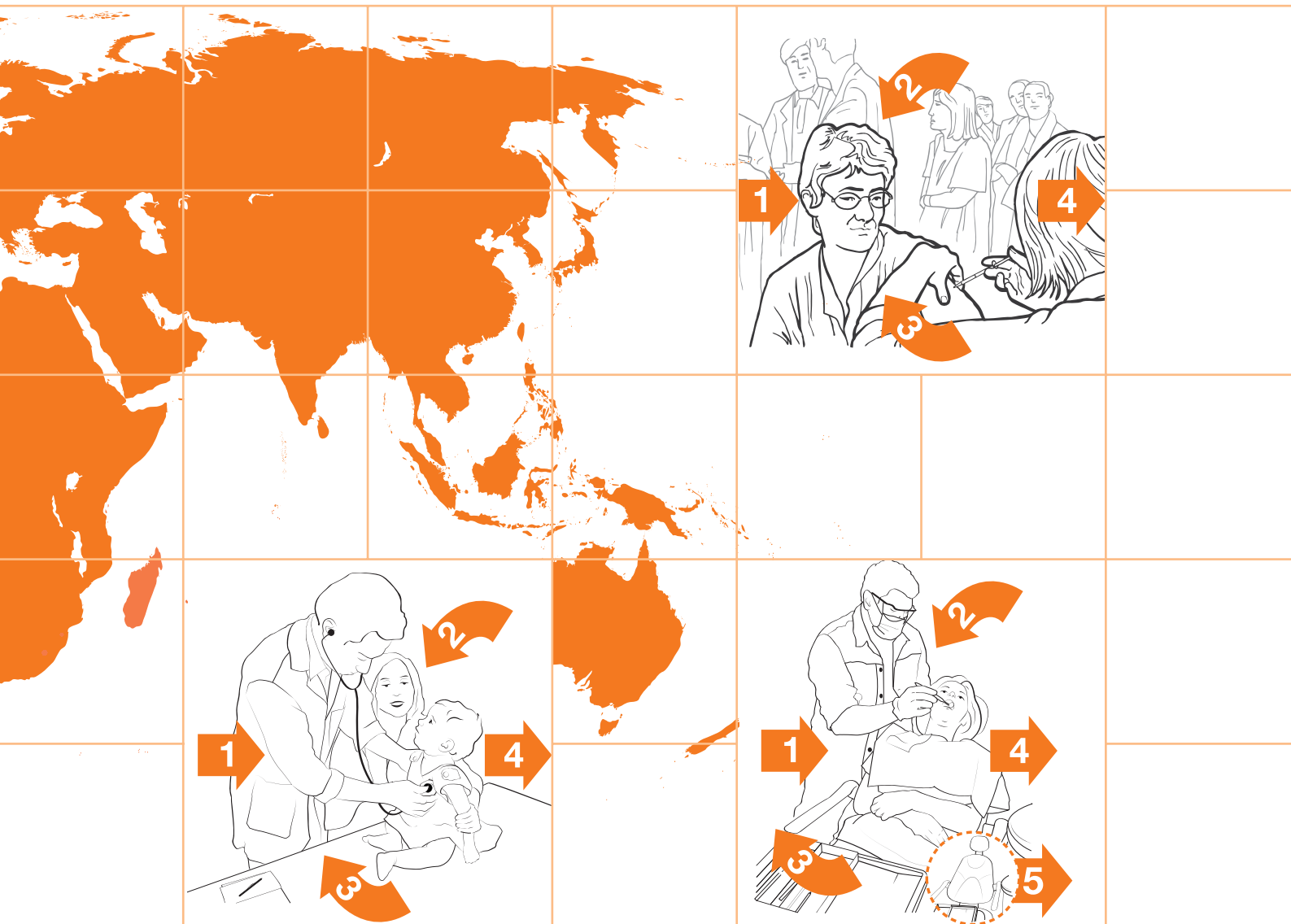


SAVE LIVES

Clean **Your** Hands

Hand Hygiene in Outpatient and Home-based Care and Long-term Care Facilities

A Guide to the Application of the WHO Multimodal Hand Hygiene Improvement Strategy and the “My Five Moments for Hand Hygiene” Approach



World Health
Organization

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Writers

Benedetta Allegranzi

WHO Patient Safety Programme, Geneva, Switzerland

Sepideh Bagheri Nejad

WHO Patient Safety Programme, Geneva, Switzerland

Marie-Noëlle Chraïti

WHO Collaborating Centre on Patient Safety,
University of Geneva Hospitals and Faculty of Medicine,
Geneva, Switzerland

Contributors

Yolanda Agra-Varela

Directorate General of Public Health, Quality
and Innovation, Ministry of Health, Social Services
and Equality, Madrid, Spain

María del Mar Fernández-Maïllo

Directorate General of Public Health, Quality
and Innovation, Ministry of Health, Social Services
and Equality, Madrid, Spain

Soledad Alonso-Humada

Almería Primary Healthcare District, Andalucía Region
Health Service, Almería, Spain

M. Carmen Gómez-González

Spanish Society of Primary Health Care Practitioners
(SEMERGEN), Badajoz, Spain

Béatrice Jans

Scientific Institute of Public Health, Brussels, Belgium

Ana Martínez-Rubio

Spanish Association of Primary Healthcare Pediatrics,
Sevilla, Spain

Jesús Molina-Cabrillana

Spanish Society of Preventive Medicine, Public Health
and Hygiene, Las Palmas de Gran Canaria, Spain

Maria Luisa Moro

Agenzia Sanitaria e Sociale Regionale Regione
Emilia-Romagna, Bologna, Italy

Fernando Pérez-Escanilla

Spanish Society of General Practitioners and Family
Doctors, Spain

Teresa Pi-Sunyer-Cañellas

External Consultant, Barcelona, Spain

Didier Pittet

WHO Collaborating Centre on Patient Safety
University of Geneva Hospitals and Faculty of Medicine,
Geneva, Switzerland

Christiane Reichardt

Institute of Hygiene and Environmental Medicine,
University Medicine Berlin, Charité, Germany

Lisa Ritchie

Health Protection Scotland, Glasgow, United Kingdom

Philip L Russo

Austin Health, Heidelberg, Victoria, Australia

Hugo Sax

Division of Infectious Diseases and Hospital
Epidemiology, University Hospital of Zurich, Switzerland

Luisa Torijano-Casaluenga

Spanish Society of Community and Family Medicine,
Talavera de la Reina, Toledo, Spain

Reviewers

Pilar Astier-Peña

Spanish Society of Community and Family Medicine,
Zaragoza, Spain

Barry Cookson

Health Protection Agency, London, United Kingdom

Nizam Damani

Craigavon Area Hospital, Portadown, Craigavon, United
Kingdom

Francisco Javier Hernández-Herrero

La Gomera Primary Healthcare, Canary Islands Health
Service, San Sebastian de La Gomera, Canary Islands,
Spain

Claire Kilpatrick

Health Protection Scotland, Glasgow, United Kingdom

Edward Kelley

WHO Patient Safety Programme, Geneva, Switzerland

Elaine Larson

Columbia University School of Nursing, New York, USA

Maribel Macián-Morro

Nursing Federation of Community and Primary Health
Care, Caravaca de la Cruz, Murcia, Spain

Shaheen Mehtar

Tygerberg Hospital and Stellenbosch University,
Tygerberg, Cape Town, South Africa

Andreas Voss

Canisius-Wilhelmina Hospitals and Radboud University
Nijmegen Medical Centre, Nijmegen, The Netherlands

Editor

Rosemary Sudan, Freelance editor

Design and figures

Common Sense, Athens, Greece

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ABBREVIATIONS

ABHRs	alcohol-based handrubs
ESBL	extended-spectrum beta-lactamases
HBV	hepatitis B virus
HCAI	health care-associated infection
HCV	hepatitis C virus
HCW	health-care worker
LCTF	long-term care facility
MRSA	methicillin-resistant <i>Staphylococcus aureus</i>
USA	United States of America
UTI	urinary tract infection
VRE	vancomycin-resistant enterococci
WHO	World Health Organization

INTRODUCTION AND ESSENTIAL NOTES FOR THE READER

The World Health Organization (WHO) recommendations on hand hygiene best practices and improvement strategies are considered the gold standard for health-care worldwide. Over the last six years they have been implemented in thousands of facilities as well as at national level in many countries. Although these recommendations and strategies have been developed primarily for the hospital setting, high interest in the possibility to implement them in primary care and other types of outpatient settings has arisen in recent years. Concurrently, several questions have emerged about the transmission and infection risks and the application of hand hygiene concepts in these settings. The available scientific evidence is limited and knowledge on the implementation of infection control solutions in such settings is at an early stage. Stimulated by this demand from the field, the WHO *Clean Care is Safer Care* team has taken up the challenge to develop this guidance document.

Key issues identified were: 1) the transmission and infection risk, especially hand transmission, in outpatient care settings; 2) hand hygiene practices in these settings; 3) adaptation of the *patient zone* and the WHO “My five moments for hand hygiene” approach; and 4) implementation of improvement strategies at the institutional level. Several methods were used to resolve controversies, bridge the gaps, and develop the concepts proposed in this document. The process has involved mainly reviews of the scientific literature, surveys involving international experts, consultation of country experts, and extensive peer review of the final draft. Although not all controversial issues could be entirely resolved, the approach proposed here for primary care and other outpatient settings is consistent with the WHO strategy and is based on expert consensus and feedback from some country representatives.

The document is divided into two main sections:

- 1) a conceptual part aimed at providing the background evidence and the theoretical principles related to the “My five moments for hand hygiene” approach and the WHO Multimodal Hand Hygiene Improvement Strategy, with adaptation to the reality of outpatient care settings;
- 2) a practical part with examples of the application of hand hygiene principles in situations occurring frequently in outpatient care settings. These practical examples are provided to help the reader to understand the need for hand hygiene in daily practice and to progressively adopt this approach during health-care delivery in real life situations. Infection control leaders at the national level and professionals at the facility level should facilitate the understanding and the adoption of these concepts by front-line health-care workers (HCWs). This includes estimating risks, establishing priorities and taking into

account the available resources and most frequent procedures undertaken locally. Additional practical tools for evaluation, education, and learning targeted at health-care providers in outpatient care settings are currently under development by WHO and should be used in association with this guidance document.

1. OBJECTIVES

The basic principles of infection control and hand hygiene are the same in all health-care settings across the world. However, outpatient care presents some specific challenges related to the application of the WHO “My five moments for hand hygiene”¹⁻³ approach and the implementation of the WHO Multimodal Hand Hygiene Improvement Strategy.^{1,4}

Based on the available scientific evidence and expert consensus and with particular reference to the WHO Guidelines on Hand Hygiene in Health Care,¹ this guidance document aims to:

- discuss the available evidence related to the risk of health care-associated pathogen transmission by hands during procedures typically carried out in outpatient settings;
- address considerations specific to these settings and provide practical explanations to understand the concepts for the implementation of the “My five moments for hand hygiene” approach¹⁻² and the WHO Multimodal Hand Hygiene Improvement Strategy^{1,4} in outpatient care;
- provide practical examples of typical care situations in these settings to facilitate the implementation of hand hygiene recommendations and obtain optimal compliance.

2. DEFINITIONS AND SCOPE

The scope of this document is to address practical aspects related to the performance of routine hand hygiene while providing outpatient care. This document does not address surgical hand preparation (please refer to the *WHO Guidelines on Hand Hygiene in Health Care*¹).

For the purpose of this guidance document, **outpatient care** is defined as any care service provided to patients who are **not admitted as inpatients to a hospital**.

Outpatient care facilities may be public, private, or nongovernmental institutions. A similar definition was recently used in the United States Centers for Disease Control and Prevention Guide to Infection Prevention in Outpatient Settings.⁵

Outpatient care includes **primary health care** settings*. According to the Declaration of Alma-Ata,⁶ these are usually the first level of contact of individuals with the national health system for general health problems or preventive medicine. A broader range of different or more specialized settings are included also in the concept of outpatient care.

Examples of outpatient care settings are hospital outpatient departments, polyclinics, specialized clinics (including ambulatory surgical care), accident and emergency polyclinics, general practitioners’ offices, community health posts, physical therapy and rehabilitation centres, diagnostic laboratories, and dental care. The scope of this document also includes **home-based care** and care provided in **long-term care facilities** (LTCF). Appendix I provides an extensive definition of long-term care according to WHO. In general, LTCF are communal living environments where care and accommodation are provided as a package by a public agency, a not-for-profit organization, or a private company, e.g. nursing/residential homes where elderly or disabled persons stay either temporarily (long- or short-term) or permanently. These facilities may differ according to the level of skilled nursing care provided and the type of residents cared for.

In outpatient settings, care can be dispensed for prevention and health promotion, palliative purposes, cure or rehabilitation, specialized assistance (e.g. dialysis units, oncology centres), or diagnosis.

Primary health care is a key focus of this document. This type of care can vary widely among countries and settings where it is dispensed. For example, the setting can be facilities such as general practitioners’ offices or specialist consulting rooms, rural health posts or outreach clinics, or primary healthcare centres. It can be a place where individuals consult for a wide range of health problems or just a few “priority diseases”. It could be a central point from which patients are guided through the health system, a stand-alone health post, or an isolated community health worker. These settings, especially in developed countries, may have multidisciplinary teams of professionals, such as doctors, nurse practitioners, therapists, laboratory staff, psychologists, and administrative staff, but the total staff workforce may be much smaller compared to inpatient facilities. By contrast, in low-/middle-income countries, these settings may be located in remote areas in the countryside and often understaffed. In some settings, care is delivered by a single qualified or trained healthcare worker with the support of non-health professional lay persons (e.g. community volunteers) and often the patient’s relatives.

*Primary health care is defined as the “First and basic level of healthcare, which guarantees the global assistance and the continuity of care throughout the patient’s life, acting as case manager and coordinator and controlling health-care demand. It will include activities directed towards health promotion and education, disease prevention, health-care provision, health preservation and recovery, as well as physical rehabilitation”.

3. TARGET AUDIENCE

This document concerns all individuals (usually health-care professionals, but also lay persons in some settings) providing health care in outpatient settings, LTCFs, or at home. The primary targets are front-line HCWs who provide care and need support and direction to achieve improvement in hand hygiene best practices. When available, professionals with expertise in infection control/hygiene are the most appropriate group to adapt and adopt the concepts provided in this Guidance document, to support and train their colleagues working at the point of care, and to identify local needs to achieve hand hygiene improvement in such settings. However, infection control professionals are lacking in most outpatient care settings around the world. For this reason, the concepts included in this document are expressed in the simplest way possible to enable these to be understood by any HCW. In addition, simple implementation and educational tools will accompany this Guidance document. The concepts included in section 5 and the practical examples provided in section 7 could also be useful to professionals in charge of monitoring hand hygiene compliance through direct observation. Furthermore, it is crucial to understand that decision makers (managers) are also a key target audience given their role to set priorities, allocate resources, and empower others. The implementation of the WHO Multimodal Hand Hygiene Improvement Strategy^{1, 4} in the outpatient setting requires decisions and actions in a number of areas. It is important that administrators and senior management leaders are actively involved in the process from the outset. Their role may vary and range from making key decisions in the planning process to being a role model for hand hygiene.

4. WHY IS HAND HYGIENE IMPORTANT IN OUTPATIENT CARE?

4.1 Transmission and infection risk in outpatient care settings

The risk of infection in the ambulatory care setting is commonly considered to be low. However, few investigators have evaluated systematically the occurrence and dynamics of transmission and infection in outpatient populations and current data are scanty and mostly out of date. The two main reasons for the lack of data are the difficulty to diagnose infections associated with health care given the patient's short stay in the outpatient setting and to distinguish these from community-acquired infections.

According to expert opinion reported in the scientific literature published in the 1990s, the available evidence indicated that the risk of health care-associated infection (HCAI) was substantially less than in hospitals.⁷ A review of the literature from 1960 to 1990 identified 53 reports documenting the transmission of HCAI in general medical consulting rooms, clinics, and emergency departments (23), ophthalmologists' rooms and clinics (11), dental surgeries (13), and alternative care settings (6).⁸ Identified transmission routes were common source (29), person-to-person (14), and airborne or droplet (10). The most frequent agents were *Mycobacterium* spp., hepatitis B virus (HBV), measles, rubella, and adenovirus.⁸⁻⁹ Reported outbreaks of HCAI in outpatient care were related mainly to invasive medical procedures. A recent observational, cross-sectional study conducted in Spain to identify adverse events in 48 primary care centres reported a total of 1074 events identified in 971 different healthcare consultations (6.7% of patients presented more than one event).¹⁰ Of these, 55.5% were related to medication; HCAI represented 7.4% of detected events, mostly surgical and/or trauma wound infection (5.1%). The estimated point prevalence of adverse events detected was 1.1%. Interestingly, 64.3% of non-HCAI adverse events and 78.9% of HCAI were considered as clearly preventable.

Due to longer life expectancy, social dynamics, and the development of rehabilitation care, an increasing number of individuals, notably the elderly, are nursed in LTCF and residential homes, especially in high-income countries. Accumulated evidence suggests that the elderly are at higher risk of infection compared to younger adults with a three- and 20-fold increased risk for pneumonia and urinary tract infection (UTI), respectively. Available studies indicate that HCAI prevalence in LTCF ranges between six and 10 per 100 residents.¹¹⁻¹² On average, any LTCF resident develops one to three infections per year, mainly UTI and pneumonia. It was reported also that the onset of infection

is the most common cause of hospital admission (26-50% of transfers to hospitals from LTCF) and death among residents in LTCF, mainly from pneumonia.¹¹⁻¹³ In many cases, HCAI is due to antimicrobial-resistant pathogens; in particular, several clusters and large outbreaks due to multi-drug resistant *Enterobacteriaceae* and to *Clostridium difficile* were reported in nursing homes and LTCFs over the last years.¹⁴⁻¹⁶ Furthermore, in some studies the proportion of residents colonized by methicillin-resistant *S. aureus* (MRSA) was found to be very high in these settings.¹⁷⁻¹⁸

Many factors leading to an increased risk of HCAI in LTCF have been identified: absence of infection control professionals and policies; nurse understaffing and underqualified employees; high staff turnover; inappropriate antibiotic therapy; infrequent physician visits; and a high frequency of social contacts enhancing cross-transmission. Additional identified risk factors for microbial colonization and infection are typical of the elderly population, such as malnutrition, immunosuppressed status, long-term urinary catheterization, feeding tubes, pressure ulcers, and chronic immobility.^{13, 1}

Available evidence of the burden of HCAI in these settings remains limited and further research is urgently needed to identify the extent of the problem and its implications for patient safety. More importantly, very few efforts have been made to adapt and implement infection control policies and recommendations in these settings and to take into account specific risk factors in the elderly, infrastructures and resources available in LTCF, type of care delivered, and transmission risks due to community living and social contacts.

4.2 Role of hands in microbial transmission in outpatient care settings

While HCWs' hands have been shown to play a crucial role in pathogen transmission in hospital settings,²⁰ it remains difficult to define the role of hand transmission in outpatient/primary care settings. Several studies conducted in these settings show that HCWs' hands are contaminated by potentially pathogenic microorganisms. From microbiological samples of doctors' hands collected in primary paediatric care settings and dermatology clinics, Cohen and colleagues isolated *Staphylococcus* spp. (85.4% and 84.6% of cases, respectively), *S. aureus* (56.4% and 69.2% of cases, respectively), and MRSA (9.1% and 7.7% of cases, respectively).²¹⁻²² Girier and Le Goaziou detected the presence of bacteria on general practitioners' hands, stethoscopes, and tension cuffs in 9% of collected samples.²³ Ophthalmologists' hands were found to be culture-positive for at least one resident and one transient organism in 97.2% and 22.2% of cases, respectively.²⁴

In a dialysis setting, hepatitis C virus (HCV) ribonucleic acid was retrieved in 23.7% of samples from the hands of HCWs caring for HCV-positive patients. It was also retrieved in 8% of samples of HCWs caring for HCV-negative patients ($p < 0.003$) and in 3.3% of samples from HCWs entering the dialysis unit before having any contact with patients. Patients' hands can be also contaminated or colonized. A study conducted among vancomycin-resistant enterococci (VRE)-colonized patients receiving haemodialysis as outpatients demonstrated that their hands were colonized with VRE (36%) and that haemodialysis chairs, outpatient consultation couches, and HCWs' gowns were contaminated by the same bacteria (58%, 48%, and 20%, respectively).²⁶ Similar results, although with different microorganisms, were found in outpatient settings providing care to cystic fibrosis patients.²⁷

Despite this evidence of hand contamination and colonization by potentially harmful microorganisms, very few reports of outbreaks in outpatient settings have identified hands as the transmission route of the causative microorganisms. This might be due in part to difficulties to establish that transmission is health care- and not community-related and to follow-up outpatients. Hands were considered one of the possible co-determinants of candidemia in an outbreak among paediatric patients receiving parenteral nutrition²⁸ and one case of tuberculosis otitis media.²⁹ Hand transmission was considered the first suspected determinant of community-acquired MRSA skin infections among HCWs in an outpatient clinic.³⁰ Finally, a nurse's artificial fingernails were identified as the cause of transmission in an outbreak of *Serratia marcescens* bloodstream infection in five patients who received dialysis via tunneled catheters.³¹

In LTCF, the risk of transmission of health care-associated microorganisms by hands is considered significant because many contacts with residents occur. However, the scientific evidence remains scanty. The only study that has investigated the role of hands in MRSA transmission in LTCF failed to prove a relation between patients' colonization and HCWs' hand colonization.³² A study conducted in 1992 in a nursing home demonstrated that appropriate hand hygiene and glove use prevented colonization of HCWs' hands by MRSA and *Clostridium difficile*.³³ However, this finding does not seem to be related to any outcome of infection or colonization in patients. As indirect evidence for transmission by hands, Loeb and colleagues suggest that appropriate structures for infection prevention and control and the presence of skilled professionals represent the first conditions for compliance with hand hygiene and protection from multidrug-resistant organisms. In a nursing home setting, they showed that an increase in the number of sinks per 100 residents was associated with a reduced risk of trimethoprim-sulfamethoxazole-resistant *Enterobacteriaceae*.³⁴

4.3 Hand hygiene practices in outpatient settings

The culture of infection prevention and control, including hand hygiene, does not seem to be well established among the highest priorities in outpatient care settings around the world. No specific international guideline on this topic is available; however the United States Centers for Disease Control and Prevention recently issued a dedicated document accompanied by an implementation checklist.^{5, 35} Although it does not include a section reviewing the potential transmission routes or the evidence highlighting the burden of HCAI in outpatient settings, hand hygiene is acknowledged to be critical to reduce the risk of spreading infection in these settings.

Several studies show that hand hygiene compliance, in particular among general practitioners and doctors working in paediatrics, dermatology and dialysis, is well below 50%.^{21-22, 36-38} For instance, in a multicenter study in dialysis units in Spain, hand hygiene compliance was only 13.8% before patient contact and 35.6% after patient contact, while gloves were used on 92.9% of these occasions.³⁶ However, the observation of hand hygiene practices was conducted using different methods in most studies and data are poorly comparable. The most relevant differences reside in the definitions of hand hygiene opportunities, the type of detected indications, and the different ways of calculating their number (more than one indication per opportunity can occur). Similar to the hospital setting, professionals working in outpatient settings perceive their hand hygiene performance as much closer to optimal than the reality and justify lack of compliance by lack of time or the fact that the patient is not infectious.³⁹⁻⁴⁰

A recent study highlights interesting findings on infection control practices in 68 ambulatory surgical centres in the USA.⁴¹ Observations focused on five areas of infection control: hand hygiene; injection safety and medication handling; equipment reprocessing; environmental cleaning; and handling of blood glucose monitoring equipment. Overall, 67.6% of centres had at least one lapse in infection control and 17.6% had lapses in greater than or equal to three of the five infection control categories. Common lapses were handling of blood glucose monitoring equipment (46.3%), using single-dose medication vials for more than one patient (28.1%), and failing to adhere to recommended practices for equipment reprocessing (28.4%). The proportion of lapses in hand hygiene performance before and after the surgical procedure was 17.7%, which is relatively high considering that hand hygiene is a cornerstone for the prevention of surgical site infection.

A few studies have investigated HCWs' hand hygiene practices in LTCF. Although in some cases compliance rates are reported to be relatively higher than those in acute care

hospitals, a meaningful comparison is not possible due to different methods used in different studies. In an observational study conducted in two rehabilitation hospitals, hand hygiene compliance according to the WHO “My five moments for hand hygiene” approach was 70.8%.⁴² Girou reported 60.8% compliance in five clinical wards of a rehabilitation hospital and a strong association was found between hand hygiene adherence and MRSA prevalence.⁴³ In a multicentre study including one LTCF, the highest compliance rate was observed in the LTCF (38%) compared to other types of facilities.⁴⁴ In Italy and in Canada, hand hygiene compliance in LTCFs settings was reported to be as low as 17.5% and 14.7% respectively.^{45,46} In a university-based LTCF, HCWs washed hands before a patient interaction (including oral feeding, bathing, transfer, urinary tract care, dispensing of oral medication, wound care, soiled linen change, or gastronomy care) in 27% of cases, 0% during an interaction, and 63% after an interaction.⁴⁷

Despite the lack of evidence of a direct relation between HCWs’ hand contamination and HCAI in LTCF, multimodal interventions leading to improvements in hand hygiene compliance, infrastructure, and HCWs’ knowledge have demonstrated their significant impact on HCAI. Two key studies reported an increase of compliance (from 25.8% to 33.3% and from 9.3% to 30.4%, respectively) and a significant decrease of HCAI.⁴⁸⁻⁴⁹ Another case-control study compared units where a hand sanitizer was introduced with those where it was not available and showed a 30.4% decrease in infection rates in units where hand sanitizer was used over a 34-month period.⁵⁰

In conclusion, although reports and scientific data are limited and many research questions remain unanswered, it is clear that hand and environmental contamination play a significant role in microbial transmission and determine the risk of infection in outpatient care. In addition, there has recently been a significant shift in health-care delivery and an increasing number of procedures are now performed in ambulatory or home-based settings, especially in high-risk patients (e.g. patients in dialysis and oncologic patients). It is important also to consider the growing evidence of the circulation of typically nosocomial, multidrug-resistant microorganisms within the community. For instance, there has been an increasing number of community-onset MRSA infections over the past decade, as well as an intensified circulation of hospital-acquired MRSA isolates in the community.⁵¹ Community-onset extended-spectrum beta-lactamase (ESBL)-producing *Escherichia coli* infections, in particular severe UTI, have also recently emerged and disseminated worldwide.⁵² HCWs’ hands play a prominent role in the transmission of these bacteria.

