in Hungary, he gained his medical degree at the University of Vienna in 1844 and started working as an assistant to a professor in maternity in 1846. In the First Department, between 13% and 18% of women who had their babies delivered by physicians and medical students died as a result of childbed fever (today known as puerperal fever), brought in on the hands of the physicians and students who came from the dissection room. In the Second Department, where babies were delivered by midwives and midwife trainees, the mortality rate was around 2%.

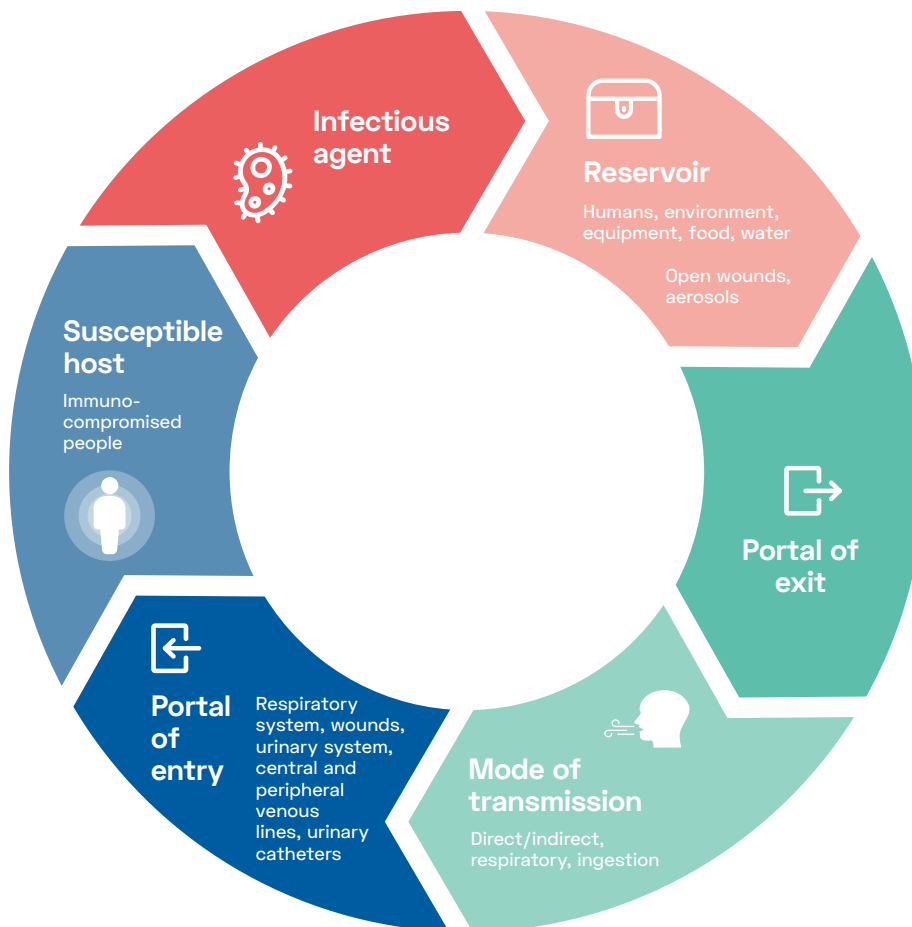
Semmelweis placed large bowls of bleach at the entrance to the maternity clinic, so that everyone who attended a birth would do so with clean hands. During the next seven months the rate of death from puerperal fever fell to decrease to 3%, and then to 1.2% in 1848 the figures for both departments fell to 1.2 percent, when the instruments were washed as well [1].

2 Infection

2.1 The chain of infection

By breaking the chain of infection (Figure 1), nurses can help to stop transmission of infection.

**FIGURE 1:
THE CHAIN
OF INFECTION**



2.2 How to break the chain of infection

Breaking the chain of infection needs answers to a lot of questions:

- **The organism**
 - > What is the organism?
 - > Bacteria, virus, parasite, or fungi?
 - > Is it aerobic or anaerobic?
 - > What are its virulence factors?
 - > What is its target host tissue?

- **The reservoir**
 - > Where is the organism in between infections and outbreaks?
 - > Is the reservoir in the hospital, the environment (e.g. the soil), the food or in a living organism, such as a human, rodent, bird or even a snail?

- **The route out of the reservoir**
 - > How does the organism leave the reservoir? In faeces, respiratory droplets, blood or mucus; in contaminated water; or in the blood meal of an insect?

- **The transmission route**
 - > How is the organism transmitted from the environment or host to the next host?
 - > Does it need a living vector like a mosquito or flea?
 - > Can it be passed from human to human?
 - > When passed from human to human, it is transmitted by respiratory droplets, blood contact, semen or other secretions?
 - > Is it transmitted on the hands of health care workers or the hospital ventilation system?

- **The route into the body**
 - > How does the organism enter the body?
 - > Does it come through inhalation, a break in the skin or mucus membrane, an insect bite, or through contaminated food?

- **Population**
 - > Is the population vulnerable for a specific reason?

Infection spread can be contact (Table 29), droplet (Table 30) or airborne (Table 31).

TABLE 1: CONTACT TRANSMISSION CHAIN OF INFECTION

Chain of infection	
Organism or infection	Methicillin-resistant Staphylococcus aureus (MRSA) Carbapenem-resistant Enterobacteriaceae (CRE) Extended spectrum beta-lactamase (ESBL)-producing Enterobacteriaceae Clostridioides difficile
Reservoir	Skin/gastrointestinal tract
Route out of the reservoir	Wound Nose Urine Faeces
Transmission	Contact, for example nurse or other HCP does not perform hand hygiene after patient contact
Route into the body	Contact, for example nurse HCP empties the urinary bag and contaminates the urinary catheter system, allowing an infection to get into the bladder
Population	Patient
Transmission prevention approach	Gloves, gown or apron, and hand hygiene

In order for someone to get infected through droplet transmission, he/she needs to be <1 meter away from the patient.

TABLE 2: DROPLET TRANSMISSION CHAIN OF INFECTION

Chain of infection	
Organism or infection	Influenza Common cold Pertussis Mumps Meningococcal meningitis
Reservoir	Respiratory tract
Route out of the reservoir	Nose and mouth
Transmission	Surfaces, contaminated hands
Route into the body	Nose and mouth
Population	Patient/staff
Transmission prevention approach	Surgical mask, apron, gloves and hand hygiene

In airborne transmission, the organism remains suspended in the air. To prevent transmission, patients need to be isolated in a negative pressure room whereby the air within the room is changed 12 times per hour and the air is filtered so that infection does not spread outside of the isolation room.

TABLE 3: AIRBORNE TRANSMISSION CHAIN OF INFECTION

Chain of infection	
Organism or infection	Tuberculosis Measles Varicella (chickenpox)
Reservoir	Respiratory tract
Route out of the reservoir	Nose and mouth
Transmission	Air
Route into the body	Nose and mouth
Population	Patient
Transmission prevention approach	FFP2/FFP3 rated mask, gown, gloves and hand hygiene

3 Prevention and control

Having good hand hygiene compliance rates and antibiotic stewardship will help control the spread of infections [2].

3.1 Healthcare-associated infections

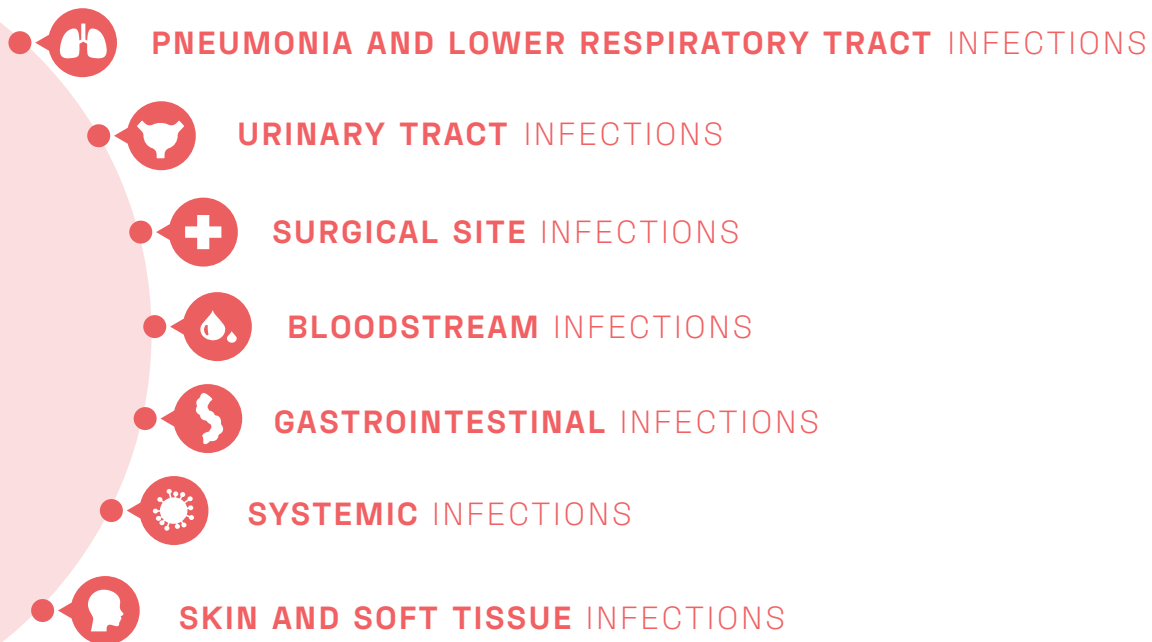
Healthcare-associated infections (HAIs) are infections acquired in any healthcare setting such as a hospital, an outpatients department or a nursing home. These infections develop after 48 hours or more following admission, or up to 30 days after care in a healthcare facility [3]. According to the WHO, the incidence of HAIs in developed countries can range from 3.5% to 12% [4]. The ECDC reported that an average of 7.1% of patients in the European Union acquire an HAI during their stay in hospital [4].

