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ORIGINALS

Evolution of adhesión to hand higiene: the pandemic a turning point

Evolución de la adhesión a la higiene de manos: la pandemia un punto de inflexión

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ABSTRACT:

Introduction: Hand hygiene is crucial to prevent nosocomial infections, with the hands of professionals and patients being significant vectors of transmission. The objective of this study was to evaluate adherence to hand hygiene at the Rafael Méndez General University Hospital during the years 2016 to 2022.

Methodology: An observational and descriptive study was carried out in medical-surgical hospitalization units, collecting annual data using the Hand Hygiene Technique Observation Form provided by the World Health Organization (WHO). The sample consisted of 1097 professionals.

Results: A total of 5416 opportunities were analyzed. The results showed an improvement in hand hygiene through 2021, with a reduction in omission from 64% in 2016 to an overall compliance of 55% in 2020 and 2021. However, in 2022 a significant decline will be observed with 79% of omission. The evolution varied depending on the moment and the category observed.

Conclusion: Adherence to hand hygiene at the Rafael Méndez General University Hospital has shown a positive trend with a gradual annual increase until 2021, highlighting 2020 as a turning point. However, the relaxation of post-pandemic measures has decreased compliance. It is recommended to continue promoting training and evaluation actions to improve hand hygiene among health professionals.

Keywords: hands hygiene, hands washing and friction.

RESUMEN:
Introducción: La higiene de manos es crucial para prevenir infecciones nosocomiales, siendo las manos de profesionales y pacientes vectores significativos de transmisión. El objetivo de este estudio fue evaluar la adherencia a la higiene de manos en el Hospital General Universitario Rafael Méndez durante los años 2016 a 2022.
Metodología: Se realizó un estudio observacional y descriptivo en unidades de hospitalización médico-quirúrgicas, recolectando datos anuales utilizando el Formulario de observación de la técnica de higiene de manos que proporciona la Organización Mundial de la Salud (OMS). La muestra estuvo constituida por 1097 profesionales.
Resultados: Se analizaron un total de 5416 oportunidades. Los resultados mostraron una mejora en la higiene de manos hasta 2021, con una reducción en la omisión del 64% en 2016 a un cumplimiento global del 55% en 2020 y 2021. Sin embargo, en 2022 se observó un retroceso significativo con un 79% de omisión. La evolución varió según el momento y la categoría observada.
Conclusión: La adhesión a la higiene de manos en el Hospital General Universitario Rafael Méndez ha mostrado una tendencia positiva con un incremento gradual anual hasta 2021, destacando el año 2020 como punto de inflexión. No obstante, la relajación de medidas postpandemia ha disminuido el cumplimiento. Se recomienda continuar promoviendo acciones de formación y evaluación para mejorar la higiene de manos entre los profesionales de salud.

Palabras clave: higiene de las manos, lavado de manos y fricción.

INTRODUCTION

Throughout history, handwashing has been considered a basic personal hygiene measure, commonly practiced when the hands were visibly dirty. It was not until the 19th century, thanks to Ignaz Philipp Semmelweis, that the true value of hand hygiene in the prevention of infections was not recognized. The discovery by Semmelweis marked a turning point in the history of medicine, when associating hand hygiene with the reduction in death due to infections in hospitalized patients[(1)].

Presently, hand hygiene (HH) is defined as the elimination of transitory flora present on the skin through a rubbing process, which can be performed with alcohol-based solutions, or with soap and water[(2)]. This practice is recognized as one of the most effective strategies to manage and prevent the transmission of nosocomial infections, which affect patients during their stay in health centers, while also representing a significant threat to public health.

Nosocomial infections are an important cause of morbimortality worldwide[(3)]. These infections, also known as healthcare associated infections (HAIs), are defined as those that affect patients during their stay at a hospital or another health center, and that were not present or undergoing incubation during admittance. These include hospital-acquired infections that are manifested after hospital release, as well as occupational infections of health personnel[(4)]. It should be noted that in many cases, the hands of health professionals and patients are the vehicles of transmission of these infections. According to the “Study of Prevalence of Nosocomial Infections in Spain” (EPINE-EPPS 2021), the prevalence of these infections in Spanish hospitals was 7.07%, an index similar to other countries in the European Union[(5)].

To address this problem, the World Health Organization (WHO) launched the program “Save Lives: Clean Your Hands”, which included a multimodal strategy that promotes hand hygiene through the identification of five key moments: (1) before direct contact with the patient, (2) before performing a clean or aseptic task, (3) after exposure to bodily fluids, (4) after contact with the patient, and (5) after contact with the patient’s

environment[6]. These moments represent a practical and direct approach to reduce the risk of infections and to guarantee quality care.

The WHO considers two specific actions for hand hygiene: the rubbing of hands with alcohol-based solutions, and washing with soap and water. Although both are simple practices, they require training to ensure their correct execution[3].

Although hand hygiene is a broadly recognized and efficient measure against HAIs, their compliance among health professionals varies considerably, with a great margin for improvement. The recent COVID-19 (SARS-Cov2) pandemic has reinforced the importance of adequate hygiene as a protection barrier, and was intensely promoted by health organizations worldwide[7–9].

Knowing the degree of compliance with hand hygiene among professionals is fundamental for designing improvement strategies and to guarantee quality care. The detailed analysis of the five moments defined by the WHO allow us to identify in what situations it is necessary to strengthen this practice to avoid omissions. Thus, annual assessments are necessary, differentiated according to professional and services categories, to establish a starting point and define improvement actions. The evidence shows that a continuous system of training and feedback improves the indicators of nosocomial infections over time[10].

Objectives

General Objective

To assess the changes in the adherence to hand hygiene among health professionals before and during the COVID-19 pandemic, in order to determine if this health crisis represented a turning point in the improvement of this practice and its impact on the prevention of nosocomial infections in the General University Hospital Rafael Mendez (HGURM) between 2016 and 2022.

Specific Objectives

- To describe adherence to hand hygiene according to the action performed by all the professionals in the 2016-2022 period.
- Describe the level of compliance with the HH Indication according to professional category and the five key moments in the 2016-2022 period.
- To determine the level of compliance with HH according to the hospital unit assessed in the 2016-2022 period.
- To determine if the start and stabilization of the COVID-19 (SARS-CoV2) pandemic produced some significant variation in the tendency to comply with hand hygiene.