Few data exist to allow an accurate assessment of the overall and specific risk of transmission and HCAI in outpatient

settings, especially in primary care. For this reason, the strength of recommendations related to infection control practices, including hand hygiene, is difficult to establish in some contexts. Recommendations should take into account the basic principles of infection control applied at the hospital level based on expert consensus. Key aspects driving the evaluation of the need for hand hygiene and other infection control practices are the transmission risk according to the procedure and the infectious agent transmissibility, infection risk for the patient and HCW, the patient’s known or suspected colonization status and susceptibility based on underlying conditions, and the usual circumstances and frequency and duration of the procedure.

5. APPLICATION OF THE “MY FIVE MOMENTS FOR HAND HYGIENE” APPROACH IN OUTPATIENT CARE

5.1 The patient zone and health-care area concepts in outpatient settings

Five essential moments (indications) when hand hygiene is required during health-care delivery have been identified by WHO (Figure 1).

FIGURE 1

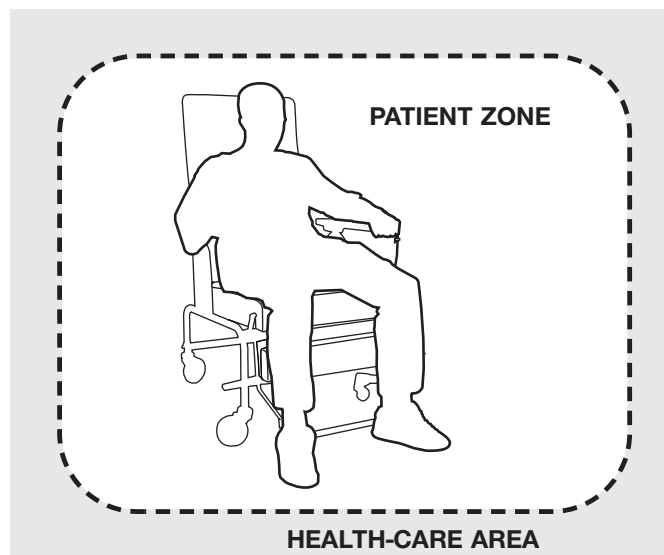
Illustration of the “My Five Moments for Hand Hygiene” concept



The application of the “My five moments for hand hygiene”¹⁻³ approach requires an understanding of the key concepts of **patient zone**, **health-care area**, and **critical sites** as each of the five hand hygiene indications (“Moments”) is defined by the consecutive contacts with the surfaces contained in and between these “geographical” areas.³ These concepts have been implemented worldwide in settings where the patient is admitted as an inpatient to a hospital or other health-care facility. The **patient zone** is defined as including the patient and some surfaces/items in his/her surroundings that are temporarily and exclusively dedicated to him/her (i.e. all inanimate surfaces touched by or in direct physical contact with the patient and touched by the HCW while providing care), including the patient’s personal belongings.¹⁻³ The microbiological rationale behind this concept is the fact that the immediate environment of the patient and any dedicated device become contaminated with the patient flora by direct contact or microbiological shedding (Figure 2).

FIGURE 2

Illustration of the “patient zone” and the “health-care area” concepts



Within the *patient zone*, specific sites, so-called **critical sites**, are associated with the risk of infection. They correspond either to body sites or to medical devices that have to be protected against pathogens (*critical sites with infectious risk for the patient*), or body sites or medical devices that potentially lead to hand exposure to body fluids and bloodborne pathogens (*critical sites with body fluid exposure risk*). Both risks can occur simultaneously. These sites are vulnerable points for the patient with reduced defense against microbiological invasion and, at the same time, they often represent a risk for HCWs’ exposure to body fluids. The patient’s skin and surroundings are colonized/contaminated by the patient’s own flora, thus characterizing the specificity of the *patient zone* and making it a distinct entity from the *health-care area*.

The **health-care area** corresponds to all physical surfaces outside the *patient zone*, including other patients and their *patient zones*, and the wider health-care environment. In most settings, the *health-care area* is characterized by the presence of many different microorganisms, including multi-resistant pathogens, even if appropriate cleaning is performed. As far as hand hygiene performance is concerned, the geographical distinction between the *patient zone* and *health-care area* helps prevent microbial transmission between patients and health-care environment contamination. An additional concept critical to the understanding of hand hygiene requirements is the term *point of care*. Hand hygiene must be performed in association with patient contact and care procedures.



The *point of care* is exactly where the care action takes place and is defined as “the place where three elements come together: the patient, the HCW, and care or treatment involving contact with the patient”.³

More details on these concepts can be found in the WHO Guidelines on Hand Hygiene in Health Care¹ and the WHO Hand Hygiene Technical Reference Manual.³

In outpatient settings, particularly in primary care situations, the understanding of these concepts needs special consideration. For instance, regarding the *patient zone* concept explained above, in several cases no specific space and items are temporarily (over a conceivable time period) dedicated to a patient exclusively in outpatient settings. In these situations, the patient's access to health care is usually limited to a short period of time and the space allocated to care delivery accommodates numerous successive patients. In addition, the time required for actual contamination of the surroundings by the patient's flora remains almost unknown. Under these conditions, the *patient zone* concept coincides just with the patient him/herself. However, the concept of the *patient zone* as a geographical area, according to the above definition and including the patient surroundings, applies in some outpatient settings where the patient is placed for a certain time in a dedicated space with dedicated equipment (e.g. dialysis settings, rooms for chemotherapy administration, labour and delivery rooms).

The *patient zone* concept applies also in **home care**. In this setting, the *patient zone* corresponds to the patient (his/her intact skin and clothes) and the home environment, which is contaminated mainly by the patient's flora. Any care items and transportation containers brought by the HCWs represent the *health-care area*. The *point of care* is where the procedure takes place.

The application of the *patient zone* concept and the identification of hand hygiene requirements in **LTCFs** are particularly challenging. In specialized nursing homes where residents are mentally or physically disabled and mainly cared for in a dedicated space with dedicated equipment, these concepts and recommendations should be applied in the same way as for hospitals. In the case of residential facilities where residents are semi-autonomous and live in a community, they may have their own room or shared accommodation, but they also move within the home facility. In these settings, the hand hygiene recommendations provided in this document are related only to situations where health care is delivered to residents (e.g. rehabilitation sessions, vital signs check), i.e. at the *point of care* (where the care procedure takes place). Of note, the hand hygiene recommendations included in this document do not cover any social contacts with or among LTCF residents unrelated to health-care delivery.

In outpatient settings, it is of the utmost importance for HCWs to understand that the health-care environment is contaminated by germs brought by patients, HCWs and

others. Evidence shows also that microorganisms circulating within the community can carry harmful resistance patterns, especially community-acquired MRSA and ESBL-producing *Enterobacteriaceae*.⁵¹⁻⁵²



Health-care environmental contamination represents a transmission risk, particularly through HCWs' hands, that must be taken into account in each situation requiring hand hygiene performance. For this reason, maximum attention should be paid to the cleaning of the environment and to the cleaning, disinfection and/or sterilization of critical, semi-critical, and non-critical items in outpatient settings according to local and international recommendations.^{5, 35, 53-54}

To help focus on hand hygiene when critically needed, the HCW should identify the *point of care* within the *patient zone* as the focus for hand hygiene and where it must be performed, especially at five specific moments. The "My five moments for hand hygiene" approach is detailed in the next section with some wording adaptation to ensure a better understanding in the context of outpatient care. While the basic concept does not change, the great variety of patient surroundings must be considered according to the above explanations.

5.2 The "My five moments for hand hygiene" approach in outpatient care

According to the WHO "My five moments for hand hygiene" approach,¹⁻³ the hand hygiene indications recommended by the WHO Guidelines on Hand Hygiene in Health Care¹ correspond to five essential moments when hand hygiene is required during health-care delivery. Direct and indirect (via an intermediate object or body fluid) contact with the patient justifies the need for one or more hand hygiene indications preceding and following the contact to prevent transmission to the patient, the HCW, or the *health-care area*.

The most frequent types of contact are:

- contact with the patient's intact skin;
- contact with mucous membranes, non-intact skin, or an invasive medical device corresponding to a *critical site* as far as the *risk for the patient* is concerned (e.g. vascular access). This type of *critical site* must not be inoculated with any kind of exogenous or endogenous germ when performing care procedures;
- potential or actual contact with a body fluid that corresponds to a *critical site* as far as the *risk for the HCW* is concerned (e.g. a blood drawing site), including contact with mucous membrane and non-intact skin (*critical sites at risk for exposure to body fluids*); these may contain germs and their spread to other areas should be prevented. The risk of germ transmission must be

considered each time that a *critical site* is involved in a care activity;

- contact with objects in the patient surroundings when surfaces/items are temporarily and exclusively dedicated to a patient in an outpatient setting. Surfaces/items in these areas should be cleaned and/or disinfected between patients, in particular in high-risk settings/situations (e.g. dialysis, oncology centres).^{5, 35, 53-54}

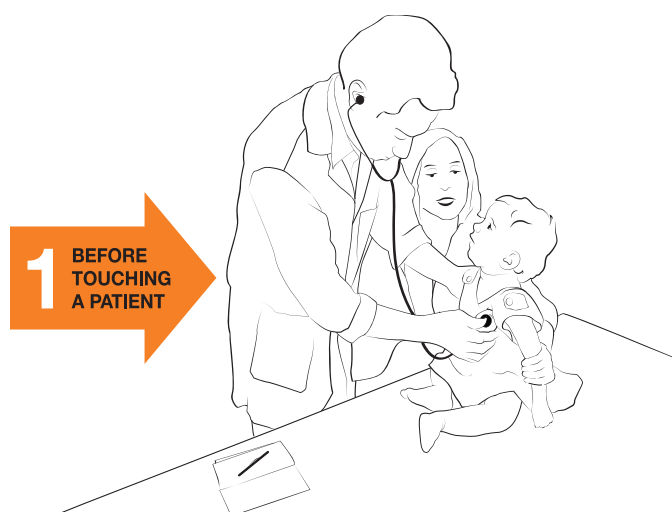
Indication (Moment) 1 Before touching a patient

When: before touching a patient. This indication is determined by the occurrence of the last contact with the *health-care area* and the next contact with the patient.

Why: to prevent germ transmission from the *health-care area* to the patient through HCWs' hands. Ultimately, to protect the patient from colonization and against exogenous infection by harmful germs in some cases.

FIGURE 3

Example of Moment 1 occurrence in a paediatric consultation



Indication (Moment) 2 Before a clean/aseptic procedure (on a critical site with infectious risk for the patient)

When: immediately before accessing a critical site with infectious risk for the patient. This indication is determined by the occurrence of the last contact with any surface in the *health-care area* and *patient zone* and any clean/aseptic procedure involving any direct/indirect contact with mucous membranes, non-intact skin, or an invasive medical device.

Why: to prevent germ transmission to the patient and from one body site to another in the same patient, and from the *health-care area* to the patient through inoculation.

FIGURE 4

Example of Moment 2 occurrence during dental care



Notes

If there is an indication for glove use to perform a clean/aseptic procedure (see *Glove use information leaflet*⁵⁵), they should be donned following hand hygiene performance immediately before the procedure. Subsequently, hand hygiene should be performed again according to opportunities occurring during the sequence of care activities; gloves should be changed if the need for gloves continues. This indication (Moment 2) is not defined by a sequence of health-care actions, but by direct or indirect contact with mucous membrane, damaged skin, or an invasive medical device.

Indication (Moment) 3
After body fluid exposure risk

When: as soon as the procedure involving exposure risk to body fluids has ended (and after glove removal). This indication is determined by the occurrence of contact (even if minimal and not clearly visible) with blood and body fluids and the next contact with any surface, including the patient, the patient surroundings, or the *health-care area*.

Why: to protect the HCW from colonization or infection with the patient's germs and to protect the health-care environment from germ contamination and potential subsequent spread.

Indication (Moment) 4
After touching a patient

When: after having touched the patient, usually at the end of the encounter or when the encounter is interrupted. This indication is determined by the occurrence of a contact with the patient's intact skin or clothing and the next contact with a surface in the *health-care area*.

Why: to protect the HCW from colonization and potential infection by patient germs and to protect the environment in the *health-care area* from germ contamination and potential spread.

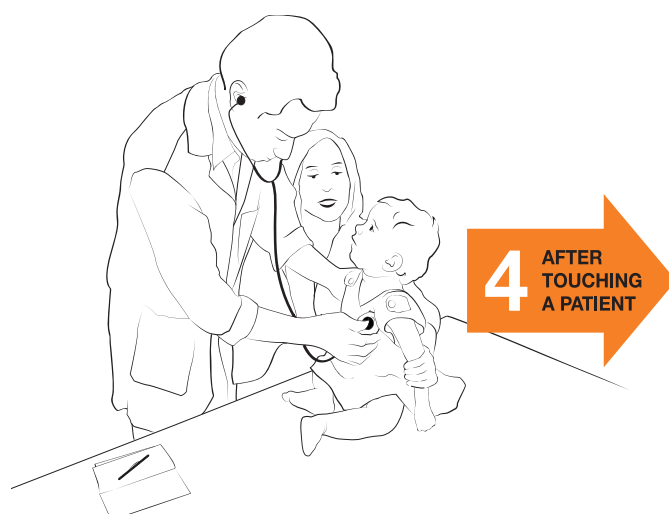
FIGURE 5

Example of Moment 3 occurrence during haemodialysis in ambulatory care



FIGURE 6

Example of Moment 4 occurrence in a paediatric consultation



Notes

If the HCW is wearing gloves at the time of exposure to a body fluid, they must be removed immediately after and hand hygiene must be performed. If the procedure is repeated on different patients in a sequence and glove use is indicated (see *Glove use information leaflet* ⁵⁵), gloves should be changed between patients and hand hygiene performed. In some cases, gloves should be changed between sites within the same patient (e.g. two different wounds at two different body sites or between oral and wound care).

Indication (Moment) 5

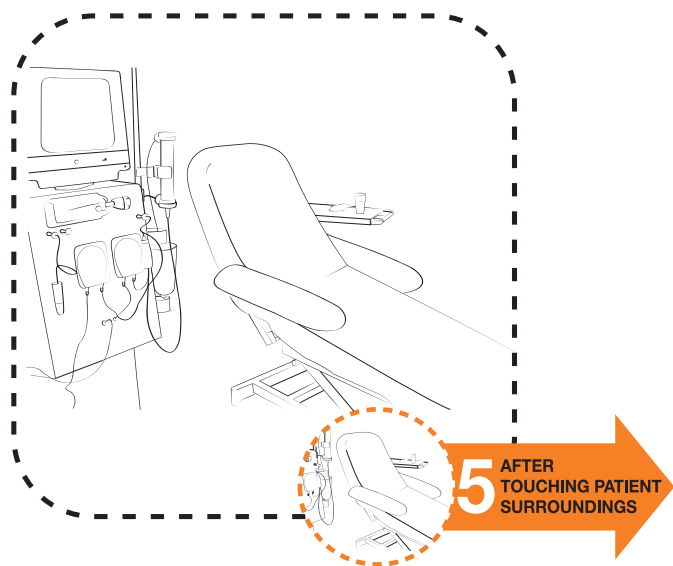
After touching patient surroundings

When: after touching any object or furniture (without having touched the patient) within the patient surroundings when a specific *zone* is temporarily and exclusively dedicated to a patient in the context of outpatient care. This indication is determined by the occurrence of the last contact with inert objects and surfaces in the patient surroundings (without having touched the patient) and the next contact with a surface in the *health-care area*.

Why: to protect the HCW against colonization by patient germs that may be present on surfaces/objects in patient surroundings and to protect the health-care environment against germ contamination and potential spread.

FIGURE 7

Example of Moment 5 occurrence after a haemodialysis session in ambulatory care



Notes

- This indication applies in outpatient settings especially when the patient is placed, for a certain amount of time, in a dedicated space with dedicated equipment (e.g. dialysis and dental care settings, rooms for chemotherapy administration, labour and delivery rooms). In this case, the surfaces and items in the patient surroundings will become contaminated and therefore require cleaning and decontamination, according to international recommendations, once the patient has left.
- From the perspective of the observer monitoring hand hygiene practices, indications 4 (after touching a patient) and 5 (after touching patient surroundings) should never be combined, since indication 5 excludes contact with the patient and indication 4 applies only to after patient contact.

6. APPLICATION OF THE WHO MULTIMODAL HAND HYGIENE IMPROVEMENT STRATEGY AND THE ACCOMPANYING TOOLKIT IN OUTPATIENT CARE

Successful and sustained hand hygiene improvement is achieved by implementing multiple actions to tackle different obstacles and behavioural barriers.⁵⁶ Based on the evidence and recommendations from the WHO Guidelines on Hand Hygiene in Health Care,¹ the following components comprise an effective multimodal strategy for hand hygiene: system change; education and training; evaluation and feedback; reminders in the workplace; and an institutional safety climate. The WHO Multimodal Hand Hygiene Improvement Strategy⁴ has been proposed to translate into practice the WHO recommendations on hand hygiene. The strategy and its implementation toolkit were tested in a broad range of inpatient settings with excellent results in terms of feasibility and improvement of hand hygiene practices, infrastructure, HCWs' knowledge and perceptions, including senior administrative managers' perceptions of the importance of the HCAI burden and hand hygiene.¹ Implementation demonstrated that each individual component, as well as their integration into the overall strategy, is essential for success. The following sections explain the key features of each strategy component and provide considerations regarding their implementation and adaptation in outpatient settings.

6.1 System change



System change refers to a systematic approach to ensure that the health-care facility has the necessary infrastructure (equipment and facilities) in place to allow HCWs to perform hand hygiene. System change is a particularly important priority for health-care facilities starting out on their journey of hand hygiene improvement activities, based on the assumption and expectation that the entire necessary infrastructure is put in place promptly. It is also essential that health-care facilities regularly revisit the infrastructure already in place to ensure that hand hygiene facilities are maintained to a high standard on an ongoing basis.

The introduction of alcohol-based handrubs (ABHRs) at the *point of care* overcomes some important barriers to best hand hygiene practices, such as lack of time, lack of facilities and optimal agents, poor tolerability of hand hygiene products, or the inconvenient location of sinks and dispensers. ABHRs should be used as the preferred means for routine hand hygiene in healthcare,^{1,57} including outpatient settings, for the following reasons: their broad antimicrobial spectrum compared to other agents; shorter time (20-30 seconds) for effective antimicrobial decontamination; better skin tolerability; and their potential

for higher accessibility at the *point of care*. ABHRs should be available at each *point of care* (see Section 5), either located in wall dispensers or bottles on trolleys and/or carried by HCWs in pocket bottles. The availability of ABHR in wall dispensers in patient waiting areas and/or at the entrance of the outpatient setting offers an ideal solution to prevent the transfer of harmful health care-associated germs directly into the community, provided that their use is accompanied by patient information.

When selecting an ABHR agent, either for initial procurement or when reconsidering the adequacy of products already available, it is important to use precise criteria to achieve successful system change:⁵⁸⁻⁵⁹

- 1) relative efficacy of antiseptic agents (see Part I.10 of the WHO Guidelines on Hand Hygiene in Health Care) according to ASTM international and European norm (EN) standards for hygienic hand antisepsis and surgical hand preparation;
- 2) good skin and dermal tolerance;
- 3) cost issues;
- 4) time for drying (products that require longer drying times may affect hand hygiene best practice);
- 5) aesthetic preferences of HCWs and patients (fragrance, colour, texture, "stickiness") and ease of use;
- 6) practical considerations, such as availability, convenience and functioning of the dispenser, and ability to prevent contamination.

When evaluating these criteria locally, HCWs should be involved in the discussion and decision-making process, as well as in reporting any malfunction or situation potentially leading to contamination. ABHR products can be purchased from the commercial market by applying the above criteria for their selection or can be locally produced according to the WHO-recommended formulations⁶⁰ in a centralized facility for further distribution to outpatient settings in the area.

If ABHRs are already available, it does not mean necessarily that system change is entirely achieved. In these settings, the focus should be on evaluating if the type of dispensers used and their location ensure appropriateness and ease of access, as well as monitoring their actual use and acceptance by HCWs. Of note, recourse to hand washing is still required in some specific situations (when hands are visibly dirty or visibly soiled with blood or other body fluids, after using the toilet, or if exposure to potential spore-forming pathogens is strongly suspected or proven). Therefore, the availability of an adequate number of sinks (at least one per room where care and equipment or waste handling take place and in toilets)⁶¹ with safe running water and continuously equipped with soap and disposable towels should be ensured in outpatient care settings. All these three elements are required to allow best hand washing practices.

Any deficiencies should be dealt with promptly and the infrastructure for hand washing improved. In many parts of the developing world, health-care institutions may not have piped-in tap water or it may be available only intermittently. On-site storage of sufficient water is often the only option in sites without a reliable supply. However, such water is known to be prone to microbial contamination unless stored and used properly and may require point-of-use treatment and/or on-site disinfection.¹ Among other advantages, this is one of the reasons why the provision of ABHRs is of the utmost importance as it could overcome this obstacle to hand hygiene improvement.

6.2 Training and education



HCWs' education is one of the cornerstones for the improvement of hand hygiene practices.⁶² It is recommended that hand hygiene and other critical infection control concepts be included early on in the curricula of university medical faculties and nursing schools.⁶³ All HCWs in outpatient settings, particularly those with direct patient contact, require continuous training on the importance of hand hygiene, the "My five moments for hand hygiene" approach,¹⁻³ and the correct techniques for hand washing and hand rubbing.⁶⁴⁻⁶⁵

Education is a vital strategy element, which integrates strongly with all other strategy components. Without appropriate practical training, it is unlikely that system change will lead to behavioural change with the adoption of ABHRs and sustained improvement in hand hygiene compliance. Any evaluation and feedback activities on local hand hygiene practices or HCWs' knowledge should use indicators based on the concepts targeted by education to help HCWs understand their shortcomings. In addition, most types of reminders (e.g. posters) should be designed to call attention to key educational messages. Finally, building a strong and genuine institutional safety culture is inherently linked to effective educational interventions. Although essential conditions for training, such as the availability of infection control expertise, appropriate facilities, and a dedicated budget and time during working hours might require to be established and/or optimized in outpatient settings, the health authorities and institution should commit openly to staff education and identify feasible ways for its delivery.

Many different techniques can be used for training and the most appropriate ones should be identified based on local opportunities and local organization of work. Formal presentations could be given by trainers, including practical demonstrations and examples of how and when to perform hand hygiene according to the "My five moments for hand hygiene" approach. Ideally, the trainer should have a basic knowledge of infection control and experience of educational

techniques and health-care delivery. In settings where there is no time or resources for educational sessions, adequate educational supports on hand hygiene should be provided to HCWs. Although more sophisticated to develop, e-learning modules are a good option, provided that HCWs have easy access to computers. Educational supports and documents should include the following concepts: definition, impact and burden of HCAI; major patterns of transmission of health care-associated pathogens with a particular focus on hand transmission; hand hygiene basic concepts including why, when, and how to perform hand hygiene according to the WHO Guidelines on Hand Hygiene in Health Care¹ and accompanying tools. If any hand hygiene direct observation is planned for monitoring, additional sessions should be dedicated exclusively to observers to learn the proposed observation method and to practice its use (see also section 6.3).

Other methods to transfer knowledge among HCWs are focus and discussion groups, problem-solving approaches, experiential and interactive learning, flip charts, videos, and buddy systems (i.e. HCWs are paired together for peer support and asked to observe each other and give feedback to their colleague on his/her practices).⁶² Training on the appropriate techniques for hand hygiene illustrated by practical examples of the "My five moments" concept is particularly important. The WHO hand hygiene training films⁶⁶ and other similar ones⁶⁷ are a valuable ready-to-use support for the practical training of appropriate techniques. Staff within health-care facilities can change frequently and existing staff have the pressure of remembering a number of standards they must meet during their daily activities. For this reason, training activities should be repeated (at least annually) to include newly recruited staff and to update knowledge for other HCWs. Ideally, facilities should consider implementing a system of checking on the competence of all HCWs who have received hand hygiene training.

6.3 Evaluation and feedback



Evaluation and repeated monitoring of a range of indicators reflecting hand hygiene infrastructures and HCWs' hand hygiene compliance, knowledge, and perception is a vital component of the WHO Multimodal Hand Hygiene Improvement Strategy.⁴ It remains an essential step in identifying areas deserving major efforts and in feeding crucial information into the action plan for the local implementation of the most appropriate interventions.

For instance, perception questionnaires can provide elements to understand risk factors for poor hand hygiene performance and subjective evaluation of HCWs' compliance; knowledge tests can indicate gaps to be

targeted by education. After baseline assessment of the local situation regarding hand hygiene, regular monitoring is very helpful to measure and demonstrate the changes induced by implementation (e.g. ABHR consumption trends). It can help also to ascertain whether promotion activities have been effective in improving hand hygiene performance, perception, and knowledge among HCWs, and in reducing HCAI.