Healthcare-associated infections affect illness and death rates, in both developed and developing countries. HAIs are also very costly to treat [3]. According to the WHO, in the EU around €7 billion is spent on HAIs, with 16 million extra days of hospital stay [4].

For the most common HAIs reported by ECDC in 2016/2017, see Figure 2.



FIGURE 2: POINT PREVALENCE SURVEILLANCE OF HOSPITAL-ASSOCIATED INFECTIONS AND ANTIMICROBIAL USE IN EUROPEAN ACUTE CARE HOSPITALS, 2016–2017



Unless we are committed to implement infection prevention as a top priority in our healthcare institutions, patients will continue to acquire infections within the healthcare system, leading to longer hospital stays and more deaths

3.2 Patient safety and HAIs

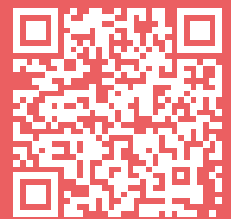
Patient safety depends on a combination of infection prevention, such as hand hygiene (the most important measure), and infection control, along with better antimicrobial stewardship. Approaches such as care bundles and checklists mean better patient care and improved use of resources [6].

3.3 Sepsis and systemic inflammatory response syndrome (SIRS)

3.3.1 Sepsis

In sepsis the immune system overreacts to an infection, damaging organs and tissues. Sepsis is a very serious condition with high rates of illness and death. In the US, admissions to hospital due to sepsis are greater than those for myocardial infarctions and strokes combined. The death rate is 25-30% [7].

Systemic inflammatory response syndrome (SIRS) and sepsis share common features, however SIRS is a broader term describing a syndrome caused by variety of factors, while sepsis is due to an infection.



SCAN ME
(QR code 19)

Early treatment with antibiotics reduces the risk of organ failure and death. The nurse has a very important role in identifying the early signs of sepsis in patients as she/he has the most interactions with patients. A sepsis screen has proven to be a useful tool for nurses when caring for patients in hospital [8].



Case study

In a study carried out in an emergency department and in a community hospital, giving ward nurses a flow chart for sepsis identification, treatment and physician response time improved observation, increased the probability of survival and reduced with a treatment flow chart improved their clinical observations, increased the odds of survival, reduced the risk of organ failure and shortened length of stay [9].

The tool used the following criteria

HAEMODYNAMIC/ORGAN FUNCTION VARIABLES

SIRS TRIAGE – IF TWO OR MORE, THEN →

		Medical consultation within 20 minutes	Immediate medical consultation
	Blood pressure	Syst >90 mmHg	Syst <90 mmHg Syst BP fall >40 mmHg
Temperature <36 °c or >38 °c	Mental status/Glasgow coma scale (GCS)	GCS 14-15	Acute disorientation or GCS ≤13
Pulse >90 bpm	Saturation	>90% with O2	<90% with O2
Respiratory rate >20 breaths per minute or pco2<4.3 kPa	Capillary filling time	<3 sec	>3 sec
Leucocytes <4x10 ⁹ /l or >12x10 ⁹ /l	S lactate	<3 mmol/l	>3 mmol/l
	Thrombocytes	>100x10 ⁹ /l	<100x10 ⁹ /l
	Urine output	>0.5 ml/kg/h	<0.5 ml/kg/h

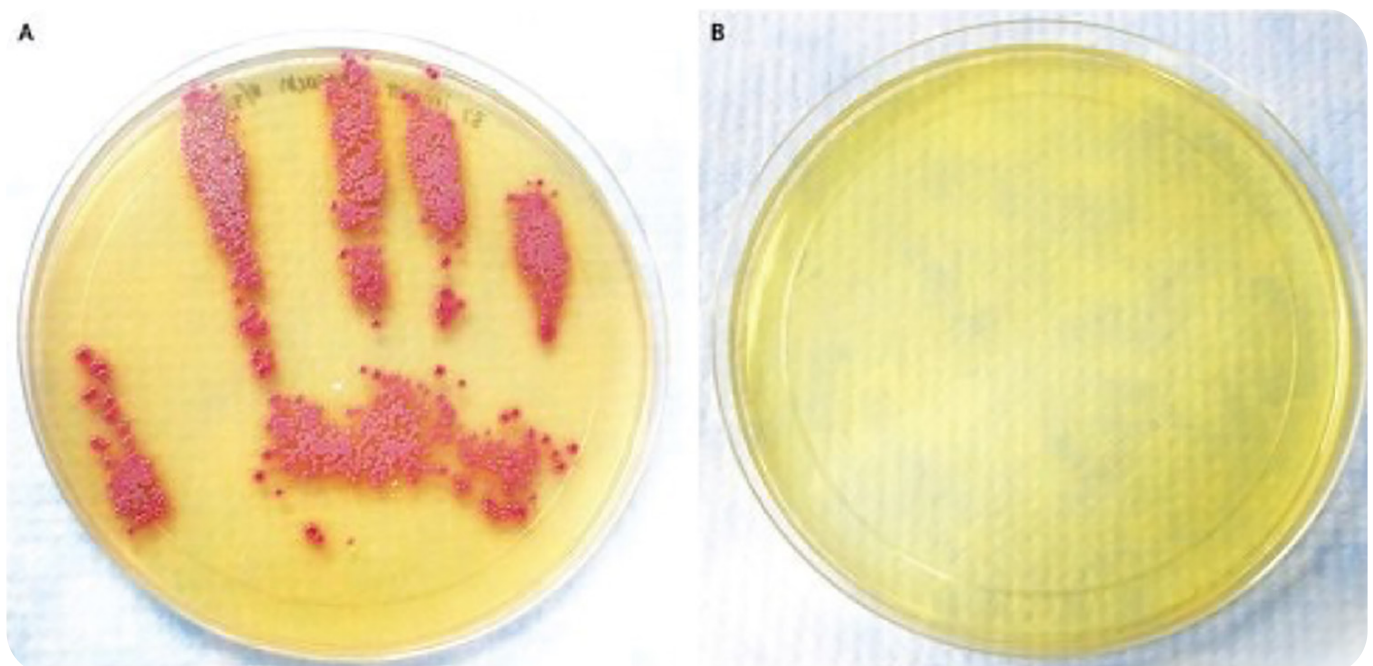
Different hospitals and countries may use different screening tools and criteria.

4 Principles of hygiene

4.1 Hand hygiene and handwashing

The Centers for Disease Control (CDC) and the World Health Organisation (WHO) have published guidelines that define hand hygiene and its role in stopping the transmission of infections, especially MDR organisms including CRE (carbapenem-resistant Enterobacteriaceae), and the other carbapenem-resistant Gram-negative organisms (CRAB, CRPA); MRSA (methicillin-resistant Staphylococcus aureus) and ESBL-producing Enterobacteriaceae.

FIGURE 3: MRSA GROWTH BEFORE AND AFTER HAND HYGIENE



Source: Donskey & Eckstein [10] (permission from the author)

In Figure 3 the left-side image shows an imprint of an ungloved hand following an abdominal examination of an MRSA-positive patient. The right-side image is from the same worker, after using an alcohol-based hand rub. This shows why it is important for nurses to make sure that hands are disinfected properly before and after examining patients.

Figure 4 and Figure 5, from the WHO, show the steps of effective hand hygiene using soap and water or an alcohol hand rub



October 15 is Global Handwashing Day, a global advocacy day dedicated to increasing awareness and understanding about the importance of handwashing with soap as an effective and affordable way to prevent diseases and save lives.

FIGURE 4: HOW TO HAND WASH WITH SOAP AND WATER

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB



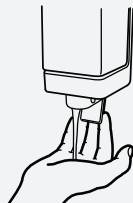
Duration of the entire procedure: 40-60 seconds

0



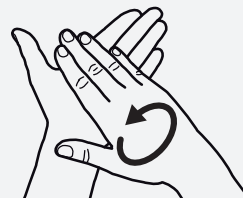
Wet hands with water;

1



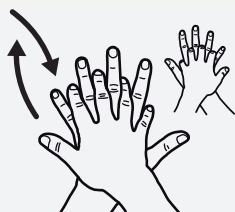
Apply enough soap to cover all hand surfaces;

2



Rub hands palm to palm;

3



Right palm over left dorsum with interlaced fingers and vice versa;

4



Palm to palm with fingers interlaced;

5



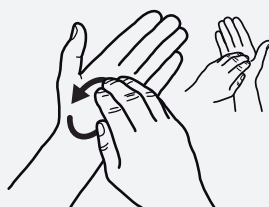
Backs of fingers to opposing palms with fingers interlocked;

6



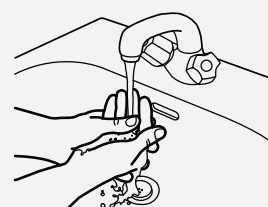
Rotational rubbing of left thumb clasped in right palm and vice versa;

7



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

8



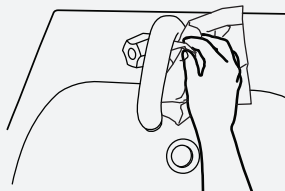
Rinse hands with water;

9



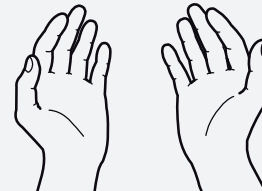
Dry hands thoroughly with a single use towel;

10



Use towel to turn off faucet;

11



Your hands are now safe.



