Protocol

Surveillance of alcohol hand rub use in nursing homes
HAND-KISS_P

© National Reference Center for the Surveillance of Nosocomial Infections at the Institute for Hygiene and Environmental Medicine Charité – University Medicine Berlin

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1. Introduction

Regular and careful hand hygiene (HH) action with an alcohol-based hand rub is indisputably one of the most important measures for nosocomial infection prevention. A low degree of compliance remains a problem, however [1], [2].

Increasing compliance by changing behaviors can be supported by a concept for learning on individual and organizational levels. A basic requirement is the use of feedback information that encourages discussion of the subject. This kind of information can be generated by direct observational studies on HH frequency or by measuring alcohol hand rub (AHR) usage. Observational studies are very costly, however, and almost impossible to complete in some areas. The use of AHR is comparatively easy to measure and is an indicator quickly accessed in order to present the frequency of hand disinfection [3]. Table 1 provides an overview of the two methods for determining hand disinfection compliance.

Table 1: Methods for determining HH compliance

<table>
<thead>
<tr>
<th>Direct: Observation of HH frequency</th>
<th>Indirect: AHR use as indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>Goal</td>
</tr>
<tr>
<td>Direct determination of number of completed HH actions</td>
<td>A surrogate parameter: Calculation of completed HH actions from AHR use per patient day</td>
</tr>
<tr>
<td>Implementation</td>
<td>Implementation</td>
</tr>
<tr>
<td>High personnel costs and time expenditure; can only be performed prospectively</td>
<td>Simple to perform with low time expenditure; retrospective surveillance is possible</td>
</tr>
<tr>
<td>Validity</td>
<td>Validity</td>
</tr>
<tr>
<td>• Hawthorne effect on announced observations</td>
<td>• Typical indicator</td>
</tr>
<tr>
<td>• Anonymous observation is hardly possible</td>
<td>• Sensitivity good, specificity limited</td>
</tr>
<tr>
<td>• Accidental effects during short observational periods</td>
<td>• Overestimation is possible when AHR is used for other purposes</td>
</tr>
<tr>
<td>• Only few health care workers or patients can be included</td>
<td>• Dependent on the quality of usage data collection</td>
</tr>
<tr>
<td>Usability</td>
<td>Usability</td>
</tr>
<tr>
<td>Appropriate for risk areas (ICUs) or to validate the results of indirect compliance studies</td>
<td>Appropriate for determining the situation of an entire hospital</td>
</tr>
</tbody>
</table>

However, little is known about the minimum number of necessary HH actions to achieve 100% compliance in different departments and with different groups of patients. Current observation studies results show that compliance rates are around 50% in German hospital.

For this reason, HAND-KISS has the goal of stimulating compliance improvement by comparing AHR usage of units and functional areas with similar patient groups.

Participating nursing homes transfer their AHR usage data yearly to the National Reference Center for the Surveillance of Nosocomial Infections (NRZ). Together with the other information required to compute usage rates, these data allow for an evaluation of average AHR usage and by extension the frequency of HH actions.
In addition, the data of all participating nursing homes can be summarized over the entire time period to provide reference data for comparison.

AHR usage is stratified by the dominant level of care\(^1\) according to specific risk factors.

Because stratification takes predisposing factors and exposure-related risks and so the frequency for necessary HH actions into account, differences between nursing homes and over time can provide information about compliance changes that should then be investigated further.

### 2. Goals of the surveillance protocol

This protocol has the primary goal of providing participating facilities with the necessary specifications and definitions to standardize data collection and analysis.

It has the secondary goal of allowing interested facilities to collect and analogically analyze data according to these definitions and specifications. They can then benchmark themselves with other facilities based on the reference data.

All comments about further necessary specifications and explanations are welcome.