Feedback of the results of these investigations is an integral part of evaluation and renders the evaluation meaningful. For example, in a facility where the hand hygiene improvement programme is being implemented for the first time, data indicating gaps in good practices and knowledge, or a poor perception of the problem, can be used to raise awareness and convince HCWs of the need for improvement. Follow-up data to HCWs are crucial after implementation of hand hygiene promotion to demonstrate improvement, sustain the motivation to perform good practices, and to make continuous individual and institutional efforts. These data are also very useful for identifying areas where further efforts are needed and for informing action plans. In facilities where hand hygiene promotion is permanently in place following the initial implementation period, the WHO Multimodal Hand Hygiene Improvement Strategy requires at least annual cycles of evaluation to achieve sustainability. Survey results can be disseminated either in written reports or other means of internal communication or presented during educational and data feedback sessions, but it is up to each facility to decide how best to communicate the results.

The method proposed by WHO⁶⁸ for hand hygiene observation in the hospital setting should be used also in outpatient facilities.^{1,3} Modifications of some variables have been made in the WHO observation form to better match the reality of outpatient settings. In particular, high-risk settings (e.g. dialysis or ambulatory surgical clinics) should ideally monitor compliance with hand hygiene required in all five indications (moments). In other settings (e.g. primary care settings), if monitoring all five indications is unfeasible, the focus could be narrower and it would be worthwhile to concentrate on one or two indications by including only one or two moments in the observation form (see available tools at <http://www.who.int/gpsc/en/>).

In outpatient settings, constraints linked to the monitoring of hand hygiene indicators and practices are likely to exist. First, no professional is usually dedicated in most cases to risk assessment, infection control and/or quality improvement, and therefore has the time and expertise to undertake monitoring activities. Second, feedback channels may not be the same as in hospitals. In particular, HCWs are unlikely to be used to receiving feedback; they may lack time availability and find it difficult to integrate the culture

of monitoring. Observations may also be perceived as intrusive when the patient encounters one professional only (e.g. a doctor in his/her office).

Under these conditions, ABHR and soap consumption monitoring could provide a surrogate estimation of hand hygiene compliance and help overcome constraints due to lack of human resources and expertise. According to expert consensus, the denominator for product consumption calculation should be the number of patient consultations per day. When at least two professionals work together in an outpatient setting, monitoring and feedback of hand hygiene practices could be undertaken by using a buddy system. A large variety of automatic monitoring systems of dispensers or sink station use are under development with some currently under testing and others already in use in inpatient settings.⁶⁹⁻⁷⁷ Adaptations to outpatient settings are undoubtedly feasible and promising considering potential constraints to direct observation. However, these are costly and may not be an option in settings with limited resources.

6.4 Reminders in the workplace



Reminders in the workplace are key tools to prompt and remind HCWs about the importance of hand hygiene and the appropriate indications and techniques for hand hygiene. For patients, reminders are means of informing them of the standard of care that they should expect from their HCWs with respect to hand hygiene, and educating them to perform hand hygiene when entering and leaving the outpatient facility.

Posters are the most common type of reminder; new images have been developed to visualize the “My five moments for hand hygiene” concept in some common situations of outpatient care (Figures 8-12). WHO posters with these images were created for outpatient care settings; posters illustrating the correct procedure to perform handrubbing and handwashing are also available (at <http://www.who.int/gpsc/en/>).

As many other posters are usually displayed on walls in primary care settings, making other types of reminders available could be particularly important to capture HCWs' and patients' attention on hand hygiene. For example, pocket leaflets that individual HCWs can carry in their pockets, stickers posted at the *point of care*, special labels including prompting slogans stuck on alcohol-based handrub dispensers, and gadgets such as badges with the hand hygiene logo. Reminders, in particular posters and stickers, should be placed at the *point of care* beside ABHR dispensers and sinks. While maintaining a focus on WHO key technical concepts, reminders' adaptation with text, images, and visual style more appropriate for the local culture should be encouraged.

FIGURE 8

WHO poster on indications for hand hygiene in a vaccination campaign situation

Your Moments for Hand Hygiene

Vaccination Campaign

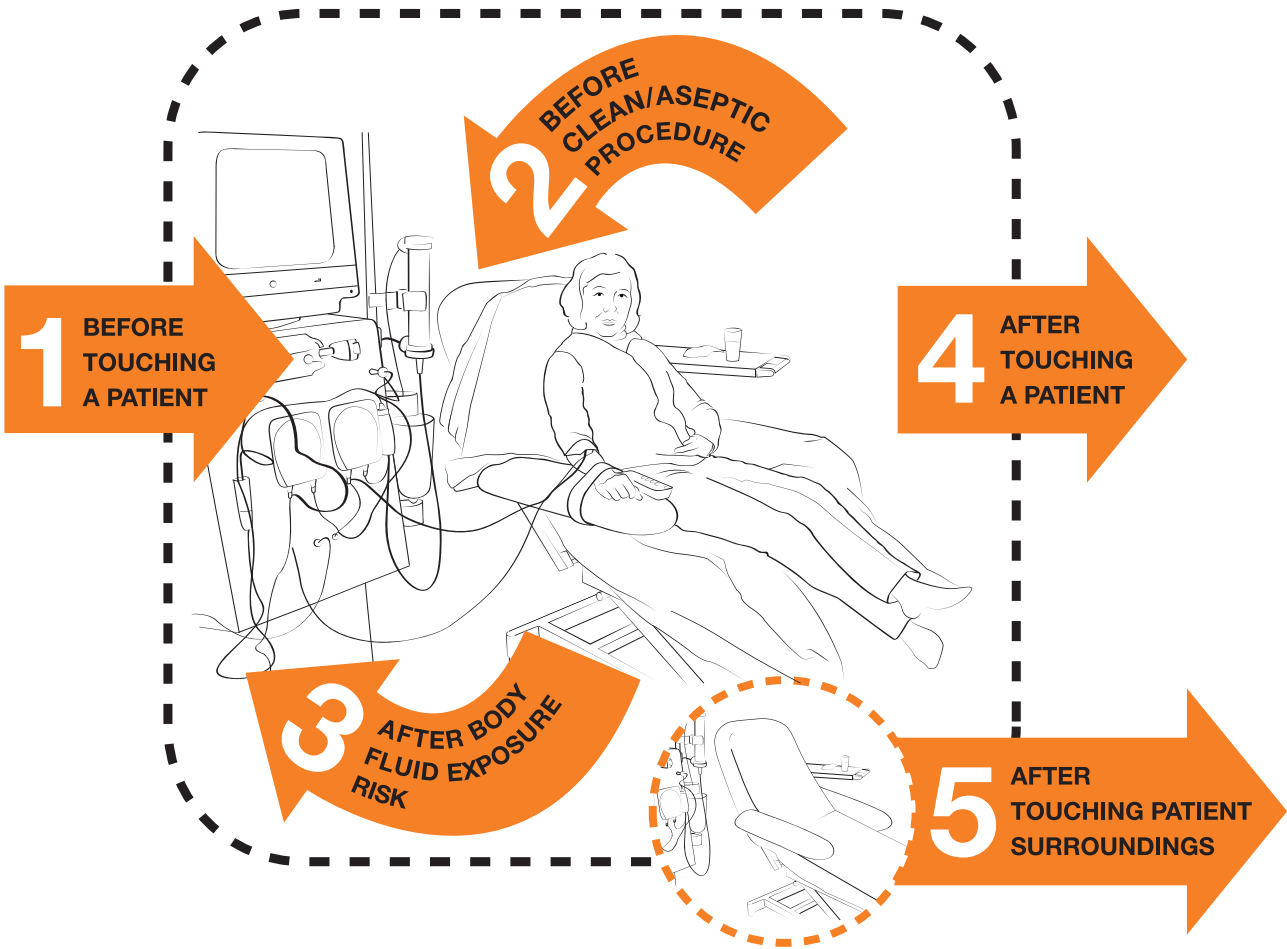


1	BEFORE TOUCHING A PATIENT	WHEN?	Clean your hands before touching a patient.
		WHY?	To protect the patient against harmful germs carried on your hands.
2	BEFORE CLEAN/ASEPTIC PROCEDURE	WHEN?	Clean your hands immediately before performing a clean/aseptic procedure.
		WHY?	To protect the patient against harmful germs, including the patient's own, from entering his/her body.
3	AFTER BODY FLUID EXPOSURE RISK	WHEN?	Clean your hands immediately after 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 PATIENT	WHEN?	Clean your hands after touching the patient at the end of the encounter or when the encounter is interrupted.
		WHY?	To protect yourself and the environment from harmful patient germs.

FIGURE 9
WHO poster on indications for hand hygiene during a haemodialysis session in ambulatory care

Your 5 Moments for Hand Hygiene

Haemodialysis in ambulatory care



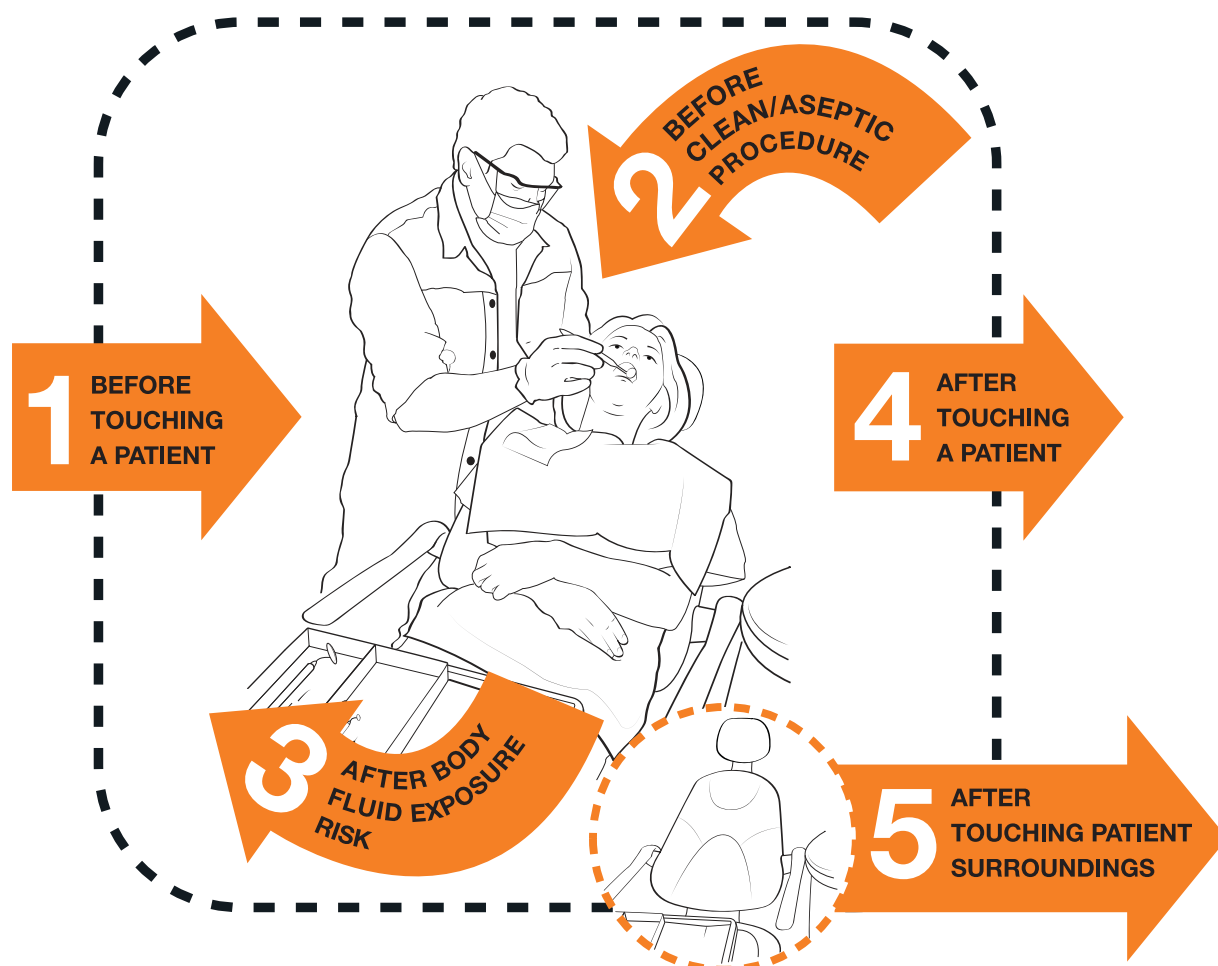
1	BEFORE TOUCHING A PATIENT	WHEN?	Clean your hands before touching a patient.
		WHY?	To protect the patient against harmful germs carried on your hands.
2	BEFORE CLEAN/ASEPTIC PROCEDURE	WHEN?	Clean your hands immediately before performing a clean/aseptic procedure.
		WHY?	To protect the patient against harmful germs, including the patient's own, from entering his/her body.
3	AFTER BODY FLUID EXPOSURE RISK	WHEN?	Clean your hands immediately after 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 PATIENT	WHEN?	Clean your hands after touching the patient at the end of the encounter or when the encounter is interrupted.
		WHY?	To protect yourself and the environment from harmful patient germs.
5	AFTER TOUCHING PATIENT SURROUNDINGS	WHEN?	Clean your hands after touching any object or furniture in the patient surroundings when a specific zone is temporarily and exclusively dedicated to a patient - even if the patient has not been touched.
		WHY?	To protect yourself and the environment from harmful patient germs.

FIGURE 10

WHO poster on indications for hand hygiene in a dental care situation

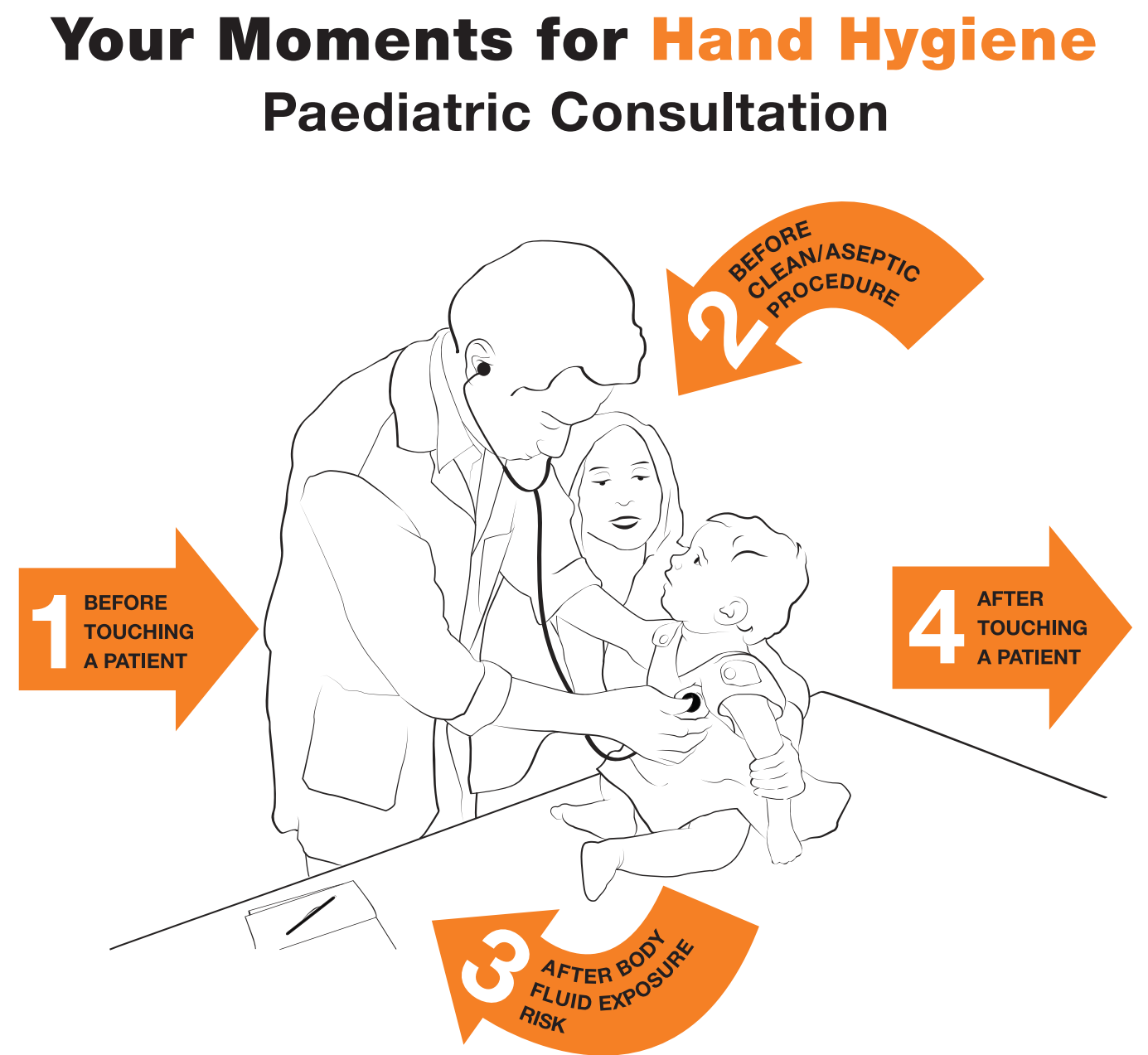
Your 5 Moments for Hand Hygiene

Dental Care



1	BEFORE TOUCHING A PATIENT	WHEN?	Clean your hands before touching a patient.
		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 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 PATIENT	WHEN?	Clean your hands after touching the patient at the end of the encounter or when the encounter is interrupted.
		WHY?	To protect yourself and the environment from harmful patient germs.
5	AFTER TOUCHING PATIENT SURROUNDINGS	WHEN?	Clean your hands after touching any object or furniture in the patient surroundings when a specific <i>zone</i> is temporarily and exclusively dedicated to a patient - even if the patient has not been touched.
		WHY?	To protect yourself and the environment from harmful patient germs.

FIGURE 11
WHO poster on indications for hand hygiene during a paediatric consultation



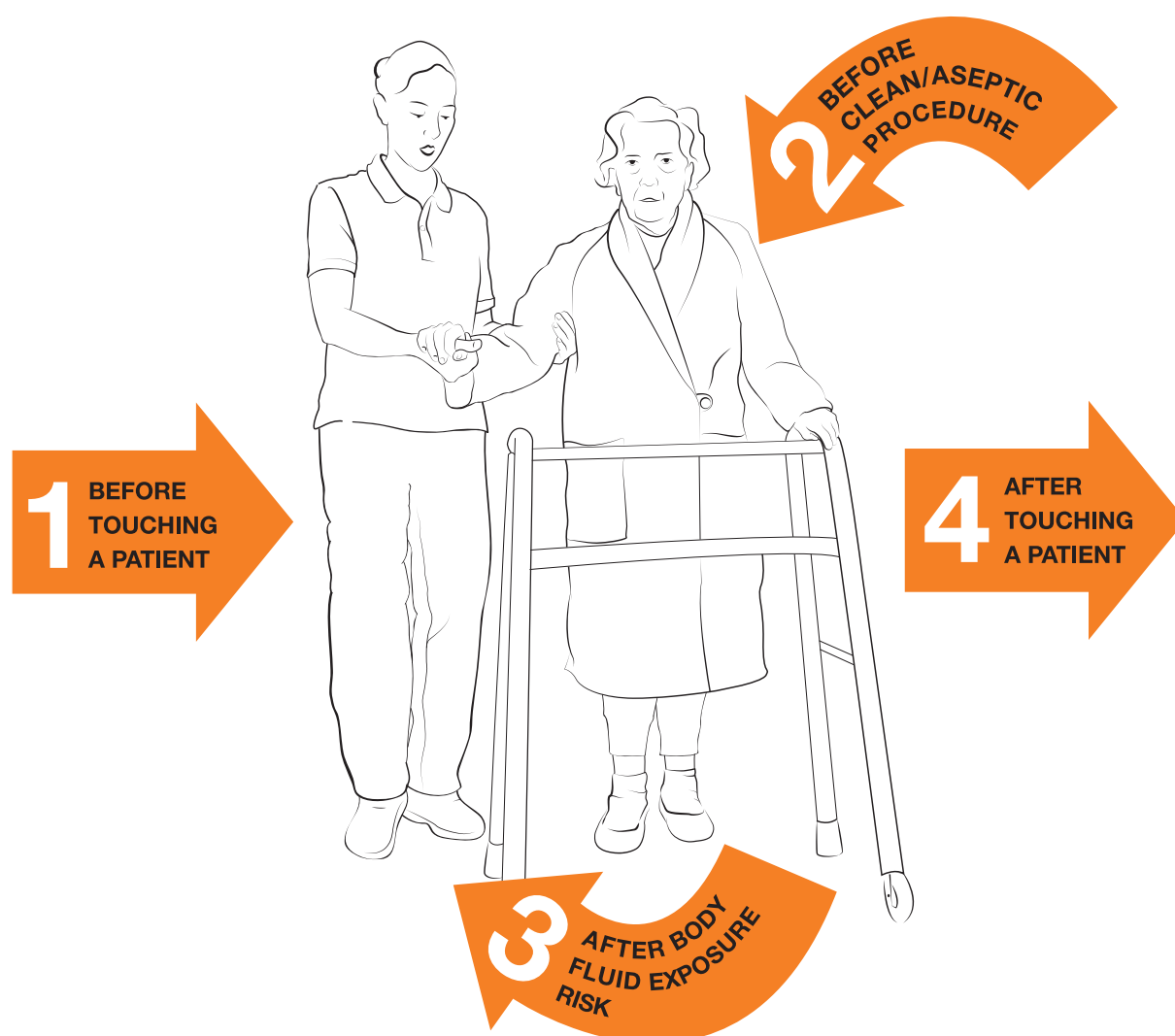
1 BEFORE TOUCHING A PATIENT	WHEN? Clean your hands before touching a patient. WHY? To protect the patient against harmful germs carried on your hands.
2 BEFORE CLEAN/ASEPTIC PROCEDURE	WHEN? Clean your hands immediately before performing a clean/aseptic procedure. WHY? To protect the patient against harmful germs, including the patient's own, from entering his/her body.
3 AFTER BODY FLUID EXPOSURE RISK	WHEN? Clean your hands immediately after 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 PATIENT	WHEN? Clean your hands after touching the patient at the end of the encounter or when the encounter is interrupted. WHY? To protect yourself and the environment from harmful patient germs.

FIGURE 12

WHO poster on indications for hand hygiene in health-care situations in a residential home

Your Moments for Hand Hygiene

Health care in a residential home



1	BEFORE TOUCHING A PATIENT	WHEN?	Clean your hands before touching a patient.
		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 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 PATIENT	WHEN?	Clean your hands after touching the patient at the end of the encounter or when the encounter is interrupted.
		WHY?	To protect yourself and the environment from harmful patient germs.

6.5 Institutional safety climate



The institutional safety climate refers to creating an environment and the perceptions that facilitate awareness raising about patient safety issues with hand hygiene as a high priority at all levels.⁴ In particular it includes:

- active participation at both the institutional and individual levels;
- awareness of individual and institutional capacity to change and improve (self-efficacy);
- partnership with patients and patient organizations.

Achieving an institutional safety climate requires that the facility leadership and directorate make a call to hand hygiene improvement and visibly support it through advocacy activities and by ensuring that the necessary resources and facilities are in place. It requires also commitment and accountability by all HCWs. At the institutional level, this component of the hand hygiene improvement strategy represents the foundation for embedding the hand hygiene improvement programme in a climate that understands and prioritizes basic patient safety issues. At the individual level, this component is important with respect to advocacy of hand hygiene by all HCWs as a priority and for their motivation to practice optimal hand hygiene as an act showing their commitment to do no harm to patients. Through the creation of an institutional safety climate, both the institution and each HCW become aware of their capacity to contribute to change and catalyze improvement across all indicators.

Much effort must be made at the beginning to create the motivation for embarking on hand hygiene promotion. It is important to engage decision makers and influential HCWs and individuals in the planning process at the earliest possible stage. These persons can make a significant contribution to the successful development of a safety climate and it is crucial to secure their ongoing commitment during implementation and beyond. In addition to professionals belonging to the facility, influential people may come from external or nongovernmental organizations, or professional bodies that can give advice on effective strategies to improve patient safety. On a continuum of progress, other areas of patient safety should be simultaneously or subsequently explored and the safety climate should become deeply rooted in the institutional tradition and approach. Such a climate should be based on a “no blame” culture stimulating HCWs to become more and more aware of patient safety issues and to always aim to achieve best practice. In addition, this requires continuous progress in the development of stable systems for adverse event detection and quality assessment, hand hygiene being one of the key indicators.

Outpatient settings around the world have different structures and organization and in many cases these concepts

might be difficult to apply. For instance, there may be no directorate or no professionals in charge of infection control or just one or two HCWs working at the facility (e.g. general practitioner’s offices). Under these conditions, hand hygiene campaigns should be initiated and promoted by bodies/entities having a coordination or regulatory role for outpatient settings within the health system.

Patient participation as part of the institutional safety climate

When possible and appropriate according to the local culture, patients should be stimulated also to contribute to the creation of a patient safety climate.⁷⁸⁻⁷⁹ The high number of patients accessing outpatient settings, especially primary health-care facilities, is a strong argument for the promotion of patient education on the importance of appropriate hand hygiene practices by HCWs and their own role for the prevention of infection transmission. This can be achieved by raising awareness of the importance of hand hygiene when entering and leaving the facility to prevent specific types of infection (e.g. gastroenteritis, respiratory infections, conjunctivitis, etc.). Simple messages to enable patients understand and learn could be included in information leaflets and in posters displayed at the facility entrance and in waiting areas. Patients and visitors can also be instructed to stimulate and educate each other.

Experiences of hand hygiene education within patient groups are promising in some countries (e.g. Spain) in terms of good practices and awareness raising. Positive encouragement by patients of HCWs to implement good hand hygiene could improve compliance with the “My five moments for hand hygiene” approach. Performing correct hand hygiene in full view of the patient can promote patient confidence and partnership between patients and HCWs to make care safer. However, time constraints due to usually short encounters between the patient and the HCW, local cultural issues and social dynamics must be taken into account when considering the implementation of these aspects of patient empowerment. These strategies are usually better received when hand hygiene promotion among HCWs is relatively advanced. Patient education should aim first of all to support best hand hygiene practices among themselves.

