

Infection control practices in a rural Peruvian hospital: A quality improvement project

By

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A Directed Scholarly Project Submitted to the  
Department of Nursing  
in the Graduate School of  
Bradley University in  
partial fulfillment of  
the requirements for the  
Degree of Doctor of Nursing Practice.

Peoria, Illinois

2019

Bradley University  
Department of Nursing

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has been approved

07/24/2019

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### Acknowledgements

I would like to express my sincere gratefulness to Dr. Kathleen Thimsen, my Project Mentor, without you my world would be one-sided, you pushed me out of my comfort zone to travel to a different country, to step up and do something about a problem we found, and to be a leader for those in need of being led. This project would never have happened without your devotion and dedication to the indigenous people of Peru, your tenacity in starting a nonprofit Nurses2Peru and your belief in me.

I would also like to express my sincere gratitude to Dr. Lori Vick, my Project Chair. Without your guidance, strength and knowledge I could have not accomplished this project, from tight IRB turnaround to your availability late nights and early mornings made it possible to complete this project.

Also, I would like to thank my Program Director, Dr. Deborah Erickson for your help throughout this program and Dr. Ling Chen, Associate Professor, Washington University for your assistance and guidance with the statistical component of this project.

I would be remiss in not thanking my family for all their moral support especially Janice, your never-ending work, support and conviction to get me through this program will never be forgotten.

### Abstract

Health care-associated infections are a problem world-wide especially in low-middle income countries. Limited resources make basic hand hygiene difficult at some health care facilities which may lead to a knowledge deficit or lack of interest at times when resources are available. The purpose of this project was to assess the infection control practices focusing on hand hygiene knowledge, skills and attitudes of health-care workers and staff at a small rural hospital in Maras, Peru. The quality improvement plan for this project was broke into two phases; phase I gathered data from a survey and questionnaire followed by a lecture-style education, then hands-on skills training, followed by a skills-return demonstration, post survey, and questionnaire. Phase II was a follow-up four months later, it looked at skills retention by return demonstration and administered a knowledge based questionnaire. Data returned show a slight increase in knowledge following the educational portion of training, the skills portion observed a large interest in learning the techniques of hand hygiene and return demonstrations where successful. Future goals for this project are to find sustainable resources for the hospital and to continue educating the health-care workers and staff, along with moving the habit of basic infection control and hand hygiene out into the villages in the district of Maras, Peru.

*Keywords:* infection control, hand hygiene, health-care associated infections, low-middle income countries, and Peru.

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## Chapter I

Health care-associated infections (HCAI) also known as nosocomial or hospital acquired infections continue to be a burden on society worldwide, in particular to developing countries that lack infection-control practices and surveillance (Allegranzi et al., 2010). The World Health Organization (WHO) defines infections that occur during a hospital admission or directly after discharge as HCAI (WHO, n.d.).

Failure to comply with hand hygiene practices is one of the main reasons for continued health-care associated infections worldwide. The simple act of hand washing is recognized to be one of the most essential steps in infection control and prevention. Compliance with hand hygiene can reduce the detrimental burden of health-care associated infections by decreasing both morbidity and mortality for patients. Failure to comply with hand hygiene has devastating outcomes to patients and becomes a significant adverse economic factor in the health-care industry (Allegranzi et al., 2013; Gould, Moralejo, Drey, Chudleigh & Taljaard, 2018).

### **Background and Significance**

Although the health-care industry has been examined and addressed health-care associated infections over several decades, the public lacks adequate awareness of the serious nature of HCAI. Health-care facilities do not readily disclose information on their HCAI rates even though it impacts millions of patients' lives.

The health-care industry continues to be inundated with HCAI rates despite knowing why they occur (WHO, n.d.), the morbidity and mortality rates of health-care associated infections continue to plague the health-care industry globally (Gould et al., 2018). Although the health-



care industry has spent billions of dollars on HCAI outcomes continue to be poor, thus exposing there is not enough being done to stop HCAI.

Through organizations such as the WHO and US Agency for International Development (USAID) the high rates of health-care associated infections along with surgical site infections in developing and low-middle-income countries have been targeted with initiatives to help reduce the rate of health-care associated and surgical site infections (SSI). Programs and tools have been developed to reduce and prevent HCAI and SSI. The use of guidelines and checklists along with assessment tools such as the Infection Control Assessment Tool (ICAT) is dedicated to identifying and improving a facilities infection control practices in health-care facilities with low-resources (Weinshel, Dramowski, Hajdu, Jacob, Khanal, Zoltan, Mougkou, Phukan, Staneloni & Singh, 2015).

### **Needs Assessment**

Participants with 'Nurses2Peru' had the opportunity to observe a hospital and its staff during a recent collaborative meeting with Dr. Victor Gutierrez Torres at Maras Hospital in Maras, Peru. The site is a rural health-care facility in a small town located 25 miles northwest of Cusco, an hour or more drive on tight curvy rock and dirt roads (Appendix A). Resources were scarce at the facility, the pharmacy (Appendix B P1) was closed due to a lack of available medications, there was no soap or hand hygiene supplies, no running water (Appendix B P2), piecemealed and outdated equipment (Appendix B P3 and B P4), no advanced diagnostic equipment such as X-ray or CT machines and one stethoscope was shared among the three physicians who took turns covering the facility. The physicians were also in need of gloves, as they did not have basic infection control supplies. These observations are consistent with the

literature found in a systematic review and meta-analysis by Allegranzi et al., (2010). They identified a lack of resources, insufficient infrastructure, and unsanitary working conditions throughout developing countries along with little data kept on HCAI. The findings in Peru, in April 2018 were consistent with the research evidence, no HCAI data was found at Maras Hospital.

During an observation of a Maras Hospital health-care staff teaching Nurses2Peru nurses and nursing students how to make bandages the HCW took a dirty wood side table and moved it to the center of the room, without wiping it off. She emptied a box of cotton sheets and without cleaning her hands started tearing it apart showing the students how to make cotton balls and bandages. When the HCW asked through the interpreter if the nurses and students would like to help, all took out their bottles of hand sanitizer and used it. This certainly was an example of when there are limited resources, health-care workers tend to neglect essential tasks such as hand hygiene (Allegranzi et al., 2010).

### **Problem Statement**

Lack of resources, insufficient access to epidemiology data or surveillance, and deficits in the competencies also referred to as knowledge, skills, and attitudes (KSA) of the health-care workers in low-and-middle-income countries; contribute to higher rates of HCAI.

### **Project Aims**

This project determined the competencies of the Maras Hospital health-care workers infection control knowledge by conducting an educational intervention with pretests and posttests. This was the result of an environmental assessment of Maras Hospital that led to the intervention which conducted pre-test and post-test surveys and questionnaires on basic infection

control, focusing on hand hygiene, educational interventions and a follow up evaluation. See Appendix C for timeline of project activities.

### **Clinical Question/PICOT**

In Maras Hospital health-care workers (HCW's), how does an infection control practice and prevention educational intervention impact the current competencies of Maras HCW's in relation to infection control practice and prevention?

P: Maras Hospital health-care workers

I: Basic infection control education on concepts and strategies for hand hygiene

C: Pre and post education

O: Improved infection control practice: increased hand hygiene

T: Before and after education

### **Congruence with Organizational Strategic Plan**

Nurses2Peru in collaboration with Kindness In A Box, an organization working with Maras Hospital and the surrounding villages was invited to Maras Hospital by the Medical Director, Dr. Victor Gutierrez Torres. The initial agreement was a collaboration to improve the health-care delivery system in the Maras District and surrounding communities by developing clinic sites that could be used by the hospital and its health-care staff to see the villagers on a monthly basis. During the inaugural trip we met, toured, and worked with the hospital staff. An agreement was made to examine, develop, and educate staff on evidence-based practices in the areas of infection control, nutrition, injury prevention, and other identified areas that would improve health care. Dr. Torres provided us with a Strength, Weakness, Opportunities, Threats (SWOT) analysis (Appendix D), prioritization list of their health-related problems (Appendix E),

and a Logic Model (Appendix F). See Appendix G and H for Spanish version of the SWOT, Logic Model and prioritization list received from Dr. Torres.

### **Synthesis of Evidence**

A review of the literature was performed May-July 2018. CINAHL, PUBMED and Cochrane databases were used with the search words: infection control, hand hygiene, health-care associated infections, low-middle income countries, and Peru from the timeframe of 2010 - 2019.

Albright et al. (2018) used electronic surveillance to collect an extensive data set with close to 4000 HCW's and over 6 million points of opportunity for hand hygiene to determine whether handwashing with soap and water or alcohol-based hand rub (ABHR) was done, with the conclusion that ABHR was used more than handwashing. Loftus et al. (2019) found obtaining resource was an issue, there was no very limited supplies of ABHR in low-and middle-income countries. It was found that nurses and nonclinical staff were more inclined to do hand hygiene than physicians. Gould et al. (2018) found an overwhelming problem in studies that use observation of hand hygiene. Observations were intrusive, leading to questions about the quality of studies, and it was noted other studies were also conducted improperly.

While health-care associated infections continue to be excessive, Allegranzi et al. (2010) found developing countries had low infection control practices, surveillance, and data collection. Allegranzi et al. (2013) discussed the relationship between the level of expenditures spent on health care and health care-associated infection. Low-and-middle-income countries continue to spend less money on health-care which leads to higher rates of HCAI. Awoke, Geda, Arba,

Tekalign and Paulos (2018), Cronk and Bartram (2018) found that lack of resources and environmental deficiencies to be a major barrier to hand hygiene.

Doronina, Jones, Martello, Biron, and Lavoie-Tremblay (2017), Gould et al. (2018), Pfafflin et. al. (2017), found that although education increased knowledge, skills and attitudes, and implementation of programs such as the World Health Organizations multimodal hand hygiene strategies increased compliance but the hand hygiene behaviors started to drop a soon as 1 month after the intervention. Vaishnav, Bamanikar, Dasgupta, and Reddy (2016) resonate the need for frequent training through HCW education. Desta et al. (2018) found respondents knowledgeable but inadequate at hand hygiene skills. Rosenthal et al. (2013) found in an observational prospective study, the use of education and feedback increased adherence with hand hygiene and decreased infection rates.

Weinshel et al. (2015), Larson, (2004) found HCAI's continue to be an issue in low- and middle- income countries; using an Infection Control Assessment Tool (ICAT) developed by the WHO and USAID or other tools determined that better infection control practice and adherence to hand hygiene would improve with resources, policies, and guidelines written and posted.

### **Theoretical Framework**

This project used the ecological model. In phase one, the project looked at the intrapersonal aspect of the ecological model by surveying HCW perceptions of HCAI, the interpersonal aspect was evaluated by assessing HCWs knowledge about HCAI related to hand hygiene, and the organizational level was addressed by collaboration with the medical director and administration introducing the CDC Infection Prevention and Control assessment Tool for

Acute Care Hospitals/Outpatient Settings document. See Appendix I for a table of the ecological model (Hayden, 2009).

## **Chapter II: Methodology**

### **Project Design**

The project was designed as a quality improvement project using observation, and quantitative analysis with repeated measures using a pre-test and post-test design. Participants were nonrandomized, and interventions were followed up on two occasions.

### **Setting**

The project was conducted in a small rural hospital in the Urubamba Valley of central Peru in the town of Maras. Maras is a largely Catholic Quechua community that has a population of approximately 6,000 residents in its district. The closest hospital with any moderate to advanced medical equipment is located in Cusco 25 miles away from Maras. Travel to the Cusco facility is approximately one hour and at times transportation is inaccessible.

### **Population/Sample**

The population sample were health-care workers and staff of Maras Hospital. There was a total of 29 participants involved in the quality improvement project, there were more than anticipated due to the medical director's recruitment of participants.