World Health Organization

Patient Safety

A World Alliance for Safer Health Care

SAVE LIVES
Clean Your Hands

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FIGURE 5: HOW TO USE ALCOHOL HAND RUB

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

 **Duration of the entire procedure: 20-30 seconds**

1a

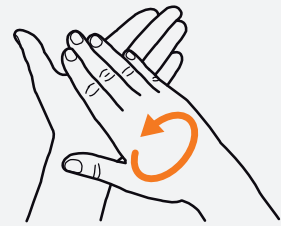


Apply a palmful of the product in a cupped hand, covering all surfaces;

1b

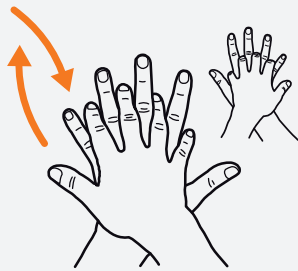


2



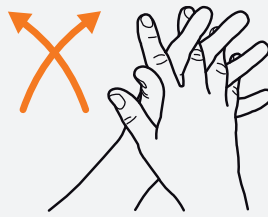
Rub hands palm to palm;

3



Right palm over left dorsum with interlaced fingers and vice versa;

4



Palm to palm with fingers interlaced;

5



Backs of fingers to opposing palms with fingers interlocked;

6



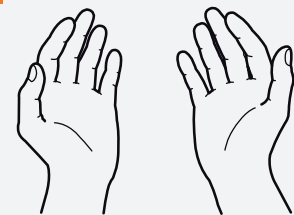
Rotational rubbing of left thumb clasped in right palm and vice versa;

7



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

8



Once dry, your hands are safe.



World Health Organization

Patient Safety

A World Alliance for Safer Health Care

SAVE LIVES

Clean Your Hands

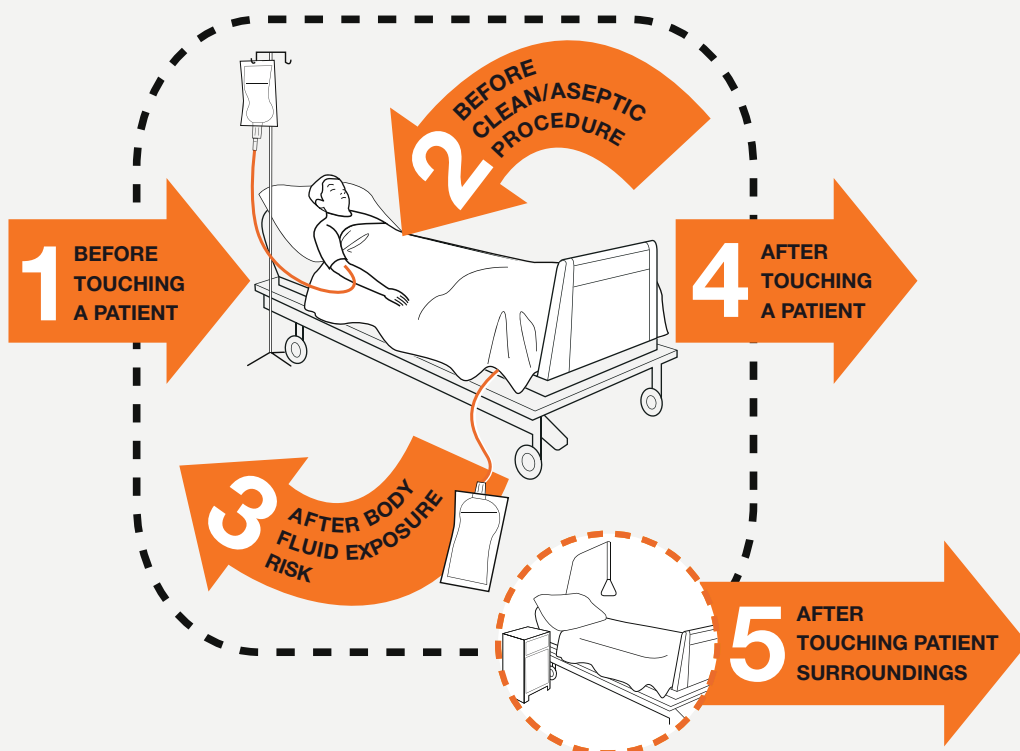
Source: WHO

The WHO has also developed 'moments of hand hygiene', which are important steps to stop the transmission of infection between nurses and patients, on a ward (Figure 6), and in a residential home (Figure 7).

FIGURE 6: MOMENTS FOR HAND HYGIENE ON A WARD

When?

YOUR 5 MOMENTS FOR HAND HYGIENE



<p>1 BEFORE TOUCHING A PATIENT</p>	<p>WHEN? Clean your hands before touching a patient when approaching him/her.</p> <p>WHY? To protect the patient against harmful germs carried on your hands.</p>
<p>2 BEFORE CLEAN/ASEPTIC PROCEDURE</p>	<p>WHEN? Clean your hands immediately before performing a clean/aseptic procedure.</p> <p>WHY? To protect the patient against harmful germs, including the patient's own, from entering his/her body.</p>
<p>3 AFTER BODY FLUID EXPOSURE RISK</p>	<p>WHEN? Clean your hands immediately after an exposure risk to body fluids (and after glove removal).</p> <p>WHY? To protect yourself and the health-care environment from harmful patient germs.</p>
<p>4 AFTER TOUCHING A PATIENT</p>	<p>WHEN? Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.</p> <p>WHY? To protect yourself and the health-care environment from harmful patient germs.</p>
<p>5 AFTER TOUCHING PATIENT SURROUNDINGS</p>	<p>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.</p> <p>WHY? To protect yourself and the health-care environment from harmful patient germs.</p>

Reducing infection transmission by handwashing

Frequent and thorough handwashing is an excellent way to reduce the transmission of bacteria, viruses and other pathogens between people, both in a hospital or clinic setting and in everyday life. Different products can work better in different situations. Key recommendations are to follow international, national, regional and or even local guidelines.

1. Plain non-antimicrobial soap

Lathering with soap and detergent-based handwashes and rinsing removes things sticking to the hands, including dirt, grease, organic substances and bacteria, viruses and other pathogens. The detergent properties also break down the lipids in the membranes around many bacteria and viruses. Wash all surfaces of the hands, including between the fingers, rubbing for around 20 seconds.

2. Alcohol

Alcohol and alcohol gels are effective against bacteria, viruses and other pathogens, but the alcohol content should be 60% or above. In lab studies, alcohols work against Gram-positive and Gram-negative bacteria (including multidrug-resistant pathogens such as MRSA and VRE), *M. tuberculosis*, and a variety of fungi.

3. Chlorhexidine

Chlorhexidine works by disrupting bacterial cell membranes, releasing the cell contents. Chlorhexidine works more slowly than alcohol.

4. Chloroxylenol

Chloroxylenol inactivates enzymes in bacteria and affects their cell walls. In lab studies, chloroxylenol works well against Gram-positive bacteria, and moderately well against Gram-negative bacteria, mycobacteria and some viruses.

5. Hexachlorophene

Hexachlorophene inactivate essential enzyme systems in microorganisms. Hexachlorophene is bacteriostatic, with good activity against *S. aureus* and relatively weak activity against Gram-negative bacteria, fungi, and mycobacteria.