7. PRACTICAL EXAMPLES OF HAND HYGIENE REQUIREMENTS IN A BROAD RANGE OF OUTPATIENT CARE SETTINGS

7.1 Introduction and important notes for the reader

Practical examples of care situations are provided to show how the “My five moments for hand hygiene” concept¹⁻³ translates into practice in specific situations typically occurring in outpatient settings. The aim is to guide the HCW in the best organization of the care sequence and facilitate hand hygiene practice.



These practical examples are not intended to indicate the gold standard for a certain procedure or to present recommendations.

Some examples reflect situations where a large number of patients undergo a care procedure one after the other and thus hand hygiene indications occur with very high frequency in a short time period. In other examples, the care situation is very similar to the hospital setting (e.g. dialysis, childbirth delivery in remote areas in low-/middle-income dispensaries). These examples are the basis for acquiring the skills to identify the *patient zone* and the *point of care* and the hand hygiene indications and opportunities encountered.

The development of these examples consisted of several steps. A core group of hand hygiene experts leading on the preparation of the WHO Guidelines on Hand Hygiene in Health Care¹ drafted the scenarios based on the most common situations in outpatient care. Some of these underwent testing through an online survey sent to 14 international infection control experts who were asked to identify the level of risk of hand pathogen transmission and infection for the patient and the HCW and the occurrence of hand hygiene opportunities. The examples were then finalized by the core expert group, including the requirements for hand hygiene performance, and discussed with a group of infection control professionals and country representatives during a WHO consultation.



The experts identified several key aspects that should be considered in the evaluation of the need for hand hygiene during outpatient care: 1) the potential transmission risk according to the procedure and the infectious agent transmissibility; 2) the potential infection risk for the patient and the HCW; 3) the patient's known or suspected colonization status and susceptibility based on underlying conditions; and 4) feasibility of hand hygiene in specific care situations usually occurring in outpatient settings, taking into account the frequency of the procedure.

A wide range of care procedures are delivered in outpatient settings. Some do not differ from situations encountered in hospitals, whereas others have specific features as far as hand hygiene is concerned. Some HCWs may work in both types of settings, inpatient and outpatient. When delivering care to hospitalized patients, HCWs should always practice hand hygiene according to the “My five moments” approach. In the practical examples proposed in the present document, hand hygiene indications occur according to the same principles. However, based on the above four criteria identified by experts, minimum requirements for hand hygiene were identified in some very particular care situations (e.g. within a high-frequency care flow) with a focus on essential opportunities.

In the following section, the examples are presented as finalized through expert consensus and are accompanied by summary tables explaining the key features of the situations. More details on the strict application of the “My five moments for hand hygiene” in examples 1, 2, and 7 are provided in Appendix II. Of note, the main objective of this guidance document is to focus on helping to understand hand hygiene in outpatient care. For this reason, the scenarios are kept as simple as possible and gold standard procedures for environmental cleaning and/or device decontamination are not explicitly described in the situations presented. However, all HCWs should bear in mind that hand hygiene efficacy is closely linked to environmental contamination. When shared medical devices and equipment are not decontaminated when recommended (ideally after each patient use) and/or the environment is not cleaned appropriately, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

7.2 Practical examples

1. Public vaccination campaign

Brief explanation

The setting is a standard consultation room used to vaccinate the population in the context of a public campaign. All the necessary material is within arm's reach of the HCW on a tabletop tray. Individuals come in one after the other in rapid succession to get the vaccine shot. Disposable gloves are not used as not recommended given that the risk of exposure to body fluid is not considered significant (see Figure 1.23.1 of the WHO Guidelines on Hand Hygiene in Health Care).^{3, 55} The HCW sees individuals in a high-frequency sequence while performing a number of tasks in a systematic flow (picking up material for the shot, performing the injection, recording). No space or equipment is dedicated to the person receiving the injection during the care sequence. The *patient zone* corresponds to the individual only; the *point of care* is exactly where the injection is performed.

Sequence of care according to minimum requirements for hand hygiene*

A. A person walks in (while the previous one walks out) and sits down on a chair.

The HCW performs hand hygiene

(Moments 1 & 2 merged into one opportunity to meet minimum requirements)

B. The person exposes his arm, the HCW applies the skin antiseptic to the injection site using a small gauze pad and discards it after use.

C. The HCW picks up the pre-prepared, single-use material for vaccination.

D. The HCW performs the injection.

E. The HCW discards the needle into the sharps' disposal container on the table.

F. The HCW applies an adhesive bandage to the injection site.

G. The HCW writes a note on a sheet of paper on the table.

H. The person gets up and leaves the room (while the next one walks in).

The HCW performs hand hygiene (Moment 4)**

* The same scenario with the strict application of the "My five moments" approach is provided in Appendix II.

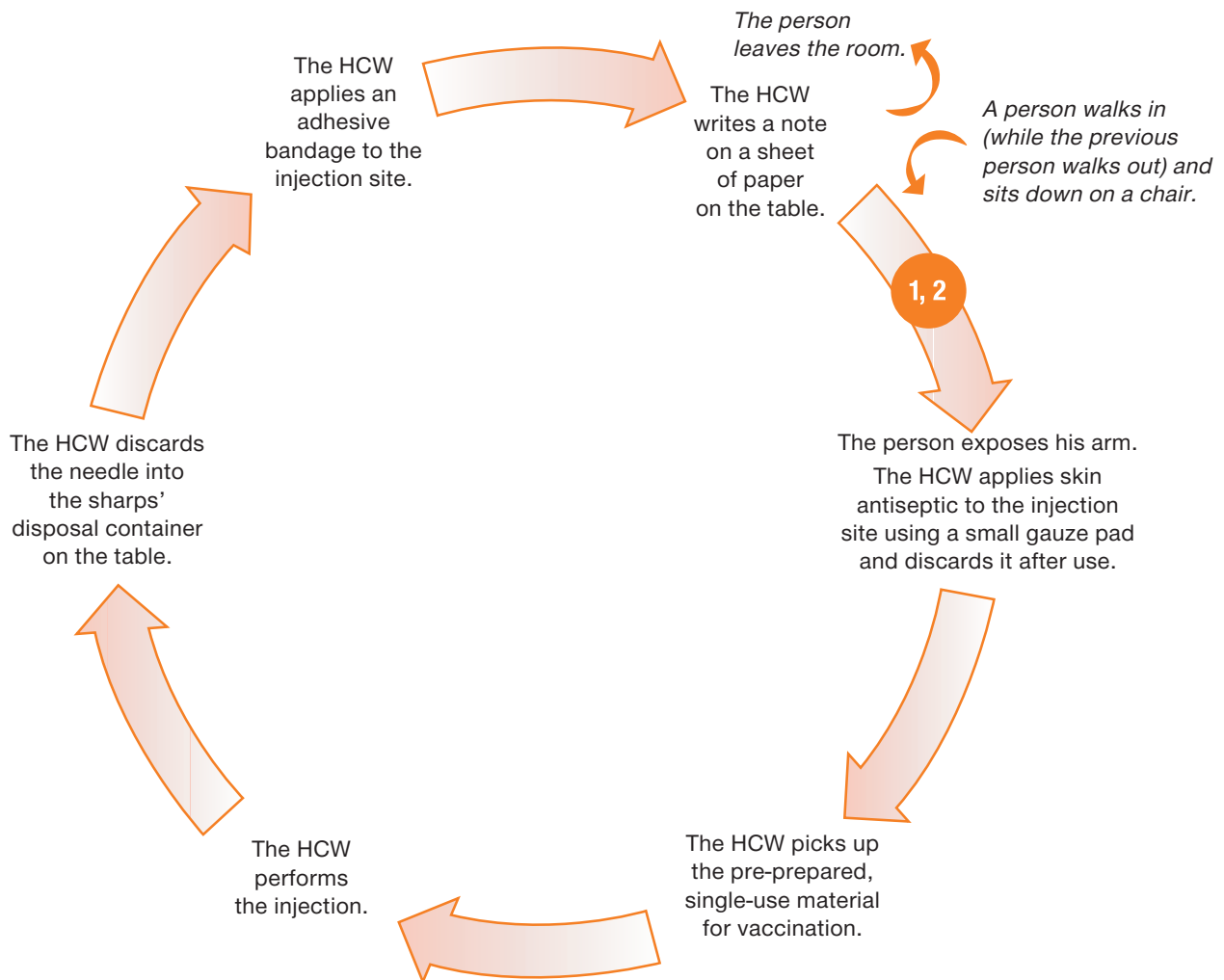
** If the sequence occurs as described with no breaks and under normal conditions (e.g. no known outbreak situation), the performance of the hand hygiene action will be finally performed **once between patients** (Moments 4 and 1 & 2 merged into one opportunity to meet minimum requirements).

Care sequence features

Likely frequency of the sequence per hour	Approximately 30
Duration of the sequence	Very short, approximately 2 minutes
Number of hand hygiene opportunities per sequence according to minimum requirements	2 (or 1 when the sequence is repeated without interruption)
Types of hand contact	Skin/non-intact skin
Glove use	No
Use of personal protective equipment	No
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	No
<i>Patient zone</i>	The patient
<i>Point of care</i>	Where the injection takes place

Public vaccination campaign

● Hand hygiene opportunities according to **minimum requirements** for hand hygiene



Comment

In this example, social contacts such as hand shaking between the person to be vaccinated and the HCW at the beginning and end of the encounter are not included. The occurrence of this gesture may change according to the culture and habits. If it does occur, this type of contact might increase the transmission risk and represents an additional opportunity for hand hygiene.

2. Blood drawing in a laboratory

Brief explanation

The setting is a blood sampling room in a medical laboratory. During the procedure, the HCW gathers all medical devices needed from a tray at arm's reach. Glove use is indicated according to WHO recommendations.^{3, 55} Critical devices (needles) are sterile. The HCW sees patients in a high-frequency sequence while performing a number of actions in a systematic flow (collecting/checking patient data, preparing specific material for blood sampling, performing the vein puncture, discarding the materials, recording). No space or equipment is dedicated to the individual patient during the care sequence. The *patient zone* corresponds to the patient only; the *point of care* is exactly where blood is collected.

Sequence of care according to minimum requirements for hand hygiene*

- A. A patient comes into the room and sits down (while the previous patient leaves). The HCW asks for the patient's name and address.
- B. The HCW chooses and labels the tubes for sampling while checking the patient's identity and asking him to roll up a sleeve to free the forearm.
- C. The HCW prepares the material for the puncture (needle, antiseptic, pads, tourniquet, adhesive bandage).
- D. The HCW applies the tourniquet around the arm.

The HCW performs hand hygiene

(Moments 1 & 2 merged into one opportunity to meet minimum requirements)

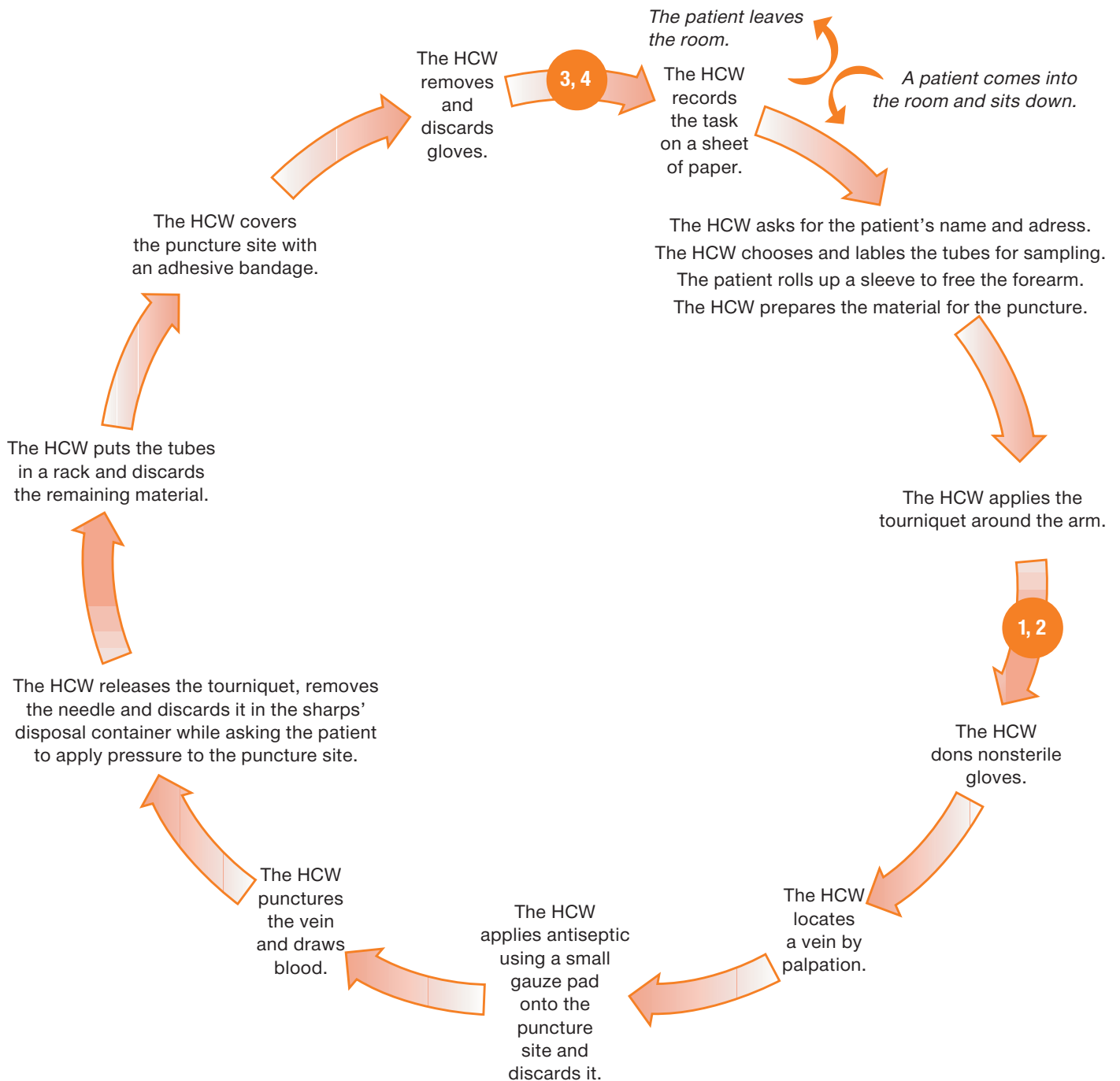
- E. The HCW dons non-sterile gloves.
 - F. The HCW locates a vein by palpation with two fingers.
 - G. The HCW applies antiseptic using a small gauze pad onto the puncture site and discards it.
 - H. The HCW punctures the vein and draws blood.
 - I. The HCW releases the tourniquet.
 - J. The HCW removes the needle and discards it in the sharps' disposal container while asking the patient to apply pressure to the puncture site.
 - K. The HCW puts the tubes in a rack and discards the remaining material.
 - L. The HCW covers the puncture site with an adhesive bandage.
 - M. The HCW removes and discards gloves.
- The HCW performs hand hygiene**
(Moments 3 & 4 combined)**
- N. The HCW records the task on a sheet of paper while the patient leaves and the next patient comes in.

- * The same scenario with the strict application of the "My five moments" approach is provided in Appendix II.
- ** If the sequence occurs as described with no breaks and under normal conditions (e.g. no known outbreak situation), the performance of the hand hygiene action will be finally performed **once between patients** (Moments 3 & 4 and 1 & 2 merged into one opportunity to meet minimum requirements).

Care sequence features	
Likely frequency of the sequence per hour	12-20
Duration of the sequence	Approximately 3-5 minutes
Number of hand hygiene opportunities per sequence according to minimum requirements	2 (or 1 when the sequence is repeated without interruption)
Types of hand contact	Skin/non-intact skin/blood
Use of personal protective equipment	Gloves
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	Yes (tourniquet)
<i>Patient zone</i>	The patient
<i>Point of care</i>	Where the blood collection takes place

Blood drawing in a laboratory

● Hand hygiene opportunities according to **minimum requirements** for hand hygiene



Comment

In this example, social contacts such as hand shaking between the patient and the HCW at the beginning and end of the encounter are not included. The occurrence of this gesture may change according to the culture and habits. If it does occur, this type of contact might increase the transmission risk and represents an additional opportunity for hand hygiene.

3. Visit to a general practitioner's office

Brief explanation

The setting is a general practitioner's office equipped with a desk and chairs for the doctor and the patient, a couch for patient examination, and a cart with various medical tools (hammer, stethoscope, pressure cuff, etc.) and some devices, such as disposable spatulas and sterile items.

The doctor performs the medical examination in a systematic sequence (talking with the patient, clinical examination, talking and prescribing). No space or equipment is dedicated to the individual patient during the care sequence.

The *patient zone* corresponds to the patient only; the *point of care* is where the clinical examination takes place.

No invasive procedure is performed. Of note, this does not exclude potential contact with *critical sites*, such as mucous membrane or non-intact skin, or potential exposure to body fluid. Any change in the work flow described here may alter the indications for hand hygiene and adjustments should be made accordingly.

Sequence of care

- A. The doctor is in his office and the patient enters the room.
- B. The patient and doctor sit down and talk to each other while the doctor goes through the patient's record.
- C. The doctor asks the patient to lie down on the couch.

The doctor performs hand hygiene (Moment 1)

- D. The doctor performs the physical examination by listening to the patient's heart and chest, checks the patient's tendon reflexes with a hammer, and measures the blood pressure.
- E. At the end of the physical examination, the doctor helps the person to get up.

The doctor performs hand hygiene (Moment 4)

- F. The doctor walks back to his desk, makes notes on a computer, and writes a prescription.
- G. The patient sits down again and they discuss his condition.
- H. The patient leaves and the next patient enters the room.

Care sequence features

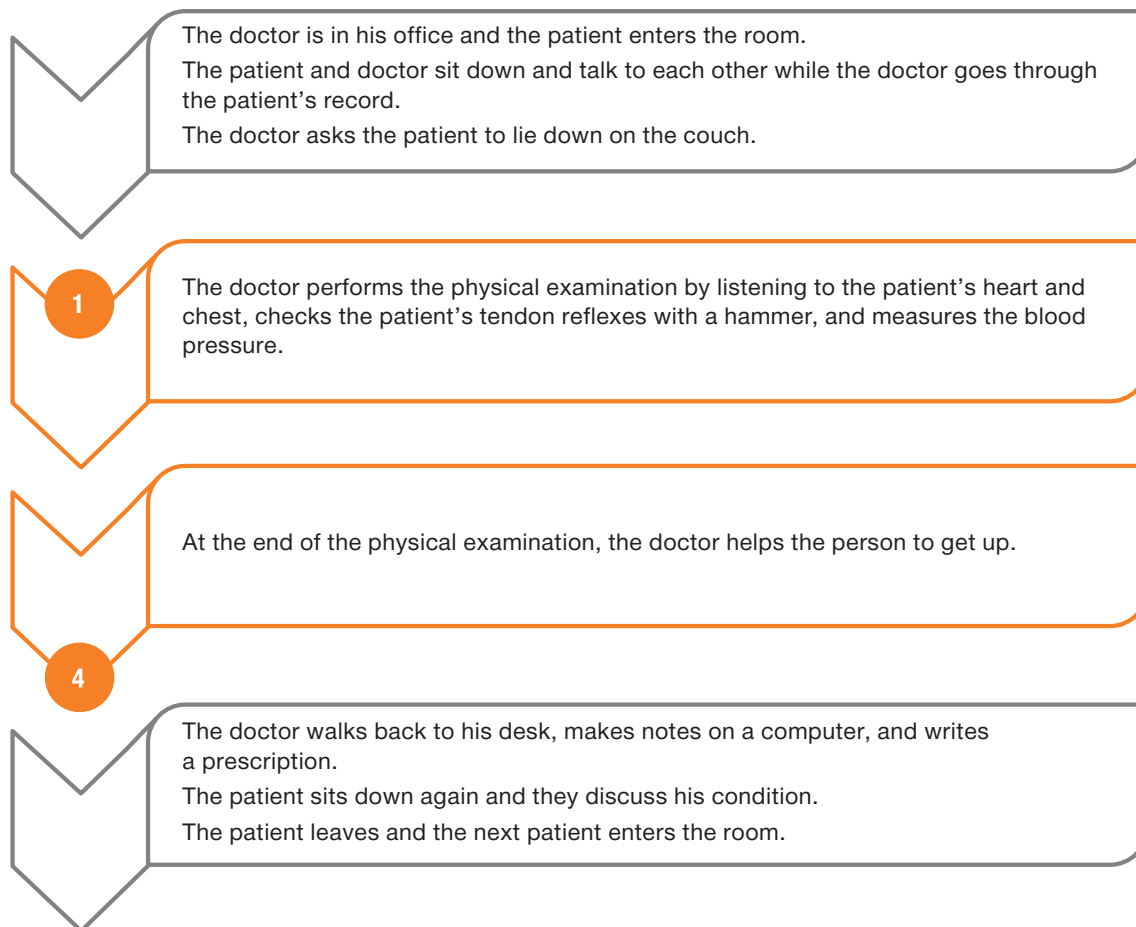
Likely frequency of the sequence per hour	4-6
Duration of the sequence	Approximately 10-15 minutes
Number of hand hygiene opportunities per sequence	2
Types of hand contact	Skin
Use of personal protective equipment	No
Use of disposable items	No
Use of sterile items	No
Use of shared items	Yes
<i>Patient zone</i>	The patient
<i>Point of care</i>	Where the examination takes place



Hand hygiene efficacy depends on the environmental contamination. When shared medical devices and equipment are not cleaned and decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Visit to a general practitioner's office

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



Comments

- In this example, social contacts such as hand shaking between the patient and the doctor at the beginning and end of the consultation are not included. The occurrence of this gesture may change according to the culture and habits. If it does occur, this type of contact might increase the transmission risk and represents an additional opportunity for hand hygiene.
- If an invasive procedure or contact with mucous membranes or non-intact skin (clean/aseptic task) takes place during the examination, additional hand hygiene opportunities occur (Moments 2 & 3).

4. Paediatric consultation in a health post

Brief explanation

The setting is the consultation room of a paediatric health post. There are chairs for both the HCW and the mother and a small table to lie down babies for examination. All necessary material and medical equipment (baby scale, tape measure, spatula, stethoscope, etc.) are either within arm's reach of the HCW or on a trolley or within two metres. The HCW performs several tasks organized in a systematic sequence (talking, measuring, weighing, clinical examination, talking, recording). Contacts with mucous membranes usually occur, as well as with the baby's body fluid. The *patient zone* includes the child and may include the mother; the *point of care* is where the examination takes place.

Sequence of care

- A. A one-week-old baby and mother enter the room.
The mother sits down on a chair carrying the baby.
The HCW asks for some information and records data.

- B. The mother undresses the baby.

The HCW performs hand hygiene (Moment 1)

- C. The HCW takes the baby from the mother and lays him on the table.
D. The HCW performs the health check by measuring the size and cranial circumference, followed by weighing.
E. The child has urinated on the baby scales; the HCW dons a glove and wipes up the fluid from the surface with the scale paper protection. The HCW removes and discards the glove.

The HCW performs hand hygiene (Moment 3)

- F. The HCW checks the baby's back and palpates the abdomen, observes the navel, and tests various neonatal reflexes.

- G. The HCW listens to the child's heart and chest with a stethoscope.

The HCW performs hand hygiene (Moment 2)

- H. The HCW looks at the eyes by slightly pulling down the eyelids; the child cries with no tears.
I. The HCW then tests the vision with his finger.
J. The child is still crying and the HCW takes the opportunity to look at the mouth with a light while holding the baby's head.
K. The HCW examines the ear with an otoscope and then discards the single-use cone in the bin.
L. The HCW tests the baby's hearing by clapping his hands at each side of the head.
M. The HCW palpates the baby's neck.

The HCW performs hand hygiene (Moment 4)

- N. The mother dresses the baby.
O. The HCW sits down, records data, and speaks briefly with the mother.
P. The mother leaves with the baby.