### **Tools and/or Instruments**

The protocol involved the administration of validated questionnaires from the WHO: a pre-test, an educational intervention with hands-on training, a post-test, and a four-month follow up that evaluated retention by repeating the same survey and hands-on using the teach-back method. The intervention was provided to health-care workers and staff at Maras Hospital. An interpreter fluent English, Spanish and Quechua interpreted all materials and was on-site at all times.

A Spanish version of the Hand Hygiene Self-Assessment Framework, 2010 (HHAS 2010) (Appendix J) was provided to the hospital administration. The hospital administration will complete their own self-assessment to identify their readiness for system change. This assessment examines the following areas: employee training and education, evaluation and feedback, reminders in the workplace, motivating factors and the opportunity to use the tool for future planning.

A translated version of the Hand Hygiene Knowledge Questionnaire for Health-Care Workers (Appendix K), was used to collect generic demographic data and knowledge content of hand hygiene was assessed. A second survey was given, a translated version of the Perception Survey for Health-Care Workers (Appendix L), no identifying data was collected in either survey.

Both surveys were given in a pre-test and post-test format with a unique pin number selected by the participant to link the pre-test and post-test. The program evaluation titled: Infection Control - Hand Hygiene program (Appendix M) was administered at the conclusion of the training without identifying data.

The WHO program is titled: SAVE LIVES Clean Your Hands Program and permission has been granted to translate materials into Spanish as needed. See Appendix N.

### **Project Plan**

The project plan was developed in phases, the initial phase involved collaboration with the medical director and hospital administration to provide them with valid tools to do self-assessments. The WHO survey and questionnaire were administered to HCW before an interventional education and skills training session, followed by administering the WHO survey



and questionnaire post education. The final phase was developed to observe hand hygiene return demonstrations and repeat the questionnaire as follow-up at a later date. See Appendix O.

### **Data Analysis**

Data collected from the Hand Hygiene Knowledge Questionnaire and Perception Survey for Health-Care Workers was analyzed using a paired t-test from pre-tests and post-tests using SAS software and a frequency table for the program evaluation.

### **Institutional Review Board (IRB)/Ethical Issues**

This was an international study. According to hospital medical director, IRB was not available in their district. The project participants will include health-care workers and hospital staff at a rural hospital in Peru. The data collected for this project was obtained by written and orally translated materials. Language barriers were addressed by an interpreter that knew all of the local languages and had a medical background.

Contacts were made with the local officials (Appendix P) and they approved our study. Collaborative Institutional Training Initiative (CITI) training was done through Washington University St. Louis, Missouri (Appendix Q) and IRB approval was received from Bradley University Committee on the Use of Human Subjects in Research (CUHSR). See Appendix R.

### **Chapter III: Organizational Assessment and Cost Effectiveness Analysis**

#### **Organizational Assessment**

A SWOT analysis (Appendix D) was done by the organization and in December a Hand Hygiene Self-Assessment Framework 2010 was given to the administration of Maras Hospital, allowing the organizations to look at their abilities and resources. They have begun the initial stages of planning to move the facility forward to improve infection control through proper hand hygiene to reduce HCAI.

#### **Cost Factors**

The budget for this project was self-funded, with the largest expense being travel and lodging (Appendix S). Paper, pens, copies and lamination was donated by Goldfarb School of Nursing.

## **Chapter IV: Results**

### **Analysis of Implementation Process**

The implementation of this project was to provide an infection control/hand hygiene education along with a hands-on skills training program to increase the knowledge, skills and attitude of the health-care workers at Maras Hospital. The program closely followed the WHO Clean Hands Saves Lives program utilizing selected tools, surveys and questionnaires from that program.

The first step of implementation was meeting with the interpreter and the representative from a non-profit organization who was responsible for explaining the use of a unique pin number to the health-care workers and staff prior to the start of the program. At the end of the meeting these individuals provided verbal feedback on their understanding of their roles in the project.

The second step of the implementation was having each participant sign the consent form (Appendix T). The third step was the disbursement of a pretest survey and questionnaire. The fourth step was the educational program including hands-on training, followed by the fifth step, a post survey and questionnaire, all steps were accomplished as projected.

### **Analysis of Project Outcome Data**

A total of 29 deidentified participants completed the survey and questionnaire. Demographics were obtained with the mean age being 35 and 76% of participants being female. Most participants could not identify with certain demographics such as professions or what department they worked in, 50% to 70% of the time they chose the answer other.

The Hand Hygiene Knowledge Questionnaire for Health-Care Workers showed small amounts of knowledge difference post questionnaire with the exception of two questions: 1) Question 18b pre-test was answered correctly by 74% of participant's prior to education, then post education only 29% of participants answered the question correctly, (Appendix U G1) the result is most likely due to communication error and language barriers. 2) Question 19 pre-test was answered correctly by 36% of participant's prior to education, then post education 67% of participants answered correctly. See Appendix U G2.

The Perception Survey for Health-Care Workers had small positive attitude trends towards the understanding of importance of HCAI and hand hygiene. Three questions had significant results, the first question looked at the impact of HCAI on clinical outcomes (Appendix U G3), and there was a 36% increase in those who answered "the impact would be very high". The second question, addressing the effectiveness of hand hygiene in preventing HCAI (Appendix U G4) and there was a 50% increase in those answering "very high", the third question had a 53% increase in those who thought "posting clear and simple instructions would improve hand hygiene" (Appendix U G5).

## **Chapter V: Discussion**

### **Findings**

The goal of this project was to assess the KSA along with an educational program for the health-care workers and staff at Maras Hospital. The objective was to improve hand hygiene practices. The educational component was lecture-style with the use of an interpreter and skills training with hands-on return demonstrations.

Although the initial findings were not as obvious as one would expect after an educational intervention, the knowledge did increase and the hands-on return demonstrations were precise and successful.

Knowledge retention in phase II could not be determined due to the inability of the participants to remember their unique pin numbers they chose in December 2018 when they participated in phase I, completing the survey and questionnaire. Hand hygiene skills observed were successful with 8 participants completing hand hygiene correctly, the rest of those who participated in December, 2018 were not available or were no longer employed at the facility to participate.

During phase II, Maras Hospital was noted to be a much cleaner facility with hand hygiene posters and materials given during phase I on the walls, in the lobby, and in bathrooms along with hand hygiene stations.

### **Limitations or Deviations from Project Plan**

The limitations during this project could have an effect on the data. Some of the limitations were the language and cultural differences, although there was an interpreter, there was only one, which made communications with a large group difficult at times. The tools

themselves were in Spanish and the prevalent language is Quechua so a large amount of interpretation was necessary. It was noted in review of the data analysis that there was misinterpretation of what directions meant, e.g. answer with a percentage or only one tick.

Other limitations included the amount of time given for education and training, with such a small hospital the health-care workers and staff were the only employees working and some were in and out of the training due to patient needs. The use of a unique pin number was not successful as they were unable to remember them in phase II, therefore the plan to evaluate knowledge retention through a questionnaire could not be done, in the next phase more time will be spent on educating participants on the importance of selecting an unique pin number that can be carried through phases and giving them a post card that they can keep their unique pin number on.

### **Implications**

This project has shown that education both lecture and hands-on training can be successful. Having on-going training addressing KSA will assist health-care workers and staff in feeling more confident and having a higher understanding of the significance of HCAI and the impact that hand hygiene has on it. In providing this type of training the patient, community, and hospital benefits in reduced cost of health-care and waste of resources.

## Chapter VI: Conclusion

### Value of the Project

This project brought value to a community, a rural hospital, its health-care workers and staff. Reducing HCAI is a community and global goal and being able to provide the education and training to an organization that requested it has a more direct impact. When hand hygiene is performed appropriately there is reduction of HCAI in the community making the health-care system safer.

Another look at the value of the program is through the program evaluation, participants ranked the program value at 3.7 out of 4 points. Additionally, the comments shared demonstrated the personal value of the participants: “The information about hand wash is very important, because we have many patients getting infections” to “You helped us a lot with this information. Very important and supportive. Now we know how to wash our hands and how long”.

### DNP Essentials

DNP essential I: *Scientific Underpinning for Practice* – The integration of the Ecological Model into the project demonstrated its scientific underpinnings through the use of social science theory. The intrapersonal, interpersonal and institutional factors of the Ecological Model were evaluated by observation, surveys and questionnaires.

DNP essential II: *Organizational System Leadership for Quality Improvement and Systems Thinking* – collaboration with Maras Hospital administration, observing care and the environment to develop a training program, deliver the training program and continue partnership to continue beyond what has already been done.

DNP essential III: *Clinical Scholarship and Analytical Methods for Evidence-Based Practice* – by developing this project based on the WHO Clean Hands Saves Lives program which has been tested throughout many countries and is considered the standard to achieve.

DNP essential IV: *Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care* – modified the WHO Clean Hands Saves Lives program for the needs of Maras Hospital and plan to continue evaluating the program.

DNP essential VI: *Interprofessional Collaboration for Improving Patient and Population Health Outcomes* – collaboration between several different professions e.g. physicians, nurses, staff, along with education and training of an interprofessional team.

DNP essential VII: *Clinical Prevention and Population Health for Improving the Nation's Health* – provided education and training along with follow up. This training used evidence-based practices in a culturally diverse setting.

### **Plan for Dissemination**

Information obtained in this scholarly project will be disseminated to Maras Hospital administration during Nurses2Peru next mission trip December 2019 and will be used to develop phase 2 for the hospital. An infection control team has been formed to continue development of this project. Information will also be used for poster presentations at conferences. Consideration has been given to submitting the written products of this project to a public health journal on global health initiatives.

### **Attainment of Personal and Professional Goals**

I met a personal goal with this scholarly project by participating in a medical mission that led me outside the United States for the first time. Providing not only needed, but wanted



education and training that will continue to make an impact on the entire community not just the hospital, even after our departure is life changing.

Both personal and profession goals are to continue my work through Nurses2Peru by providing education and training as well as equipment and supplies throughout our mission trips. The next phase of my project will be to take the information and training provided to the health-care workers and staff at Maras Hospital out into their district villages and work with the indigenous people on basic infection control and hand hygiene issues.

The education in Bradley's Doctorate of Nursing Practice Leadership program that I have received has provided me with many new opportunities in my career. It has given me many different experiences and allowed me to nurture those that I wanted to pursue. Many of my roles have changed due to the enhancement of my leadership qualities that I have obtained through the program and I will continue to draw from it as I move forward in my career.