6. Iodine and iodophors (PVP-I)

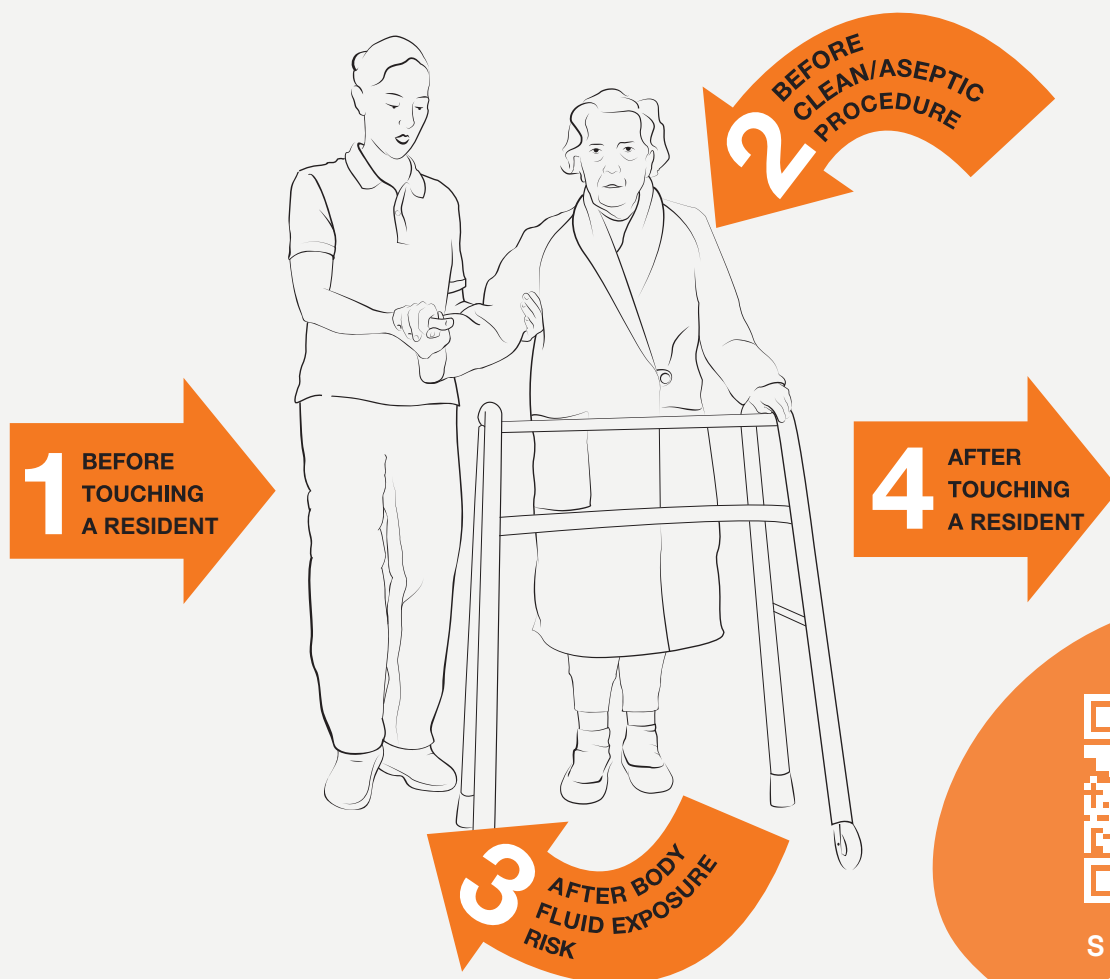
Iodine molecules enter the cell wall of microorganisms, affecting protein synthesis and cell membranes. PVP-I is effective against bacteria, viruses, fungi, spores, protozoa, and amoebic cysts. PVP-I has shown efficacy against coronaviruses like MERS-CoV and SARS-CoV and other viruses such as Ebola virus there has been no reported resistance or cross-resistance in over 150 years of use.

Source WHO

FIGURE 7: MOMENTS FOR HAND HYGIENE IN A RESIDENTIAL HOME

Your Moments for Hand Hygiene

Health care in a residential home



1	BEFORE TOUCHING A RESIDENT	WHEN? Clean your hands before touching a resident. 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 resident's own, from entering his/her body.
3	AFTER BODY FLUID EXPOSURE RISK	WHEN? Clean your hands immediately after a procedure involving exposure risk to body fluids (and after glove removal). WHY? To protect yourself and the environment from harmful patient germs.
4	AFTER TOUCHING A RESIDENT	WHEN? Clean your hands after touching the resident at the end of the encounter or when the encounter is interrupted. WHY? To protect yourself and the environment from harmful patient germs.



World Health Organization

SAVE LIVES
Clean Your Hands

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WHO acknowledges the Ministry of Health of Spain and the Hôpitaux Universitaires de Genève (Infection Control programme) for their active participation in developing this material.

Source: WHO

March 2012

You can test your knowledge on hand hygiene and contact precautions by scanning QR code 20. After completing both modules, you will receive certificates.

BOX: Speak out – Doctor, have you washed your hands?

In a study at a Sydney hospital, doctors and nurses failed to wash their hands properly when no one was watching. Hand-washing rate fell from 94% with human auditors watching to 30% when this switched to automated surveillance **(QR code 21)**. This puts patient's lives at risk [11].

The compliance with hand washing is an issue for any HCP, but particularly for doctors **(QR code 22)**. While they have fewer total patient contacts than nurses, they see more individual patients and perform most invasive procedures, so have more potential for opportunities for transmission of pathogens. Doctors also play a role in influencing the attitudes and behaviour of other members of staff [12].



SCAN ME
(QR code 21)



SCAN ME
(QR code 22)

4.2 Personal protective equipment

Personal protective equipment (PPE) is designed to protect nurses and other HCPs from infectious diseases. PPEs include gloves, masks, aprons, gowns and visors. The choice of PPE depends on how the infection is transmitted. PPE should be used whenever there is a risk of exposure to blood or other potentially infectious material such as sputum, vomit or faeces). The following is a guidance, please follow your hospital protocols. (see Figure 8).

FIGURES 8: PUTTING ON AND REMOVING PPE IN EIGHT STEPS

Make sure you have all the necessary Personal Protective Equipment:

- Disposable isolation gown that is water resistant
- FFP2/FFP3 mask
- Face visor with anti-fog properties
- Non-sterile nitrile gloves

Putting on PPE:

Staff should wear the following PPE, put on in the following order:

**Tying at the neck
than at the back**



STEP 2
FFP3 RESPIRATOR
AND FIT CHECK



1. Check the FFP 2/3 mask

2. Hold the mask
in your hand



3. Wear the FFP2/3 mask by applying the mask
tightly around the face and pulling the straps
above your head

4. Secure the
mask around
your face



5. Check for leakages.
If FFP2/3 has a valve,
ensure that it forms a
tight seal.



STEP 3
EYE
PROTECTION



Wear a visor

STEP 4
DISPOSABLE
GLOVES

Wear 1 pair of
gloves ensuring
the gloves
overlap the
edge of the
gown



Removal of PPE:**STEP 1**

Remove the glove of the non-dominant hand from the base of the palm, without touching the inside of the glove, and flip it over the fingers

**STEP 2**

Using the non-dominant hand (which is partially gloved) to remove the glove from the dominant hand from the base of the palm without touching the inside of the glove

STEP 3

Dispose of the gloves in the appropriate bin

STEP 4

Perform hand hygiene using alcohol-based hand rub



STEP 5

Remove gown by using a peeling motion, fold gown in on itself and place in clinical waste bin



STEP 6

Remove visor only by the headband or sides and dispose in clinical waste bin



STEP 7

Remove respirator from behind using the rubber bands away from your face and dispose in clinical waste



STEP 8

Perform hand hygiene using alcohol-based hand rub



This sequence of putting and removal of PPE's is recommended by the ECDC and WHO

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Use of respiratory face protection when caring for a suspected or confirmed case of the new COVID-19

The following guideline is based on the recommendation of the WHO and CDC published in view of the new COVID-19 virus. Every nurse should be trained well so that when using PPE, she/he will not be exposed to the virus especially during the removal of such PPE. In this section we will explain about the types of masks that are available and recommended for use when caring for patients with a high consequence infectious diseases. Since it is a new virus we do not know exactly the mode of transmission. From what is known till when this has been published that the COVID-19 is transmitted from person to person via respiratory droplets. Transmission will occur if the nurse is within approximately 6 feet [2 meters] of a patient with 2019-n-CoV for a prolonged period of time. Therefore, proper wearing and removal of PPE will protect the nurse from becoming infected while caring for such patients.

Types of face masks available on the market

Both the WHO and CDC have recommended the use of N95 or FFP2 masks which offer protection against airborne infections including the current COVID-19. It is important that the mask says either N95 or FFP2 mask has a 95% efficiency filter. The N99(FFP3) that mask has a 99% efficiency filter. However both masks are safe to use when caring for such patients.

It is highly important that every time the nurse puts the respiratory mask she/he needs to perform a fit check [refer to poster showing the steps on how to put on and remove the PPE]. It is also important that a fit test is performed on all nurses to ensure that the face mask fits well. The fit test should be carried out by a trained technician.

4.2.1 Glove use – To glove or not to glove?

Gloves do not replace the need for hand hygiene when caring for patients. Gloves are not 100% safe as there can be tiny holes that are not visible to the naked eye but can allow microorganisms through to colonise nurses' hands. This can happen in almost a third of cases [13].

Gloves should be worn in the following circumstances:

- When dealing with body fluids such as blood, urine, sputum and discharging wounds
- In contact with mucous membranes or broken skin
- Taking blood samples or working with catheters
- When dealing with patients who are colonised/infected with virulent organisms, MDROs such as CRE, CRAB, MRSA and VRE, or in epidemic or emergency situations
- As part of transmission-based precautions.

Gloves should be changed:


- Between patients to prevent cross-transmission of microorganisms especially MDROs
- Between different body sites, for example when a patient has two different wounds, to prevent cross-contamination.

Put on and remove gloves using the techniques shown in Figure 9.

FIGURE 9: PUTTING ON AND REMOVING NON-STERILE GLOVES


HOW TO DON GLOVES

1




Take out a glove from its original box.

1b




Touch only a restricted surface of the glove corresponding to the wrist (at the top edge of the cuff).

3




Don the first glove.

4



Take the second glove with the bare hand and touch only a restricted surface of the glove corresponding to the wrist.

5



To avoid touching the skin of the forearm with the gloved hand, turn the external surface of the glove to be donned on the folded fingers of the gloved hand, thus permitting to glove the second hand.


6



Once gloved, hands should not touch anything else that is not defined by indications and conditions for glove use.


HOW TO REMOVE GLOVES

1



Pinch one glove at the wrist level to remove it, without touching the skin of the forearm, and peel away from the hand, thus allowing the glove to turn inside out.