Care sequence features

Likely frequency of the sequence per hour	4-6
Duration of the sequence	Approximately 10-15 minutes
Number of hand hygiene opportunities per sequence	3
Types of hand contact	Skin/body fluids
Use of personal protective equipment	No
Use of disposable items	Yes
Use of sterile items	No
Use of shared items	Yes
<i>Patient zone</i>	The child (& the mother)
<i>Point of care</i>	The table where the examination takes place



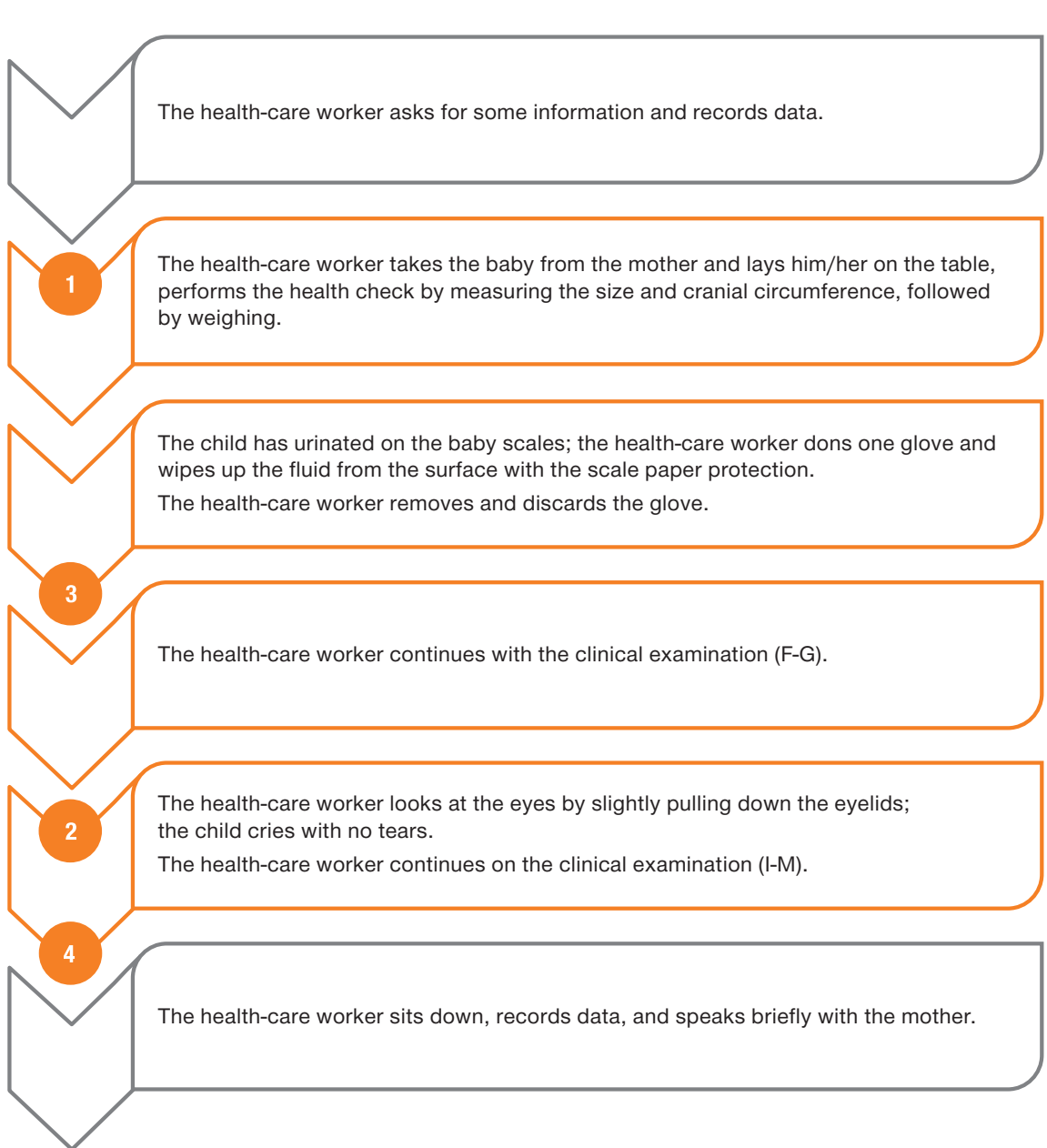
Hand hygiene efficacy depends on the environmental contamination.^{5,54} When shared medical devices and equipment are not cleaned and decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Paediatric consultation in a health post

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene

*A one-week-old baby and mother enter the room.
The mother sits down on a chair carrying the baby.*

*The mother
undresses the baby.*



*The mother
dresses the baby.*

*The mother leaves
with the baby.*

Comment

In this example, social contacts such as hand shaking between the mother and the HCW at the beginning and end of the consultation are not included. The occurrence of this gesture may change according to the culture and habits. If it does occur, this type of contact might increase the transmission risk and represents an additional opportunity for hand hygiene.

5. Consultation in an emergency polyclinic

Brief explanation

The setting is an emergency polyclinic including an area where patients arrive, register and wait, a medical office, and a treatment room with couches separated with privacy curtains. Patients seek care for different problems in this setting, but non-vital emergency care only is provided. HCWs perform tasks organized according to the level of emergency and often face unexpected situations. Different professionals are involved in this scenario.

Sequence of care

- A. An auxiliary nurse is writing at the registration desk when an elderly patient helped by some relatives enters the room. The auxiliary nurse asks for information and completes a form for the patient.

The auxiliary nurse performs hand hygiene (Moment 1)

- B. The HCW approaches the patient, helps him to sit in a wheelchair, and takes him to the doctor's office.

When leaving, the auxiliary nurse performs hand hygiene (Moment 4)

- C. The doctor welcomes the patient, reads the form, and asks some questions; he understands that the patient fell and suspects a leg fracture. When approaching the patient to inspect the leg and to perform some manoeuvres, **the doctor performs hand hygiene** (Moment 1)

- D. After inspection, the doctor requests an auxiliary nurse to take the patient for an X-ray.

The doctor performs hand hygiene (Moment 4)

- E. The doctor goes back to the patient form and writes up some notes. In the meantime, the doctor is called by a nurse and asked to go to the treatment room to see a patient with a severe nosebleed.

- F. The nurse takes a cellulose pack from the cupboard, wets a cloth, and goes to the patient.

The doctor performs hand hygiene (Moment 1)

- G. The doctor dons non-sterile gloves, tampons the nose, and cleans the patient's face and hands with the cloth. When the procedure is completed, the doctor disposes of the cloth for cleaning and decontamination, discards the dirty cellulose in the waste bin, and removes and discards gloves.

The doctor performs hand hygiene

(Moments 3 & 4 & 1 combined)

- H. The doctor is asked by the nurse to help move a very heavy patient lying in a bed and then to examine and stitch a wound on the arm of another patient in the room.

The doctor performs hand hygiene

(Moments 4 & 2 combined)

- I. The doctor opens the sterile supplies prepared by the nurse on a trolley close to the patient and pours some alcohol-based antiseptic on a compress, dons sterile gloves, and applies the compress to the wound.

- J. The doctor gives a subcutaneous injection of local anaesthetic, cleans the skin around the wound with a wet compress, and dries the skin.

- K. The doctor stitches the wound, applies antiseptic once again, and dresses the wound.

- L. The doctor removes and discards the gloves.

The doctor performs hand hygiene

(Moments 3 & 4 combined)

- M. The patient leaves.

- N. An auxiliary nurse wearing household gloves comes to the couch, discards the materials on the trolley, cleans the trolley and the couch, and removes gloves.

The auxiliary nurse leaves the area while performing hand hygiene (Moments 3 & 5)

Care sequence features

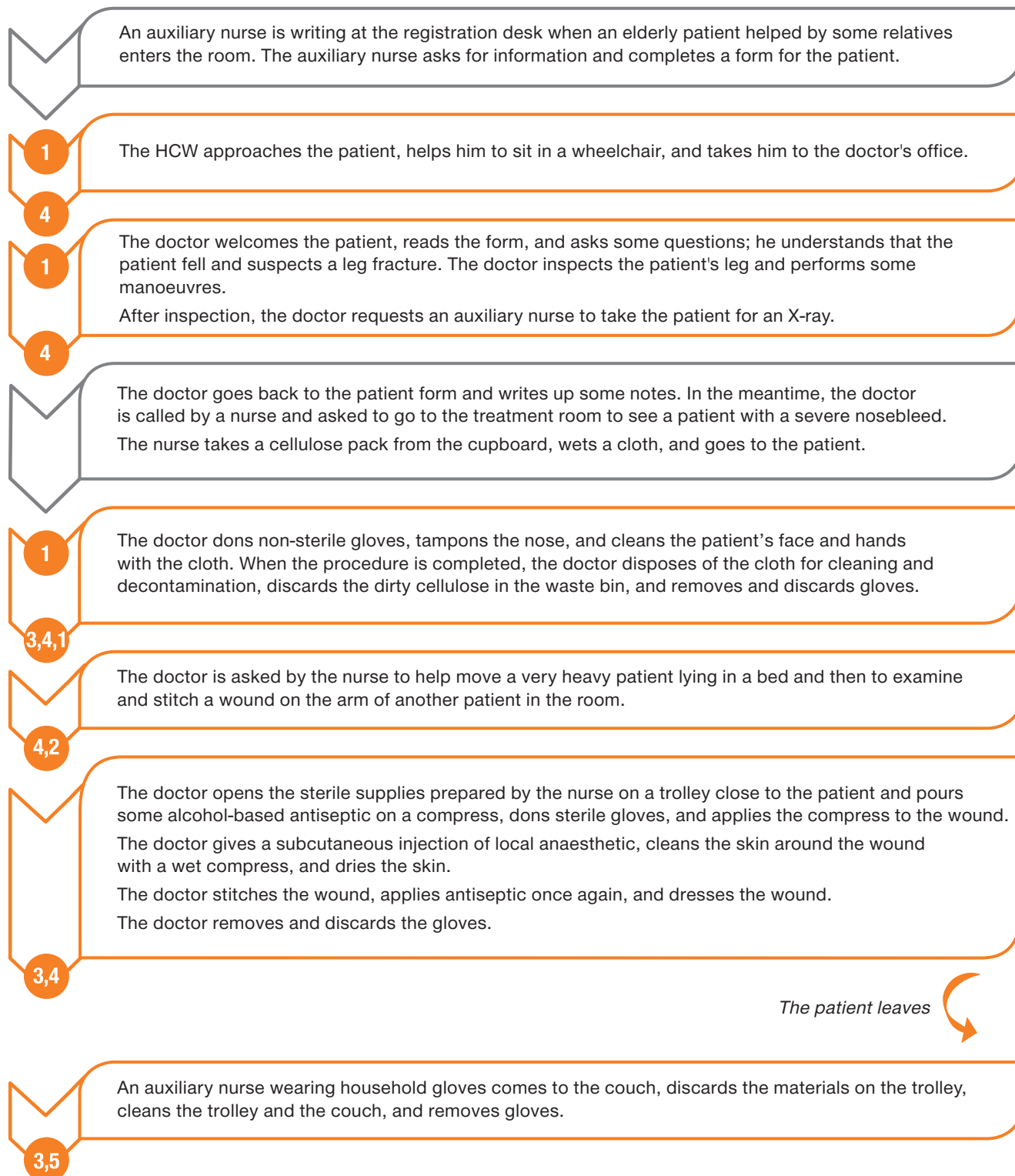
Likely frequency of the sequence per hour	1-2
Duration of the sequence	Approximately 30 to 60 minutes
Number of hand hygiene opportunities per sequence	2 for the nurse, 6 for doctor, 3 for the auxiliary nurse
Types of hand contact	Skin/non-intact skin/body fluids/inanimate surfaces
Use of personal protective equipment	Gloves
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	No
Patient zone	Each of the patients and their couches
Point of care	The patient zone



- Hand hygiene efficacy depends on the environmental contamination.^{5, 54} When shared medical devices and equipment are not cleaned and decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.
- Hand hygiene indications should be considered carefully before and after each time the HCW shares a social contact with the patient, such as shaking hands.

Consultation in an emergency polyclinic

Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



6a. Home care – helping a disabled patient to bathe

Brief explanation

The auxiliary nurse goes three times a week to the home of a disabled patient to help him to bathe. The auxiliary visit is followed by a nurse visit to change the dressing on an ulcerous leg wound (see *Home care 6b*). The patient and the home environment represent the *patient zone*. The *point/s of care* is/are where the HCW delivers assistance to the patient. Although the care is delivered at home, the “My five moments” approach fully applies.

Sequence of care

A. The HCW arrives and goes to the patient’s bedroom where he is waiting.

The HCW performs hand hygiene (Moment 1)

B. He then shakes hands with the patient and has a brief conversation.

- C. The HCW prepares a towel and clothes and other necessary items.
- D. The HCW wears a waterproof apron and helps the patient to get up and go to the bathroom.
- E. The HCW helps the patient to undress and provides assistance with showering, drying, dressing, and grooming.
- F. The HCW helps the patient to sit in a chair in front of the sink. While the patient is brushing his teeth, the HCW removes the apron and changes the bed linen.
- G. The HCW helps the patient into bed for the nurse’s visit and switches on the television as usual.
- H. The HCW shakes hands with the patient.

The HCW performs hand hygiene (Moment 4)

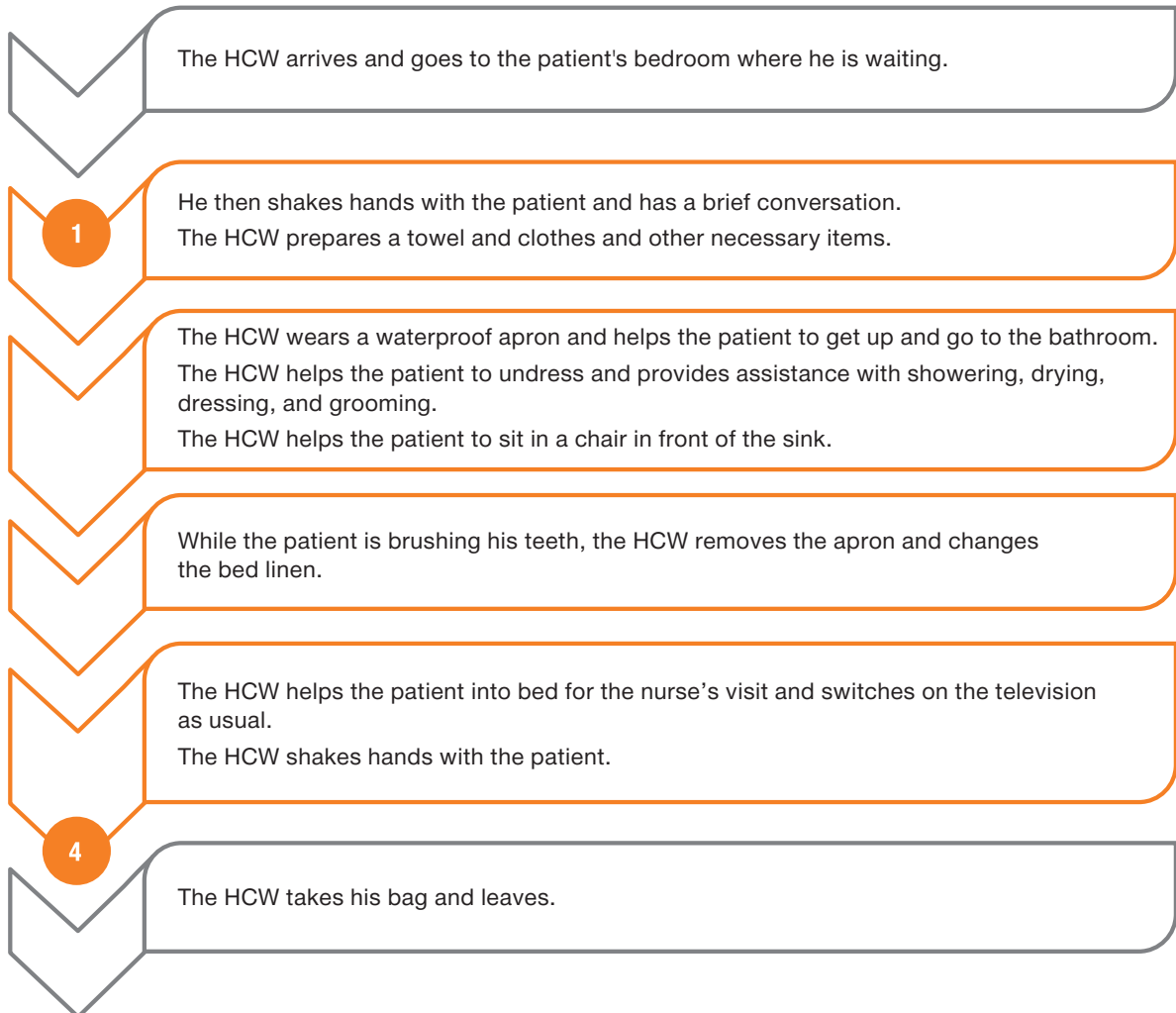
- I. The HCW takes his bag and leaves.

Care sequence features

Likely frequency of the sequence per hour	1
Duration of the sequence	Approximately 30 to 60 minutes
Number of hand hygiene opportunities per sequence	2
Types of hand contact	Skin
Use of personal protective equipment	No
Use of disposable items	No
Use of sterile items	No
Use of shared items	No
<i>Patient zone</i>	The patient and the home environment
<i>Point of care</i>	Where contacts with the patient occur

Home care – Helping a disable patient to bathe

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



6b. Home care – wound dressing

Brief explanation

The nurse goes three times a week to the home of a disabled patient to change the dressing on an ulcerous leg wound. This care is provided after the patient has been assisted in bathing by an auxiliary nurse. All care items (gauze, antiseptic product, adhesive band, personal protective equipment, alcohol-based hand rub, etc.) are brought by the nurse in a plastic container. The patient and the home environment represent the *patient zone*. The *point/s of care* is/are where the procedures take place. The plastic container and the care items brought by the HCW represent the *health-care area*. Although the care is delivered at home, the “My five moments” approach fully applies.

Sequence of care

- A. The nurse arrives and goes to the patient’s bedroom where he is waiting.
- B. The nurse enters the room and puts his medical bag on a chair.

The nurse performs hand hygiene (Moment 1)

- C. He then shakes hands with the patient, has a brief conversation, and finally uncovers the patient’s leg.
- D. The nurse cleans a table close to the bed.

The nurse performs hand hygiene (Moment 4)

- E. The nurse takes out a record book and a plastic box from the medical bag.

The nurse performs hand hygiene (Moments 1 & 2 combined)

- F. The nurse prepares the sterile dressing set and all other necessary items and dons non sterile gloves.
- G. The nurse removes the wet bandages from the leg and examines the dressing and the wound.
- H. The nurse discards the soiled bandages in the waste bin, and removes and discards gloves.

The nurse performs hand hygiene

(Moments 3 & 2 combined)

- I. Using instruments, the nurse applies antiseptic several times, removes some fibrin with scissors, and applies antiseptic again. All waste is discarded in the bin and the instruments are placed in the plastic container.
- J. Using an instrument, the nurse places the gauze with ointment on the wound with other dry gauzes on top, followed by an adhesive bandage.
- K. Once the dressing is complete, the nurse clears everything remaining on the table, closes the plastic container and puts it into a plastic bag, and cleans the table with a wipe.

The nurse performs hand hygiene

(Moments 3 & 4 combined)

- L. The nurse records notes on the wound status and procedure and puts the record book in the medical bag.

The nurse performs hand hygiene (Moment 1)

- M. The nurse helps the patient to install himself in the kitchen for breakfast, switches on the television, shakes hands with the patient, and leaves.

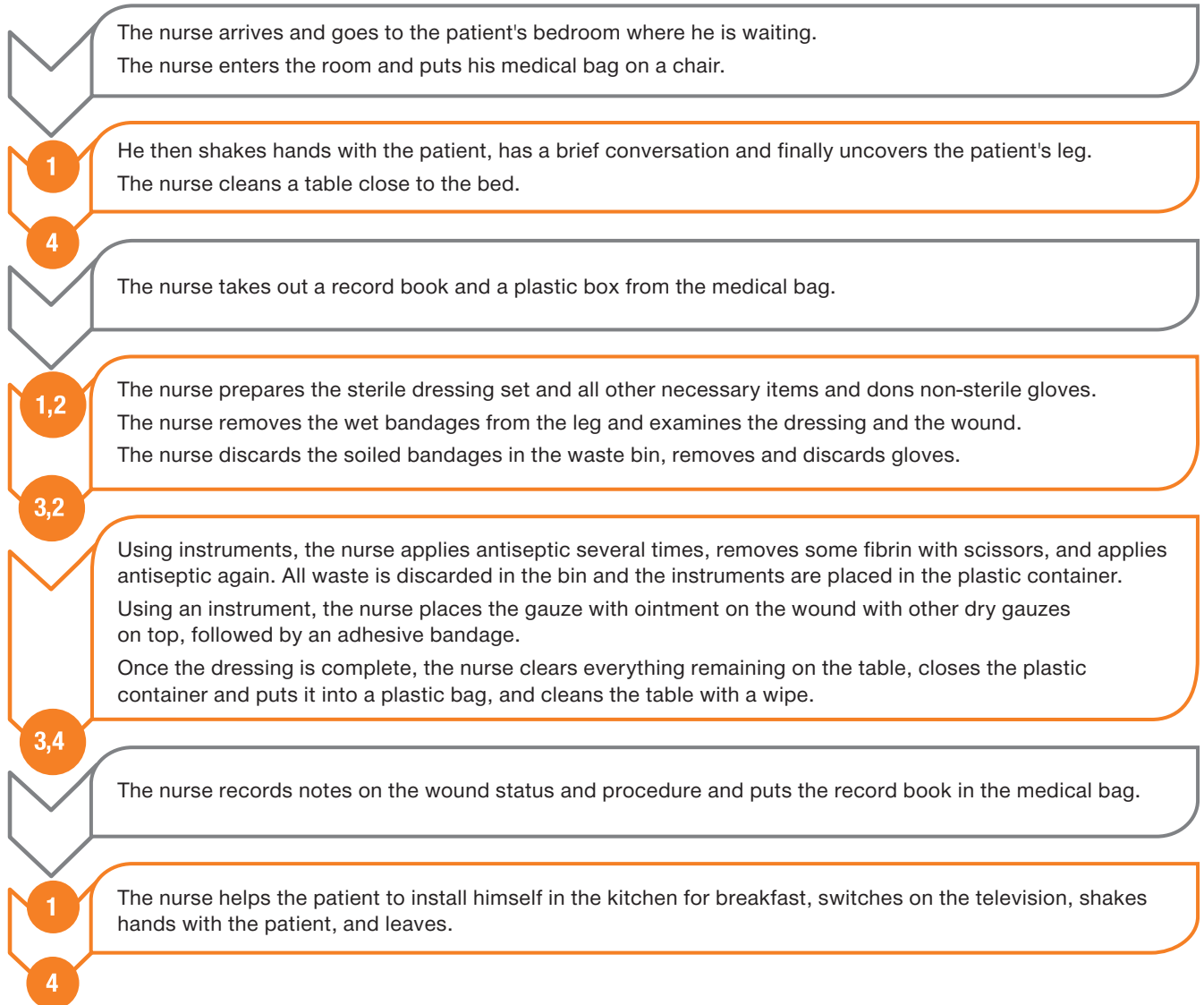
The nurse performs hand hygiene (Moment 4).

Care sequence features

Likely frequency of the sequence per hour	1
Duration of the sequence	60 minutes
Number of hand hygiene opportunities per sequence	7
Types of hand contact	Intact skin/non-intact skin/body fluids/contaminated items
Use of personal protective equipment	Gloves
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	No
<i>Patient zone</i>	The patient and the home environment
<i>Point of care</i>	Where the dressing is performed

Home care – wound dressing

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



7. Chest X-ray in a diagnostic centre

Brief explanation

The setting is a medical diagnostic centre with an area dedicated to the X-ray machine where the patient is located, and another area beyond a window with technical panels and command buttons. The technician undertakes a number of actions organized in a systematic sequence. No space or equipment is dedicated to the individual patient during the care sequence. The *patient zone* corresponds to the patient only; the *point of care* is where the patient is installed. The characteristic of this situation is the sequence of hand contacts with the patient and the *health-care area* (the machine and the command buttons); in general, the command buttons cannot be decontaminated between procedures.

Sequence of care according to minimum requirements for hand hygiene*

- A. The patient comes into the room, puts his clothes on a chair, and approaches the technician to receive instructions.

The technician performs hand hygiene (Moment 1)

- B. The technician helps the patient to put on the lead protection apron and to install himself correctly in front of the machine, and then adjusts the machine in proximity to the patient's chest.
- C. The technician goes behind the window; he is about to press the button to shoot the X-ray when he notes that the patient's position is not appropriate.
- D. The technician goes back to the patient and helps him to stand correctly.
- E. The technician returns again behind the window and shoots the X-ray.
- F. The technician goes back to the patient, removes the machine and lead protection, and helps the patient to dress if necessary.

The technician performs hand hygiene (Moment 4)

- G. The technician records data and goes to the technical room to develop the X-ray.

* The same scenario with the strict application of the "My five moments" approach is provided in Appendix II.

Care sequence features

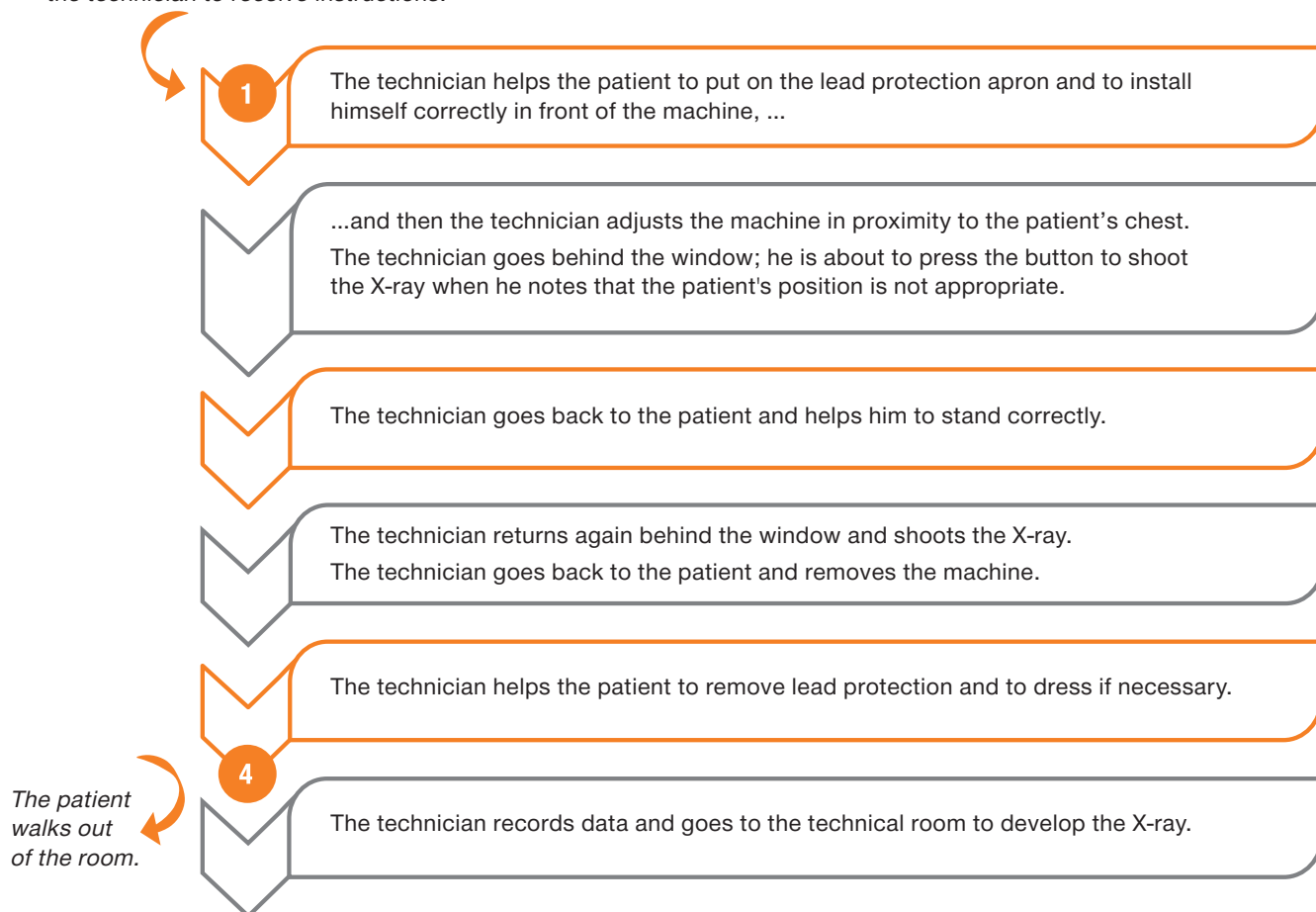
Likely frequency of the sequence per hour	4-6
Duration of the sequence	Approximately 10-15 minutes
Number of hand hygiene opportunities per sequence	2
Types of hand contact	Patient's skin and clothes
Glove use	No
Use of personal protective equipment	No
Use of disposable items	No
Use of sterile items	No
Use of shared items	Yes
<i>Patient zone</i>	The patient
<i>Point of care</i>	Where the patient is installed

 During environmental cleaning, high-touch surfaces (e.g., command buttons) should be identified and decontaminated with particular accuracy.