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Appendix A

Map of Cusco and Maras Area

*Distance between Cusco and Maras, 25 miles*



Appendix B

Pictures



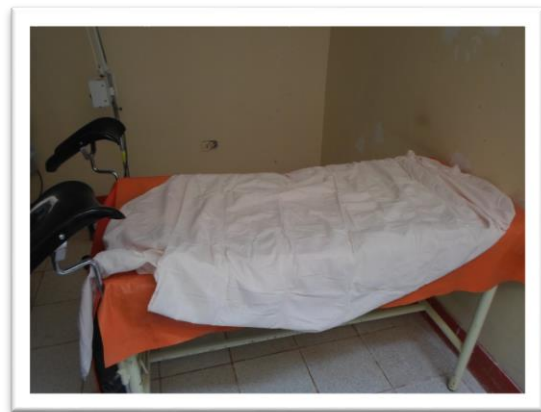
P1 Pharmacy inside Maras Hospital



P2 Hand hygiene station



P3 Wheelchair



P4 Birthing bed

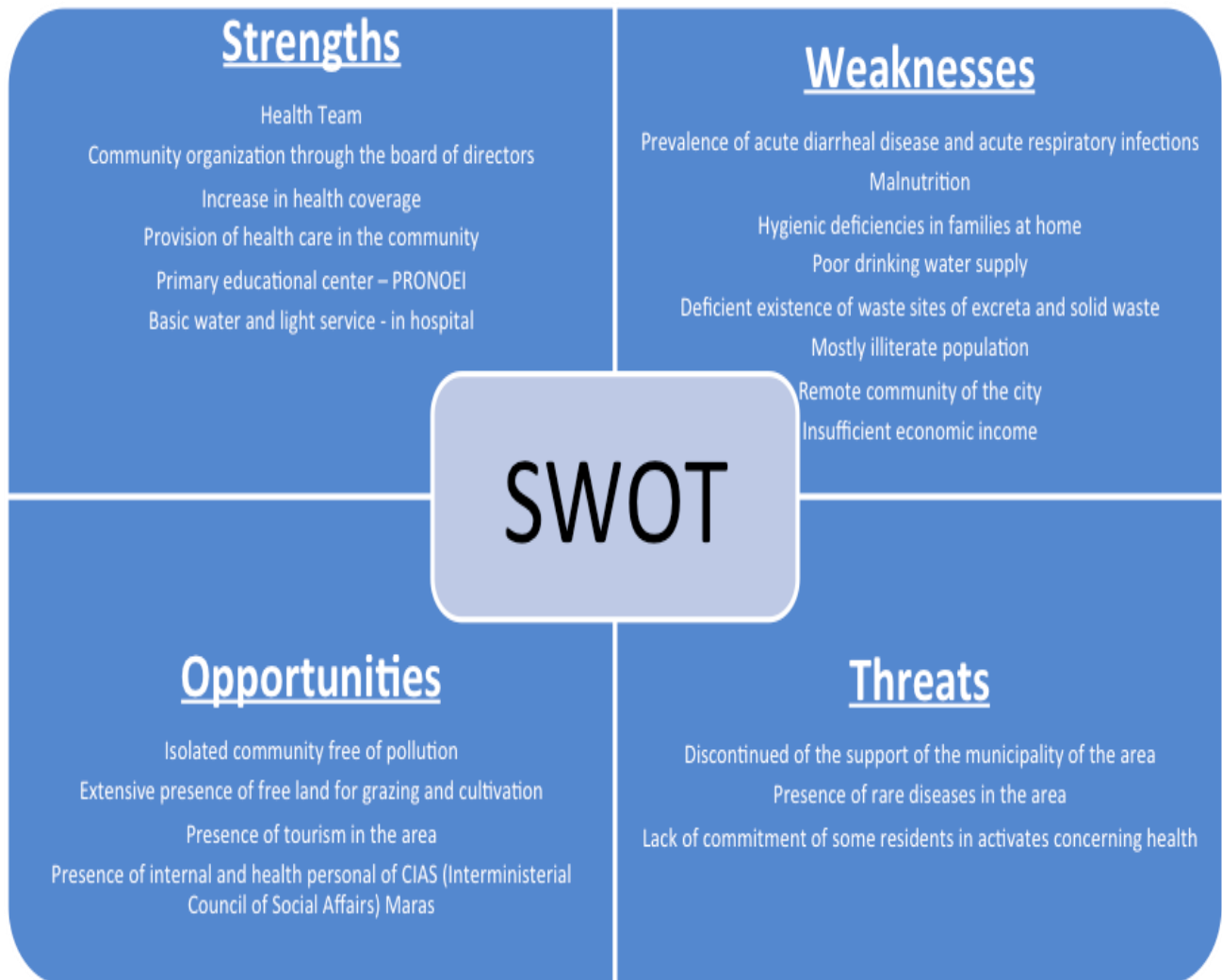
## Appendix C

## Time Line

<b>TIMETABLE OF PROJECT ACTIVITIES</b>		
<b>Date</b>	<b>Phase</b>	<b>Activity</b>
<b>December 2018</b>	1	<b><u>Assessment of Maras Hospital</u></b> CDC Infection Prevention and Control Assessment Tool for Acute Care Hospitals/Outpatient Settings
	1	<b><u>Basic Infection Control/Hand Hygiene Pre-test</u></b>
	1	<b><u>Educational Methods for Interventions</u></b> WHO Multimodal Hand Hygiene Improvement Strategy - My Five Moments for Hand Hygiene <u>Methods:</u> Presentation Demonstration Interaction Discovery Experiment
	1	<b><u>Basic Infection Control/Hand Hygiene Post-test</u></b>
<b>April 2019</b>	2	<b><u>Re-evaluation</u></b> Survey

Appendix D

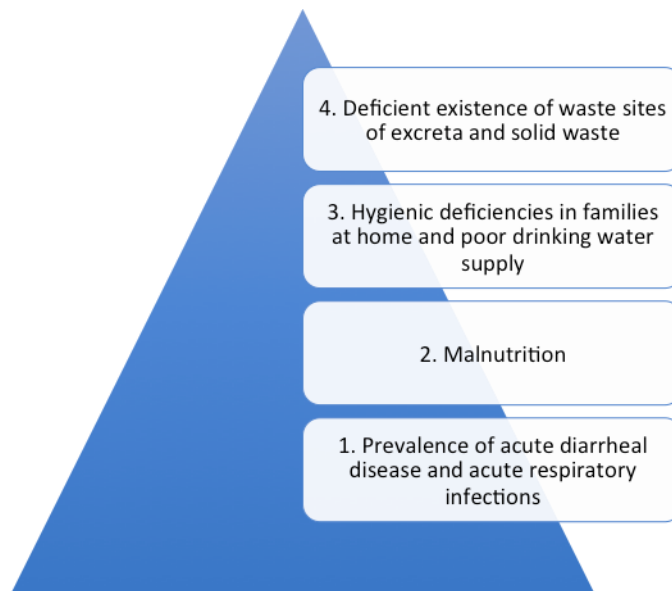
SWOT Analysis





## Appendix E

### Prioritization of Problems



Maras Hospital. (n.d.). My healthy home. Social Development Program. [Booklet]. Maras, Peru: Author

## Appendix F

## Logic Model

Logic Frame			
	Indicators	Sources of verification	Assumption /risk
Purpose: to improve the health conditions of the families in the community of Kacllaracy	Decrease in 0% and 0% cases of morbidity by IRAS, EDAS	Registry of morbidity and mortality of CLASS of MARAS	Poor participation of the population Inadequate water transport by the municipality of MARAS
Objective: To improve the habits of personal hygiene and ordering of the housing of the Kacllaracy community	% of families with cleaning % of families have an order in its different environments % of families, with hygiene habits	Observation cards. Following and monitoring cards	
Results to achieve:			
1) Kitchen with counters for utensils 2) Kitchen with a place for food storage 3) Home has a corral for raising animals. 4) Family with a toilet press 6) Families have a place and containers for water storage	100% family with repeaters 100% families have a place to store food 90% of families have a suitable place and corral for the breeding of animals 100% of Families with a place of cleanliness 100% of Families have containers for water storage	Following and monitoring cards	
Activities:			
a) Base lines. b) Project socialization c) Socialization of families d) Construction of shelves in the kitchen e) Construction of a place for food storage f) Construction of the places of cleanliness with the family g) Sensitization about the adequate breeding of animals h) Obtaining containers for water storage and education about proper management. i) Education about the classification and elimination of solid waste. j) Following and monitoring	a) 100% of families with baseline. b) 80% of the family knows about cleaning the kitchen c) 80% of sensitized families. d) 100% of families with shelves for utensils. e) 100% of families with place to save families. f) 90% of the families with a place of cleanliness. g) 80% of sensitized families. h) 90% with suitable buckets for water storage. i) 50% of families classify and dispose of trash properly.	a) Document of baseline report. b) Coordination and meeting minutes c) Awareness plan. d) Follow-up document e) Follow-up document f) Follow-up document g) Following and monitoring document h) Following and monitoring document i) Following and monitoring document	Planting time in the community

## Appendix G

## Maras Hospital SWOT and Prioritization of Problems

## PROYECTO DE DESARROLLO SOCIAL

1.-TITULO: Mi Vivienda Saludable

## 2.-CARACTERIZACION:

La mayoría de los pobladores de esta comunidad poseen conductas inadecuadas para mantener una salud óptima: como las deficiencias higiene personal por no contar con un lugar adecuado para el aseo en el hogar inadecuada almacenamiento de alimentos, utensilios todo esto debido a la falta de conocimiento e importancia a la conservación de la salud.

## 3.-ANALISIS FODA:

## FORTALEZAS:

- Equipo de salud con
- Comunidad organizada mediante la junta directiva.
- Incremento en las coberturas de salud.
- Prestación de atención de salud en comunidad
- Cuenta con centro educativo primario y PRONOEI
- Cuentan con servicio básico de agua y luz.

## OPORTUNIDADES:

- Comunidad aislada libre de contaminación.
- Presencia extensa de terrenos libres para pastoreo y cultivo
- Presencia de turismo en la zona
- Presencia de internos y del personal de salud de CIAS Maras

## DEBILIDADES:

- Prevalencia de EDAS.e IRAS.
- Desnutrición.
- Deficiencias higiénicas en las familias, en el hogar y deficiente abastecimiento de agua potable.
- Deficiente existencia de lugares de desechos de excretas y de residuos sólidos.
- Población en su mayoría analfabeta.
- Comunidad alejada de la ciudad.
- Ingresos económicos insuficientes.

## AMENAZAS:

- Discontinuidad del apoyo del municipio de la zona.
- Presencia de enfermedades poco comunes de la zona.
- Falta de compromiso de algunos moradores en las actividades concernientes a la salud.

## 4. PRIORIZACION DE PROBLEMAS:

- Prevalencia de EDAS. e IRAS.
- Desnutrición
- Deficiencias higiénicas en las familias y en el hogar y deficiente abastecimiento de agua potable.
- Deficiente existencia de lugares de desechos de excretas y de residuos sólidos.

Appendix H

Maras Hospital Logic Model

5. MARCO LOGICO			
FIN: Mejorar las condiciones de salud de las familias de la Comunidad de Kachinacay	Indicadores	Fuentes De Verificación	Supuestos / Riesgos
Objetivo: Mejorar los hábitos de higiene personal y ordenamiento de las viviendas de la Comunidad de Kachinacay	<ul style="list-style-type: none"> <li>• Disminuir en un 0% y 0% los casos de mortalidad por IRAS, EDAS</li> <li>• % de las familias con limpieza.</li> <li>• % de las familias cuentan con un orden en sus diferentes ambientes.</li> <li>• % de las familias con hábitos de higiene.</li> </ul>	<ul style="list-style-type: none"> <li>➢ Registro de morbimortalidad del CLAS DE MARAS.</li> <li>➢ Fichas de observación.</li> <li>➢ Fichas de seguimiento y monitoreo</li> </ul>	Supuestos / Riesgos Deficiente participación de la población, Transporte inadecuada de agua por el municipio de Maras.
Resultados a lograr: 1) Cocina con repiceros para los utensilios. 2) Cocina con un lugar para guardado de alimentos. 3) Hogar cuenta con un corral para la crianza de animales. 4) Familia con un lugar de aseó 6) familias cuentan con un lugar y recipientes para el almacenaje de agua	<ul style="list-style-type: none"> <li>• 100% familias con repiceros</li> <li>• 100% familias cuentan con un lugar para el guardado de alimentos.</li> <li>• 90% de familias cuenta con un lugar adecuado y corral para el la crianza de animales.</li> <li>• 100% de las familias con un lugar de aseó.</li> <li>• 100% de las familias cuentan con recipientes para el almacenaje de agua</li> </ul>	<ul style="list-style-type: none"> <li>➢ Ficha de seguimiento y monitoreo</li> </ul>	
ACTIVIDADES: a) Lineas de base. b) Socialización del proyecto. c) Sensibilización de las familias d) Construcción de repisas en la cocina e) Construcción de un lugar para el almacenamiento de alimentos f) Construcción de los lugares de aseó con la familia g) sensibilización acerca de la adecuada crianza de animales. h) Obtención de recipientes para el almacenamiento de agua y educación acerca del adecuado manejo. i) Educación acerca de la clasificación y eliminación de los residuos sólidos. j) Seguimiento y monitoreo.	<ul style="list-style-type: none"> <li>a) 100% de familias con Linea de Base</li> <li>b) 80% de la familia conocen sobre la limpieza de la cocina.</li> <li>c) 80% de las familias sensibilizadas.</li> <li>d) 100% de Familias con repisas para los utensilios.</li> <li>e) 100% de familias con lugar para el guardado de familias</li> <li>f) 90% de las familias con un lugar de aseó.</li> <li>g) 80% de familias sensibilizadas.</li> <li>h) 90% con tacho adecuados para el almacenamiento de agua.</li> <li>i) 50% de familias clasifican y eliminan la basura de forma adecuada</li> </ul>	<ul style="list-style-type: none"> <li>a) Documento de informe de línea de Base.</li> <li>b) Acta de coordinación y reunión.</li> <li>c) Plan de sensibilización.</li> <li>d) Documento de seguimiento.</li> <li>e) Documento de seguimiento.</li> <li>f) Documento de seguimiento y monitoreo.</li> <li>g) Documento de seguimiento y monitoreo.</li> <li>h) Documento de seguimiento y monitoreo.</li> <li>i) Documento de seguimiento y monitoreo.</li> </ul>	<p>Tempo de sembrío en la comunidad</p>