MATERIALS and METHODS

Study design

To conduct the study, a quantitative methodology was utilized. This was an observational, descriptive, and cross-sectional study on the adherence to Hand

Hygiene of professionals at the General University Hospital Rafael Mendez belonging to Health Area III of the Health Services of Murcia.

Population and Time frame

The study population was composed by active workers at the General University Hospital Rafael Mendez (HGURM), belonging to Health Area III, during the 2016-2022 period. The sample selected included a total 1,097 professionals distributed in the following categories: 142 orderlies, 318 nursing assistants (TCAE), 373 nurses, and 264 doctors.

The observation and collection of data was performed in medical and surgical hospital units at the hospital, specifically in the areas of Internal Medicine I and II, Specialized Surgery, General Surgery, and Traumatology. The process of primary data collection was performed for 2 months each year, every year, during the 2016 to 2022 period.

For each health professional, an observation time was established of about 20 minutes (+/- 10 minutes), from Monday to Friday during the morning shift. This design allowed for a total of 5416 observation opportunities, guaranteeing an adequate coverage of the hand hygiene practices during the daily activities of the health personnel.

Data collection instrument

The instrument used for the collection of data was the Hand Hygiene Observation Form, proposed by the World Health Organization (WHO) in their Technical Reference Manual. This form (Annex I) includes diverse columns that allow researchers to record opportunities, indications, and actions of hand hygiene (HH). Each form allows observing up to 8 opportunities distributed among 4 different professionals. The indications observed include: Before contact with the patient, Before performing an aseptic technique, After contact with bodily fluids, After contact with the patient, After contact with the patient's environment. The actions recorded as a response to each indication are: Hand rubbing, Hand washing, Omission (when no hand hygiene action is performed). The use of gloves is only recorded if the hand hygiene action is omitted [(11)].

The measurement was performed by a nursing professional in the area of Quality, who was previously trained in the observation of hand hygiene to guarantee the precision in the collection of data. Before starting the observation, the observer presented himself to the professionals involved, always maintaining a respectful and transparent approach. To preserve the anonymity of the participants, the forms were completed without including information that could be used to identify the professionals who were measured. The heading of the form included the data of the observer, the date, the start and end times, the hospital service where the observation took place, and the category of the professional.

The collection of data was performed in situ in the hospital units, through direct observation on different days, moments, and professional categories, in order to avoid bias in the measurements.

For the statistical analysis and the calculation of basic compliance, two additional forms proposed by the WHO (Annexes II and III) were used. The Basic Compliance Form (Annex II) is composed of four columns, where the totals of the subjects observed is recorded in each professional category and the number of sessions performed. On its part, the Indications Form (Annex III) included five columns, one for each of the observation moments described, thus allowing for a detailed classification of the indications observed [11].

Inclusion and exclusion criteria

Inclusion criteria

Healthcare professionals of both sexes, who provided their verbal consent and who worked in medical-surgical units at the HGURM.

Exclusion criteria

Professionals who verbally rejected being an object of measurement. Critical situations in which the presence of the observer could aggravate or compromise the life of the patient.

Data analysis

The analysis of the data collected was performed with descriptive statistics tools. In first place, the absolute and relative frequencies of the opportunities for hand hygiene (HH) were calculated, for each of the hygiene actions (handwashing, hand rubbing, and omission), as well as they five key moments defined by the WHO. These frequencies were itemized by professional category and medical-surgical unit, thus allowing for the identification of the compliance and omission of each group and area of study.

To assess the temporal change of HH compliance throughout the period of study (2016-2022), line graphs were created that show the HH compliance and omission rates. A comparative analysis of the annual results was performed, at the general level and itemized according to professional categories (orderlies, TCAE, nursing, and doctors), as well as units (Internal Medicine I, Internal Medicine II, General Surgery, Specialized Surgery, and Traumatology).

In addition, statistical tests were applied to compare the percentages of compliance between the different professional categories in the five moments of hand hygiene. In particular, special attention was given to the variations observed in the compliance with HH during the Covid-19 pandemic (2020-2021), as compared to the years before and after the pandemic.

Compliance with ethical and legal guidelines

The present study and successive assessments were approved by the Ethics Committee on Research at the General University Hospital Rafael Mendez, according to the current guidelines until May 19th, 2016. All the procedures performed met the ethical principles established in the Declarartion of Helsinki and the applicable legal

guidelines. The participants were adequatly informed about the study objectives, and their informed consent was obtained before observation, guaranteeing confidentiality and anonymity of the data collected.

The study complied with the provisions of Organic Law 15/1999, of December 13, on the Protection of Personal Data and Organic Law 3/2018, of December 5, on the Protection of Personal Data and Guarantee of Digital Rights. It also complied with the ethical principles of the Declaration of Helsinki and the Belmont Report.

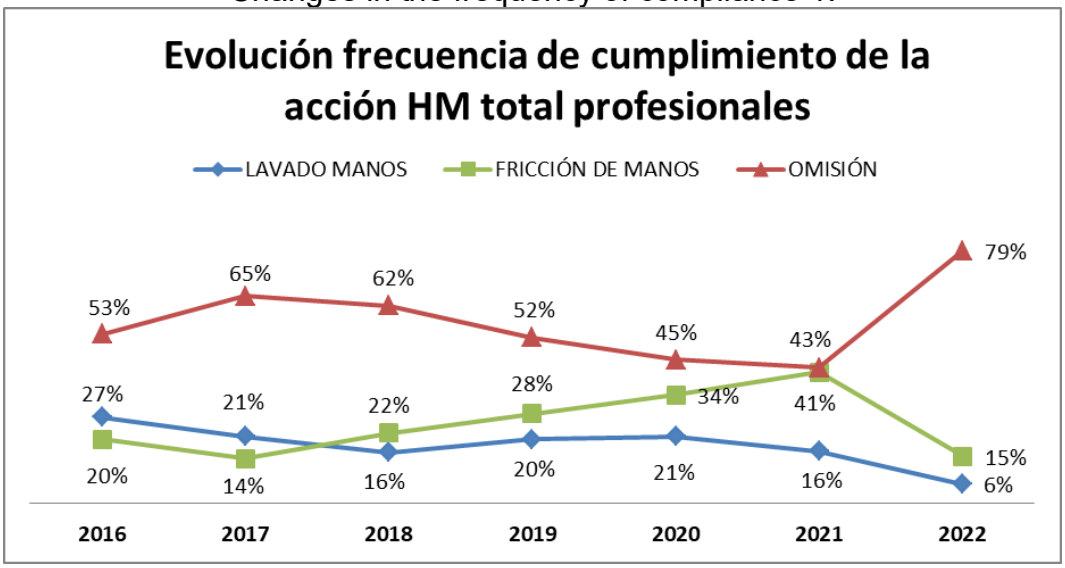
RESULTS

Throughout the study period (2016-2022), 1,097 observations were performed, for a total of 5,416 opportunities of hand hygiene (HH) in the medical-surgical units at the General University Hospital Rafael Mendez (HGURM): Internal Medicine I and II, General Surgery, Specialized Surgery, and Traumatology