### 3. Requirements for participation and obligations of KISS institutions

Participating facilities must fulfill the following requirements:

- Head of facility or department must agree to participation in the project
- Strict application of the obligatory definitions and specifications found in this protocol
- Data collection and transfer by webKess (EDP program)
- Preparedness to share descriptive parameters (structural and procedural parameters of the nursing home)
- Preparedness to complete internal quality assurance measures upon appropriate surveillance results

\(^1\) There are three levels of care in the German long-term nursing care scheme, dependent on the amount of care a person needs per day in minutes. A person at the first level needs at least 90 minutes of care on average 45 minutes of which must be for “basic care” (nutrition, mobility and personal hygiene). 180 minutes of care on average including 120 minutes of basic care are required for the second level of care, and 300 minutes of care on average including at least 240 minutes of basic care, some of which must regularly take place between 10 p.m. and 6 a.m., are required for the third level of care. Persons requiring less than 90 minutes of care per day but who suffer from dementia or mental illness are included in the “zero” level of care. HAND-KISS_P stratifies data by these four degrees of care.
4. HAND-KISS Methods

4.1 HAND-KISS_P

AHR usage surveillance takes place retrospectively for the entire nursing home with the help of pharmacy, controlling or purchasing data from the previous calendar year. In general, nursing homes are not divided further into living groups or care units, and care providers participate on an institutional basis. Nursing homes with a majority of “assisted living” beds are excluded from participation in HAND-KISS. The number of “assisted living” beds must be submitted at registration for HAND-KISS.

The following data are collected at each nursing home:

1. Name of the nursing home
2. Size of the nursing home (Total number of beds without “assisted living”)
3. Total AHR used in one calendar year in mL

The amounts are measured by date of delivery. Storage can create fluctuations in the data. For this reason, data collection takes place only on a year-to-year basis and not for smaller intervals. (Internal evaluation with shorter intervals can of course take place outside of KISS).

In data evaluation, the following rates are calculated per nursing home:

\[
\text{AHR usage per nursing home day} = \frac{\text{AHR usage in mL per calendar year}}{\text{Nursing home beds per year} \times 365}
\]

The calculated rate represents the amount of AHR used per nursing home day.

Because 3 mL AHR are needed for each HH on average, the number of HH actions per nursing home day can be determined on the basis of the above rate.

\[
\text{Total HH actions per nursing home day} = \frac{\text{AHR usage in mL per nursing home day}}{3}
\]
Table 2 shows the data to be collected and the resulting rates from an example nursing home.

Table 2: Annual data on AHR usage

<table>
<thead>
<tr>
<th>Name of home</th>
<th>Yearly AHR use in mL</th>
<th>Total nursing home beds per year</th>
<th>Total home days</th>
<th>AHR use in mL per day</th>
<th>Total HH actions per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home X, Berlin</td>
<td>340,000</td>
<td>245</td>
<td>89,425</td>
<td>3.8</td>
<td>1.3</td>
</tr>
</tbody>
</table>

4.1.1 Comparing AHR usage in HAND-KISS_P

HAND-KISS calculates reference data for nursing homes stratified by the number of beds per level of care.
5. Documentation specifications

5.1 Electronic HAND-KISS data collection

The NRZ has made an electronic data collection system, webKess, available to KISS participants.

The program has been in use since June 2010 and can be accessed under www.webkess.de.

Nursing homes should use webKess for recording data. Any KISS-participant can also produce evaluations of their own institutions at any time.

User registration is required for every KISS participant. Further information and a webKess user guide can be found under: https://webkess.charite.de/webkess/Docs/webKess-Anleitung.pdf.

5.2 HAND-KISS data collection in webKess

HAND-KISS_P documentation specifications

1. Master data
   These data are to be recorded upon registration.
   
   **Nursing home KISS abbreviation**  The NRZ will provide participants with an abbreviation at registration.
   **Name of nursing home**  Provided by participants.
   **Number of “assisted living” beds**  Number of beds exclusively for “assisted living”
   **Number of nursing home beds**  Number of nursing home beds without those for “assisted living.”
   **Beds per level of care**  Enter the number of beds in each level of care (0, 1, 2, 3) separately.

2. Annual documentation
   These data must be recorded each year for the nursing home.
   
   **Year**  Select a year for the data
   **Yearly use of AHR in mL**  Give the amount of AHR used in that year in mL (liter x 1000). In the event that various AHR have been used within one home, use the amount of all AHR.
   
   **Number of nursing home beds per year**  Give the number of nursing home beds in the year. Consider only those beds in nursing care.
6. References

7. Legal Notice

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