Ecological Model

<b>ECOLOGICAL MODEL</b>		
<b>Level of EM</b>	<b>Aspect of EM</b>	<b>Aspect of project</b>
<b>Intrapersonal</b>	Knowledge, attitudes, beliefs, personality traits, skills, perceptions, person history, self-efficacy, perceptions self/individual behaviors	Self-assessment of basic infection control and hand hygiene competencies
<b>Interpersonal</b>	External factors: relatives, friends, peers influence health behaviors	Educate, led by example
<b>Organizational</b>	Constrains or promotion: rules, regulations, policies and procedures	Written and posted policies and procedures
<b>Community</b>	Social networks, norms or standards of behavior; individual, groups or organizations	Education and lead by example from other levels
<b>Societal</b>	Broader factors: economics, social policies, social/cultural norms of behavior, attitudes	Funding, policies and procedures

## Hand Hygiene Self-Assessment Framework 2010



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# Hand Hygiene Self-Assessment Framework 2010

## Introduction and user instructions

The **Hand Hygiene Self-Assessment Framework** is a systematic tool with which to obtain a situation analysis of hand hygiene promotion and practices within an individual health-care facility.

### What is its purpose?

While providing an opportunity to reflect on existing resources and achievements, the **Hand Hygiene Self-Assessment Framework** also helps to focus on future plans and challenges. In particular, it acts as a diagnostic tool, identifying key issues requiring attention and improvement. The results can be used to facilitate development of an action plan for the facility's hand hygiene promotion programme. Repeated use of the **Hand Hygiene Self-Assessment Framework** will also allow documentation of progress with time.

Overall, this tool should be a catalyst for implementing and sustaining a comprehensive hand hygiene programme within a health-care facility.

### Who should use the Hand Hygiene Self-Assessment Framework?

This tool should be used by professionals in charge of implementing a strategy to improve hand hygiene within a health-care facility. If no strategy is being implemented yet, then it can also be used by professionals in charge of infection control or senior managers at the facility directorate. The framework can be used globally, by health-care facilities at any level of progress as far as hand hygiene promotion is concerned.

### How is it structured?

The **Hand Hygiene Self-Assessment Framework** is divided into five components and 27 indicators. The five components reflect the five elements of the **WHO Multimodal Hand Hygiene Improvement Strategy** (<http://www.who.int/gpsc/5may/tools/en/index.html>) and the indicators have been selected to represent the key elements of each component. These indicators are based on evidence and expert consensus and have been framed as questions with defined answers (either "Yes/No" or multiple options) to facilitate self-assessment. Based on the score achieved for the five components, the facility is assigned to one of four levels of hand hygiene promotion and practice: Inadequate, Basic, Intermediate and Advanced.

**Inadequate:** hand hygiene practices and hand hygiene promotion are deficient. Significant improvement is required.

**Basic:** some measures are in place, but not to a satisfactory standard. Further improvement is required.

**Intermediate:** an appropriate hand hygiene promotion strategy is in place and hand hygiene practices have improved. It is now crucial to develop long-term plans to ensure that improvement is sustained and progresses.

**Advanced:** hand hygiene promotion and optimal hand hygiene practices have been sustained and/or improved, helping to embed a culture of safety in the health-care setting.

Leadership criteria have also been identified to recognise facilities that are considered a reference centre and contribute to the promotion of hand hygiene through research, innovation and information sharing. The assessment according to leadership criteria should only be undertaken by facilities having reached the Advanced level.

### How does it work?

While completing each component of the **Hand Hygiene Self-Assessment Framework**, you should circle or highlight the answer appropriate to your facility for each question. Each answer is associated with a score. After completing a component, add up the scores for the answers you have selected to give a subtotal for that component. During the interpretation process these subtotals are then added up to calculate the overall score to identify the hand hygiene level to which your health-care facility is assigned.

The assessment should not take more than 30 minutes, provided that the information is easily available.

Within the **Framework** you will find a column called "WHO implementation tools" listing the tools made available from the WHO First Global Patient Safety Challenge to facilitate the implementation of the **WHO Multimodal Hand Hygiene Improvement Strategy** (<http://www.who.int/gpsc/5may/tools/en/index.html>).

These tools are listed in relation to the relevant indicators included in the **Framework** and may be useful when developing an action plan to address areas identified as needing improvement.

### Is the Hand Hygiene Self-Assessment Framework suitable for inter-facility comparison?

Health-care facilities or national bodies may consider adopting this tool for external comparison or benchmarking. However, this was not a primary aim during the development of this tool. In particular, we would draw attention to the risks inherent in using a self-reported evaluation tool for external benchmarking and also advise the use of caution if comparing facilities of different sizes and complexity, in different socioeconomic settings. It would be essential to consider these limitations if inter-facility comparison is to be undertaken.



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Hand Hygiene Self-Assessment Framework 2010

1. System Change			
Question	Answer	Score	WHO improvement tools
<b>1.1</b> How easily available is alcohol-based handrub in your health-care facility?  Choose one answer	Not available	0	→ Ward Infrastructure Survey → Protocol for Evaluation of Tolerability and Acceptability of Alcohol-based Handrub in Use or Planned to be Introduced: Method 1 → Guide to Implementation II.1
	Available, but efficacy <sup>1</sup> and tolerability <sup>2</sup> have not been proven	0	
	Available only in some wards or in discontinuous supply (with efficacy <sup>1</sup> and tolerability <sup>2</sup> proven)	5	
	Available facility-wide with continuous supply (with efficacy <sup>1</sup> and tolerability <sup>2</sup> proven)	10	
	Available facility-wide with continuous supply, and at the point of care <sup>3</sup> in the majority of wards (with efficacy <sup>1</sup> and tolerability <sup>2</sup> proven)	30	
	Available facility-wide with continuous supply at each point of care <sup>3</sup> (with efficacy <sup>1</sup> and tolerability <sup>2</sup> proven)	50	
<b>1.2</b> What is the sink:bed ratio?  Choose one answer	Less than 1:10	0	→ Ward Infrastructure Survey → Guide to Implementation II.1
	At least 1:10 in most wards	5	
	At least 1:10 facility-wide and 1:1 in isolation rooms and in intensive care units	10	
<b>1.3</b> Is there a continuous supply of clean, running water <sup>4</sup> ?	No	0	→ Ward Infrastructure Survey → Guide to Implementation II.1
	Yes	10	
<b>1.4</b> Is soap <sup>5</sup> available at each sink?	No	0	→ Ward Infrastructure Survey → Guide to Implementation II.1
	Yes	10	
<b>1.5</b> Are single-use towels available at each sink?	No	0	→ Ward Infrastructure Survey → Guide to Implementation II.1
	Yes	10	
<b>1.6</b> Is there dedicated/available budget for the continuous procurement of hand hygiene products (e.g. alcohol-based handrubs)?	No	0	→ Guide to Implementation II.1
	Yes	10	

Extra Question: Action plan

<b>Answer this question ONLY if you scored less than 100 for questions 1.1 to 1.6:</b>  Is there realistic plan in place to improve the infrastructure <sup>6</sup> in your health-care facility?	No	0	→ Alcohol-based Handrub Planning and Costing Tool → Guide to Local Production: WHO-recommended Handrub Formulations → Guide to Implementation II.1
	Yes	5	
<b>System Change subtotal</b>		<b>/100</b>	

**1. Efficacy:** The alcohol-based handrub product used should meet recognised standards of antimicrobial efficacy for hand antisepsis (ASTM or EN standards). Alcohol-based handrubs with optimal antimicrobial efficacy usually contain 75 to 85% ethanol, isopropanol, or n-propanol, or a combination of these products. The WHO-recommended formulations contain either 75% w/v isopropanol, or 80% w/v ethanol.

**2. Skin tolerability:** The alcohol-based handrub product is well tolerated by health-care workers skin (i.e. it does not harm or irritate the skin) when used in clinical care, as demonstrated by reliable data. The WHO Protocol for Evaluation of Tolerability and Acceptability of Alcohol-based Handrub in Use or Planned to be Introduced can be used as a reference.

**3. Point of care:** The place where three elements come together: the patient, the health-care worker, and care or treatment involving contact with the patient or his/her surroundings (within the patient zone). Point-of-care products should be accessible without having to leave the patient zone (ideally within arms reach of the health-care worker or within 2 meters).

**4. Clean, running water:** A water supply that is either piped in (or where this is not available, from onsite storage with appropriate disinfection) that meets appropriate safety standards for microbial and chemical contamination. Further details can be found in Essential environmental health standards in health care (Geneva, World Health Organization, 2008, [http://whqlibdoc.who.int/publications/2008/9789241547239\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241547239_eng.pdf)).

**5. Soap:** Detergent-based products that contain no added antimicrobial agents, or may contain these solely as preservatives. They are available in various forms including bar soap, tissue, leaf, and liquid preparations.

**6. Infrastructure:** The "infrastructure" here referred to includes facilities, equipment, and products that are required to achieve optimal hand hygiene practices within the facility. Specifically, it refers to the indicators included in questions 1.1-1.5 and detailed in the WHO Guidelines on Hand Hygiene in Health Care 2009, Part I, Chapter 23.5 (e.g. availability of alcohol based handrub at all points of care, a continuous supply of clean, running water and a sink:bed ratio of at least 1:10, with soap and single-use towels at each sink).