Adherence to hand hygiene according to the action performed

Adherence to HH showed a progressive increase until the year 2021, when a change in the trend was observed, shown as a decrease in compliance, with the worse results reached in the historical series. Figure 1 (Changes in the frequency of compliance) shows that hand rubbing exceeded that of hand washing, becoming the main action used for HH.

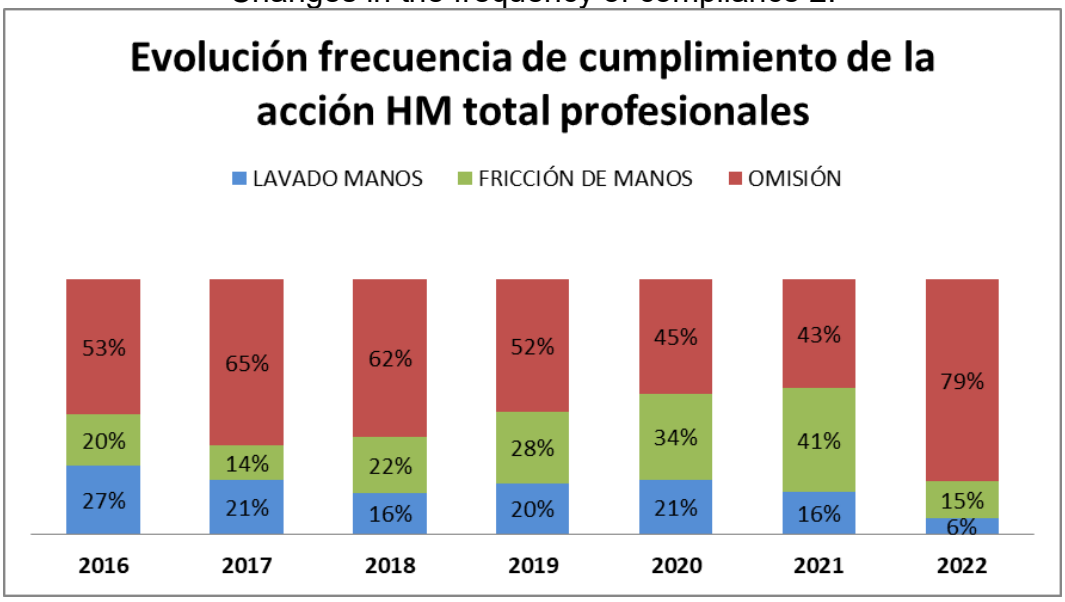
Changes in the frequency of compliance 1.



Source: Created by the authors.

To ease its understanding and to more clearly observe the changes in the compliance with HH, the following figure has been created that simplifies both options shown (Handwashing or Hand rubbing), and Omission of HH as Compliance.

Changes in the frequency of compliance 2.

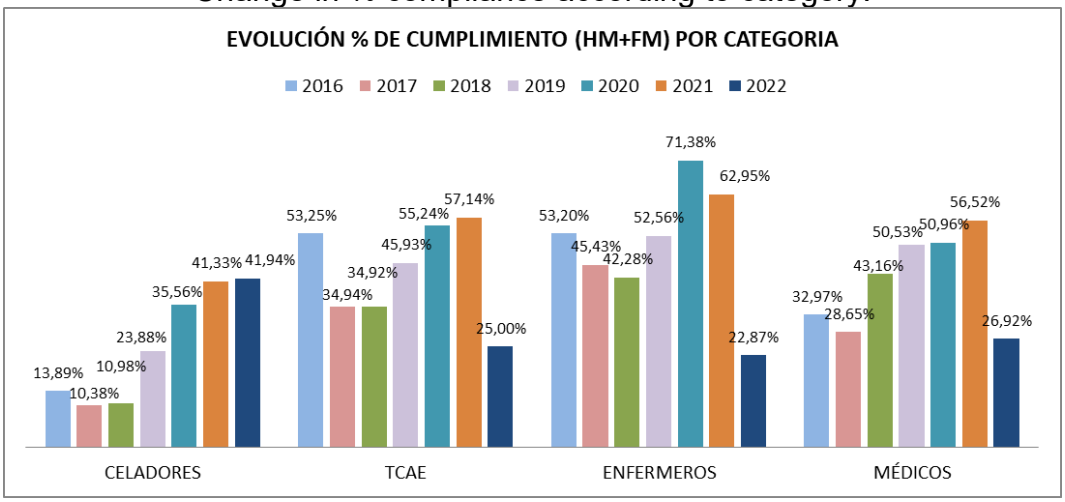


Source: Created by the authors.

Compliance of the HH Indication according to professional category and moment

Adherence to HH varied according to the professional category and year. In 2016, HH compliance was low in all the groups: orderlies, 13.89%, TCAE, 53.25%, nursing, 53.2%, and doctors, 32.97%. Posteriorly, between 2017 and 2018, the results worsened, while in 2020, coinciding with the Covid-19 pandemic, a notable improvement was observed, which was maintained until 2021. Nevertheless, after the relaxation of the health crisis measures, the results in 2022 somewhat regressed, with worse levels observed in the historical series, except for the orderly group, where the previously-reached levels were maintained.

Change in % compliance according to category.