Chest X-ray in a diagnostic centre

● Hand hygiene opportunities according to **minimum requirements** for hand hygiene

The patient comes into the room and approaches the technician to receive instructions.



Comment

In this example, social contacts such as hand shaking between the patient and the HCW at the beginning and end of the consultation are not included. The occurrence of this gesture may change according to the culture and habits. If it does occur, this type of contact might increase the transmission risk and represents an additional opportunity for hand hygiene.

8a. Haemodialysis in a specialized ambulatory clinic – start of dialysis

Brief explanation

The setting is a dialysis daycare centre where five patients share a room. Each patient occupies a bed or an armchair. In the dedicated patient area, there are also a bedside table with medical supplies and a compartment for personal belongings, the dialysis machine with an affixed waste bag, a pressure cuff, and a stethoscope. Patients arrive one after the other approximately every 15 minutes. One nurse is in charge of the five patients in the room. The *patient zone* corresponds to the patient and his surroundings, including the bed or the armchair, the bedside table, the dialysis machine, and the other medical tools dedicated to the patient. All surfaces and medical equipment should be cleaned and decontaminated after use at the end of the patient's dialysis session with particular attention paid to the dialysis machine, including the external surfaces and panel.⁸⁰ In this setting, given the high infection risk for the patient, as well as the high transmission risk for other patients and HCWs due to repetitive invasive procedures and blood handling, it is extremely important to meet the requirements for optimal hand hygiene, despite the high frequency of opportunities for hand hygiene. Some personal protective equipment items (gowns, masks and goggles) can be worn while caring for different patients, provided that they do not become soiled with body fluids.

Sequence of care

- A. The patient arrives, places his belongings on the bedside table, and goes to wash his arm and to be weighed. The patient returns and lies down on the bed or sits in the armchair while the nurse arrives with the machine ready for use. She wears a gown, mask and goggles.

The nurse performs hand hygiene (Moment 1)

- B. The nurse measures the vital signs and temperature, asks for the weight result, checks the thrill of the fistula, helps to hook the patient to the machine, and places a protection under the patient's arm.
C. The nurse records the data in the patient chart and puts it on top of the dialysis machine.
D. The nurse sets the machine.

The nurse performs hand hygiene (Moment 2)

- E. The nurse opens the administration set for puncture on the top of the bedside table, pours antiseptic, prepares the needle and some tubes for blood sampling, if necessary, then fills syringes and adds compresses.

The nurse performs hand hygiene (Moment 2)

- F. The nurse dons sterile gloves and applies antiseptic on the puncture site (arterial-venous fistula site) using instruments.
G. The nurse inserts the first needle, rinses and fixes it to the port, connects the dialysis circuit, and repeats the procedure with the second needle.
H. The nurse adjusts the output of the machine.
I. The nurse clears the puncture set and removes and discards gloves in the waste bin.

The nurse performs hand hygiene (Moment 3)

- J. The nurse checks again the vital signs and records them, and gives a book to the patient from his bag on the bedside table.

The nurse performs hand hygiene (Moment 4)

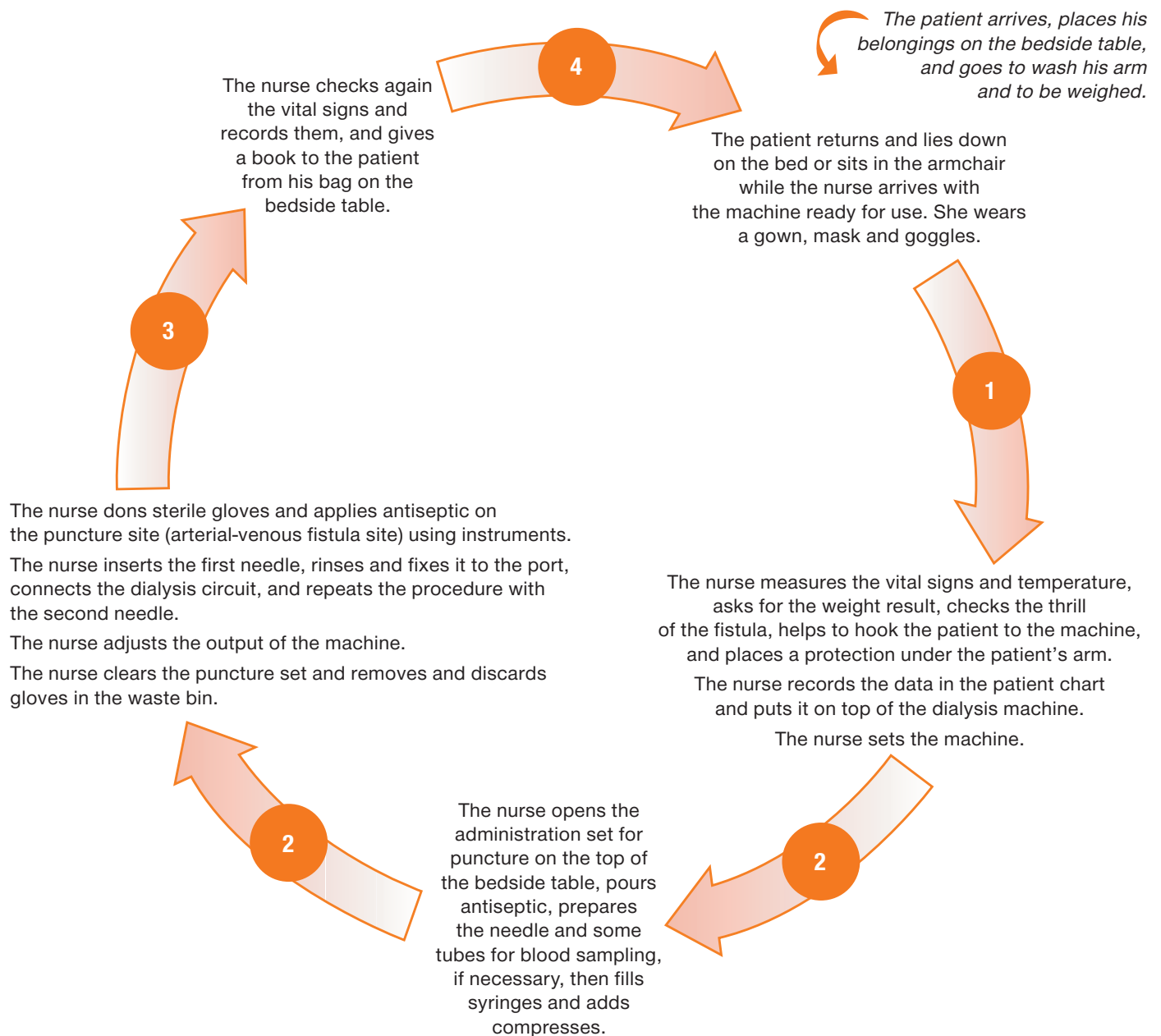
Care sequence features	
Likely frequency of the sequence per hour	4-6
Duration of the sequence	Approximately 15 minutes
Number of hand hygiene opportunities per sequence	4
Types of hand contact	Skin/non-intact skin/body fluid
Use of personal protective equipment	Gloves, gown, mask, goggles
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	No
Patient zone	The patient, the chair, the bedside table, the dialysis machine
Point of care	Where the patient sits or lies for dialysis



Hand hygiene efficacy depends on the environmental contamination.^{5, 54, 80} When shared medical devices and equipment are not cleaned and decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Haemodialysis in a specialized ambulatory clinic – start of dialysis

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



Comment

In this example, social contacts such as hand shaking between the patient and the doctor at the beginning and end of the consultation are not included. The occurrence of this gesture may change according to the culture and habits. If it does occur, this type of contact might increase the transmission risk and represents an additional opportunity for hand hygiene.

8b. Haemodialysis in a specialized ambulatory clinic – during the dialysis session

Brief explanation

See explanation for 8a.

Sequence of care

- A. Returning from another patient or the *health-care area*, the nurse goes back to the patient every 30-60 minutes on average.

The nurse performs hand hygiene

(Moments 4 & 1 combined)

- B. The nurse checks the vital signs and temperature and verifies that the machine is correctly functioning and makes adjustments if necessary.
- C. On one of these occasions, the patient asks the nurse for a massage to relieve cramps and to help with hook-up to the machine.

The nurse performs hand hygiene

(Moments 4 & 1 combined)

- D. The nurse goes to another patient for the same purpose.

The nurse performs hand hygiene

(Moments 4 & 1 combined)

Care sequence features

Likely frequency of the sequence per hour	5-10
Duration of the sequence	5 minutes
Number of hand hygiene opportunities per sequence	2
Types of hand contact	Skin
Use of personal protective equipment	No
Use of disposable items	No
Use of sterile items	No
Use of shared items	No
Patient zone	The patient, the chair, the bedside table, the dialysis machine
Point of care	Where the patient sits or lies for dialysis

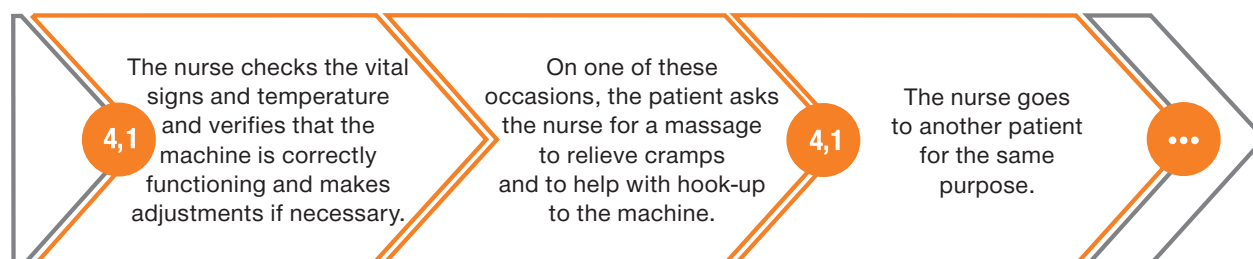


Hand hygiene efficacy depends on the environmental contamination.^{5, 54, 80} When shared medical devices and equipment are not cleaned and decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Haemodialysis in a specialized ambulatory clinic – during the dialysis session

Hand hygiene opportunities according to the My Five Moments for Hand Hygiene

Returning from another patient or the health-care area, the nurse goes back to the patient every 30-60 minutes on average.



8c. Haemodialysis in a specialized ambulatory clinic – disconnection at the end of dialysis

Brief explanation

See explanation for 8a.

Sequence of care

A. The nurse comes back to the patient; she wears a gown, mask and goggles.

The nurse performs hand hygiene (Moment 1)

- B. The nurse measures the patient's vital signs and temperature and adjusts the dialysis machine to give back the blood.
- C. She records the data on the patient chart and puts it on top of the dialysis machine.
- D. The nurse helps the patient to install for disconnection of the session.
- E. The nurse opens the package containing compresses for haemostasis.

The nurse performs hand hygiene (Moment 2)

- F. The nurse dons non sterile gloves.
- G. The nurse removes the needles, discards them in the sharps' disposal container, and discards the other items in the appropriate waste bin while the patient applies pressure for haemostasis.
- H. The nurse removes and discards gloves in the waste bin.
- I. The nurse leaves the patient to go to another patient or to the health-care environment.

The nurse performs hand hygiene (Moments 3 & 4 & 1)

- J. When haemostasis is achieved (after about 20 min), the nurse returns to the patient.

The nurse performs hand hygiene (Moment 1)

- K. The nurse checks again the vital signs, asks the patient to weigh, and records the data.

The nurse performs hand hygiene (Moment 4)

- L. The patient leaves.

Care sequence features

Likely frequency of the sequence per hour	3
Duration of the sequence	Approximately 20 minutes
Number of hand hygiene opportunities per sequence	5
Types of hand contact	Skin/non-intact skin/body fluid/medical equipment
Use of personal protective equipment	Gown, mask, goggles, and gloves
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	No
Patient zone	The patient, the chair, the bedside table, the dialysis machine
Point of care	Where the patient sits or lies for dialysis

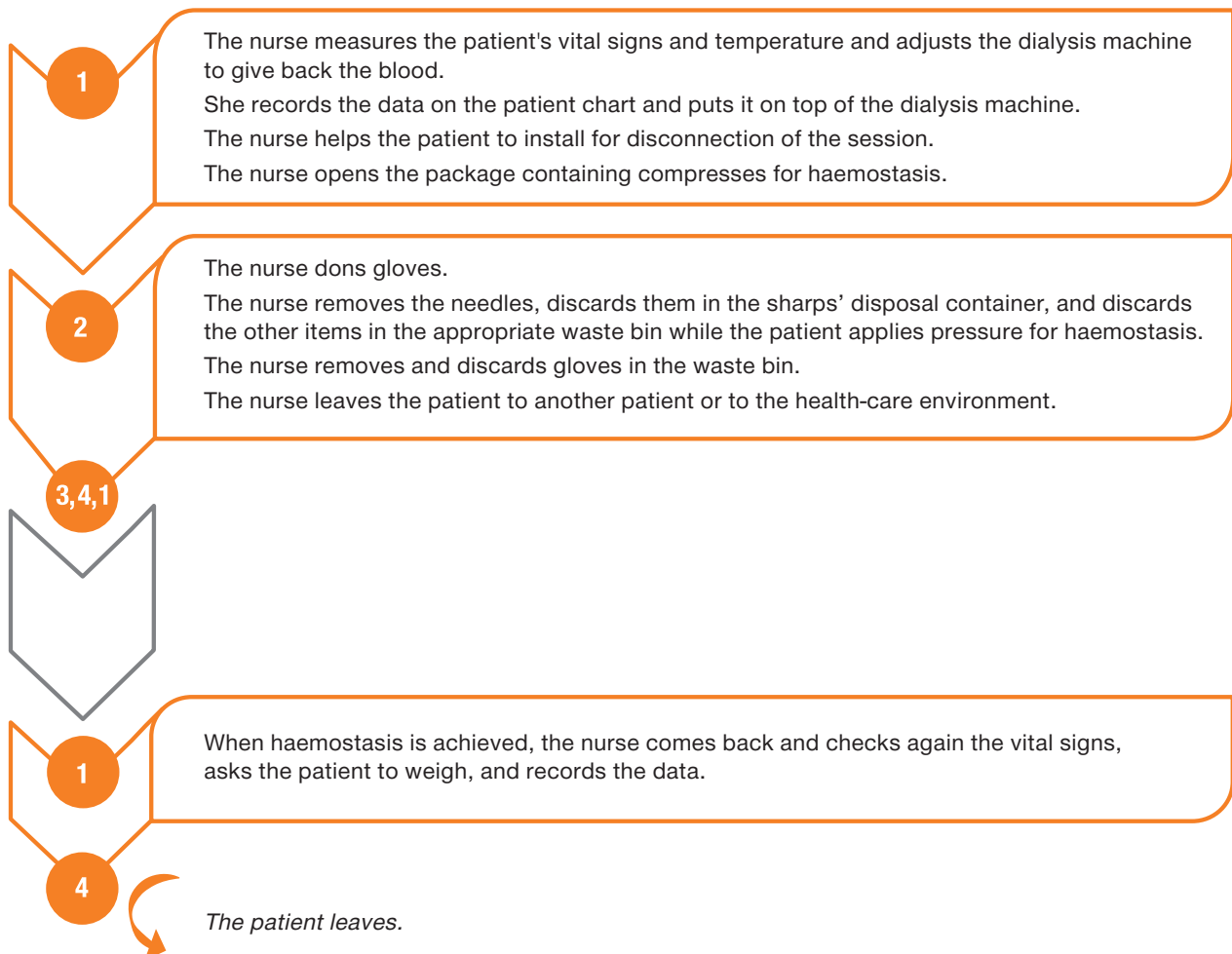


Hand hygiene efficacy depends on the environmental contamination.^{5, 54, 80} When shared medical devices and equipment are not cleaned and decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Haemodialysis in a specialized ambulatory clinic – disconnection at the end of dialysis

Hand hygiene opportunities according to the My Five Moments for Hand Hygiene

*...The nurse comes back to the patient;
she wears a gown, mask and goggles.*



8d. Haemodialysis in a specialized ambulatory clinic – after patient departure

Brief explanation

See explanation for 8a.

Sequence of activity

- A. The HCW cleans the dialysis station wearing household gloves, disinfects surfaces, including the machine that is taken away to be reprocessed.
- B. The HCW proceeds in the same manner in another dialysis station area.
- C. When finished, the HCW removes the household gloves and discards them in a basin for reprocessing.

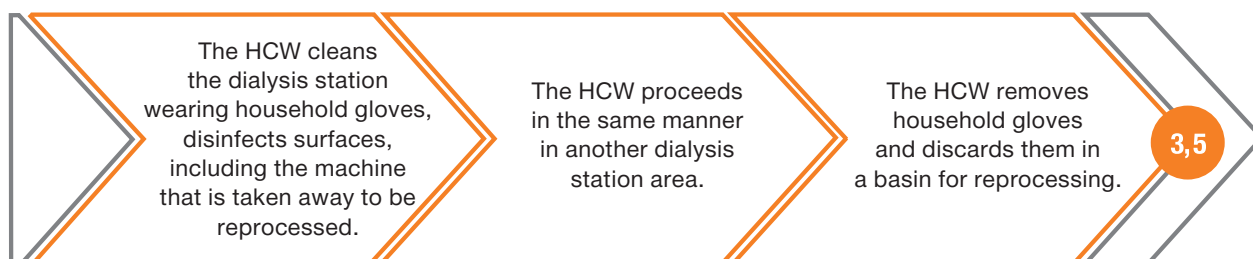
The HCW performs hand hygiene

(Moments 3 & 5 combined)

Activity sequence features	
Likely frequency of the sequence per hour	4
Duration of the sequence	15 minutes
Number of hand hygiene opportunities per sequence	1
Types of hand contact	Environmental items/blood-soiled items
Use of personal protective equipment	Household gloves
Use of disposable items	No
Use of sterile items	No
Use of shared items	No
Patient zone	The chair, the bedside table, the dialysis machine
Point of care	No

Haemodialysis in a specialized ambulatory clinic – after patient departure

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



9. Childbirth and delivery assistance

Brief explanation

Assistance is provided in a labour/delivery room where there are several beds separated by privacy curtains. One midwife may care for up to four women at the same time. Each delivery table is dedicated to one woman at a time. There is a small bedside table for personal belongings and some care material and a waste bin close to the bedside table. In the room, there is a cupboard containing various care items, such as bedlinen, pads, personal protective equipment, sterile medical devices, antiseptic, etc. Echo-doppler machine, pulse oxymeter, and sphygmomanometer are shared according to the various needs. The *patient zone* corresponds to the woman, the delivery table that she lies upon, and the bedside table. After delivery, the newborn is part of the *patient zone*. The *point of care* is where examinations and delivery take place.

Once the woman is installed on the examination/delivery table, strict hand hygiene measures are necessary according to the principles of the “My five moments” approach. The *patient zone* concept always applies in such a setting, irrespective of the place of delivery (tertiary or primary care centre). This implies that the *patient zone* is decontaminated after each delivery. During and after delivery, the *patient zone* includes both the mother and the newborn. Given the high risk for puerperal infection and germ transmission to the child, other patients, and to HCWs due to repetitive invasive procedures and the presence of large amounts of body fluids, it is extremely important to meet the requirements for hand hygiene despite the high frequency of hand hygiene opportunities.

9a. During labour

Sequence of care

- A. The midwife approaches the woman and closes the curtains, chats briefly with her, and asks for some information.
- The midwife performs hand hygiene (Moment 1)**
- B. The midwife palpates the abdomen and measures pulse and respiratory rates.
- The midwife performs hand hygiene (Moment 4)**
- C. The midwife opens the curtains, leaves the *patient zone*, and returns with a sphygmomanometer.
- The midwife performs hand hygiene (Moment 1)**
- D. The midwife measures blood pressure and then listens to the fetal heart rate with the fetal stethoscope.
- E. The midwife pours some antiseptic into a cup and opens a package of compresses.
- The midwife performs hand hygiene (Moment 2)**
- F. The midwife dons non sterile gloves (at least one).
- G. The midwife applies antiseptic and performs a vaginal examination.
- H. The midwife wipes up some amniotic fluid with a towel (with the gloved hand when a single glove has been donned).
- I. She removes and discards gloves in the waste bin.
- The midwife performs hand hygiene (Moments 3 & 4 combined)**
- J. The midwife records data and leaves.

Care sequence features

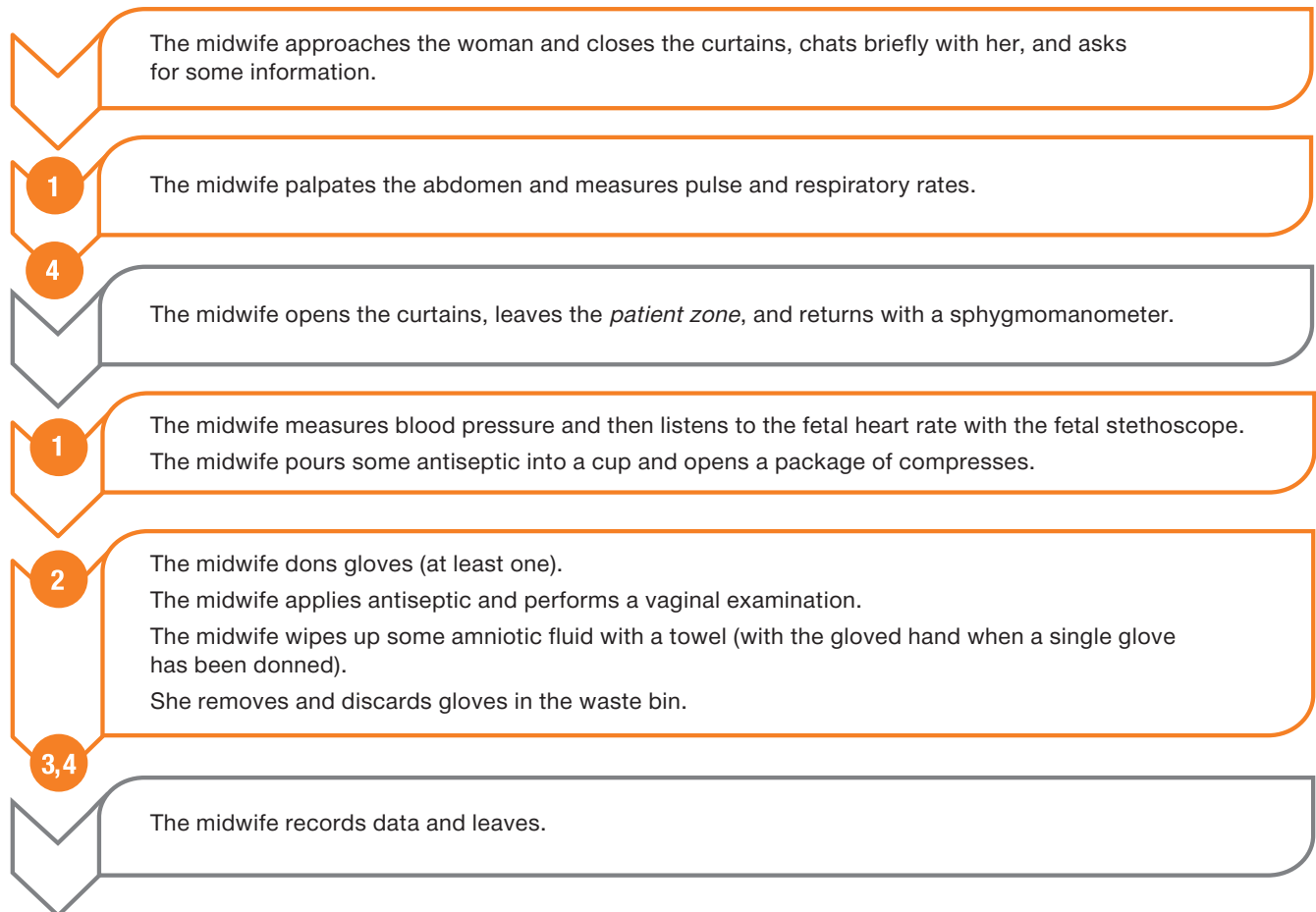
Likely frequency of the sequence per hour	4-6
Duration of the sequence	10-15 minutes
Types of hand contact	Skin/mucous membrane/body fluids
Use of personal protective equipment	Gloves
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	Yes
<i>Patient zone</i>	The patient, the table, the bedside table and its content
<i>Point of care</i>	Where the patient lies



Hand hygiene efficacy depends on the environmental contamination.^{5, 54} When shared medical devices and equipment are not cleaned and decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Childbirth and delivery assistance – during labour

Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



9b. At time of delivery

Sequence of care

- A. The midwife prepares various material needed for the mother and child (towels, pads, scissors, clamps, gauze dressings, etc.) and puts on gown, mask, and goggles.