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2. Training and Education			
Question	Answer	Score	WHO improvement tools
<b>2.1</b> Regarding training of health-care workers in your facility:			
2.1a How frequently do health-care workers receive training regarding hand hygiene <sup>7</sup> in your facility?  Choose one answer	Never	0	→ Slides for Education Session for Trainers, Observers and Health-care Workers → Hand Hygiene Training Films → Slides Accompanying the Training Films → Slides for the Hand Hygiene Co-ordinator → Hand Hygiene Technical Reference Manual
	At least once	5	
	Regular training for medical and nursing staff, or all professional categories (at least annually)	10	
	Mandatory training for all professional categories at commencement of employment, then ongoing regular training (at least annually)	20	
2.1b Is a process in place to confirm that all health-care workers complete this training?	No	0	→ Hand Hygiene Why, How and When Brochure → Guide to Implementation II.2
	Yes	20	
<b>2.2</b> Are the following WHO documents (available at <a href="http://www.who.int/gpsc/5may/tools">www.who.int/gpsc/5may/tools</a> ), or similar local adaptations, easily available to all health-care workers?			→ Guide to Implementation II.2
2.2a The 'WHO Guidelines on Hand Hygiene in Health-care: A Summary'	No	0	→ WHO Guidelines on Hand Hygiene in Health Care: A Summary
	Yes	5	
2.2b The WHO 'Hand Hygiene Technical Reference Manual'	No	0	→ Hand Hygiene Technical Reference Manual
	Yes	5	
2.2c The WHO 'Hand Hygiene: Why, How and When' Brochure	No	0	→ Hand Hygiene Why, How and When Brochure
	Yes	5	
2.2d The WHO 'Glove Use Information' Leaflet	No	0	→ Glove Use Information Leaflet
	Yes	5	
<b>2.3</b> Is a professional with adequate skills <sup>8</sup> to serve as trainer for hand hygiene educational programmes active within the health-care facility?	No	0	→ WHO Guidelines on Hand Hygiene in Health Care → Hand Hygiene Technical Reference Manual → Hand Hygiene Training Films
Yes	15		
<b>2.4</b> Is a system in place for training and validation of hand hygiene compliance observers?	No	0	→ Slides Accompanying the Training Films → Guide to Implementation II.2
	Yes	15	
<b>2.5</b> Is there is a dedicated budget that allows for hand hygiene training?	No	0	→ Template Letter to Advocate Hand Hygiene to Managers → Template Letter to communicate Hand Hygiene Initiatives to Managers → Template Action Plan → Guide to Implementation II.2 and II.1 (page 33)
	Yes	10	
<b>Training and Education subtotal</b>		<b>/100</b>	

**7. Training in hand hygiene:** This training can be done using different methods but the information conveyed should be based on the WHO multimodal hand hygiene improvement strategy or similar material. Training should include the following:

- The definition, impact and burden of health care-associated infection (HCAI)
- Major patterns of transmission of health care-associated pathogens
- Prevention of HCAI and the critical role of hand hygiene
- Indications for hand hygiene (based on the WHO 'My 5 Moments for Hand Hygiene' approach)
- Correct technique for hand hygiene (refer to 'How to Handrub' and 'How to Hand Wash')

**8. A professional with adequate skills:** Medical staff or nursing staff trained in Infection Control or Infectious Diseases, whose tasks formally include dedicated time for staff training. In some settings, this could also be medical or nursing staff involved in clinical work, with dedicated time to acquire thorough knowledge of the evidence for and correct practice of hand hygiene (the minimum required knowledge can be found in the WHO Guidelines on Hand Hygiene in Health Care and the Hand Hygiene Technical Reference Manual).





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<b>3. Evaluation and Feedback</b>			
Question	Answer	Score	WHO improvement tools
<b>3.1</b> Are regular (at least annual) ward-based audits undertaken to assess the availability of handrub, soap, single use towels and other hand hygiene resources?	No	0	→ Ward Infrastructure Survey → Guide to Implementation 8.3
	Yes	10	
<b>3.2</b> Is health care worker knowledge of the following topics assessed at least annually (e.g. after education sessions)?			
3.2a. The indications for hand hygiene	No	0	→ Hand Hygiene Knowledge Questionnaire for Health-Care Workers → Guide to Implementation 8.3
	Yes	5	
3.2b. The correct technique for hand hygiene	No	0	→ Guide to Implementation 8.3
	Yes	5	
<b>3.3 Indirect Monitoring of Hand Hygiene Compliance</b>			
3.3a Is consumption of alcohol-based handrub monitored regularly (at least every 3 months)?	No	0	→ Soap/Handrub Consumption Survey → Guide to Implementation 8.3
	Yes	5	
3.3b Is consumption of soap monitored regularly (at least every 3 months)?	No	0	→ Guide to Implementation 8.3
	Yes	5	
3.3c Is alcohol based handrub consumption at least 20L per 1000 patient-days?	No (or not measured)	0	→ Guide to Implementation 8.3
	Yes	5	
<b>3.4 Direct Monitoring of Hand Hygiene Compliance</b> Only complete section 3.4 if hand hygiene compliance observers in your facility have been trained and validated and utilise the WHO 'My 5 Moments for Hand Hygiene' (or similar) methodology			
3.4a How frequently is direct observation of hand hygiene compliance performed using the WHO Hand Hygiene Observation tool (or similar technique)?  Choose one answer	Never	0	→ WHO Hand Hygiene Observation form → Hand Hygiene Technical Reference Manual → Guide to Implementation 8.3
	Irregularly	5	
	Annually	10	
	Every 3 months or more often	15	
3.4b What is the overall hand hygiene compliance rate according to the WHO Hand Hygiene Observation tool (or similar technique) in your facility?  Choose one answer	≤ 30%	0	→ Guide to Implementation 8.3 → Observation form → Data Entry Analysis tools → Instructions for Data Entry and Analysis → Epi Info™ software* → Data Summary Report Framework
	31 – 40%	5	
	41 – 50%	10	
	51 – 60%	15	
	61 – 70%	20	
	≥ 81%	30	
<b>3.5 Feedback</b>			
3.5a <b>Immediate feedback</b> Is immediate feedback given to health-care workers at the end of each hand hygiene compliance observation session?	No	0	→ Guide to Implementation 8.3 → Observation and Basic Compliance Calculation forms
	Yes	5	
3.5b <b>Systematic feedback</b> Is regular (at least 6 monthly) feedback of data related to hand hygiene indicators with demonstration of trends over time given to:			→ Data Summary Report Framework → Guide to Implementation 8.3
3.5b.i Health-care workers?	No	0	
	Yes	7.5	
3.5b.ii Facility leadership?	No	0	
	Yes	7.5	
<b>Evaluation and Feedback subtotal</b>		<b>/100</b>	

9. Epi Info™: This software can be downloaded free of charge from the CDC website (<http://www.cdc.gov/epiinfo/>)

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<b>4. Reminders in the Workplace</b>			
Question	Answer	Score	WHO improvement tools
<b>4.1</b> Are the following posters (or locally produced equivalent with similar content) displayed?			→ Guide to Implementation II.4
4.1a Poster explaining the indications for hand hygiene <b>Choose one answer</b>	Not displayed	0	→ Your 5 Moments for Hand Hygiene (Poster)
	Displayed in some wards/treatment areas	15	
	Displayed in most wards/treatment areas	20	
	Displayed in all wards/treatment areas	25	
4.1b Poster explaining the correct use of handrub <b>Choose one answer</b>	Not displayed	0	→ How to Handrub (Poster)
	Displayed in some wards/treatment areas	5	
	Displayed in most wards/treatment areas	10	
	Displayed in all wards/treatment areas	15	
4.1c Poster explaining correct hand-washing technique <b>Choose one answer</b>	Not displayed	0	→ How to Handwash (Poster)
	Displayed in some wards/treatment areas	5	
	Displayed in most wards/treatment areas	7.5	
	Displayed at every sink in all wards/treatment areas	10	
<b>4.2</b> How frequently does a systematic audit of all posters for evidence of damage occur, with replacement as required? <b>Choose one answer</b>	Never	0	→ Guide to Implementation II.4
	At least annually	10	
	Every 2-3 months	15	
<b>4.3</b> Is hand hygiene promotion undertaken by displaying and regularly updating posters other than those mentioned above?	No	0	→ Guide to Implementation II.4
	Yes	10	
<b>4.4</b> Are hand hygiene information leaflets available on wards?	No	0	→ Hand Hygiene: When and How Leaflet
	Yes	10	→ Guide to Implementation II.4
<b>4.5</b> Are other workplace reminders located throughout the facility? (e.g. hand hygiene campaign screensavers, badges, stickers, etc)	No	0	→ SAVE LIVES: Clean Your Hands Screensaver
	Yes	15	→ Guide to Implementation II.4
<b>Reminders in the Workplace subtotal</b>		<b>/100</b>	



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Hand Hygiene Self-Assessment Framework 2010

5. Institutional Safety Climate for Hand Hygiene			
Question	Answer	Score	WHO improvement tools
<b>5.1</b> With regard to a hand hygiene team <sup>10</sup> that is dedicated to the promotion and implementation of optimal hand hygiene practice in your facility:			→ Guide to Implementation II.5
5.1a Is such a team established?	No	0	
	Yes	5	
5.1b Does this team meet on a regular basis (at least monthly)?	No	0	
	Yes	5	
5.1c Does this team have dedicated time to conduct active hand hygiene promotion? (e.g. teaching monitoring hand hygiene performance, organizing new activities)	No	0	
	Yes	5	
<b>5.2</b> Have the following members of the facility leadership made a clear commitment to support hand hygiene improvement? (e.g. a written or verbal commitment to hand hygiene promotion received by the majority of health-care workers)			→ Template Letter to Advocate Hand Hygiene to Managers → Template Letter to Communicate Hand Hygiene Initiatives to Managers → Guide to Implementation II.5
5.2a Chief executive officer	No	0	
	Yes	10	
5.2b Medical director	No	0	
	Yes	5	
5.2c Director of nursing	No	0	
	Yes	5	
<b>5.3</b> Has a clear plan for the promotion of hand hygiene throughout the entire facility for the 5 May (Save Lives Clean Your Hands Annual Initiative) been established?			→ Sustaining Improvement – Additional Activities for Consideration by Health-Care Facilities → Guide to Implementation II.5
	No	0	
	Yes	10	
<b>5.4</b> Are systems for identification of Hand Hygiene Leaders from all disciplines in place?			
5.4a A system for designation of Hand Hygiene champions <sup>11</sup>	No	0	
	Yes	5	
5.4b A system for recognition and utilisation of Hand Hygiene role models <sup>12</sup>	No	0	
	Yes	5	
<b>5.5</b> Regarding patient involvement in hand hygiene promotion:			→ Guidance on Engaging Patients and Patient Organizations in Hand Hygiene Initiatives → Guide to Implementation II.5
5.5a Are patients informed about the importance of hand hygiene? (e.g. with a leaflet)	No	0	
	Yes	5	
5.5b Has a formalised programme of patient engagement been undertaken?	No	0	
	Yes	10	
<b>5.6</b> Are initiatives to support local continuous improvement being applied in your facility, for example:			→ Sustaining Improvement – Additional Activities for Consideration by Health-Care Facilities → Guide to Implementation II.5
5.6a Hand hygiene E-learning tools	No	0	
	Yes	5	
5.6b A hand hygiene institutional target to be achieved is established each year	No	0	
	Yes	5	
5.6c A system for intra-institutional sharing of reliable and tested local innovations	No	0	
	Yes	5	
5.6d Communications that regularly mention hand hygiene e.g. facility newsletter, clinical meetings	No	0	
	Yes	5	
5.6e System for personal accountability <sup>13</sup>	No	0	
	Yes	5	
5.6f A Buddy system <sup>14</sup> for new employees	No	0	
	Yes	5	
<b>Institutional Safety Climate subtotal</b>			<b>/100</b>

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#### Hand Hygiene Self-Assessment Framework 2010


**10. Hand hygiene team:** The make-up of this team will vary. It is likely to most frequently consist of an infection control unit, but may range (depending on resources available) from a single person with the role of managing the hand hygiene programme, to a group of staff members from various departments within the facility with meetings dedicated to the hand hygiene programme.

**11. Hand hygiene champion:** A person who is an advocate for the causes of patient safety and hand hygiene standards and takes on responsibility for publicizing a project in his/her ward and/or facility-wide.

