Nationales Referenzzentrum
für Surveillance von
nosokomialen Infektionen

Krankenhaus-Infektions-
Surveillance-System

Protocol

Surveillance of hand sanitizer consumption in retirement and nursing homes
HAND-KISS_P

at the
Institute of Hygiene and Environmental Medicine
Charité - Universitätsmedizin Berlin

Internet: https://www.nrz-hygiene.de/

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Note on translation

This document provides an English translation of the German version of the protocol on the surveillance of surgical site infections in OP-KISS. Only minor content-related changes were made to increase clarity for international readers. Certain terms were adapted to align with the terminology of the US Centers for Disease Control and Prevention and the European Centre for Disease Prevention and Control. Where applicable, administrative information was updated. The translation was aided by DeepL Pro, 2024.

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Introduction

Regular and thorough hand disinfection (HD) is one of the most important measures for the prevention of nosocomial infections and the avoidance of pathogen transmission [1,2]. In retirement and nursing homes, the exposure and transmission of pathogens is of particular importance in addition to the individual disposition of the residents [3]. Nevertheless, there are repeated complaints in medical facilities about the low level of compliance with hand disinfection [4,5]. Studies from various countries show compliance rates of between 9% and 54%, particularly in retirement and nursing homes [6,7,8].

An increase in compliance through behavioural change can be supported by a concept of learning at an individual and organisational level. A
The basic requirement here is the use of feedback mechanisms that support cognitive engagement with the topic. One way of obtaining such information is to carry out direct compliance observations in relation to the indications for hand disinfection. Such observations are time-consuming and difficult to carry out in some areas. The consumption of hand sanitizer (HDM), on the other hand, is a relatively easy to collect and quickly accessible surrogate parameter for the frequency of hand disinfection [9].

The following table provides an overview of the two methods offered for quantifying hand disinfection.

Table 1: Methods for determining compliance with hand disinfection (HD)

	Direct: Observation of compliance with hand disinfection (HD)	**Indirect: Hand sanitizer (HDM) consumption as an indicator**
End point	Direct determination of the number of HD performed in relation to the resulting indications	Surrogate parameter only: Calculation of consumption of alcoholic HDM in ml per resident day and HD performed from HDM consumption per resident place at retirement and nursing home level
Executio n	Requires a high level of technical expertise, high personnel time expenditure, high time expenditure, only to be carried out prospectively	Easy to perform, little time required, can only be performed retrospectively

Validity	Observation effect (Hawthorne effect) during observation Random effects possible with short observation times / few residents / employees	Sensitivity good, but specificity limited Overestimates possible if HDMs are also used for other purposes depending on the quality of the collection of consumption data
Application	Well suited for a precise examination of HD behaviour, enables targeted intervention through specific behavioural analysis	Well suited for assessing the overall situation of wards or areas of a medical facility

Little is known about the target value for necessary hand disinfection in retirement and nursing homes. However, it can be assumed that the compliance rate in many retirement and nursing homes is far from the target value.

The aim of HAND-KISS is therefore to provide an impetus for improvement measures by comparing HDM consumption in the various retirement and nursing homes. Accordingly, the participating retirement and nursing homes submit their annual consumption of HDM to the NRC. Together with the information on the denominators required to calculate the consumption rates, this allows an evaluation of HDM consumption in relation to resident days and allows conclusions to be drawn on the frequency of hand disinfection carried out.

In addition, the data of all nursing homes for the elderly can be summarised over the entire period and made available as reference data for comparison.

The hand sanitizer consumption, resident places and care levels are determined. The care levels replace the previously applicable care levels and have been valid since 1 January 2017 as part of the Care Reinforcement Act II. As the care intensity of the residents and therefore the frequency of necessary hand disinfection are taken into account in this way, differences between different nursing homes or time periods can provide an indication of changes in compliance, which should then be analysed in more detail.

1. Objectives of the surveillance protocol

The main purpose of the surveillance protocol is to provide the necessary definitions and specifications for the nursing homes and care facilities involved in KISS. The aim is to standardise data collection and data analysis.

Secondly, other interested institutions can also record data according to these definitions and specifications and analyse their data in the same way. This gives them the opportunity to orientate themselves on the reference data.

Any comments on further necessary specifications and explanations are very welcome.

2. Requirements for participation in HAND-KISS and obligations of the NRC

Participating facilities must fulfil the following requirements:

- Consent of those responsible for the retirement and nursing home to participate in the project, e.g. home management, nursing service management, chair of the organisation
- Strict application of the mandatory provisions of the surveillance protocol
- Data collection and transmission via a data management system provided by the NRC (VARIA in webkess)
- Willingness to communicate descriptive parameters (structural and process parameters of retirement and nursing homes)
- Willingness to carry out internal quality assurance measures in the event of corresponding surveillance results
- Willingness to participate in validation measures by the NRC

<u>The NRC assures the participants:</u>

- to advise and support them professionally in the implementation of surveillance
- to enable the participants to analyse the data
- advise them on the implementation of the surveillance results for quality management
- handle the data of the retirement and nursing home with strict confidentiality

3. Methodology for HAND-KISS

3.1 HAND-KISS_P

The surveillance of HDM consumption is carried out retrospectively for the entire nursing home using consumption data from the pharmacy, purchasing or controlling for the previous calendar year. Retirement and nursing homes whose predominant share is in "assisted living" are excluded from participation, as in this case it can be assumed that consumption is very low and the data collected is too small to allow any conclusions to be drawn.