The midwife performs hand hygiene (Moment 1)

- B. The midwife measures vital signs in the mother and listens to the fetal heart with the fetal stethoscope.
C. The midwife pours antiseptic into a cup and opens a package of compresses.

The midwife performs hand hygiene (Moment 2)

- D. The midwife dons sterile gloves.
E. The midwife applies antiseptic around the vaginal area.
F. The midwife delivers the baby.

- G. The midwife examines the baby, clamps and cuts the umbilical cord, wraps him in a towel, and gives him to the mother.

- H. The midwife helps the mother to deliver the placenta by pressing on the abdomen and checks the placenta.
I. The midwife removes and discards gloves in the waste bin.

The midwife performs hand hygiene (Moment 3)

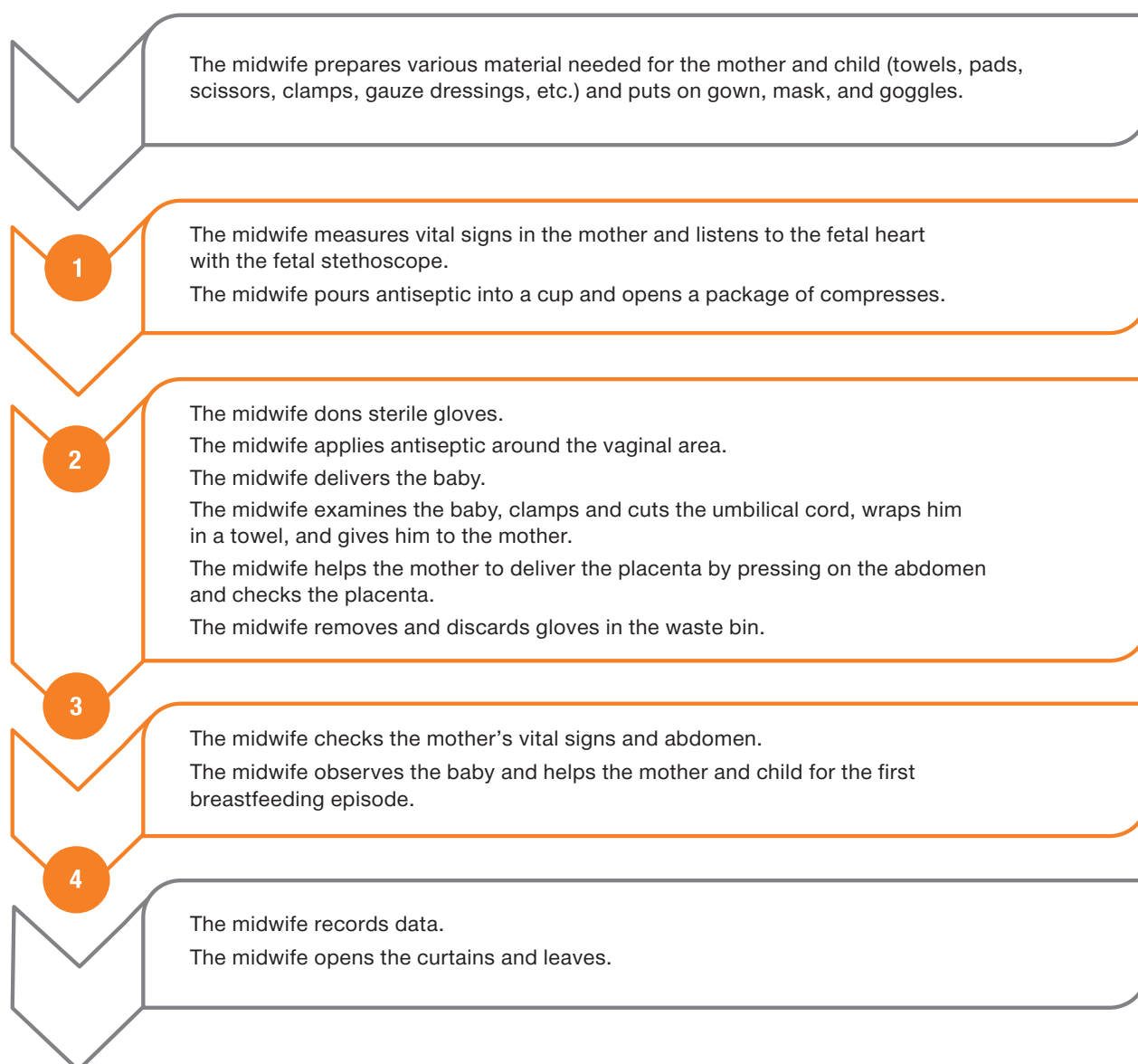
- J. The midwife checks the mother's vital signs and abdomen.
K. The midwife observes the baby and helps the mother and child for the first breastfeeding episode.

The midwife performs hand hygiene (Moment 4)

- L. The midwife records data.
M. The midwife opens the curtains and leaves.

Care sequence features

Likely frequency of the sequence per hour	1-2
Duration of the sequence	30-60 minutes
Number of hand hygiene opportunities per sequence	4
Types of hand contact	Skin/mucous membrane/body fluids
Use of personal protective equipment	Gown, mask, goggles, gloves
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	Yes
<i>Patient zone</i>	The patient, the table, the bedside table and its content
<i>Point of care</i>	Where the patient lies

Childbirth and delivery assistance – at time of delivery**● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene**

9c. After the departure of mother and child from the delivery area

Sequence of activity

- A. A HCW wearing household gloves comes with cleaning materials.
- B. The HCW sorts out the various items and waste and puts them either in the waste bin to be taken to the decontamination area or in a sink.
- C. The HCW cleans the delivery table and any other surfaces (e.g. bedside table), including the floor.
- D. The HCW disposes of the cleaning items according to local procedures, including the household gloves.

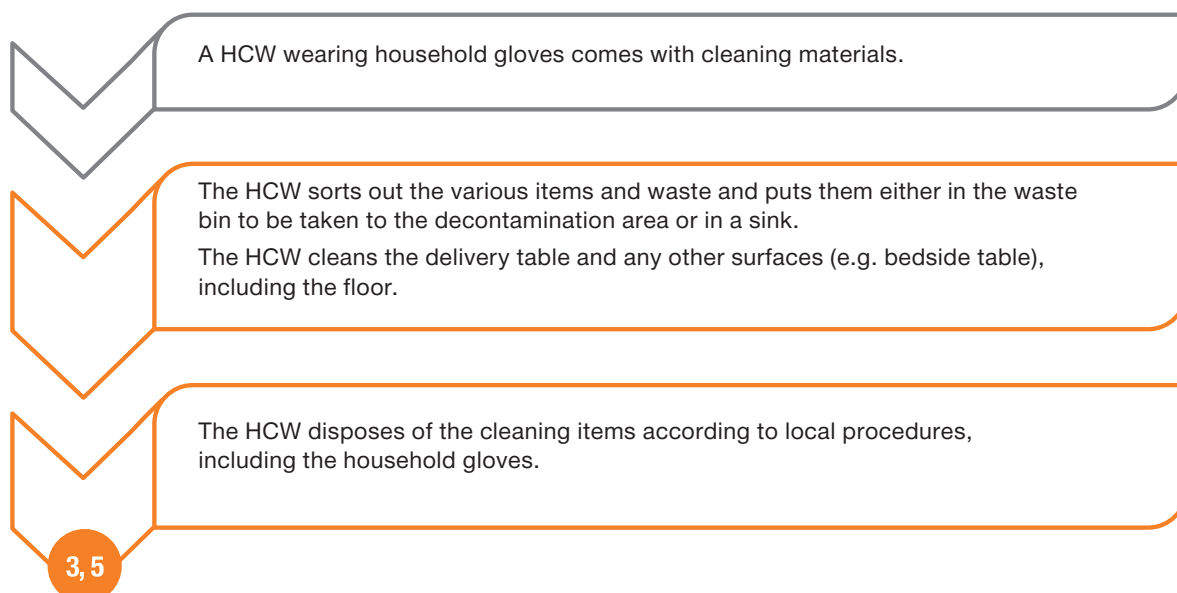
The HCW performs hand hygiene

(Moments 3 & 5 combined).

Care sequence features	
Likely frequency of the sequence per hour	1
Duration of the sequence	Approximately 10 minutes
Number of hand hygiene opportunities per sequence	1
Types of hand contact	Body fluids/inanimate surfaces
Use of personal protective equipment	Gloves
Use of disposable items	Yes
Use of sterile items	No
Use of shared items	Yes
Patient zone	The delivery table, the bedside table and its content

Childbirth and delivery assistance – after the departure of mother and child from the delivery area

Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



10. Dental care in a clinic

Brief explanation

The setting is a room of a dental care clinic where there are three chairs with their own technical machines and items. The characteristic of this situation is the very frequent hand contacts with *critical sites*. All medical equipment must be decontaminated between patients and items in contact with mucous membranes and teeth must undergo high-level disinfection or sterilization.⁵⁴ Large cupboards contain various material used for dental care. There is also a screen for viewing X-rays.

Sequence of care

- A. The patient enters the room and sits down in the dental chair.
- B. The dentist wearing face mask and goggles comes to the chair, verbally greets the patient, adjusts his own chair, and switches on the overhead lamp.

The dentist performs hand hygiene

(Moments 1 & 2 combined)

- C. The dentist dons non sterile gloves, and examines the patient's teeth with a small mirror from a tray prepared by the assistant with other items and materials and products necessary for dental care.

- D. The dentist administers an injection of local anesthetic, then removes and discards gloves in the waste bin.

The dentist performs hand hygiene

(Moments 3 & 4 combined)

- E. While waiting for the anaesthesia to take effect, he takes the patient's X-ray from the bench and moves to the screen to review it.

- F. He comes back to the patient.

The dentist performs hand hygiene

(Moments 1 & 2 combined)

- G. He dons gloves and starts the dental procedure.
- H. At the end of the intervention, the dentist clears some material in a tray and removes and discards gloves in the waste bin.

The dentist performs hand hygiene

(Moments 3 & 4 & 1 combined)

- I. The dentist says goodbye to the patient and moves to another patient.
- J. A dental assistant wearing gloves arrives to clear material and waste and cleans the dental chair, surrounding environment, and equipment. The assistant finally removes and discards gloves.

The dental assistant performs hand hygiene

(Moments 3 & 5 combined)

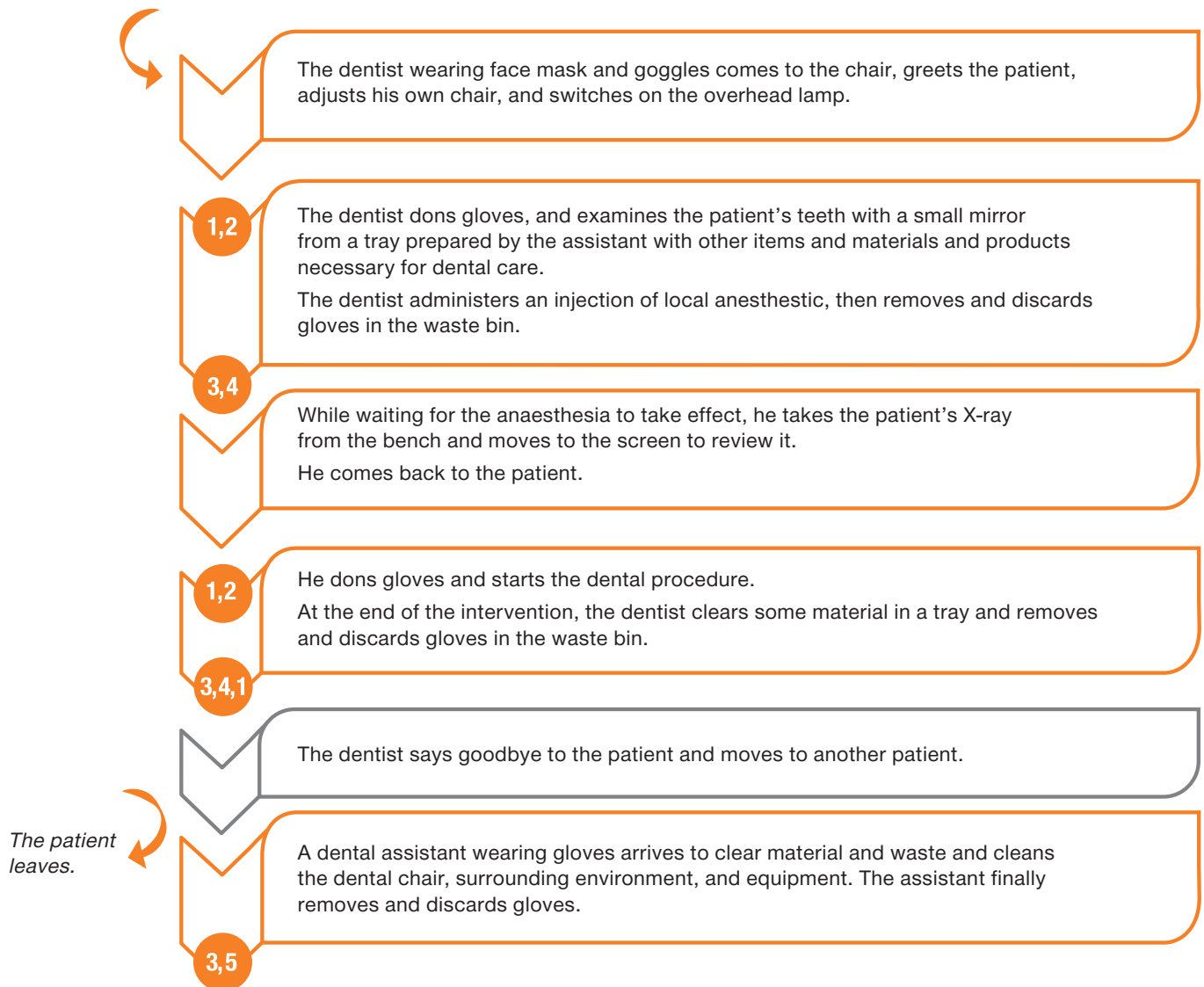
Care sequence features	
Likely frequency of the sequences per hour	1-2
Duration of the sequence	30-60 minutes
Number of hand hygiene opportunities per sequence	5 (4 for the dentist and 1 for the dental assistant)
Types of hand contact	Care items/body fluids/skin potentially
Use of personal protective equipment	Gloves, mask, goggles
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	Yes
Patient zone	The patient, the dental chair, and the technical support
Point of care	Where dental care is given

 Hand hygiene efficacy depends on the environmental contamination.^{5, 54} When shared medical devices and equipment are not cleaned and decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Dental care in a clinic

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene

*The patient enters the room
and sits down in the dental chair.*



Comment

In this example, social contacts such as hand shaking between the dentists and the patient are not included. The occurrence of this gesture may change according to the culture and habits. If it does occur, this type of contact might increase the transmission risk and represents an additional opportunity for hand hygiene. Hand hygiene should be carefully considered before and after each time the dentist has any social contact with the patient, such as shaking hands

11. Check of vital and clinical parameters in a bedridden resident of a nursing home

Brief explanation

The setting is a resident's room in a nursing home for the elderly. In this case, the resident is physically disabled and bedridden. The monitoring of blood pressure and other vital signs, such as blood glucose, is frequently performed in LTCFs. The HCW enters the resident's room with a trolley containing the blood pressure cuff and stethoscope from the ward, a sharps' disposal container, and a tray with the necessary material for a blood sugar test, a notebook, and a pen. The resident and the room environment represent the *patient zone*. The *point/s of care* is/are where the HCW is in contact with the resident for medical and nursing care purposes.

Sequence of care

- A. The HCW enters the resident's room and verbally greets the resident.

The HCW performs hand hygiene (Moment 1)

- B. He explains to the resident that the purpose of the visit is to measure his blood pressure.

- C. The HCW uncovers the resident's arm and measures the blood pressure.
D. The HCW helps the resident to sit in a comfortable position.
E. The HCW applies antiseptic to the resident's finger using a small gauze pad and discards it.

The HCW performs hand hygiene (Moment 2)

- F. The HCW dons gloves.
G. The HCW takes a blood sample from the finger using a fingerstick device.
H. The HCW disposes the fingerstick device in the sharps' disposal container.
J. The HCW applies the blood to the test strip.
K. The HCW places gauze over the puncture site and briefly applies pressure until the bleeding stops.
L. The HCW removes and discards gloves.

The HCW performs hand hygiene

(Moments 3 & 4 combined)

- M. The HCW reads the result and records it.
N. The HCW leaves the resident's room.

Care sequence features

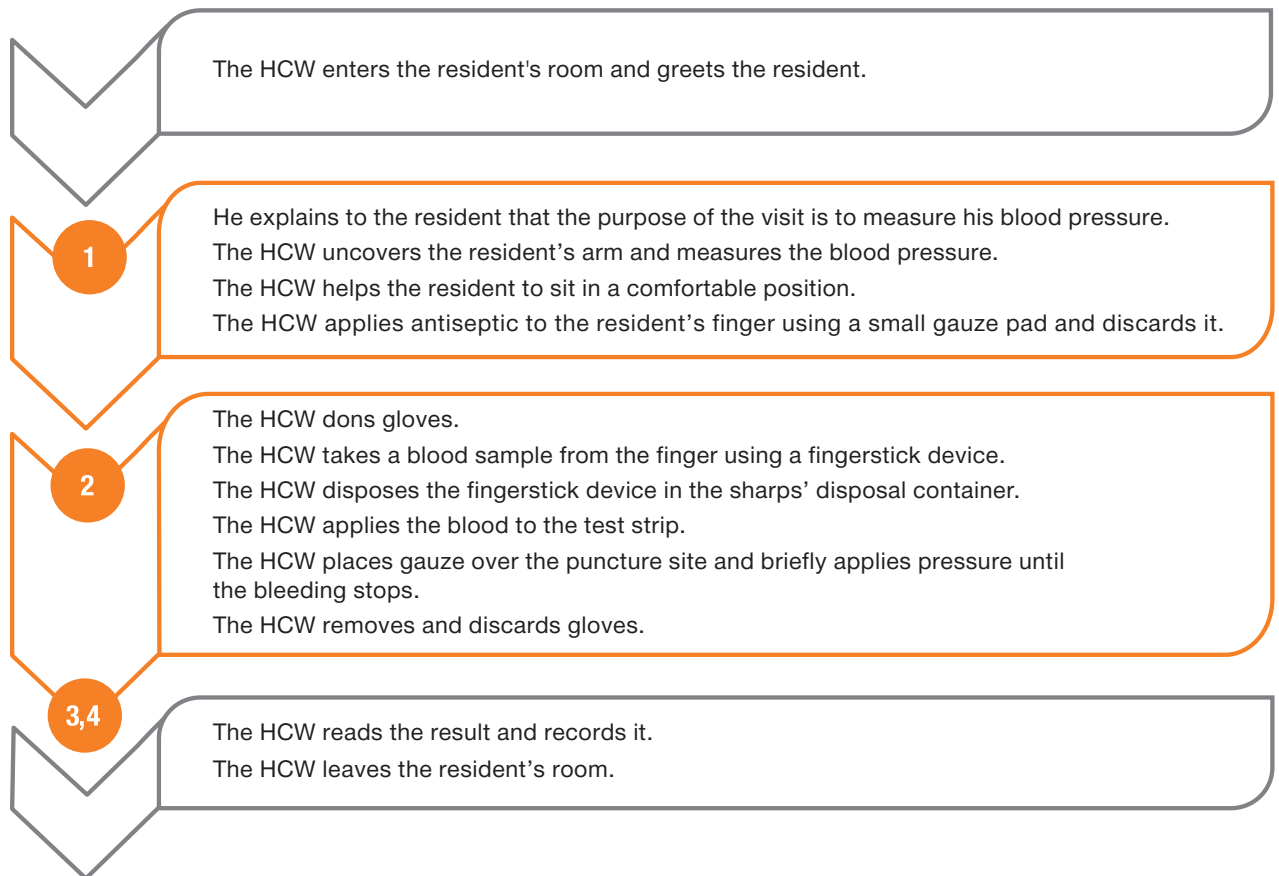
Likely frequency of the sequence per hour	4-6
Duration of the sequence	About 10-15 minutes
Number of hand hygiene opportunities per sequence	3
Types of hand contact	Skin/body fluid
Use of personal protective equipment	Gloves
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	Yes
<i>Patient zone</i>	The patient and the resident's room environment
<i>Point of care</i>	Where contacts with the resident occur



Hand hygiene efficacy depends on the environmental contamination.^{5, 54} When shared medical devices and equipment are not decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.

Control of vital and clinical parameters in a bedridden resident of a nursing home

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



Comment

In this example, social contacts such as hand shaking between the resident and the HCW are not included. The occurrence of this gesture may change according to the culture and habits. If it does occur, this type of contact might increase the transmission risk and represents an additional opportunity for hand hygiene.

12. Changing the diaper of a bedridden resident in a LTCF

Brief explanation

The setting is the room of a stool-incontinent resident in a LTCF for the elderly. Care of incontinent residents in LTCF is one of the most frequently performed actions with a risk of hand contamination. The resident and the room environment represent the *patient zone*. The *point/s of care* is/are where the HCW touches the resident and the surroundings.

Sequence of care

- A. The HCW enters the resident's room and verbally greets him.

The HCW performs hand hygiene (Moment 1)

- B. He explains to the resident that he wants to change his diaper.

- C. The HCW takes the necessary material from the cabinet and dons disposable gloves.

- D. He rolls down the bedlinen to uncover the resident and removes and folds the used diaper and puts it in the waste bin.

- E. The HCW cleans the resident using cellulose and a cleaning foam before putting on a clean diaper.

- F. He puts the used cellulose in the waste bin and then removes and discards his gloves in the waste bin.

The HCW performs hand hygiene (Moment 3)

- G. The HCW installs the resident in a comfortable position in his bed and pulls up the bed covers.

The HCW performs hand hygiene (Moment 4)

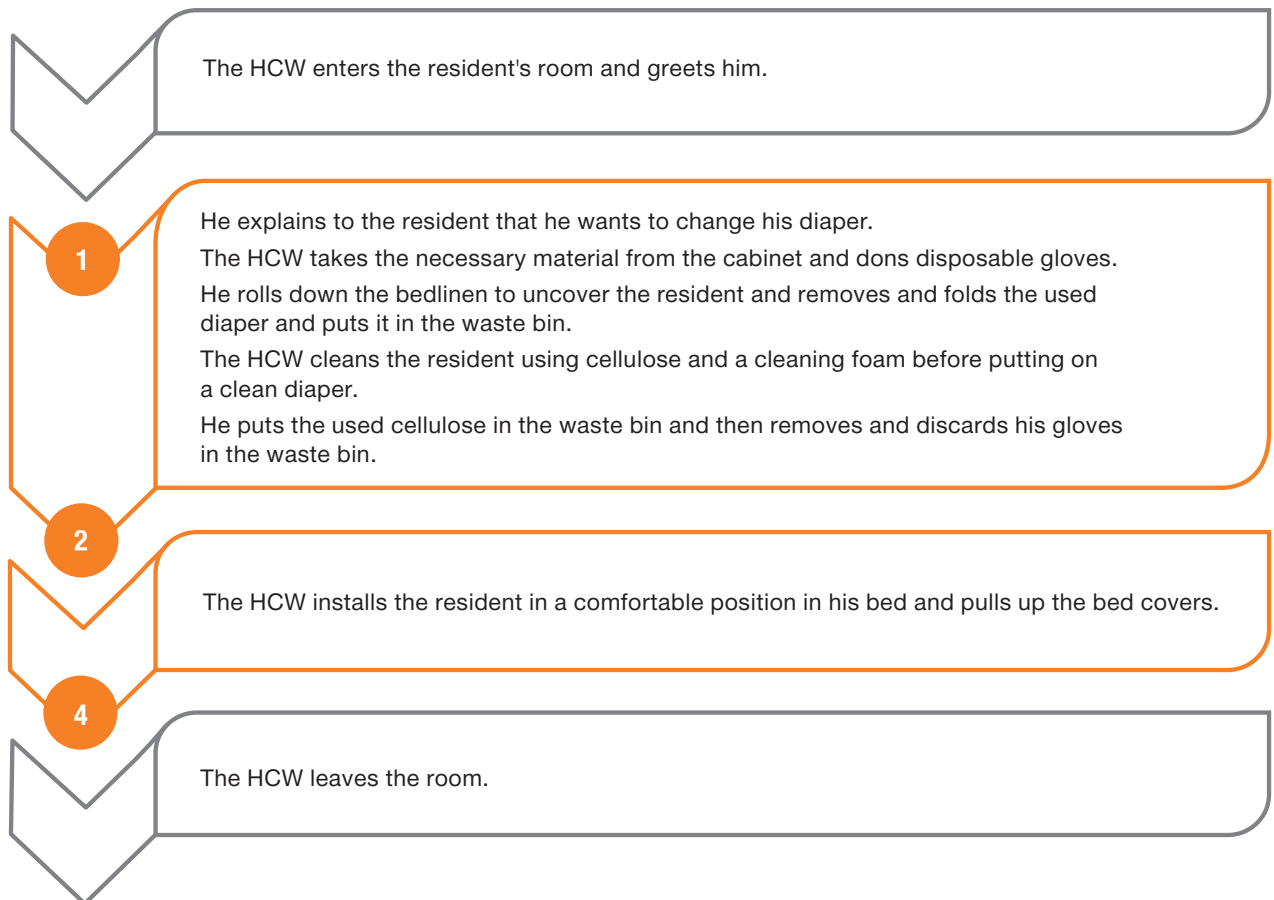
- H. The HCW leaves the room.