2



Hold the removed glove in the gloved hand and slide the fingers of the ungloved hand inside between the glove and the wrist. Remove the second glove by rolling it down the hand and fold into the first glove.

3



Discard the removed gloves

4 Then, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water.



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Source: British Columbia Institute of Technology (BCIT)
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If there is no risk of exposure to body fluids (unless transmission-based precautions are in place), no gloves need to be worn, for example when:

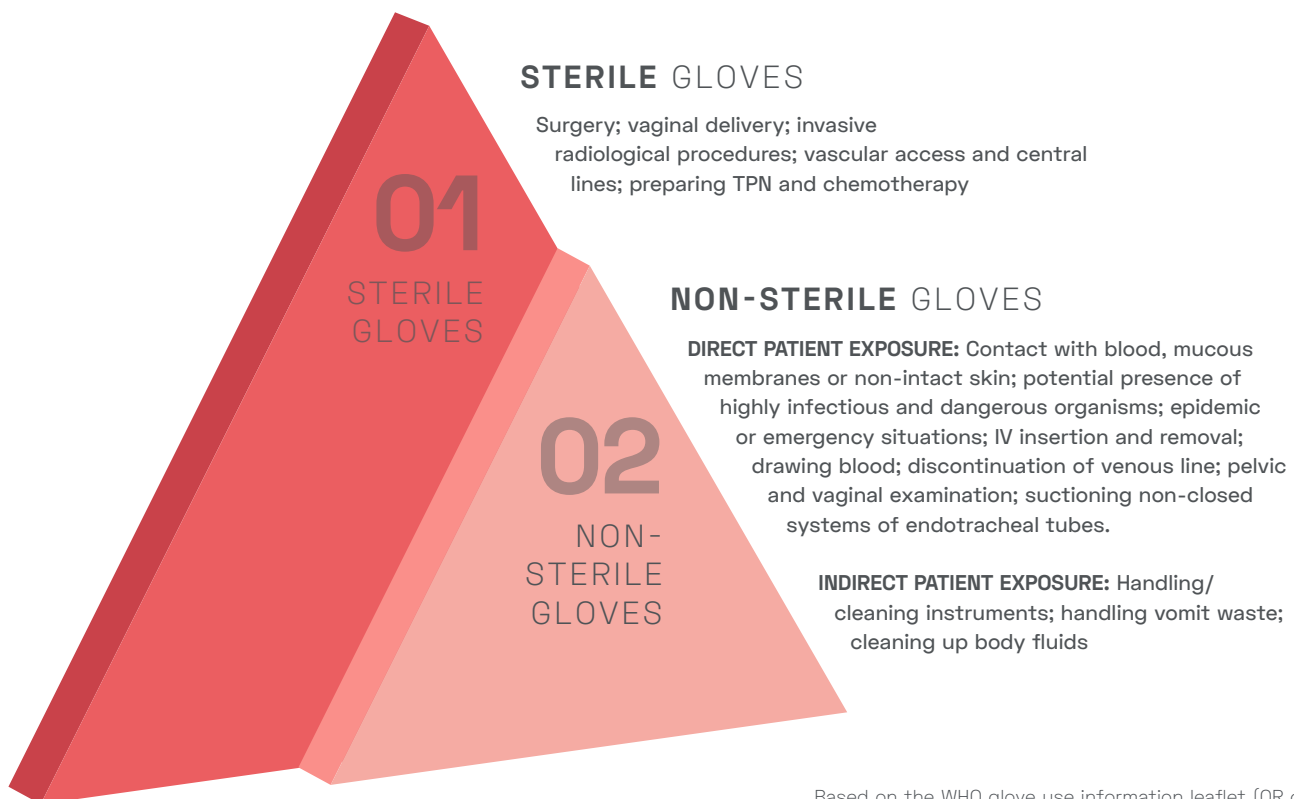
- Changing bedsheets
- Assisting patients to get out of bed
- Helping patients to walk
- Transporting patients
- Touching intact skin

This also reduces the risk of nurses developing allergies to glove materials, such as latex [14]. Healthcare providers may reserve latex gloves for the surgical setting, except for latex-free paths or latex-free operators, and use alternative gloves in other settings. The glove pyramid (Figure 10: The glove pyramid – to aid decision-making) and the WHO glove use information leaflet (QR code 24) provide support in the decision-making process.



SCAN ME
[QR code 24]

FIGURE 10: THE GLOVE PYRAMID – TO AID DECISION-MAKING



4.3 Standard precautions

Standard precautions are designed to reduce the risk of transmission of infection to the nurse or other HCP and from patient to patient. These should be used with every patient, irrespective of whether their infectivity status is known or not. A risk assessment will help to decide what kind of PPE is needed.



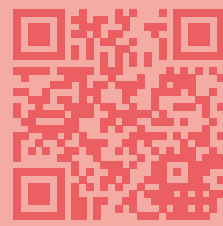
Standard precautions include:

- Hand hygiene
- Personal protective equipment (mask, gown, apron, visor/goggles, gloves)
- Proper disposal of sharps
- Environmental cleaning
- Aseptic technique
- Sterile instruments – reprocessing of reusable equipment and instruments
- Cough etiquette
- Waste management
- Appropriate handling of linen

There is no need for isolation in a single room. When standard precautions are not enough to stop the transmission of infections, the next step is transmission-based precautions. For more information look at the CDC (QR code 25) and WHO websites (QR code 26).



SCAN ME
[QR code 25]



SCAN ME
[QR code 26]

4.4 Transmission-based precautions

Transmission based precautions are used as well as standard precautions when there is a risk of patients passing the infection on to others. These patients need to be isolated in a single room or cared for with patients with the same infection. If the door cannot be closed because of safeguarding issues, this will need to be discussed with the infection prevention and control team.

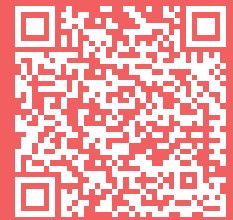
Transmission based precautions differ according to whether it is contact, droplet and airborne transmission (see Figure 11: Transmission-based precautions).

FIGURE 11: TRANSMISSION-BASED PRECAUTIONS



Notes: * Depends on the task being carried out. E.g. If bath bathing a patient, a gown will be more appropriate because of the close contact with the patient. ** It is very important to check the fit before approaching the patient

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SCAN ME
[QR code 27]

For more information on transmission-based precautions see the CDC website (QR code 27).

4.4.1 The impact of patient isolation

Patients who are isolated in a single room may become anxious, withdrawn and/or depressed, and feel stigmatised. Patients who are in isolation tend to receive less attention by doctors than patients in normal rooms. They are also twice as likely to have adverse events and eight times more likely to experience falls and pressure ulcers. [15]. This anxiety is worsened by a lack of information (see Figure 12). Nurses can help anxious and isolated patients and their families through good communication, and by providing information and reassurance.

FIGURE 12: LACK OF INFORMATION CAN INCREASE ANXIETY



Case study: lack of information

Following an accident, a male patient was admitted to intensive care. After a few days he was isolated because he was diagnosed as having a multi-drug resistant (MDR) infection. The information given to his wife was so limited she had to go on the internet to search for further information. The internet searches increased her anxiety, stress and fear.



4.4.2 Improving patient-nurse interaction

Nurses need to put on appropriate PPE before entering an isolation room. The time taken to dress can reduce the time that they can spend with patients. The inconvenience of PPEs may also reduce compliance with requirements.

Case study: Isolation floor taping

In a study carried out at Trinity Regional Medical Centre, the hospital used red tape to make a safe zone at the entrance of the isolation room. Nurses standing in this area did not need to put on PPEs to interact with the patient. This increased staff-patient interaction, generating a high level of satisfaction, and reducing PPE costs.

4.5 Aseptic non-touch technique

Aseptic non-touch technique (ANTT) was created to improve the understanding of infection control and reduce or prevent the transfer of microorganisms from nurses, equipment and the environment, so safeguarding patients [17,18]. The aim is to improve patient safety and reduce HAIs.

ANTT was originated by Stephen Rowley in the late 1990s [17] and has since been defined by NICE as,

STEPHEN
ROWLEY

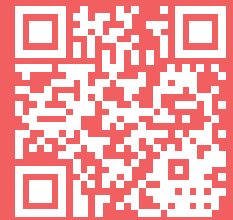


A specific type of aseptic technique, with a unique theory and practice framework [19]

The purpose of ANTT was to highlight the various problems when it comes to practicing aseptic technique, the lack of standardisation of teaching, practice and the confusion of terms «Sterile», «Aseptic» and «Clean» [18].