The following data is recorded for each care facility:

1. Name and address of the retirement and nursing home
2. Total consumption in millilitres of all HDMs used in the nursing home during the calendar year.
   The quantities are recorded according to the date of delivery to the care home.
3. Resident places for all residents in retirement and nursing homes (excluding "assisted living") stratified according to their level of care

Due to fluctuations caused by storage effects, the recording of consumption is only based on annual intervals and not on shorter observation periods (irrespective of this definition, shorter recording periods, e.g. every six months, can also be selected and analysed internally for internal evaluations).

Data should be entered by 31 March for the previous year. It is possible to enter data after this date.

The following annual rate per resident day is calculated to analyse the data:

$$\textbf{HDM consumption per resident day} = \frac{\text{HDM consumption in ml per calendar year}}{\text{Resident places in the calendar year} \times 365}$$

The calculated rate indicates the consumption of HDM in millilitres per resident day.

Since an average of approx. 3ml of HDM (often 1.5-2ml) is required per hand disinfection procedure, the number of HDMs carried out per resident day can be calculated using the calculated consumption of HDM per resident day:

$$\textbf{Number of HD performed resident day} = \frac{\text{HDM consumption in ml per resident day}}{3} \textbf{ per}$$

In order to reflect the different care intensities, the care levels within the retirement and nursing home are recorded and the care intensity is calculated. The care intensity weights the resident places in relation to the care levels of the retirement and nursing home. This weighting makes it possible to show the amount of nursing care required within the retirement and nursing home and enables a more differentiated comparison with other retirement and nursing homes.

In Germany, the intensity of care is between 1 and 5, while in Austria the intensity of care is between 1 and 7, as there are 7 levels of care in Austria.

The care intensity weights one point per day for a resident place (BP) with care level (PG) 1. The level of care therefore determines the weighting. Accordingly, five points per day count for a patient with care level 5.
If you divide this sum by the pure number of resident places, you have a value for estimating the intensity of care.

$$\textbf{Supervision intensity 2017} = \frac{\text{1 x BP from PG 1 + 2 x BP from PG 2 + 3x BP from PG 3 + 4x BP from PG 4 + 5x BP from PG 5}}{\text{BP from PG 1 + BP from PG 2 + BP from PG 3 + BP from PG 4 + BP from PG 5}}$$

Example:

Year	Annual consumption HDMV in ml	BP in care level 1	BP in care level 2	BP in care level 3	BP in care level 4	BP in care level 5
2017	39000	10	10	15	15	15

$$\textbf{Supervision intensity 2017} = \frac{(1x10) + (2x10) + (3x15) + (4x15) + (5x15)}{10+10+15+15+15}$$

3.2 Comparison of HDM consumption data in HAND-KISS_P

HAND-KISS calculates stratified reference data on hand disinfectant consumption for care homes according to the proportion of resident days and the intensity of care.

3.3 Dealing with the results

The results on the consumption of hand disinfectant per resident day serve to improve hand disinfection compliance and should definitely be presented in the relevant areas and analysed together.

4. electronic recording of HAND-KISS data

The NRC provides KISS participants with an electronic system for recording survey data (at www.nrz-hygiene.de/surveillance/hand.htm).

Data is entered via the webkess system, which you can access at www.webkess.de.
WebKess enables the recording of survey data for the entire retirement and nursing home. In addition, each KISS participant can create analyses independently and at any time.

In order to enter data in webkess, it is necessary to register a user and to register the retirement and nursing home. Further information and webKess user instructions can be found at:

http://www.aktion-sauberehaende.de/ash/messmethoden/hand-kiss/
https://webkess.charite.de/webkess/Docs/webKess-Anleitung.pdf

5. data acquisition for HAND-KISS_P in webKess

Specifications for documentation in HAND-KISS_P

Master **data** (These must be stated once when registering).	
Name of the retirement and nursing home	
Street, house number, postcode, town, country	
Nursing home KISS abbreviation	The abbreviation is assigned by the NRC after registration with HAND-KISS_P

Documentation of the annual data This information must be documented annually for the nursing home. The data should be entered by 31 March for the previous year.	
Documentation Year	Selection of the calendar year for which the information is provided
Annual consumption of hand disinfectant in millilitres	Specification of the HDM consumption for the year in millilitres If several different HDMs are used, a total must be calculated here.
Number of resident places per care level per year	The number of resident places per care degree per year must be entered here. (without the places in "assisted living")

6. literature

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7. imprint

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