**12. Hand hygiene role model:** A person who serves as an example, whose behaviour is emulated by others. In particular, a hand hygiene role model should have a hand hygiene compliance rate of at least 80%, be able to remind others to comply, and be able to teach practically about the WHO 5 Moments for Hand Hygiene concept.

**13. System for personal accountability:** explicit actions are in place to stimulate health-care workers to be accountable for their behaviour with regard to hand hygiene practices. Examples are notification by observers or infection control professionals, reproaches by peers, and reports to higher level facility authorities, with possible consequences on the individual evaluation.

**14. Buddy system:** A programme in which each new health-care worker is coupled with an established, trained health-care worker who takes responsibility for introducing them to the hand hygiene culture of the health-care setting (including practical training on indications and technique for performing hand hygiene, and explanation of hand hygiene promotion initiatives within the facility).



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**Interpretation: A Four Step Process**

**1.**  
Add up your points.

Score	
Component	Subtotal
1. System Change	
2. Education and Training	
3. Evaluation and Feedback	
4. Reminders in the Workplace	
5. Institutional Safety Climate	
<b>Total</b>	

**2.**  
Determine the assigned 'Hand Hygiene Level' for your facility.

Total Score (range)	Hand Hygiene Level
0 - 125	Inadequate
126 - 250	Basic
251 - 375	Intermediate (or Consolidation)
376 - 500	Advanced (or Embedding)

**3.**  
If your facility has reached the **Advanced** level, then complete the Leadership section overleaf.  
  
(otherwise go to Step 4).

**4.**  
Review the areas identified by this evaluation as requiring improvement in your facility and develop an action plan to address them (starting with the relevant WHO improvement tools listed). Keep a copy of this assessment to compare with repeated uses in the future.

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<b>Leadership Criteria</b>	<b>Answer</b> (circle one)	
<b>System Change</b>		
Has a cost-benefit analysis of infrastructure changes required for the performance of optimal hand hygiene at the point of care been performed?	Yes	No
Does alcohol-based handrubbing account for at least 80% of hand hygiene actions performed in your facility?	Yes	No
<b>Training and Education</b>		
Has the hand hygiene team undertaken training of representatives from other facilities in the area of hand hygiene promotion?	Yes	No
Have hand hygiene principles been incorporated into local medical and nursing educational curricula?	Yes	No
<b>Evaluation and Feedback</b>		
Are specific healthcare associated infections (HCAIs) monitored? (eg. <i>Staphylococcus aureus</i> bacteremia, Gram negative bacteremia, device-related infections)	Yes	No
Is a system in place for monitoring of HCAI in high risk-settings? (e.g. intensive care and neonatal units)	Yes	No
Is a facility-wide prevalence survey of HCAI performed (at least) annually?	Yes	No
Are HCAI rates presented to facility leadership and to health-care workers in conjunction with hand hygiene compliance rates?	Yes	No
Is structured evaluation undertaken to understand the obstacles to optimal hand hygiene compliance and the causes of HCAI at the local level, and results reported to the facility leadership?	Yes	No
<b>Reminders in the Workplace</b>		
Is a system in place for creation of new posters designed by local health-care workers?	Yes	No
Are posters created in your facility used in other facilities?	Yes	No
Have innovative types of hand hygiene reminders been developed and tested at the facility?	Yes	No
<b>Institutional Safety Climate</b>		
Has a local hand hygiene research agenda addressing issues identified by the WHO Guidelines as requiring further investigation been developed?	Yes	No
Has your facility participated actively in publications or conference presentations (oral or poster) in the area of hand hygiene?	Yes	No
Are patients invited to remind health-care workers to perform hand hygiene?	Yes	No
Are patients and visitors educated to correctly perform hand hygiene?	Yes	No
Does your facility contribute to and support the national hand hygiene campaign (if existing)?	Yes	No
Is impact evaluation of the hand hygiene campaign incorporated into forward planning of the infection control programme?	Yes	No
Does your facility set an annual target for improvement of hand hygiene compliance facility-wide?	Yes	No
If the facility has such a target, was it achieved last year?	Yes	No
<b>Total</b>	<b>/20</b>	

Your facility has reached the **Hand Hygiene Leadership level** if you answered "yes" to at least one leadership criteria per category and its total leadership score is 12 or more. Congratulations and thank you!

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Appendix K

Hand Hygiene Knowledge Questionnaire

 <b>World Health Organization</b>	<b>Patient Safety</b> <small>A World Alliance for Safer Health Care</small>	<b>SAVE LIVES</b> Clean Your Hands
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## Hand Hygiene Knowledge Questionnaire for Health-Care Workers

**Period Number\***

- The knowledge required for this test is specifically transmitted through the WHO hand hygiene training material and you may find the questions more difficult if you did not participate in this training.
- Tick **only one answer** to each question.
- Please read the questions carefully before answering. Your answers will be kept confidential.
- **Short Glossary:**
  - Alcohol-based handrub formulation:** an alcohol-containing preparation (liquid, gel or foam) designed for application to the hands to kill germs.
  - Facility:** health-care setting where the survey is being carried out (e.g., hospital, ambulatory, long-term facility, etc).
  - Handrubbing:** treatment of hands with an antiseptic handrub (alcohol-based formulation).
  - Handwashing:** washing hands with plain or antimicrobial soap and water.
  - Service:** a branch of a hospital staff that provides specified patient care.
  - Ward:** a division, floor, or room of a hospital for a particular category or group of patients (it corresponds to the smallest segmentation of the health-care facility; one service can include multiple wards).

<b>1. Personal ID**:</b>	<b>2. Date:</b>
<b>3. Facility:</b>	<b>4. Service**:</b>
<b>5. Ward**:</b>	<b>6. City:**</b>
<b>7. Country**:</b>	

**8. Gender:**       Female       Male  
**9. Age:**       years  
**10. Profession\*\*\*:**       Nurse     Auxiliary nurse     Midwife     Medical doctor     Resident  
 Technician       Therapist       Nurse student       Medical student       Other

**11:** To be completed by the data manager.  
**\*\* Optional,** to be used if appropriate, according to the local needs and regulations.  
**\*\*\*Technicians:** radiologist, cardiology technician, operating room technician, laboratory technician  
**Therapist:** physiotherapist, occupational therapist, audiologist, speech therapist  
**Others:** dietician, dentist, social worker, etc.

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**Department (please select the department which best represents yours):**

- Internal medicine     Surgery     Intensive care unit     Mixed medical/surgical  
 Emergency unit     Obstetrics     Paediatrics     Long-term/rehabilitation  
 Outpatient clinic     Other

- 12. Did you receive formal training in hand hygiene in the last three years?**     Yes     No
- 13. Do you routinely use an alcohol-based handrub for hand hygiene?**     Yes     No
- 14. Which of the following is the main route of cross-transmission of potentially harmful germs between patients in a health-care facility? (tick one answer only)**
- a.  Health-care workers' hands when not clean
- b.  Air circulating in the hospital
- c.  Patients' exposure to colonised surfaces (i.e., beds, chairs, tables, floors)
- d.  Sharing non-invasive objects (i.e., stethoscopes, pressure cuffs, etc.) between patients
- 15. What is the most frequent source of germs responsible for health care-associated infections? (tick one answer only)**
- a.  The hospital's water system
- b.  The hospital air
- c.  Germs already present on or within the patient
- d.  The hospital environment (surfaces)
- 16. Which of the following hand hygiene actions prevents transmission of germs to the patient?**
- a. Before touching a patient     Yes     No
- b. Immediately after a risk of body fluid exposure     Yes     No
- c. After exposure to the immediate surroundings of a patient     Yes     No
- d. Immediately before a clean/aseptic procedure     Yes     No
- 17. Which of the following hand hygiene actions prevents transmission of germs to the health-care worker?**
- a. After touching a patient     Yes     No
- b. Immediately after a risk of body fluid exposure     Yes     No
- c. Immediately before a clean/aseptic procedure     Yes     No
- d. After exposure to the immediate surroundings of a patient     Yes     No





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**18. Which of the following statements on alcohol-based handrub and handwashing with soap and water are true?**

- a. Handrubbing is more rapid for hand cleansing than handwashing  True  False
- b. Handrubbing causes skin dryness more than handwashing  True  False
- c. Handrubbing is more effective against germs than handwashing  True  False
- d. Handwashing and handrubbing are recommended to be performed in sequence  True  False

**19. What is the minimal time needed for alcohol-based handrub to kill most germs on your hands? (tick one answer only)**

- a.  20 seconds
- b.  3 seconds
- c.  1 minute
- d.  10 seconds

**20. Which type of hand hygiene method is required in the following situations?**

- a. Before palpation of the abdomen  Rubbing  Washing  None
- b. Before giving an injection  Rubbing  Washing  None
- c. After emptying a bedpan  Rubbing  Washing  None
- d. After removing examination gloves  Rubbing  Washing  None
- e. After making a patient's bed  Rubbing  Washing  None
- f. After visible exposure to blood  Rubbing  Washing  None


**21. Which of the following should be avoided, as associated with increased likelihood of colonisation of hands with harmful germs?**

- a. Wearing jewellery  Yes  No
- b. Damaged skin  Yes  No
- c. Artificial fingernails  Yes  No
- d. Regular use of a hand cream  Yes  No

**Thank you very much for your time!**

Appendix L

Perception Survey for Health-Care Workers

 <b>World Health Organization</b>	<b>Patient Safety</b> <small>A World Alliance for Safer Health Care</small>	<b>SAVE LIVES</b> Clean Your Hands
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## Perception Survey for Health-Care Workers

Period Number\*

You are in direct contact with patients on a daily basis and this is why we are interested in your **opinion** on health care-associated infections and hand hygiene.

- It should take you about 10 minutes to complete this questionnaire.
- Each question has **one answer only**.
- Please read the questions carefully and then respond spontaneously. Your answers are anonymous and will be kept confidential.
- **Short Glossary:**
  - Alcohol-based handrub formulation:** an alcohol-containing preparation (liquid, gel or foam) designed for application to the hands to kill germs.
  - Facility:** health-care setting where the survey is being carried out (e.g., hospital, ambulatory, long-term facility, etc).
  - Handrubbing:** treatment of hands with an antiseptic handrub (alcohol-based formulation).
  - Handwashing:** washing hands with plain or antimicrobial soap and water.
  - Service:** a branch of a hospital staff that provides specified patient care.
  - Ward:** a division, floor, or room of a hospital for a particular category or group of patients (it corresponds to the smallest segmentation of the health-care facility; one service can include multiple wards).

1. <b>Personal ID**:</b>		2. <b>Date:</b>	
3. <b>Facility:</b>		4. <b>Service**:</b>	
5. <b>Ward**:</b>		6. <b>City**:</b>	
7. <b>Country**:</b>			

8. **Gender:**       Female       Male

9. **Age:**       years

10. **Profession\*\*\*:**     Nurse     Auxiliary nurse     Midwife     Medical doctor     Resident

Technician     Therapist     Nurse student     Medical student     Other

\* To be completed by the data manager.  
 \*\* Optional, to be used if appropriate, according to the local needs and regulations.  
 \*\*\*Technicians: radiologist, cardiology technician, operating room technician, laboratory technician  
 Therapist: physiotherapist, occupational therapist, audiologist, speech therapist  
 Other: dietician, dentist, social worker, etc.

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11. Department (please select the department which best represents yours):

- Internal medicine     Surgery     Intensive care unit     Mixed medical/surgical
- Emergency unit     Obstetrics     Paediatrics     Long-term/rehabilitation
- Outpatient clinic     Other

12. Did you receive formal training in hand hygiene in the last three years?     Yes     No

13. Do you routinely use an alcohol-based handrub for hand hygiene?     Yes     No

14. In your opinion, what is the average percentage of hospitalised patients who will develop a health care-associated infection (between 0 and 100%)?