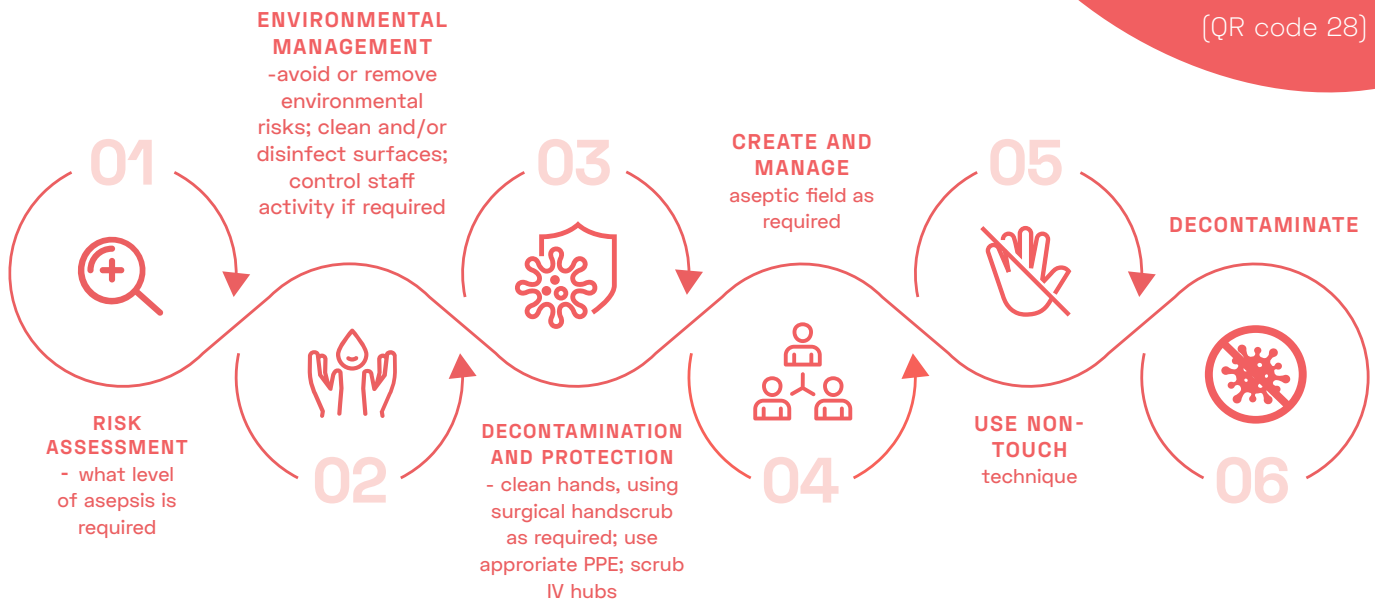
The ANTT Clinical Practice Framework is comprehensive and carefully defines practice, providing a set of clinical rules for supporting effective and safe aseptic technique. The term 'clean' is not used as a practice aim because the definition of 'clean' is a visual one – and micro-organisms are invisible! The term sterile is not used because once sterilized equipment is opened to air, it is not technically possible to maintain its sterility [18]. ANTT is therefore based upon the terms 'asepsis' and 'aseptic' as they are achievable and if established and maintained in practice, will protect the patient.

ANTT helps provide a better understanding of the Infection Control invasive procedures which are undertaken on patients. ANTT can prevent micro-organisms transfer from HCPs, the equipment and the immediate environment safeguarding the procedure Key-Parts and Key-Sites – using a concept called Key-Part and Key-Site Protection (see Figure 13).



SCAN ME
[QR code 28]

FIGURE 13: STEPS TO ENHANCE PATIENT SAFETY



For further information about ANTT and its implementation, go to the ANTT website (QR code 28).

5 Roles and responsibilities of the infection control nurse

The role of an infection control nurse (ICN) is very important in both hospital and community care settings. It includes preventing infection, implementing infection control policies and teaching nurses and other HCPs.

Role of an infection control nurse

Lead the infection prevention and control team and provide high quality infection prevention and control services

Advise and educate patients, carers, nurses and other HCPs

Develop evidence-based policies and guidelines for the prevention and control of HAIs and community-acquired infections (CAIs), and put these in place

Communicate laboratory results, especially relating to multi-drug resistant organisms, to both hospitals and the community

Ensure that patients with MDROs are cared for in isolation or with patients with the same type of infection, so that it does not spread to other patients

Carry out audits of isolation practices and hand hygiene.

Observe nurses and other healthcare professionals to ensure that the necessary precautions are being followed when a patient is isolated



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Although the role of the ICN can be quite challenging, it can be very gratifying for its part in both staff and patient safety.

ICNs also have responsibilities leadership, education, quality improvement and clinical practice (see Table 32).

TABLE 4: 1.1 RESPONSIBILITIES OF THE INFECTION CONTROL NURSE

Role	Competences
Leadership & management	Lead and manage the work of the infection prevention and control team to achieve objectives
	Lead high quality infection prevention and control services
	Design, plan and monitor the development of services
	Demonstrate leadership and management skills
Education	Develop own knowledge, skills and practice
	Advise and educate patients, carers and all the staff working in health and social care settings
	Identify and respond to the need for learning opportunities using an evidence-based approach
Quality improvement	Work with others to embed infection prevention and control within workforce and organisational development strategies
	Utilise improvement methodologies to enhance and sustain infection prevention and control practices
	Demonstrate the use of risk assessment in infection prevention and control practice
	IPC is an integral part in preventing antimicrobial resistance
Clinical practice	Research in clinical practice
	Collect, understand, interpret and report surveillance data
	Monitor, review and advise on service developments to support the infrastructure of the organisation in relation to decontamination and the built environment
	Improve quality and safety by developing and implementing evidence-based policies and guidelines for the prevention and control of infection
	Maintain patient safety by recognising, reporting and managing incidents and outbreaks

Adapted from the Infection Prevention Society [20]

6 Infection control challenges in long-term care facilities (LTF)

Although residents in a residential care setting do not undergo complex or invasive, they are still at risk of transmissible infections, and the consequences can be serious. Elderly people's immune systems may also be impaired, affecting their ability to fight infections [21]. Elderly people are also more at risk of pneumonia, urinary tract infections (UTIs) and soft tissue infections than younger people, and these carry a high risk of illness and death.

The nurse or carer's role in infection control and prevention is to reduce the risk of infections being passed on to residents from HCPs or other residents. Vaccination in elderly people may not always be effective, so vaccination of nurses and other HCPs may help in controlling the spread of infections.

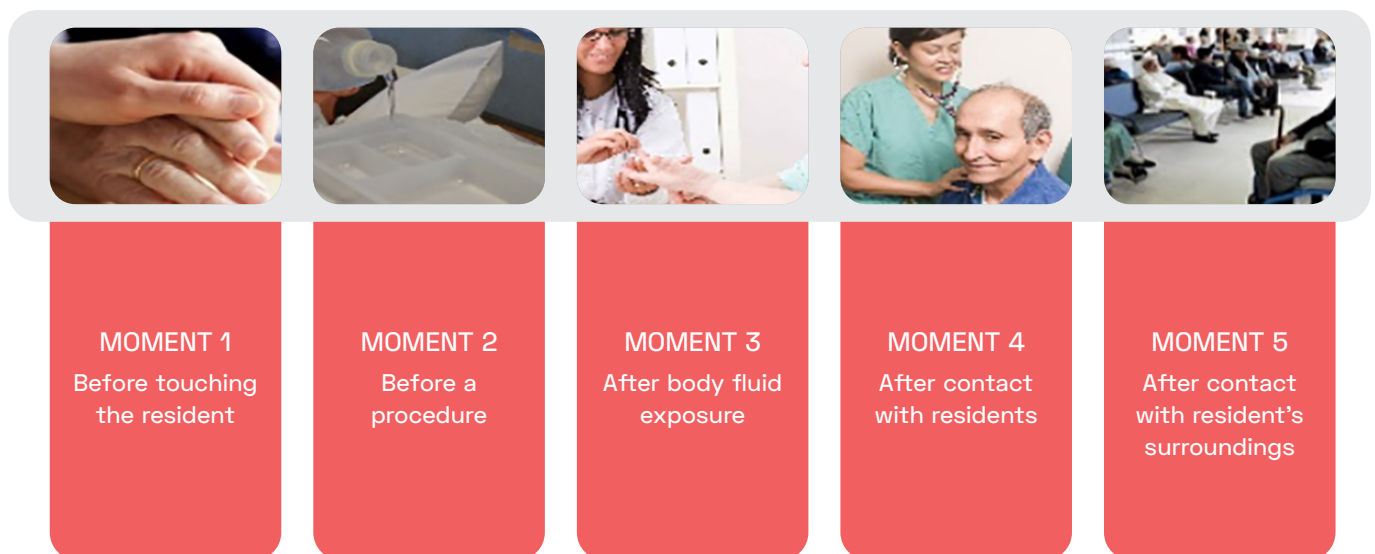
6.1 Managing residents with MDROs

Managing MDROs is a major challenge in residential care settings such as nursing homes. The spread of MDROs can be increased because of the longer length of stay compared with an acute care setting, and because of the homelike environment that potentially means less stringent infection prevention and lack of support from an infection prevention and control team. Frequent transfers to and from acute care to nursing homes can also increase the transmission of MDROs [22]. Elderly people are more likely to get infections. This, combined with issues of self-care and difficulties with diagnosis, can lead to greater antibiotic prescribing which then increases the risk of antibiotic resistance [23].

Long term care facilities may not have nurses on site, and they may not have isolation facilities. This means that infection control measures must be adapted according to the facility [24].

6.2 Hand hygiene

The WHO's 'moments of hand hygiene' (see 37.1: Hand hygiene) are also important for care of elderly persons in residential care (see Figure 14).



Adapted from the WHO's five moments of hand hygiene

Case study: Hand hygiene and infection rates

Implementing hand hygiene for residents, nurses and other healthcare professionals in a long-term care facility aimed to reduce cross-transmission, given that the residents shared the dining room, bathrooms and rehabilitation facilities. The greatest decrease in infections was that of LRTI (lower respiratory tract infections) from 0.97 LRTIs pre-intervention, to 0.53 post-intervention per 1,000 resident-days [25]

6.3 Managing outbreaks within the residential homes

Because of shared facilities, residential care homes run the risk of disease outbreaks.