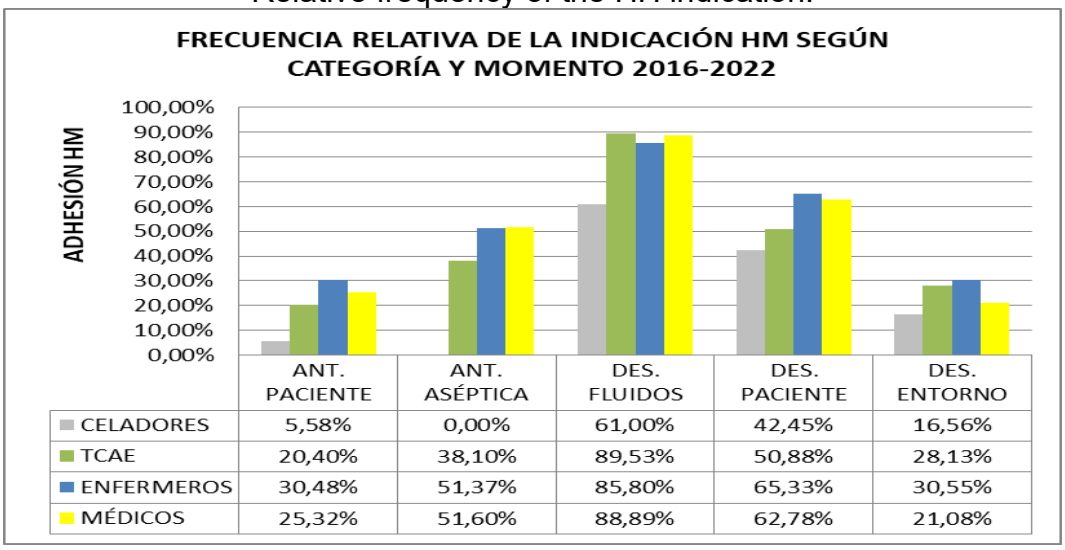
Source: Created by the authors.

As for the five moments defined by the WHO, the highest degree of compliance was observed in Moment 3 (“After contact with bodily fluids”): Orderlies, 61%, TCAE, 89.53%, nursing, 85.8%, and doctors, 88.89%. The professional category with the

highest adherence in general was nursing, except for moment 3, where the TCAE exceeded the nurses. On the other hand, Moment 2 ("Before an aseptic technique") did not record opportunities for the orderlies, resulting in 0% of compliance for this group.

The moments with less adherence were Moment 1 ("Before contact with the patient"), and Moment 5 ("After contact with the patient's environment"), with a compliance lower than 30% in all the categories. However, Moment 4 ("After contact with the patient"), showed acceptable results, although the orderlies only reached 42.45% of compliance.

Relative frequency of the HH indication.



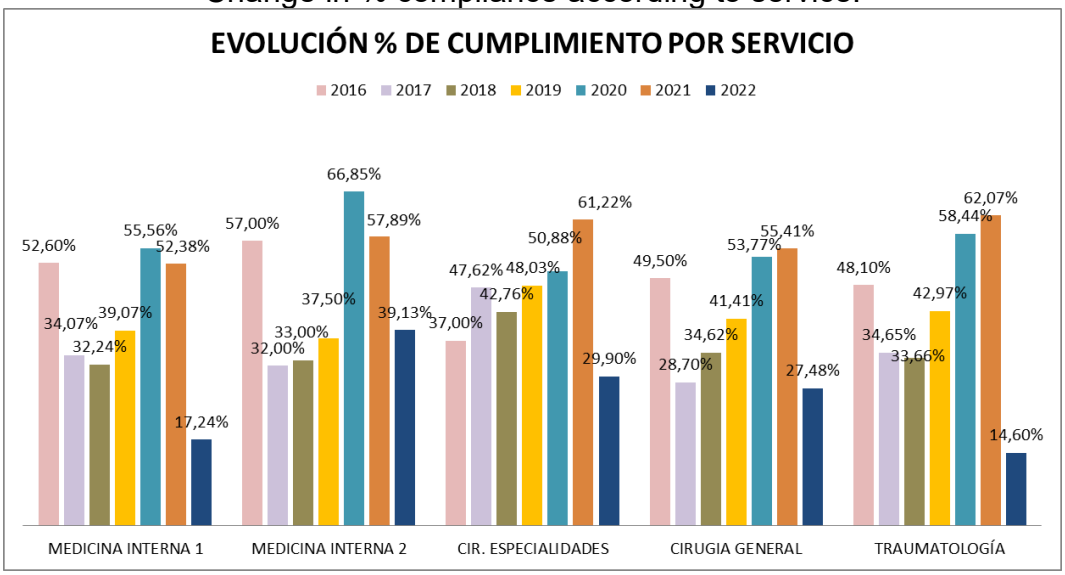
	ANT. PACIENTE	ANT. ASÉPTICA	DES. FLUIDOS	DES. PACIENTE	DES. ENTORNO
CELADORES	5,58%	0,00%	61,00%	42,45%	16,56%
TCAE	20,40%	38,10%	89,53%	50,88%	28,13%
ENFERMEROS	30,48%	51,37%	85,80%	65,33%	30,55%
MÉDICOS	25,32%	51,60%	88,89%	62,78%	21,08%

Source: Created by the authors.

Changes in Hand Hygiene Actions according to Medical-Surgical Unit

The measurement of HH in the different surgical medical services at the HGURM varied throughout the five years of the study. In 2016, except for the units of Internal Medicine I, with a compliance of 52.60%, and Internal Medicine II, with a compliance of 57%, the most common action was omission in the rest of the units. Although the changes were disparate according to the units under study, it must be noted that it was not until 2020 when all the units in which the measurements were performed showed an HH compliance higher its omission: Internal Medicine I, 55.56%, Internal Medicine II, 66.85%, Specialized Surgery, 50.88%. General Surgery 53.77%, and Traumatology 58.44%. Just as previously mentioned, all the units decreased their compliance in the last year of the study.

Change in % compliance according to service.

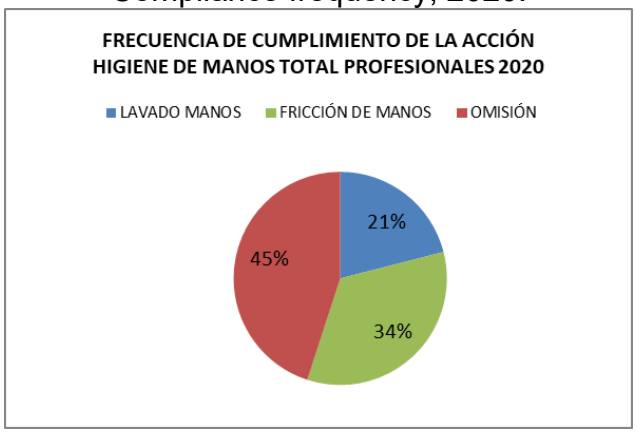


Source: Created by the authors.