%     I don't know

15. In general, what is the impact of a health care-associated infection on a patient's clinical outcome?

Very low     Low     High     Very high

16. What is the effectiveness of hand hygiene in preventing health care-associated infection?

Very low     Low     High     Very high

17. Among all patient safety issues, how important is hand hygiene at your institution?

Low priority     Moderate priority     High priority     Very high priority

18. On average, in what percentage of situations requiring hand hygiene do health-care workers in your hospital actually perform hand hygiene, either by handrubbing or handwashing (between 0 and 100%)?

%     I don't know

19. In your opinion, how effective would the following actions be to improve hand hygiene permanently in your institution?  
Please tick one  on the scale according to your opinion.

a. Leaders and senior managers at your institution support and openly promote hand hygiene.

Not effective                             Very effective

b. The health-care facility makes alcohol-based handrub always available at each point of care.

Not effective                            Very effective

c. Hand hygiene posters are displayed at point of care as reminders.

Not effective                            Very effective

d. Each health-care worker receives education on hand hygiene.

Not effective                            Very effective



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e. Clear and simple instructions for hand hygiene are made visible for every health-care worker.

Not effective           Very effective

f. Health-care workers regularly receive feedback on their hand hygiene performance.

Not effective           Very effective

g. You always perform hand hygiene as recommended (being a good example for your colleagues).

Not effective           Very effective

h. Patients are invited to remind health-care workers to perform hand hygiene.

Not effective           Very effective

20. What importance does the head of your department attach to the fact that you perform optimal hand hygiene?

No importance           Very high importance

21. What importance do your colleagues attach to the fact that you perform optimal hand hygiene?

No importance           Very high importance

22. What importance do patients attach to the fact that you perform optimal hand hygiene?

No importance           Very high importance

23. How do you consider the effort required by you to perform good hand hygiene when caring for patients?

No effort           A big effort

24. On average, in what percentage of situations requiring hand hygiene do you actually perform hand hygiene, either by handrubbing or handwashing (between 0 and 100%)?

%

**Thank you very much for your time!**

Appendix M  
Program Evaluation

Program Evaluation

Date: \_\_\_\_\_

Infection Control – Hand Hygiene Program

Instructions: Circle your response to evaluate this program

1 = Poor	2 = Fair	3 = Good	4 = Excellent	N/A = Not Applicable	
Subject matter’s usefulness	1	2	3	4	N/A
Quality of Interpreter	1	2	3	4	N/A
Presenter’s knowledge/expertise on subject mater	1	2	3	4	N/A
Appropriateness of program length	1	2	3	4	N/A
Quality of translated materials	1	2	3	4	N/A
Quality of program	1	2	3	4	N/A

Instructions: Circle your response to evaluate this program

1 = Strongly disagree    2 = Disagree                      3 = Agree                      4 = Strongly Agree

Do you feel today’s program was of value based on your time and investment?	1	2	3	4	N/A
---	---	---	---	---	-----

Why or why not?

---



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Did this session meet your expectations?	1	2	3	4	N/A
--	---	---	---	---	-----

Why or why not?

---

**Evaluación del programa**

Evaluación del Programa

Fecha: \_\_\_\_\_

Control de Infecciones - Programa de Higiene de Manos

Instrucciones: Encierra en un círculo tu respuesta para evaluar este programa

1 = Pobre      2 = Justo      3 = Bueno      4 = Excelente      N/A = No Aplica

Utilidad de la información recibida	1	2	3	4	N/A
Calidad del intérprete (traductor)	1	2	3	4	N/A
Conocimiento / experiencia del expositor	1	2	3	4	N/A
Fue apropiada la duración del programa	1	2	3	4	N/A
Calidad de los materiales traducidos	1	2	3	4	N/A
Calidad del programa	1	2	3	4	N/A

Instrucciones: Encierra en un círculo tu respuesta para evaluar este programa

1 = Muy en desacuerdo      2 = En desacuerdo      3 = De acuerdo      4 = Muy de acuerdo

¿Crees que el programa de hoy fue valioso basado en tu tiempo invertido?      1      2      3      4      N/A

¿Por qué o por qué no?

---



---



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¿Esta session cumplió con tus expectativas?      1      2      3      4      N/A

¿Por qué o por qué no?

---



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## Appendix N

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10. **Termination.** The licence and the rights granted under this Agreement shall terminate automatically upon any breach by you of the terms of this Agreement. Further, WHO may terminate this licence at any time with immediate effect for any reason by written notice to you.

11. **Entire Agreement, Amendment.** This Agreement is the entire agreement between you and WHO with respect to its subject matter. WHO is not bound by any additional terms that may appear in any communication from you. This Agreement may only be amended by mutual written agreement of you and WHO.

12. **Headings.** Paragraph headings in this Agreement are for reference only.

13. **Dispute resolution.** Any dispute relating to the interpretation or application of this Agreement shall, unless amicably settled, be subject to conciliation. In the event of failure of the latter, the dispute shall be settled by arbitration. The arbitration shall be conducted in accordance with the modalities to be agreed upon by the parties or, in the absence of agreement, with the rules of arbitration of the International Chamber of Commerce. The parties shall accept the arbitral award as final.

14. **Privileges and immunities.** Nothing in or relating to this Agreement shall be deemed a waiver of any of the privileges and immunities enjoyed by WHO under national or international law and/or as submitting WHO to any national court jurisdiction.

\*\*\*

---

**From:** Barbara Whitaker [mailto:Barbara.Whitaker@barnesjewishcollege.edu]

**Sent:** 24 November 2018 00:52

**To:** pubrights

**Subject:** Re: 270934 Permission request for WHO copyrighted material

Yes, I would like to have them translated if permission is granted.

Thank you,

Barb

---

**From:** pubrights <pubrights@who.int>

**Sent:** Tuesday, November 20, 2018 6:05:39 AM

**To:** Barbara Whitaker

**Subject:** 270934 Permission request for WHO copyrighted material

Dear Barbara,

Thank you very much for your kind explanation. The only document I could find in Spanish is the *Marco de autoevaluación de la higiene de las manos 2010* [http://www.who.int/gpsc/country\\_work/hhsa\\_framework\\_es.pdf?ua=1](http://www.who.int/gpsc/country_work/hhsa_framework_es.pdf?ua=1). Please allow me some time to contact our technical unit to double check.

In the meantime, if the material is not translated, please let me know if you would like to translate the Hand Hygiene Knowledge Questionnaire for Health-Care Workers and some of the slides from the Education Session for Trainers, Observers and Health-Care Workers so that we can grant the necessary permission.

Thank you and kind regards,

Catalina

Catalina GRADIN

Technical Assistant

WHO Press

Department of Strategy, Policy and Information

World Health Organization  
Geneva, Switzerland  
Office: +41 (0)22 791 1696  
Web: [www.who.int](http://www.who.int)  
Follow WHO on [Facebook](#), [Twitter](#), [YouTube](#), [Instagram](#)

---

**From:** Barbara Whitaker [mailto:Barbara.Whitaker@barnesjewishcollege.edu]  
**Sent:** 12 November 2018 20:12  
**To:** pubrights  
**Subject:** RE: 270934 Permission request for WHO copyrighted material

Catalina, I am interested in doing the Hand Hygiene Self-Assessment Framework 2010, Hand Hygiene Knowledge Questionnaire for Health-Care Workers and using some of the slides from the Education Session for Trainers, Observers and Health-Care Workers in a small rural hospital in Maras Peru, do you have any of them in Spanish?

Thank you  
Barbara

Barbara J Whitaker MPH, BSN, RN  
Instructor Goldfarb School of Nursing at Barnes-Jewish College  
618-791-3226 (voice or text)



## Tau Iota Chapter

The materials in this message are private and may contain Protected Healthcare Information or other information of a sensitive nature. If you are not the intended recipient, be advised that any unauthorized use, disclosure, copying or the taking of any action in reliance on the contents of this information is strictly prohibited. If you have received this email in error, please immediately notify the sender via telephone or return mail.

---

**From:** pubrights [mailto:pubrights@who.int]  
**Sent:** Friday, November 09, 2018 3:52 AM  
**To:** Barbara Whitaker <Barbara.Whitaker@BarnesJewishCollege.edu>  
**Subject:** 270934 Permission request for WHO copyrighted material

Dear Barbara,

Thank you for completing the online form and for your interest in WHO published material.

Before we proceed, can you please specify if you are interested in translating the *Education Session for Trainers, Observers and Health-Care Workers* slides into Spanish, or if you are interested in Any healthcare training material on hand hygiene in Spanish for training purposes.

---

Here is a link <http://www.who.int/gpsc/5may/es/> with Hand Hygiene material already translated into Spanish so that you may take a look.

Thank you and kind regards,  
Catalina

Catalina GRADIN  
Technical Assisstant  
WHO Press  
Department of Strategy, Policy and Information  
World Health Organization  
Geneva, Switzerland  
Office: +41 (0)22 791 1696  
Web: [www.who.int](http://www.who.int)  
Follow WHO on [Facebook](#), [Twitter](#), [YouTube](#), [Instagram](#)

**From:** [permissions@who.int](mailto:permissions@who.int) [<mailto:permissions@who.int>]  
**Sent:** 06 November 2018 19:44  
**To:** [barbara.whitaker@barnesjewishcollege.edu](mailto:barbara.whitaker@barnesjewishcollege.edu)  
**Cc:** pubrights  
**Subject:** ID: 270934 Permission request for WHO copyrighted material

Dear Ms Whitaker

Thank you for your request for permission to reproduce, reprint or translate certain WHO copyrighted material.

Your request ID: 270934 is under review and you will receive a response from WHO within 5 working days.

Kind regards,  
WHO Permissions team

DataCol Web: Form for requesting permission to reproduce, reprint or translate WHO copyrighted material

ID: 270934

Section: Contact details

\* Title  
\* Ms

\* First name  
\* Barbara

\* Family name  
\* Whitaker

\* Organization/affiliation  
\* Bradley University & Goldfarb School of Nursing at Barnes Jewish College

\* Web site address  
\*

\* Type of organization  
\* University/Academic

\* If other, please specify

\*

-----  
 \* If STM signatory, please select

-----  
 \* Position

\* Student / Instructor

-----  
 \* Telephone

\* 1-314-362-4853

-----  
 \* Address

\* Mailstop 90-36-697

4483 Duncan Avenue

St. Louis, Missouri 63110

-----  
 \* Country

\* United States of America

-----  
 \* Email

\* [barbara.whitaker@barnesjewishcollege.edu](mailto:barbara.whitaker@barnesjewishcollege.edu)

Section: Information about WHO material to be reproduced

-----  
 \* Full title of WHO material from which the reproduction is to be made

\* Education Session for Trainers, Observers and Health-Care Workers

-----  
 \* Website URL where WHO material is published

\* [http://www.who.int/gpsc/5may/tools/training\\_education/slides/en/](http://www.who.int/gpsc/5may/tools/training_education/slides/en/)

-----  
 \* ISBN / WHO Reference Number

\*

-----  
 \* Please select the item(s) to be reproduced

\* Complete document

-----  
 \* Type of reuse

\* Training

-----  
 \* No of item(s) to be reproduced

\* 5 items or less

-----  
 \* For each item, please provide a reference and page number. If entire document, please state "Entire document".