TABLE 5: MOST COMMON TYPES OF INFECTION OUTBREAKS IN CARE HOMES

Type of infection	Most common causative infectious agents	Mode of transmission
Respiratory infection	Influenza virus (A or B)	Droplets and physical contact
	Mycobacterium tuberculosis	Airborne infection
Skin and soft tissue infection	Streptococcus pyogenes	Droplets and physical contact
	Staphylococcus aureus (MSSA or MRSA)	Physical contact and airborne dissemination
	Sarcoptes scabiei (the mite causing scabies)	Physical contact
UTI (with or without a urinary catheter)*	Escherichia coli MDROs	Physical contact (transmission will have taken place sometime before the organism causes UTI)
Gastrointestinal infections	Norovirus Salmonella and other foodborne infectious organisms	Physical contact with contaminated items followed by ingestion** or direct ingestion of contaminated food
	Clostridioides difficile	Physical contact with contaminated items followed by ingestion**

*UTIs are more often caused by a resident's own gut flora than by an external infectious organism

** Also known as the faecal-oral route

Adapted from Curran [26]

6.4 Prevention of outbreaks in nursing homes

Outbreaks in nursing homes can be prevented by making sure that nurses, carers and other HCPs follow standard precautions (see 37.3: Standard precautions).

Vaccination against influenza is important to prevent outbreaks. Influenza can cause serious illness and death in elderly people. There are a lot of myths and misconceptions about Influenza vaccination and these should be addressed both in HCPs and the residents within the nursing homes to increase vaccination uptake.

If a resident is diagnosed as having an infection that might cause an outbreak, he/she must be segregated from the other residents until he/she is no longer infectious.

Once an outbreak is declared it is important to carry out a risk assessment to understand the extent of the outbreak and its cause. The questions in Figure 15 are useful.

FIGURE 15: MANAGING AN INFECTIOUS DISEASE OUTBREAK

About the people who are sick

- What are the people sick with?
- How many are/have been sick?
- When did they get sick?
- Which GPs have been called?

About the care home

- How many people live in the home?
- On how many floors is the accommodation?
- On how many floors are the sick residents?
- Do staff work on affected as well as unaffected floors?
- Are there any plans in place for the next few days?



SCAN ME
(QR code 29)

Once an outbreak is confirmed the target is to bring that particular outbreak to an end. The following may be included as measures to control the outbreak:

- Close the care facility to admissions and stop transfers
- Limit or stop visits from friends and family
- Clean the facility thoroughly, especially high touch surfaces, using appropriate disinfectants

For more information on standard infection control and prevention in residential homes see the CDC website (QR code 29).

PART II

Infection Prevention – Curriculum building

7 Introduction

When talking about microbes, viruses, vaccination, anti-microbial resistance and infection control, it doesn't help if professional competences are fragmented. Fragmentation and diversity can only cause confusion and be harmful for patient outcome and impact the wellbeing of health professionals. In infection prevention, just acting on random sanitization and not knowing if one is using the right material or substances does not work. Infection prevention is often considered familiar to any nurse profession, but in fact, **it's an art**.

Hygiene and infection prevention are crucial parts of the nursing profession and requires more knowledge and competences. This means: evaluating situations, on what basis the evaluation should take place, choosing options, knowing the substances available with materials, medication and at the end doing the intervention—act upon decisions wisely and with the most fundamental guiding principle: evidence-based.

It needs to be a fundamental principle that nurses need to understand the phenomenon 'Infection Prevention' and be equipped with the right information and skills to act. For this, the European specialist nurses proposes introducing a curriculum for nurses to safeguard quality. In the speciality nursing spectrum, there are functions, specifically related to this field of expertise, but it's clear that not all specialist nurses need to be experts. What is effective is when all nurses know about the principle, have a certain level of competencies and above all, act in a harmonised way. In a diverse Europe, diverse health systems and equipped with diverse materials, this calls for an absolute need to have a unified understanding on education, at minimum. This is not only for good quality of care but for professional mobility and intercollegiate communication and good infection control practice.

In this chapter, the essentials of this aspect is highlighted, by the working structure, the goals to achieve and preliminary chapters and modules to include in an European standard for Infection control competencies in European nursing. This also raises nurses' levels with a focus on an additional curriculum on Infection Prevention as an additional competency beside an existing speciality. For example, equipping speciality nurses in diabetes with experiences of infections occurring and the best way to act in the spectrum of options in prevention and treatment.

This module is not a learning book but to give guidance to standardisation of education. You will find recommendation with and motivation for any nurse and health provider to be passionate and motivated to be competent in the field of Infection Prevention Control.

8 Program

Nurses' education plays a vital role in acquiring the necessary competency for patient safety. Infection prevention and control is a very critical topic to providing patient safety so, undergraduate and graduate nursing students should be competent in infection prevention and control.¹

With this program we wish to accomplish three objectives;

1. Connect with national and European specialist nursing networks and experts
2. Create a nurses' curriculum as a base for education and as a format for national, regional and local implementation:
 - a. Full curriculum for IPC nurse
 - b. Complementary course for nurses on IPC
3. Initiate online activities such as webinars
4. For more information on the Program, see [link](#)

¹ <https://www.sciedupress.com/journal/index.php/jnep/article/view/15256/9888>

9 Goal of the curricula

1. the implementation and standardisation of training curricula, especially for nurses;
2. recognition of the IPC nurse as a separate specialty or sub-specialty;
3. validation of on-the-job training facilities in terms of the number of nurses able to provide training;
4. determination of the category of patients/problems present;
5. designation of mandatory postgraduate education/continuing education to infection control for nurses in the field.

10 Process

FIGURE 16: TIMELINE OF THE PROGRAMME



10.1 Literature

- [Infection prevention and control curriculum in undergraduate nursing program: Internship nursing students' perspectives](#)
- [Development of a curriculum for infection control nurses for the qualification of infection control link nurses – results of focus group interviews with ward managers and infection control nurses in acute care hospitals in Germany](#)

11 Reasons about the curricula and to include elements

Role of nurses in educating the public on the principles of health and in the use of personal protective equipment, by Rebecca

11.1 Nurses and health promotion

Nurses are the largest workforce within most healthcare systems, with wide ranging roles within primary, secondary and tertiary care levels. It is, therefore, not surprising that nurses have a pivotal role in shaping how healthcare is delivered and in reaching many facets of a society both in the direct delivery of care as well as in ensuring that members of society are well prepared to manage their health and prevent ill-health, and here three reasons

- The first: A major role recognized by nursing bodies (RCN 2021)² and also by the WHO (2020)³ is the educational role that nurses have, irrespective of the area in which they work. Of course, some areas might have increased opportunities for nurses to work with and educate members of the population, however, most nursing roles allow for opportunistic health promotion even if on a smaller scale. Methods of delivering education can be structured and planned as well as opportunistic.
- The second is the role of nurses in emphasizing the principles of health with their continued support towards communities should not be underestimated. This is mostly of importance because nurses are trusted members of the community, often seen as invaluable sources of information. Nurses are also best prepared to deliver health messages and understand health behaviors in order to also deliver effective strategies that address such behaviour/s e.g., ensuring that persons have enough knowledge of how to maintain their health by adopting positive health behaviour/s.
- The third role has been further elevated during the recent months of the pandemic in which nurses have been placed at the forefront of care delivery and have been seen as one of the major sources of information, education and guidance during a time of deep uncertainty.

11.2 Why educating the community

“Nurses within hospitals, elderly homes/residences and within all aspects of the community were able to promote health by giving information on the virus, its mode of transmission and subsequently on the personal protective equipment that was advised, how to wear it and when to wear it. Of course, various countries have differed guidelines and many countries have chosen to advise their nations on which transmission-based precautions to adopt e.g., the wearing of masks whilst in public spaces (outside or inside). The choice of mask and the way in which a mask should be worn, removed and if not disposable, how it should be preserved are just a few key components on which nurses could give advice and guidance. The use of gloves in the community, was and still is not recommended as gloves are not a substitute for hand hygiene. On the contrary, the drive to advocate for hand hygiene is one of the key messages continuously being delivered by nurses all over the world irrespective of this pandemic”.

2 Royal College of Nursing UK. 2021. Available at: <https://www.rcn.org.uk/clinical-topics/public-health/the-role-of-nursing-staff-in-public-health>. Accessed on: 30th June 2021.

3 World Health Organisation. 2020. Available at: <https://www.who.int/news-room/fact-sheets/detail/nursing-and-midwifery>. Accessed on: 29th June 2021

12 About masks and what about them, differences, overlaps and the best use

See full text under this [LINK](#)

During the CIVID19 outbreak, it became so clear, that in the absence of vaccines, there was an absolute need of Personal Protection Equipment, (PPE). There was a great variety of all kind of masks, but did we know anything about differences and sorts but also huge shortage. It took us all to our surprise that there was so few, and what was available, so different form on other. Who could imagine that there would be such a great need of masks and facial protection. IN the first month with a dramatic shortage of equipment, we saw most of the time

1. The wrong of masks for the purpose, with an impressive of creative solution
2. The wrong use of the right materials.

In this chapter the basic essentials are touched what at the end requires knowledge and competence for all this working with PPE's and above all nurses, who also need to communicate professional and with competencies on this

The N95 or FFP2 masks are used when caring for patients that are suffering from airborne infections or during aerosol generating procedures. When a patient is suffering from an airborne infection, he/she is generating very fine aerosols that remain suspended in the air for long periods of time. These masks offer a higher filtration than the surgical masks and also they offer a tight fit to the face so that the healthcare worker is not exposed to these very fine aerosols that are generated by the patients during coughing for example or during aeresol generating procedures e.g. extubating, open suctioning. In the diagram below one can see the difference between the surgical mask and the N95 mask.