Start and stabilization of the Covid-19 pandemic on HH compliance

The HH action varied throughout the study period, in which the omission of HH was the most common during the follow-up years, until 2020, coinciding with the Covid-19 (SARS-CoV2) pandemic, in which the joint action of Handwashing and Hand rubbing started to be the majority, with a compliance of 55%. The majority action chosen by professionals for performing HH during this period was Hand rubbing, 34%, as compared to Handwashing, which was the option selected in 21% of the cases.

Compliance frequency, 2020.



Source: Created by the authors.

In 2022, due to the progressive relaxation of the hygienic-sanitary measures implemented due to the pandemic, a generalized decrease was observed in the degree of HH compliance.

DISCUSSION

The overall adherence to HH in 2020, around 55%, reached by the professionals at the HGURM, despite it not being a high value, was above the rest of the studies found in the literature by systematic reviews, which placed the HH mean at 44.5%.[12].

According to the criteria proposed by the WHO, a positive compliance is considered when the value is higher than 50%, with a recommendation that it must be the closest to 100%. Therefore, despite the improvement with respect to previous years, there is still a wide margin to further improve the results analyzed.

There are many forms designed to collect data on the observation of hand hygiene in healthcare personnel[13], with the most utilized being the one by the World Health Organization (WHO)[11]. This form, part of the WHO program "Save Lives: Clean Your Hands", has been broadly implemented due to its focus on the *Five Moments for Hand Hygiene*, which address key situations in which hygiene is fundamental for preventing nosocomial infections. The selection of the WHO form was due to its standardized character and its easy adaptation to multiple healthcare settings, which allow the comparison of compliance at the international level.

Throughout the historical series analyzed, a notable decrease was observed in 2017, perhaps due to a relaxation of the measures, as well as progressive increase starting in 2018, coinciding with the placement of hand hygiene stations in all floors and services, and the performance of an improvement cycle to increase the adherence of the professionals at the level of Health Area III[14].

At the level of HH, it is notable that in 64% of the occasions, the professionals opted for hand rubbing as compared with washing with soap and water (21%). Although it is true that the almost immediate availability of alcohol-based products, with dispensers placed bedside, in halls, and pocket containers, which have increasingly been established in the last few years, have notably contributed to their higher acceptance by the workers[15]. However, the preferred use of Hand rubbing is contrary to the study performed at other international hospitals, in which 87% still preferred handwashing as compared to hand rubbing [16].

The analysis of the data, itemized according to category, shows a great disparity, with the nursing category obtaining the best results throughout the historical series, except for the last year examined. The next category with respect to the degree of compliance was the TCAE, followed by the doctors. These three categories, which showed a positive degree of adherence to HH in 2020 and 2021, were in contrast to the category of orderlies, which despite not reaching a majority percentage of compliance throughout the historical series, obtained worse results in the measurements except for the last one, in which for the first time, they became the collective with the best results.

The moment with the highest adherence in all the professional categories was the moment after exposure to bodily fluids, followed by after contact with the patient. These data coincide with the systematic review by Ocampo et al., although with the exception that in the case of the HGURM, the degree of compliance almost doubled the results found [12]. However, hygiene before contact with the patient was scarce, only reaching 30% in the best of cases.

On the other hand, according to the hospital units observed, a compliance higher than 50% was obtained in the 2020 to 2021 period, with the Internal Medicine Unit II exceeding the rest in the degree of compliance. In all the units, the increase in adherence between 2019 and 2020 was considerable, with improvements of up to 30% in Internal Medicine II or 16% in Internal Medicine I, with these change in the

attitude of these units related with the fact that they were selected to house the COVID patients during the greatest incidence of the pandemic. On the contrary, the units with a lower increase were dedicated to patients from surgery, all of them with a negative PCR result, which could have influenced this result.

However, it is interesting to note that despite the progressive improvement of the data, in the last year examined, 2022, a clear decrease was observed in the level of compliance in all the units, which was sometimes worse than the initial values of the historical series recorded. This could be due to the stabilization of the pandemic and the subsequent relaxation of the measures imposed, which could justify the decrease observed in the adherence to HH in the last year.

The fact that in the year 2020, for the first time, HH compliance exceeded its omission, may be due to the greater dissemination of the hygienic-sanitary measures spread as a consequence of Covid-19 (SARS-CoV-2)[17]. It is notable that when dealing with any drop-transmitted epidemic, hand hygiene is recommended as an efficient measure to fight against its propagation[18]. As of today, the WHO continues to advocate for handwashing and rubbing with alcohol-based solutions as an effective action to avoid the dissemination of Covid-19: “Clean your hands frequently with alcohol-based hand rub or soap and water”[19]. The data found in the present study are similar to the study conducted at the Insular Maternal and Child University Hospital Complex of the Canary Islands Health Service, where an increase in the compliance with HH was observed after the measurement in 2019 and 2020, suggesting its relationship with the presence of Covid-19[20].

5. CONCLUSIONS.

The change in adherence to hand hygiene (HH) at the General University Hospital Rafael Mendez (HGURM), in the 2016-2022 period, shows a significant improvement, especially in 2020, coinciding with the Covid-19 pandemic. That year was a turning point in HH practices, as the hygiene actions, in the shape of hand rubbing with alcohol-based solutions, as well as handwashing with water and soap, exceeded the omission of said actions for the first time, thus meeting the objective of discovering if the health crisis implied a change in the improvement of this practice.

Nevertheless, two years after the start of the pandemic, a regression was observed in adherence to HH, with levels of compliance lower to those recorded before the health crisis. This decrease is worrying, given that HH is a fundamental measure in the prevention of nosocomial infections, which underlines the importance of maintaining strategies of continuous promotion and training, in line with the objective of determining the impact of Covid-19 in the trend of HH compliance.

The analysis itemized by professional categories showed disparities in the degree of compliance, where the nursing personnel showed a higher adherence, thus meeting the objective of describing compliance according to professional category. However, the decrease in the HH practices observed in all the categories in 2022 evidences the need for additional interventions, especially directed to continuous promotion and training.