Care sequence features

Likely frequency of the sequence per hour	6
Duration of the sequence	Approximately 10 minutes
Number of hand hygiene opportunities per sequence	3
Types of hand contact	Body fluids/skin/contact with contaminated items
Use of personal protective equipment	Gloves
Use of disposable items	Yes
Use of sterile items	No
Use of shared items	No
<i>Patient zone</i>	The resident, the resident's room, and its content
<i>Point of care</i>	Where the patient lies

Changing the diaper of a bedridden resident of a long-term care facility

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



Comment

In this example, social contacts such as hand shaking between the resident and the HCW are not included. The occurrence of this gesture may change according to the culture and habits. If it does occur, this type of contact might increase the transmission risk and represents an additional opportunity for hand hygiene.

13. Physiotherapy and mobility exercise care to an elderly person in a nursing home

Brief explanation

The setting is a nursing home where many residents have mobility handicaps of varying grades (some are disabled) and need assistance and physiotherapy to maintain the exercise level necessary to move around. The resident and the room environment or the resident's bed and its surroundings (in case of shared rooms) represent the *patient zone*. The facility environment not included in the *patient zone* represents the *health-care area*. The *point of care* is where the HCWs have contact with the resident.

Sequence of care

- A. The auxiliary nurse enters the resident's room and verbally greets the resident who is sitting in an armchair.

The auxiliary nurse performs hand hygiene (Moment 1)

- B. The auxiliary nurse helps the resident to stand up and lean on the walking frame, and accompanies the resident to a room dedicated to exercise and physiotherapy.

- C. The auxiliary nurse leaves the resident with the physiotherapist

The auxiliary nurse performs hand hygiene (Moment 4) and returns to other duties.

The physiotherapist performs hand hygiene (Moment 1) before starting the exercises.

- D. The physiotherapist helps the resident to perform mobility exercises.

- E. When finished, the auxiliary nurse returns to the room.

Both the physiotherapist (Moment 4) and the auxiliary nurse (Moment 1) perform hand hygiene

- F. The auxiliary nurse walks with the resident to the bathroom to wash hands, and then accompanies her to the dining room and helps her sit at a table.

The auxiliary nurse performs hand hygiene (Moment 4)

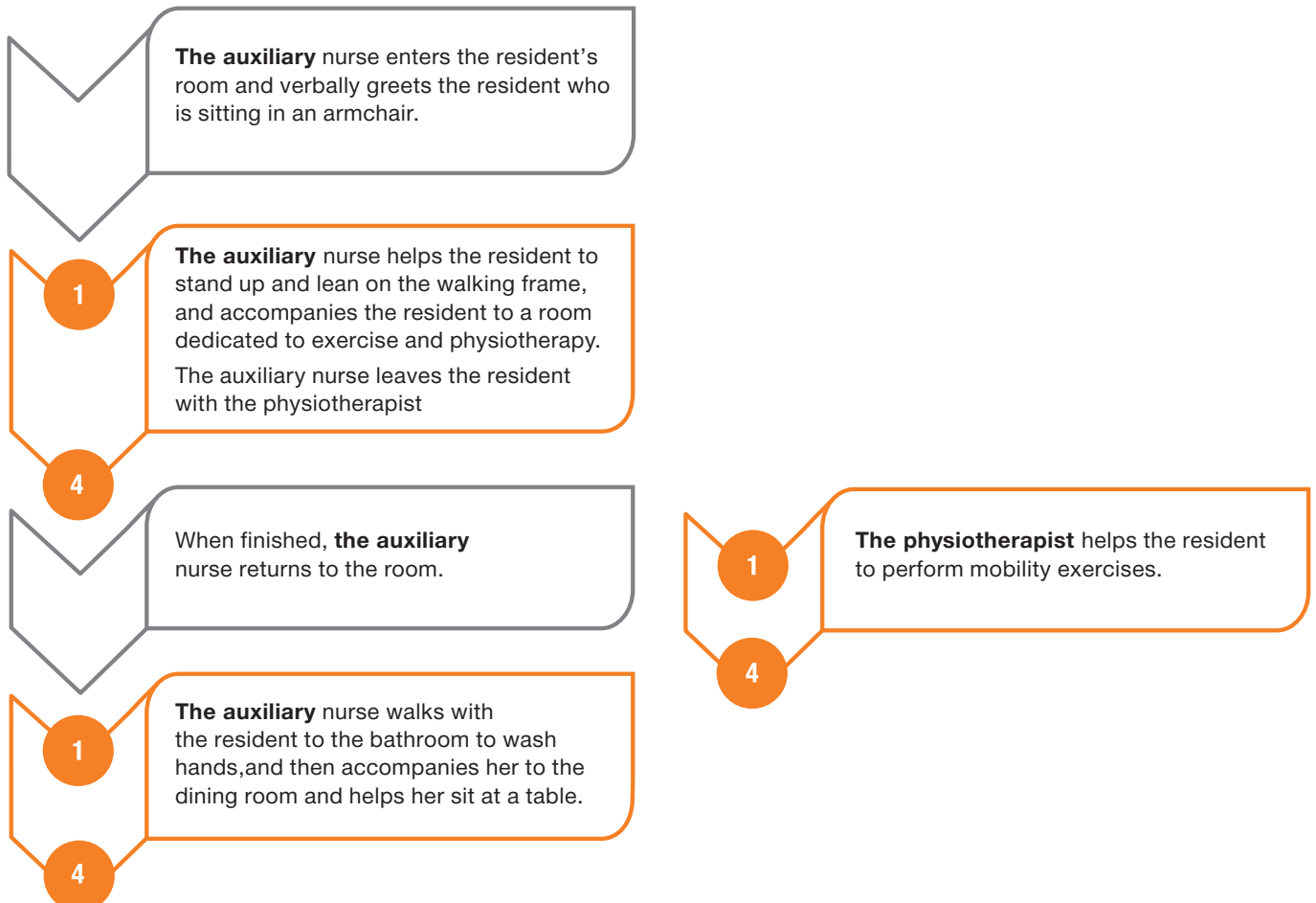
- G. The auxiliary nurse pours some tea in a cup, serves the resident and then leaves the resident.

Care sequence features

Likely frequency of the sequence per hour	2
Duration of the sequence	Approximately 30-40 minutes
Number of hand hygiene opportunities per sequence	6 (4 for the auxiliary nurse and 2 for the physiotherapist)
Types of hand contact	Skin
Use of personal protective equipment	No
Use of disposable items	No
Use of sterile items	No
Use of shared items	No
<i>Patient zone</i>	The resident and his room environment
<i>Point of care</i>	Where contacts with the patient occur

Physiotherapy and mobility exercise care to an elderly person in a nursing home

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



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APPENDIX I

Definition of Long-Term Care (LTC)

From: Lessons for Long-Term Care Policy. WHO 2002

http://whqlibdoc.who.int/hq/2002/WHO_NMH7CCL_02.1.pdf

Long-term care (LTC) includes activities undertaken for persons that are not fully capable of self-care on a long-term basis, by informal caregivers (family and friends), by formal caregivers, including professionals and paraprofessionals (health, social, and others), and by traditional caregivers and volunteers.

It encompasses a broad array of services such as personal care (e.g. bathing and grooming), household chores (e.g. meal preparation and cleaning), life management (e.g. shopping, medication management, and transportation), assistive devices (e.g. canes and walkers), more advanced technologies (e.g. emergency alert systems and computerized medication reminders), and home modifications (e.g. ramps and hand rails). This mix of services, whether delivered in homes, in communities or in institutional settings, is designed to minimize, restore, or compensate for the loss of independent physical or mental functioning.

LTC does not include prevention, management of chronic disease, rehabilitation and acute care in general. However, it is necessary to ensure access of the long-term care population to these services. It also includes special assistance to meet basic housing and subsistence needs.

LTC includes efforts to ensure access of the long-term care population to acute and chronic care. It also includes efforts to prevent deterioration of the functional capacity of the disabled (such as preventing bedsores, preventing depression) by promoting appropriate lifestyles for the disabled and their caregivers, and adapting preventive care to maintain functional capacity and social interaction.

Target population

The population in need of long-term care includes all those who suffer from any kind of physical or mental disability. The focus, derived from the above definition of LTC, is on the care of persons with long-term health problems who need assistance with the activities of daily living. This target population includes persons of all ages who are experiencing some degree of functional dependence, as well as their care providers.

Types of long-term care services

Long-term care may be either institutional or home-based. It may be either formal or informal. Institutional or residential long-term care occurs when three or more unrelated persons are being cared for in the same place.

Home-based care may occur either in the home, or in the community but outside the home. It is useful to distinguish between two types of home-based LTC services:

1. Health-related care, which we refer to as home health.
2. Care related to daily functioning, such as personal care (e.g. eating, bathing) and homemaking (e.g. cooking, cleaning).

Formal care (i.e. paid care) may be publicly financed and organized. In this approach, services may be provided by governmental organizations; by local, national, or international nongovernmental organizations; or by for-profit organizations. Formal care is usually provided by recognized professionals (e.g. nurses, doctors, and social workers) and/or by paraprofessionals (e.g. personal care workers). Traditional healers may be an important additional source of care.

Informal care includes care provided by nuclear and extended family members, neighbours, friends, and independent volunteers, as well as organized volunteer work through organizations such as religious groups.

APPENDIX II

The intention of this appendix is to show differences in some scenarios if the “My five moments” approach is **strictly** applied. As explained in Section 7 (*Practical examples of hand hygiene requirements in a broad range of outpatient care settings*), it has been decided to recommend minimum requirements for hand hygiene performance illustrated in examples 1, 2, and 7 instead of the strict application of the “My five moments” according to the four main criteria listed in Section 7. Amended care sequence features are also provided to help to understand the occurrence of hand hygiene opportunities in the context of the risk of each specific care situation

1. Public vaccination campaign

Sequence of care according to the “My five moments” approach

- A. A person walks in (while the previous one walks out) and sits down on a chair.

The HCW performs hand hygiene (Moment 1)

- B. The person exposes his arm, the HCW applies the skin antiseptic to the injection site using a small gauze pad and discards it after use.

The HCW performs hand hygiene (Moment 2)

- C. The HCW picks up the pre-prepared, single-use material for vaccination.

- D. The HCW performs the injection.

- E. The HCW discards the needle into the sharps’ disposal container on the table.

- F. The HCW applies an adhesive bandage to the injection site.

The HCW performs hand hygiene (Moment 4)

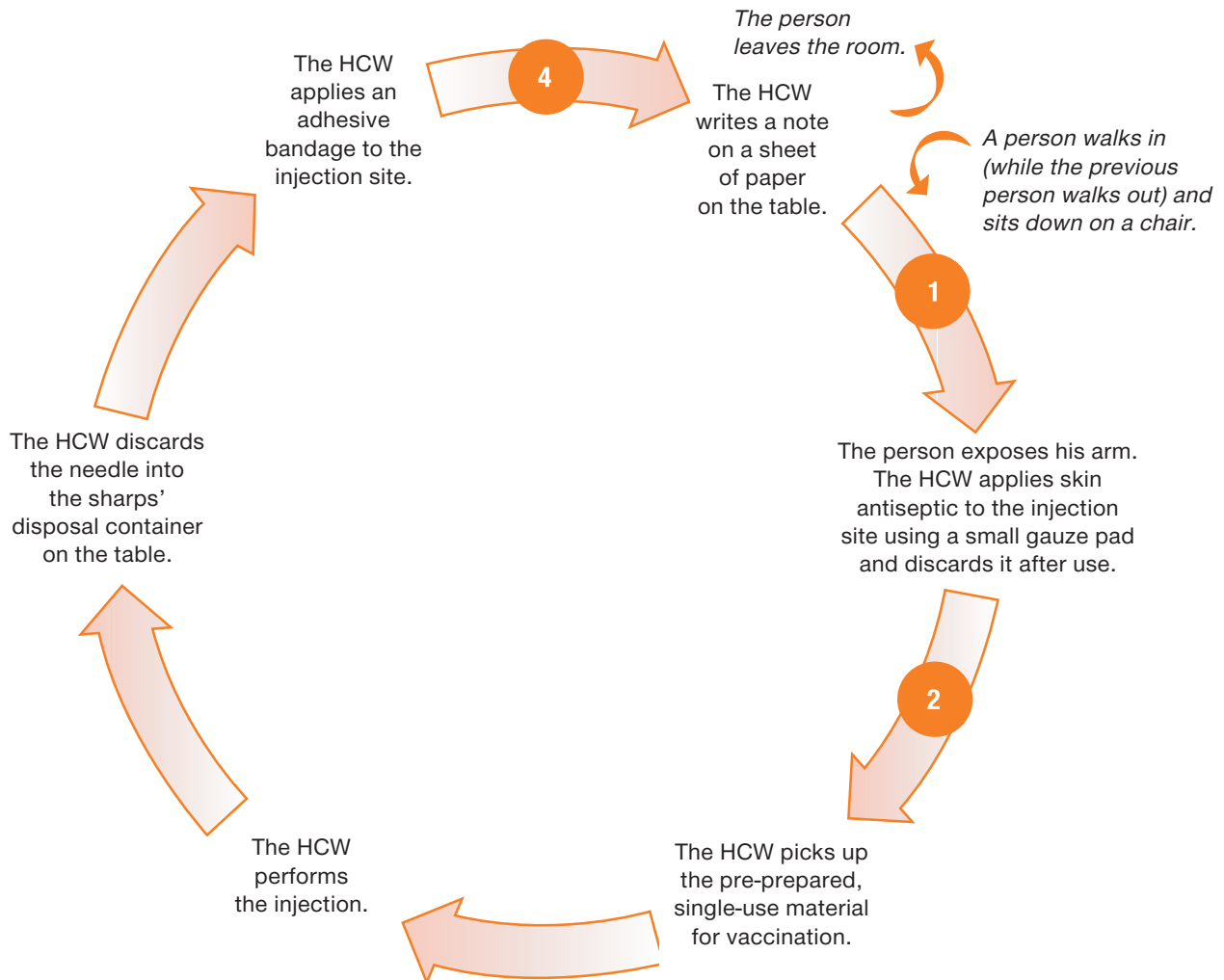
- G. The HCW writes a note on a sheet of paper on the table.

- H. The person gets up and leaves the room (while the next one walks in).

Care sequence features	
Likely frequency of the sequences per hour	30
Duration of the sequence	2 minutes
Number of hand hygiene opportunities per sequence	3
Types of hand contact	Skin/non-intact skin
Use of personal protective patient	No
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	No
Patient zone	The patient
Point of care	Where the injection takes place

Public vaccination campaign

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



2. Blood drawing in a laboratory

Sequence of care according to the “My five moments” approach

- A. A patient comes into the room and sits down (while the previous patient leaves). The HCW asks for the patient’s name and address.
- B. The HCW chooses and labels the tubes for sampling while asking him to roll up a sleeve to free the forearm.
- C. The HCW prepares the material for the puncture (needle, antiseptic, pads, tourniquet, adhesive bandage).

The HCW performs hand hygiene (Moment 1)

- D. The HCW applies the tourniquet around the arm.
- E. The HCW locates a vein by palpation with two fingers.
- F. The HCW applies antiseptic using a small gauze pad onto the puncture site and discards it.

The HCW performs hand hygiene (Moment 2)

- G. The HCW dons non-sterile gloves.
- H. The HCW punctures the vein and draws blood.
- I. The HCW releases the tourniquet.
- J. The HCW removes the needle and discards it in the sharps’ disposal container while asking the patient to apply pressure to the puncture site.
- K. The HCW puts the tubes in a rack and discards the remaining material.
- L. The HCW covers the puncture site with an adhesive bandage.
- M. The HCW removes and discards gloves.

The HCW performs hand hygiene (Moments 3 & 4).

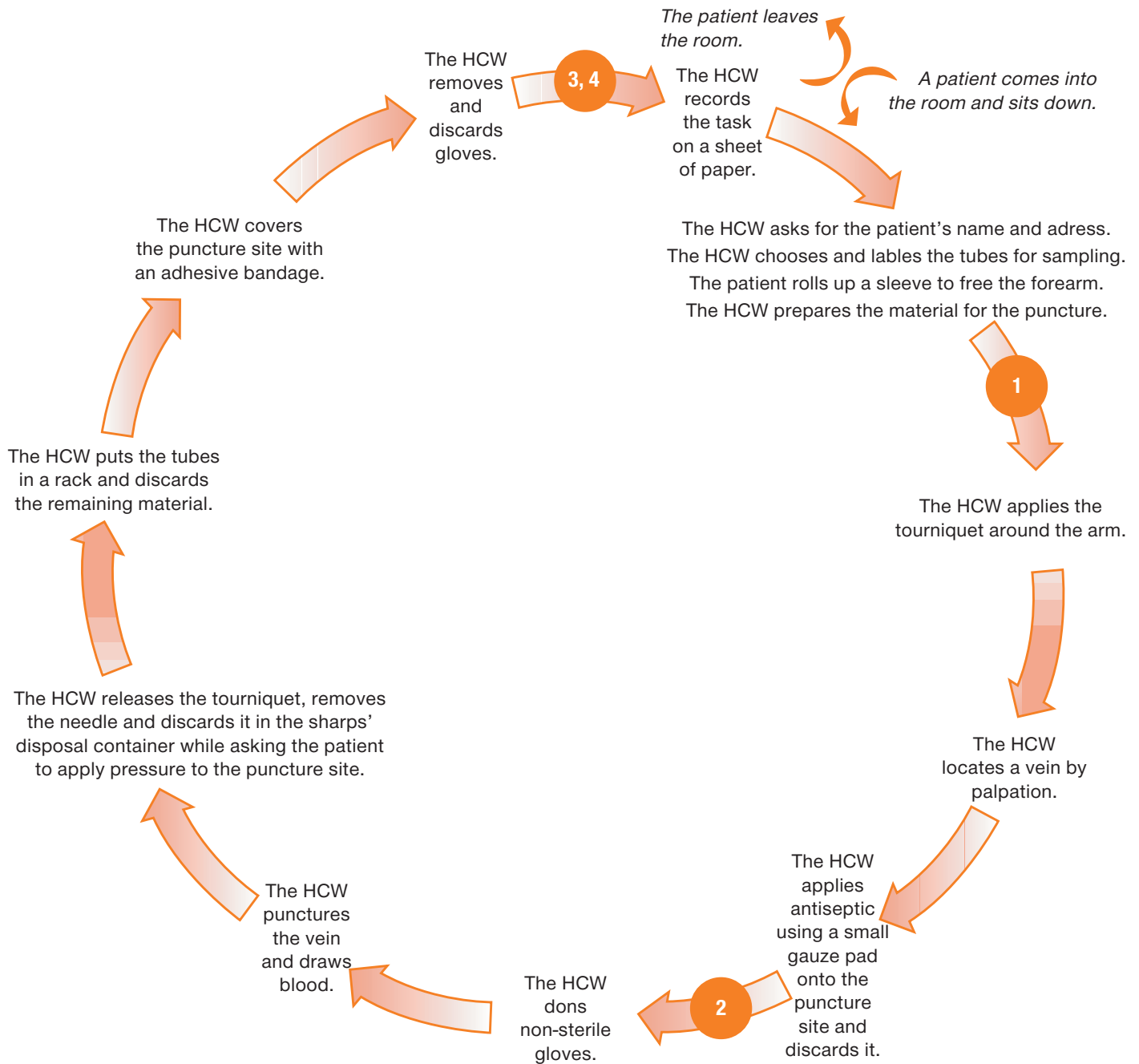
- N. The HCW records the task on a sheet of paper while the patient leaves and the next patient comes in.

Care sequence features

Likely frequency of the sequence per hour	12-20
Duration of the sequence	Approximately 3-5 minutes
Number of hand hygiene opportunities per sequence	3
Types of hand contact	Skin/non-intact skin/blood
Use of personal protective equipment	Gloves
Use of disposable items	Yes
Use of sterile items	Yes
Use of shared items	Yes (tourniquet)

Blood drawing in a laboratory

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene



7. Chest X-ray in a diagnostic centre

Sequence of care according to the “My five moments” approach

A. The patient comes into the room, puts his clothes on a chair, and approaches the technician to receive instructions.

The technician performs hand hygiene (Moment 1)

B. The technician helps the patient to put on the lead protection apron and to install himself correctly in front of the machine, and then adjusts the machine in proximity to the patient’s chest.

The technician performs hand hygiene (Moment 4)

C. The technician goes behind the window; he is about to press the button to shoot the X-ray when he notes that the patient’s position is not appropriate.

The technician performs hand hygiene (Moment 1)

D. The technician goes back to the patient and helps him to stand correctly.

The technician performs hand hygiene (Moment 4)

E. The technician returns again behind the window and shoots the X-ray.

F. The technician goes back to the patient and removes the machine.

The technician performs hand hygiene (Moment 1)

G. The technician helps the patient to remove the lead protection and dress if necessary.

The technician performs hand hygiene (Moment 4)

H. The technician records data and goes to the technical room to develop the X-ray.

Care sequence features

Likely frequency of the sequences per hour	4 - 6
Duration of the sequence	Approximately 5-15 minutes
Number of hand hygiene opportunities per sequence	6
Types of hand contact	Skin
Use of personal protective equipment	No
Use of disposable items	No
Use of sterile items	No
Use of shared items	Yes
Patient zone	The patient
Point of care	Where the patient is installed

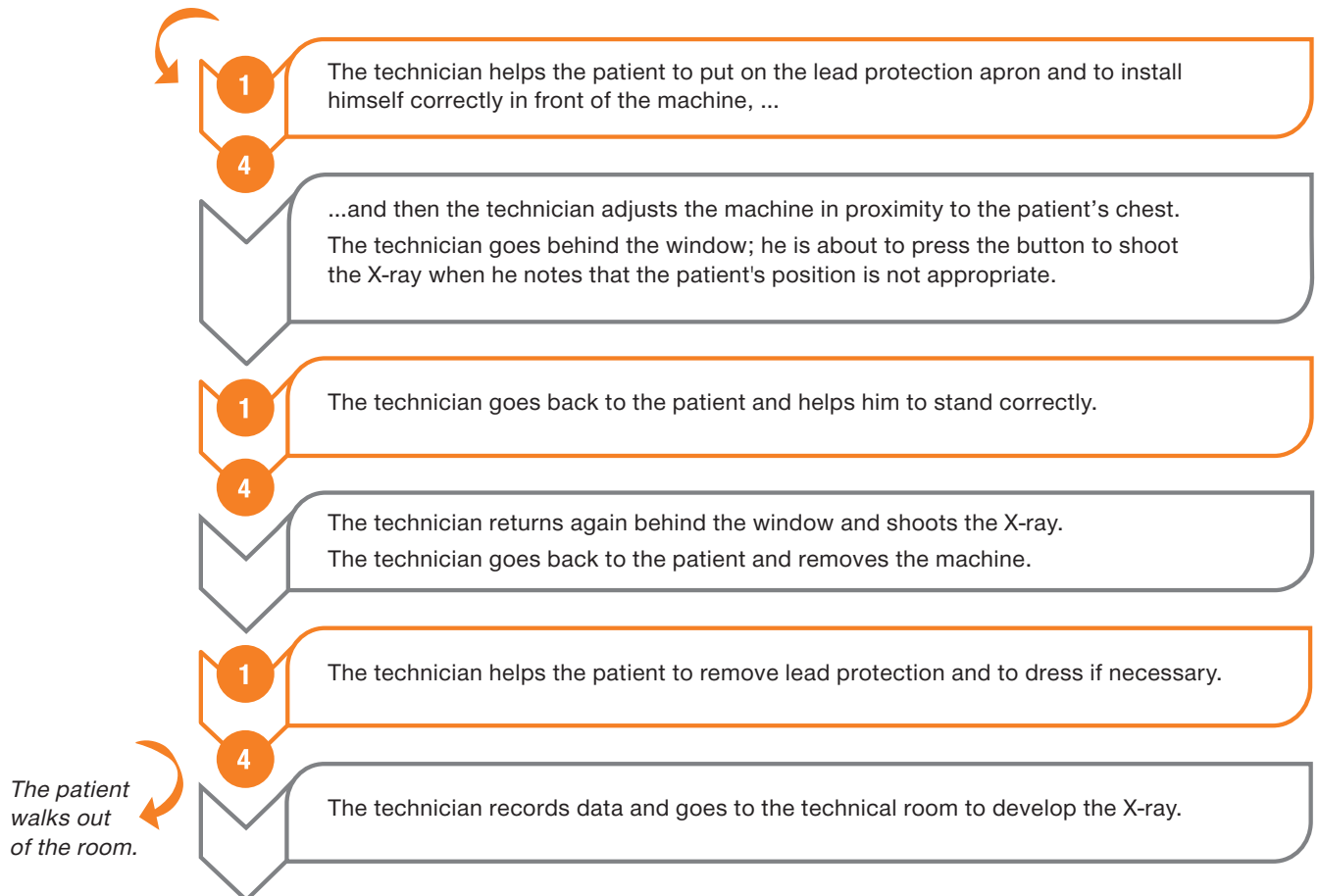


- Hand hygiene efficacy depends on the environmental contamination. When shared medical devices and equipment are not decontaminated after each patient use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis. During environmental cleaning, high-touch surfaces (e.g., command buttons) should be identified and decontaminated with particular accuracy.
- Hand hygiene should be carefully considered before and after each time the HCW shares a social contact with the patient, such as shaking hands.

Chest X-ray in a diagnostic centre

● Hand hygiene opportunities according to the My Five Moments for Hand Hygiene

The patient comes into the room, and approaches the technician to receive instructions.



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World Health
Organization

World Health Organization

20 Avenue Appia
CH-1211 Geneva 27
Switzerland
Tel.: +41 22 791 50 60

Email: savelives@who.int

Please visit us at:
www.who.int/gpsc