12.1 About standards and classification

There are 3 types masks that can be used when caring for patients with airborne infections or when performing aerosol generating procedures: the N95 (95%), N99 (99%) and N100 (99.97%) and the FFP1 (80%), FFP2 (95%) and FFP3 (99%). Although there are 3 classification, the explanation is almost similar but not the same. This needs as short introduction because some nations. Regions and hospitals provide the N types of classes while other the FFP types of classes.

12.1.1 The use of FFP's classes masks in healthcare

There is this 'EN 149' what is a European standard of testing and marking requirements for filtering half masks. Such masks cover the nose, mouth and chin and may have inhalation and/or exhalation valves. The EN 149 defines three classes of such particle half masks, called FFP1, FFP2 and FFP3. FFP stands for Filtering Face Piece and is according to their filtering efficiency.



12.1.2 The use of N95 classes masks in healthcare

The '95' in the N95 means the filter efficiency of the mask. One can find 3 types of mask with different filter efficiency. The N means not resistant to oil and also there is R which is somewhat resistant to oil and P which means strongly resistant to oil. There are 3 levels of masks refer to filter's oil resistance

12.1.3 The use of surgical masks in healthcare

These are mask with the lowest level of protection, but efficient enough for general use and effective when moving around in public spaces and general contacts. They are loose fitting, not severe tested, not really reliable for inhaling small particles and cheap and they are not reusable.

12.1.4 The use of cloth masks in healthcare and in the community

The use of cloth masks in healthcare is not recommended, as it does not offer the same filtration, fit and performance during use like the medical surgical mask. These masks can be used in the community however they need to wash with soap and water on a daily basis.

12.2 Education and choices on PPE's

It deserved a recommendation for any health professional to take time to learn about the differences and take a good look. It's also recommended to invite an expert of your local hospital to explain about the differences and overlaps. In addition, it's also recommended to discuss the availability of the PPE's and agree where and what kind of protection to use. And last, how to act on cleaning, taking care of it and disposing. They are of synthetic material and there for to dispose in a responsible way.

13 Sampling

Today more and more nurses are involved with collecting samples from body tissues in order to determine if there are infections and also what kind of microbes. This activity is expected to increase in the nursing profession, as it's expected that virus outbreaks will be a new direction in the health system. Only with careful monitoring and minimize spreading new outbreaks can be prevented. Also, it's important that society is aware of new infection, outbreaks in order to be in time with measures. Prior to the developments under this link guidelines on Sampling with a special feature on Nasopharyngeal swab specimen collection. This is an activity required to be educated and trained, because only with experience, this is done well. [Under this link techniques](#)

In the curriculum also sampling techniques will be included.

14 Doffing and donning

In PART-1 the main features are explained but in the education we need to go deeper in the subject, and also with examples. With better understanding, only then improvement of infection control can be achieved. And in addition, with an increase of nurses involvement, it also contributed to job satisfaction when things are done well and work as they should do.

More on this under this [link](#) (Youtube channel: Centers for Disease Control and Prevention (CDC))

15 Ventilation – negative pressure rooms

Spreading of aerosoles is one of the characteristic of microbes, the very small particles and using dust and small moisture. Ventilation in any hospital is crucial aspect of the health environment, especially because most hospitals have closed air systems. This means that windows are not able to open and in the hospital, there is a constant flow of air, to refresh and to clean. At basements there is impressive installations to secure clean air. It's a recommendation to have frequent a tour through the installation of the hospitals, for a good understanding of the installations, to secure all health providers work in a safe environment. But also to comprehend when this system fails. On this airflow, also for special infection rooms, there are airflow systems and especially for patient to be treated in isolation. To secure that contaminated air does not enter the ward, air from the room is evacuated into the system. This means that the contaminated room has a negative environment so that new air always come from the clean environment.

More on this under this [link](#) (Website: News Medical)

16 Bundle of care's

Summary of key elements of a care bundle.⁴

To some extent the BUNDLE of care phenomenon is relative new, although its origin is from 1992

Group of 3–5 evidence-based interventions related to a particular condition, or event in patient care that when executed together result in a better outcome than if implemented individually. Each intervention should be widely accepted as good practice and widely applicable and should be adhered to for every patient 100% of the time. It can be used to measure evidence based practice. Each step able to be audited, that is, done/not done/local exclusion. It is audit focused on organizational aspects of performing intervention rather than how well intervention performed. Only compliant with bundle when every intervention completed or a step is excluded for pre-defined reason

More information under this [link](#) (Website: International Society for Infectious Diseases (ISID))

4 <https://academic.oup.com/bjaed/article/12/4/199/275352>

17 About the ESNO Microbial Focus Group Program

17.1 About the program

The ESNO programme and vision about AMR acts in synergy with other activities related to infection prevention and control, vaccination and immunisation, and wider public health and health promotion activities, recognising the increasingly wide range of clinical, educational, research and leadership roles held by specialist nurses across Europe.

17.2 What have we learned

Over the past years, we observe that the health issues on AMR, Infection Prevention Control (IPC) and Vaccination cannot be addressed separately. They are overlapping each other, and when addressed well, they are complementary to each other. In education and training, this requires a separate approach and for good understanding in depth and scientific bases attention. But at the end, nothing can be well executed without an intergrated contextual approach.

17.3 What we are heading for

A future prove specialist nurses' competencies on AMR, IPC and Vaccination. We strive to continue positioning ESNO as one of the European and international nursing think-tank and advocacy organisations - shaping European nursing education and competencies, as well as influencing the policy landscape. We continue to work to equip nurses with the policymaking and communication skills and attitudes necessary to engage with politicians, decisionmakers and civil society on crucial topics such as drug-resistant infections, infection prevention and control, and immunisation. This cannot be reached in a few years but with a long-term vision and clear targeted outcomes with multi-stakeholders' engagement.

18 Acknowledgments

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We thank also those who advise us and provide valuable information

Elle Kuhlmann – EUPHA

Ted van Essen – Dutch Influenza Foundation

This guide is endorsed by

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This guide is made possible with sponsors

Design and layout



19 Nursing regulation

The nursing profession is a state of immense growth and reflects its role in clinical care but also in education, training management at all levels, both local, national and international.¹ In this context it's also crucial to understand that all nursing contributions need to be mentioned in the context of the nursing profession, also related to the competence building in relation to microbes, vaccination, anti-microbial resistance and infection prevention. In this context, it needs to be understood that education on this issue is an integrated part of the profession and needs to be in the context of Nurses Outcome Classification and Interventions Classification. This also applies to maintaining skills related to infection prevention, vaccination and antimicrobial resistance and the general knowledge about microbes and interventions.

19.1 Nursing diagnosis

A nursing diagnosis is a clinical judgment concerning a human response to health conditions/life processes, or vulnerability for that response, by an individual, family, group, or community. The foundation of nursing diagnosis is clinical reasoning, and it requires the ability to distinguish normal from abnormal data, cluster related data, recognize missing data, identify inconsistencies in data and make inferences. Donor suitability assessment involves the collection of subjective and objective information (e.g., vital signs, donor interview, physical exam) and review of historical information in the donor file. Nurses also collect information on strengths (to identify health promotion opportunities) and risks (areas that nurses can prevent or potential problems they can postpone).²

19.2 Nursing outcomes

Nursing diagnoses are used to identify intended outcomes of care and plan nursing-specific interventions sequentially. A nursing outcome refers to a measurable behaviour or perception demonstrated by an individual, family, group, or community that is responsive to nursing interventions. The Nursing Outcome Classification³ (NOC) is a system that can be used to select outcomes measures related to nursing diagnosis. NOC can also be used to determine staffing needs as nursing is the largest operational cost in health centers, so a small change in a staffing model has a large impact on financial outcomes.⁴

19.3 Nurses intervention

An intervention is defined as “any treatment, based upon clinical judgment and knowledge, that a nurse performs to enhance patient/client outcomes”. The Nursing Interventions Classification (NIC)⁵ is a comprehensive, evidence-based taxonomy of interventions that nurses perform across various care settings. Using nursing knowledge, nurses perform both independent and interdisciplinary interventions.

1 https://www.icn.ch/system/files/documents/2021-05/ICN%20Toolkit_2021_ENG_Final.pdf

2 Alfaro-Le Fevre R. Critical Thinking and Clinical Judgment. 3rd Edition. Saunders, editor. St. Louis; 2004.

3 <https://pubmed.ncbi.nlm.nih.gov/9610010/>

4 Eck Birmingham, S., Pickard, B., & Carson L. Leadership and nursing care management. In: D Huber (Ed.), editor. Staffing and scheduling. 5th ed. St. Louis: Elsevier Saunders; 2013. p. 367–86.

5 <https://pubmed.ncbi.nlm.nih.gov/8591448/>

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