With respect to the five moments of HH defined by the WHO, the moments with a

greater effectivity were after contact with bodily fluids and after contact with the patient, although a low compliance was identified in the moment before contact with the patient, thus evidencing areas that require prioritized attention.

HH compliance also varied according to the hospital unit. The units of Internal Medicine showed a higher degree of compliance as compared to the surgical units, which is aligned with the objective of determining adherence according to the hospital unit. This suggests that the direct exposure to Covid-19 patients could have had an influence on a greater compliance, while the surgical units, with non-Covid patients, presented a lower adherence.

In summary, despite the advances attained during the pandemic, the decrease in compliance in 2022 poses the need for continuous interventions to reinforce adherence to HH. The implementation of promotion strategies, continuous training, and audits, along with increasing the awareness of the healthcare personnel, are essential for maintaining and improving hygiene standards.

Study limitations

The study had some limitations inherent to the observational methodology, such as the difficulty in observing all the professionals during their entire work shift, which could create variations in the compliance in moments that were not observed. Also, the Hawthorne effect could have influenced the behavior of the professionals, as they were aware they were being observed[21]. Measures were taken to reduce selection bias, although some professionals declined participation.

Annual assessments are recommended to verify if the trend observed is maintained, as well as broadening the study to other hospital units, such as maternity, pediatrics, or emergencies, to obtain a more comprehensive view of HH compliance in the entire hospital.

BIBLIOGRAPHY

1. Miranda CM, Navarrete TL. Semmelweis y su aporte científico a la medicina: Un lavado de manos salva vidas. Rev Chil Infectol. 2008; 25(1): 54-7.
2. Organization WH (OMS). Directrices_de_la_OMS_sobre_higiene_de_las_manos_la_atencio.pdf. 2020.
3. Organization WH. Reto Mundial en Pro de la Seguridad del Paciente. World Alliance Patient Saf. 2005; 53(9): 1689-99.
4. Organization WH. Manual técnico de referencia para la higiene de las manos. Int J Risk Saf Med. 2009; 21(4): 235-6.
5. Sociedad Española de Medicina Preventiva Salud Pública e Higiene. ESTUDIO EPINE-EPPS nº 30: 2021 Informe España. Estud EPiNE [Internet]. 2019; 33-6. Available from: https://epine.es/api/documento-publico/2021 EPINE Informe España 27112021.pdf/reports-esp%0Ahttp://dx.doi.org/10.1016/j.cirp.2016.06.001%0Ahttp://dx.doi.org/10.1016/j.powtec.2016.12.055%0Ahttps://doi.org/10.1016/j.ijfatigue.2019.02.006%0Ahttps://doi.org/1
6. Organization WH (OMS). Guía de aplicación estrategia multimodal de la OMS para la Higiene de Manos. 2022.

7. Organizacion Mundial de la Salud (OMS). Guía de la OMS sobre Higiene de Manos en la Atención de la Salud: Resumen. 2022; 8-80.
8. Ministerio de Sanidad. Medidas de prevención, higiene y promoción de la salud frente a covid-19 para centros educativos. Com Salud Pública [Internet]. 2021; 2(1): 1-41. Available from: https://www.mscbs.gob.es/profesionales/saludPublica/ccayes/alertasActual/nCov/documentos/COVID19_Medidas_centros_educativos_Curso_2020_2021.pdf
9. Ministerio de Sanidad. Gobierno de España. Las 6M Siempre En Mente. 17 Febrero 2021 [Internet]: 6. Available from: https://www.mscbs.gob.es/profesionales/saludPublica/ccayes/alertasActual/nCov/documentos/Infografia_6M.pdf
10. Armstrong-Novak JD, Juan HY, Cooper K, Bailey P. Healthcare Personnel Hand Hygiene Compliance: Are We There Yet? Curr Infect Dis Rep [Internet]. 2023; 25(7): 123-9. Available from: https://doi.org/10.1007/s11908-023-00806-8
11. SAFETY WAFP. Manual De Referencia Para Observadores Proyecto Atencion Limpia Es Una Atencion. 2009.
12. Ocampo M, Liseth A, Narváez L. Higiene de manos en el personal de salud en un ámbito hospitalario . Una revisión de la literatura Han d hygiene in health staff in a hospital area . a review. 2020; 17: 93-106.
13. Iversen, A. M., Kavalaris, C. P., Hansen, R., Hansen, M. B., Alexander, R., Kostadinov, K., Holt, J., Kristensen, B., Knudsen, J. D., Møller, J. K., & Ellermann-Eriksen, S. Clinical experiences with a new system for automated hand hygiene monitoring: A prospective observational study. American Journal of Infection Control. 2020. 48(5), 527-533. Available from: https://doi.org/10.1016/j.ajic.2019.09.003
14. Noboa Pullaguari, K. D. Estrategias de enfermería para reducir las infecciones nosocomiales en entornos hospitalarios. LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades. 2023; 4(6). Available from: https://doi.org/10.56712/latam.v4i6.1556
15. Srigley, J. A., Furness, C. D., & Gardam, M. Interventions to improve patient hand hygiene: a systematic review. Journal of Hospital Infection. 2016. 94 (1): 23-29. W.B. Saunders Ltd. Available from: https://doi.org/10.1016/j.jhin.2016.04.018
16. Speth J. Guidelines in Practice: Hand Hygiene. AORN J. 2023; 118(2): 101-8
17. Braithwaite, I., Callender, T., Bullock, M., & Aldridge, R. W. Automatedand partly automated contact tracing: a systematic review to inform the control of COVID-19. The Lancet Digital Health. 2020. 2 (11): e607-e621. Elsevier Ltd. Available from: https://doi.org/10.1016/S2589-7500(20)30184-9
18. Veys K, Dockx K, Van Remoortel H, Vandekerckhove P, De Buck E. The effect of hand hygiene promotion programs during epidemics and pandemics of respiratory droplet-transmissible infections on health outcomes: a rapid systematic review. BMC Public Health. 2021; 21(1): 1-11.
19. Coronavirus disease (COVID-19) [Internet]. WHO TEAM Emergencies Preparedness. 2021. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public
20. de Arriba-Fernández A, Molina-Cabrillana MJ, Majem LS. Evolution of adherence to hand hygiene in health care professionals in a third-level hospital in relation to the sars-cov-2 pandemic. Rev Esp Quimioter. 2021; 34(3): 214-9.
21. McCarney R, Warner J, Iliffe S, Van Haselen R, Griffin M, Fisher P. The Hawthorne Effect: A randomised, controlled trial. BMC Med Res Methodol. 2007; 7: 1-8.

ANNEX 1

World Health Organization — Patient Safety
A World Alliance for Safer Health Care

Formulario de observación

Centro:		Número de periodo*:		Número de sesión*:	
Servicio:		Fecha: (dd/mm/aa)	/ /	Observador: (Iniciales)	
Pabellón:		Hora de inicio/fin: (hh:mm)	: / :	Nº de página:	
Departamento:		Duración sesión: (mm)		Ciudad**:	
País**:					

Cat. prof			Cat. prof			Cat. prof			Cat. prof		
Código			Código			Código			Código		
N°			N°			N°			N°		
Op.	Indicación	Acción de HM	Op	Indicación	Acción de HM	Op	Indicación	Acción de HM	Op	Indicación	Acción de HM
1	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.ent.p	☐ FM ☐ LM O omisión ○ guantes	1	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	1	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	1	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes
2	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	2	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	2	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	2	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes
3	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	3	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	3	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	3	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes
4	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	4	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	4	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	4	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes
5	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	5	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	5	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	5	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes
6	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	6	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	6	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	6	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes
7	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	7	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	7	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	7	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes
8	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	8	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	8	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes	8	☐ ant. pac. ☐ ant.asept. ☐ desp. fc. ☐ desp.pac. ☐ desp.entp	☐ FM ☐ LM O omisión ○ guantes

* A completar por el administrador de los datos.
** Opcional, se usará si se considera apropiado, según las regulaciones y necesidades locales.

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Recomendaciones generales

(Remitir al Manual técnico de referencia para la higiene de las manos)

1. En el contexto de observaciones abiertas y directas, el observador se presenta al profesional sanitario y al paciente en caso necesario, explica en qué consiste su tarea y propone devolver la información de manera inmediata e informal.
2. El profesional sanitario, que pertenece a una de las cuatro categorías profesionales enumeradas a continuación (ver más abajo), se somete a la observación durante la prestación de actividades asistenciales a los pacientes.
3. Los datos detectados y observados deben registrarse con lapicero para poder corregirlos de inmediato en caso necesario.
4. La parte superior del formulario (cabecera) se cumplimenta antes de empezar a recoger datos (exceptuando la hora de finalización y la duración de la sesión).
5. La sesión no debe durar más de 20 minutos (+- 10 minutos en función de la actividad observada); la hora de finalización y la duración de la sesión deben anotarse al término de la sesión de observación.
6. El observador puede observar simultáneamente hasta tres profesionales, si lo permite la densidad de oportunidades para la higiene de las manos.
7. Cada columna de la cuadrícula de registro de las prácticas de higiene de manos está dedicada a una categoría profesional específica. Por lo tanto puede incluirse secuencialmente a numerosos profesionales durante una sesión en la columna dedicada a su categoría. Alternativamente cada columna puede dedicarse a un solo profesional, cuya categoría profesional ha de especificarse.
8. En cuanto detecte una indicación para la higiene de las manos, compute una oportunidad en la columna apropiada y marque el cuadro correspondiente a la(s) indicación(es) que ha detectado. Después complete todas las indicaciones que se aplican y las acciones de higiene de manos relacionadas observadas u omitidas.
9. Cada oportunidad se refiere a una línea de cada columna, cada línea es independiente de una columna a la siguiente.
10. Marque los cuadros (pueden aplicarse varios a una sola oportunidad) o círculos (sólo puede aplicarse uno en un momento determinado).
11. Cuando varias indicaciones coincidan en una oportunidad debe registrar cada una marcando los cuadros.
12. Las acciones realizadas u omitidas siempre deben registrarse en el contexto de una oportunidad.
13. El uso de los guantes sólo puede registrarse cuando se omite la acción de higiene de manos mientras el profesional sanitario lleva guantes.

Breve descripción

Centro:	A completar según la denominación local	
Servicio:	A completar según la denominación local	
Pabellón:	A completar según la denominación local	
Departamento:	A completar según la siguiente nomenclatura estandarizada:	
	Médico, que incluye dermatología, neurología, hematología, oncología, etc.	Quirúrgico, que incluye neurocirugía, urología, otorrinolaringología, oftalmología, etc.
	Mixto (médico-quirúrgico), que incluye ginecología	Obstetricia, que incluye la cirugía correspondiente
	Pediatría, que incluye la cirugía relacionada	Cuidados intensivos y reanimación
	Urgencias	Larga estancia y rehabilitación
	Asistencia ambulatoria, que incluye la cirugía correspondiente	Otros (especificar)
Nº de periodo:	1) pre-/ 2) post-intervención; y según el cómputo institucional	
Fecha:	Día (d) / Mes (m) / Año (a)	
Hora inicio/fin:	hora (h) / minuto (m).	
Duración sesión:	Diferencia entre la hora de inicio y la de fin, que resulta en los minutos de observación	
Nº de sesión:	Se incluye en el momento de introducir los datos para el análisis.	
Observador:	Iniciales del observador (el observador es responsable de la recogida de datos y de revisarlos antes de entregar el formulario para su análisis)	
Nº de página:	Escribir solo cuando se usa más de un formulario para una sola sesión.	
Categoría profesional:	Según la siguiente clasificación:	
	1. Enfermera / matrona	1.1 Enfermera 1.2 Matrona 1.3 Estudiante de enfermería.
	2. Auxiliar	
	3. Médico	3.1 Internista y otros especialistas médicos 3.2 Cirujano y otros especialistas quirúrgicos 3.3 Anestesista/ reanimador / medico de urgencias 3.4 Pediatría 3.5 Ginecólogo 3.6 MIR 3.7 Estudiante de medicina
	4. Otros profesionales sanitarios	4.1 Terapeuta (fisioterapeuta, terapeuta ocupacional, audiólogo, logopeda...) 4.2 Técnico (radiólogo, técnico de cardiología, técnico de quirófano, técnico de laboratorio...) 4.3 Otros (dietista, dentista,trabajador social, otros profesionales de la asistencia) 4.4 Estudiante (no recogido en los anteriores)
Número:	Número de profesionales observados que pertenecen a la misma categoría profesional (mismo código) al entrar en el campo de observación cuando usted detecta oportunidades.	
Oportunidad:	Definida como mínimo por una indicación.	
Indicación:	Razón(es) que motiva(n) la acción de higiene de manos; deben registrarse todas las indicaciones que pueden aplicarse en un momento dado.	
	ant.pac: antes del contacto con el paciente	desp.fc: después del riesgo de exposición a fluidos corporales
	ant.asept: antes de un procedimiento limpio/aséptico	desp.pac: después del contacto con el paciente
		desp. entp: después del contacto con el entorno del paciente
Acción de HM:	Respuesta a la(s) indicación(es) para la higiene de manos; puede ser una acción positiva al frotarse las manos o lavárselas o una acción negativa al no frotarse las manos ni lavárselas.	
	FM: acción de HM que consiste en frotárselas con un preparado de base alcohólica LM: acción de HM que consiste en lavárselas con agua y jabón	Omisión: no se realiza ninguna acción de HM

La Organización Mundial de la Salud ha tomado todas las precauciones razonables con objeto de verificar la información que contiene este documento. No obstante, el material que se publica se distribuye sin ninguna garantía explícita o implícita. La interpretación y el uso del material son responsabilidad del lector. La Organización Mundial de la Salud no será responsable en ningún caso de los perjuicios resultantes de su uso.
La OMS agradece la participación activa de los Hôpitaux Universitaires de Ginebra (HUG), en particular los miembros del programa de control de infecciones en el desarrollo de este material.

ANNEX 2

World Health Organization | Patient Safety
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Formulario de observación – Cálculo de cumplimiento básico

	Centro:						Periodo:			Ubicación:					
	Categoría profesional			Categoría profesional			Categoría profesional			Categoría profesional			Total por sesión		
Nº sesión	Op (n)	LM (n)	FM (n)	Op (n)	LM (n)	FM (n)	Op (n)	LM (n)	FM (n)	Op (n)	LM (n)	FM (n)	Op (n)	LM (n)	FM(n)
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
Total															
Cálculo	Acc (n) = / Op (n) =			Acc (n) = / Op (n) =			Acc (n) = / Op (n) =			Acc (n) = / Op (n) =			Acc (n) = / Op (n) =		
Cumplimiento															

Cumplimiento (%) = $\frac{\text{Acciones}}{\text{Oportunidades}} \times 100$

Instrucciones de uso

1. Defina la ubicación limitando el alcance de los datos para análisis e informe en función de la ubicación escogida.
2. Compruebe los datos del formulario de observación. Las acciones de higiene de manos que no estén relacionadas con una indicación no deben tenerse en cuenta y viceversa.
3. Anote en la misma línea el número de la sesión y los datos de observación correspondientes. Esta anotación del número de la sesión sirve para validar la inclusión de los datos en el cálculo de cumplimiento.
4. Resultados por categoría profesional y por sesión (verticales):
   - 4.1 Sume las oportunidades registradas (op) por categoría profesional, anote la cantidad en la casilla correspondiente del formulario de cálculo.
   - 4.2 Sume las acciones de higiene de manos positivas relacionadas con el total de oportunidades anterior, señalando la diferencia entre el lavado de manos (LM) y la fricción de manos (FM): anote la cantidad en la casilla correspondiente del formulario de cálculo.
   - 4.3 Proceda del mismo modo para cada sesión (formulario de observación).
   - 4.4 Sume todas las cantidades por cada categoría profesional y calcule el índice de cumplimiento (dado en porcentaje).
5. La suma de los resultados de cada línea permite obtener el cumplimiento global al final de la última columna a la derecha.

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ANNEX 3

World Health Organization | Patient Safety
A World Alliance for Safer Health Care

Formulario de observación – Formulario de cálculo opcional
(Cumplimiento relacionado con las indicaciones)

	Centro:						Periodo:			Ubicación:					
	Antes del contacto con el paciente			Antes de un procedimiento limpio/ aséptico			Después del riesgo de exposición a fluidos corporales			Después del contacto con el paciente			Después del contacto con el entorno del paciente		
Nº sesión	Ind (n)	LM (n)	FM (n)	Ind (n)	LM (n)	FM (n)	Ind (n)	LM (n)	FM (n)	Ind (n)	LM (n)	FM (n)	Ind (n)	LM (n)	FM (n)
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
Total															
Cálculo	Acc (n) = / Ind 1 (n) =			Acc (n) = / Ind 2 (n) =			Acc (n) = / Ind 3 (n) =			Acc (n) = / Ind 4 (n) =			Acc (n) = / Ind 5 (n) =		
Proporción acc / ind*															

Instrucciones de uso

1. Defina la ubicación delimitando el alcance de los datos para el análisis e informe en función de la ubicación escogida.
2. Compruebe los datos del formulario de observación. Las acciones de higiene de manos que no estén relacionadas con una indicación no deben tenerse en cuenta y viceversa.
3. Si se producen varias indicaciones en la misma oportunidad cada una debe considerarse por separado, así como la acción correspondiente.
4. Anote el número de la sesión y los correspondientes datos de observación en la misma línea. Esta anotación del número de la sesión sirve para validar que los datos se han incluido en el cálculo de cumplimiento.
5. Resultados por indicación (ind) y por sesión (vertical):
   4.1 Sume las indicaciones por indicación del formulario de observación: anote la cantidad en la casilla correspondiente del formulario de cálculo.
   4.2 Sume las acciones de higiene de manos positivas relativas al total de indicaciones anterior, señalando la diferencia entre el lavado de manos (LM) y la fricción de manos (FM): anote la cantidad en la casilla correspondiente del formulario de cálculo.
   4.3 Proceda del mismo modo para cada sesión (formulario de observación).
   4.4 Sume todas las cantidades por cada indicación y calcule la tasa (dado en porcentaje)

***Nota:** este cálculo no es exactamente un resultado de cumplimiento, puesto que el denominador del cálculo es una indicación en lugar de una oportunidad. La acción se sobreestima artificialmente según cada indicación. Sin embargo, el resultado da una idea general de la conducta del profesional sanitario hacia cada tipo de indicación.

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