\* Entire document

Section: Information about your publication

-----  
 \* Please provide the title of your publication that the above materials are to be published in

\* Same

- \* Publishing format
- \* Print
- 
- \* Will you be translating?
- \* Yes, including English rights
- 
- \* If yes, please indicate languages
- \* Spanish
- 
- \* If web please provide URL / If other, please specify
- \*
- 
- \* Number of copies (if applicable)
- \* 25
- 
- \* Target audience and planned distribution
- \* Health care workers
- 
- \* Planned publication/distribution date
- \* December 2018 & April 2019
- 
- \* If your publication or the material is to be sold, indicate the planned selling price or subscription fee
- \* None
- 
- \* Is your publication sponsored or funded by an organisation other than your own?
- \* No
- 
- \* If yes, please provide additional information
- \*
- 
- \* Will there be any advertising associated with your publication?
- \* No
- 
- \* If yes, please provide additional information
- \*
- 
- \* Subject(s) of interest that most correspond to your request
- \* HAND HYGIENE
- 
- \* Additional information about your request
- \* Any healthcare training material on hand hygiene in Spanish.
- 
- \* Approval
- \* To review
- 
- \* Latest approval modification
- 
- \* WHO Department
- \* ACP, ACT
- 
- \* Correct WHO URL

\* [http://www.who.int/gpsc/5may/tools/training\\_education/slides/en/](http://www.who.int/gpsc/5may/tools/training_education/slides/en/)

Section: Terms and conditions

---

\* By submitting this request you confirm that you will abide by the [terms and conditions](#) if WHO grants you permission.

\* I have read and agree with the [terms and conditions](#)

---

Click the following link to access a format view of this record:

[http://apps.who.int/datacol/survey.asp?survey\\_id=258&respondent\\_id=270934](http://apps.who.int/datacol/survey.asp?survey_id=258&respondent_id=270934)

---

This email was automatically sent to you by the WHO Intranet Data Collector.  
The DataCol can send emails to accounts specified by the Form focalpoint.

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## Appendix O

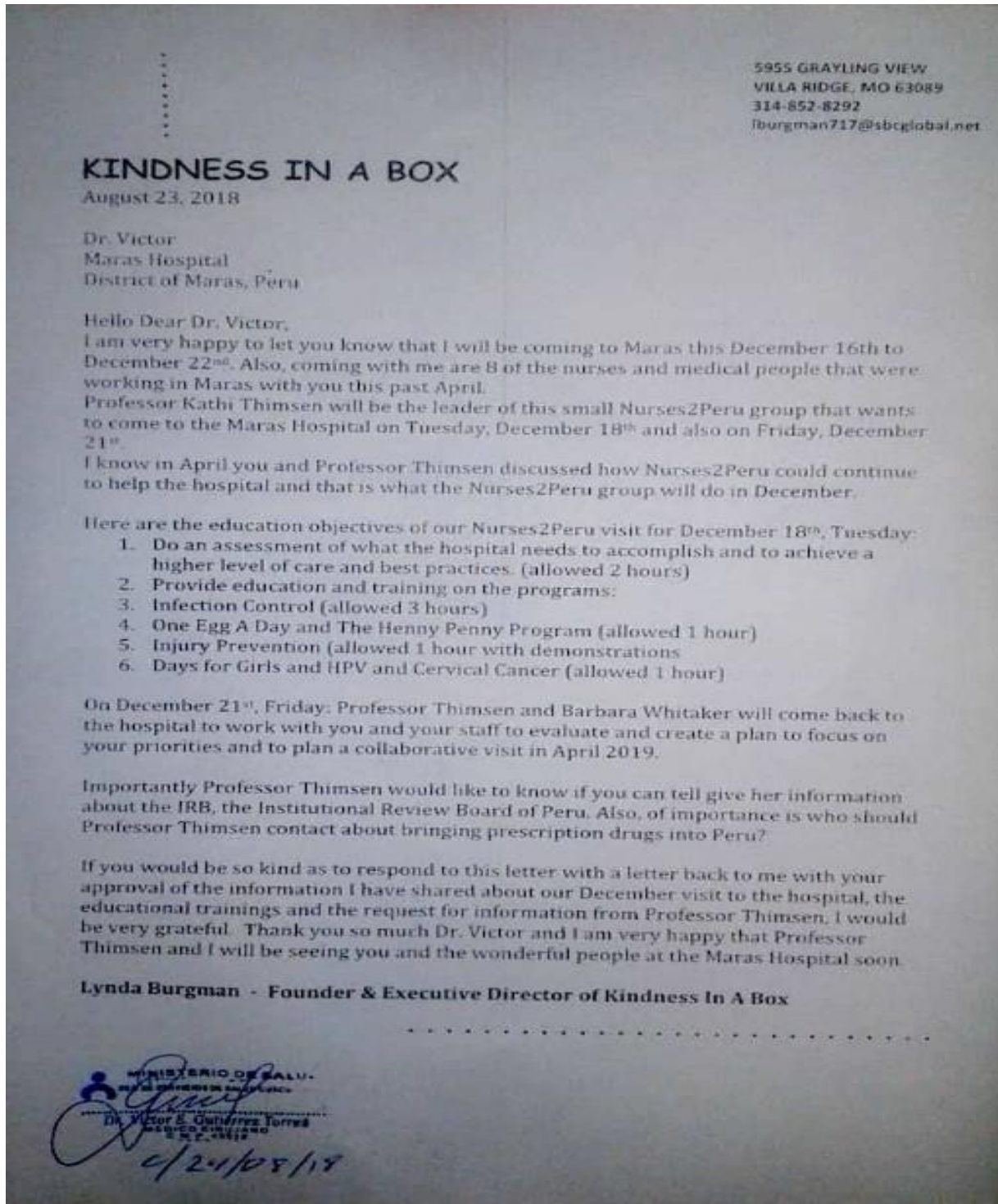
## Project Plan

*Project Plan Timeline*

<i>December 2018</i>	Phase I
	Who Hand Hygiene Self-Assessment Framework was given to and discussed with hospital administration.
	Administered the WHO Hand Hygiene Knowledge Questionnaire for Health-Care Workers to hospital employees as a pretest
	Administered the WHO Perception Survey for Health-Care Workers to hospital employees as a pre-test
	Provided a lecture-style educational training on basic infection control and hand hygiene followed by a hands-on return demonstration of hand hygiene skills using GloGerm products to simulate dirty hands.
	Administered the WHO Hand Hygiene Knowledge Questionnaire for Health-Care Workers to hospital employees as a posttest
	Administered the WHO Perception Survey for Health-Care Workers to hospital employees as a posttest
	Administered program evaluation survey
	Phase II
<i>April 2019</i>	Observation of the hand hygiene return demonstration to measure retention of hand hygiene skills
	Repeated the WHO Hand Hygiene Knowledge Questionnaire for Health-Care Workers

Appendix P


Agreement Letter (Contact)





Appendix Q

Citi Program Training



Completion Date 11-jun-2018  
 Expiration Date N/A  
 Record ID 27351844

This is to certify that:


**Barbara Whitaker**

Has completed the following CITI Program course:


**Human Research** (Curriculum Group)  
**Biomedical Research Investigators and Key personnel** (Course Learner Group)  
**1 - Basic Course** (Stage)

Under requirements set by:

Washington University - St. Louis, MO



Verify at [www.citiprogram.org/Verify/?w9a832c9a-9a5b-42bd-9ff9-5b52670ce86c-27351844](http://www.citiprogram.org/Verify/?w9a832c9a-9a5b-42bd-9ff9-5b52670ce86c-27351844)



Completion Date 25-jun-2018  
 Expiration Date 24-jun-2021  
 Record ID 27351847

This is to certify that:


**Barbara Whitaker**

Has completed the following CITI Program course:

**GCP – Social and Behavioral Research Best Practices for Clinical Research** (Curriculum Group)  
**GCP – Social and Behavioral Research Best Practices for Clinical Research** (Course Learner Group)  
**1 - Basic Course** (Stage)

Under requirements set by:

Washington University - St. Louis, MO



Verify at [www.citiprogram.org/Verify/?w4421ab9f-8a72-4d5f-9992-846ac32f6f4a-27351847](http://www.citiprogram.org/Verify/?w4421ab9f-8a72-4d5f-9992-846ac32f6f4a-27351847)

## Appendix R

## IRB



Barbara Whitaker &lt;bwhitaker@mail.bradley.edu&gt;

---

**CUHSR # 97-18 APPROVAL**

1 message

**Andrew Strubhar** <ajs@fsmail.bradley.edu>

Wed, Dec 12, 2018 at 11:04 AM

To: Lori Vick &lt;lvick@fsmail.bradley.edu&gt;, Barbara J Whitaker &lt;bwhitaker@mail.bradley.edu&gt;

Cc: Francesca Armmer &lt;faa@fsmail.bradley.edu&gt;, Sharon Rast &lt;srast@fsmail.bradley.edu&gt;

Dear Investigators:

Your proposed study (CUHSR 97e-18) Titled: *Infection control practices in a rural Peruvian hospital: a quality improvement project*, has been reviewed and was found to be exempt from full review under Category 2, anonymous survey research.

Your vita and ethics certificates are on file.

Be aware that future changes to the protocols must first be approved by the Committee on the Use of Human Subjects in Research (CUHSR) prior to implementation and that substantial changes may result in the need for further review.

While no untoward effects are anticipated, should they arise, please report any untoward effects to CUHSR promptly (within 3 days).

As this study was reviewed as exempt, no further reporting is required unless you change the protocol or personnel involved.

This email will serve as notice that your study has been reviewed unless a more formal letter is needed. Please let me know, and I will provide the letter.

Andrew J Strubhar, PT, PhD  
Associate Chairperson, CUHSR

--

Andrew J Strubhar, PhD, PT  
Associate Professor  
Associate Department Chair  
DPT Graduate Program Coordinator  
Associate Chair CUHSR  
Bradley University  
Department of Physical Therapy and Health Science

1501 W. Bradley Ave  
Peoria, IL 61625  
(309)-677-3489  
ajs@bradley.edu

## Appendix S

## Budget

## Budget

Type of Expense	Budget Justification	Total Expenses
<b>Travel and lodging</b>	Airfare – December 2018 and April 2019 Lodging - December 2018 and April 2019	\$2,220 \$ 700
<b>Support</b>	Interpreting and translation - \$150/day December 2018 – 3 days and April 2019 4 days	\$1,050.00
<b>Equipment and Supplies</b>	Glogerm Kits, Glogerm refills Soap, Alcohol Based Hand Rub Paper, copies, lamination	\$ 147.00 \$ 50.00 Donated
<b>Total</b>		<b>\$4,167.00</b>

## Appendix T

## Consent Forms

Consent for participation in education and training program

Student Investigator: Barbara Whitaker

Title of Project: Infection Control practices in a rural Peruvian hospital: A quality improvement project.

I understand that I am participating in an education and training session led by Barbara Whitaker MPH, BSN, RN from Bradley University in Peoria Illinois, USA, Goldfarb School of Nursing at Barnes Jewish College and Nurses2Peru both of St. Louis, Missouri, USA. The education and training should not last longer than 5 hours, see break down of each section.

CONFIDENTIALITY STATEMENT: All information obtained through this educational program will be held confidential and secure. It will remain with the investigator and be de-identified prior to release of any information or published work. There will be no personal information collected during this educational program. A unique pin number will be distributed by a third party not involved with the research or employed by the hospital.

I voluntarily consent to engage in one or more of the following segments and understand that I may withdrawal from participation at any time. (Check the appropriate boxes):

- Pretest and Posttest on Infection Control-Handwashing (30 minutes each)
- Introduction to Infection Control and Handwashing (60 minutes)
- Handwashing: procedure – protocols (60 minutes)
- Demonstration and Return Demonstration (60 minutes)  
(Glo Germ and Black Light)
- Pathogens and Communicable Disease Prevention (60 minutes)

What are the risks and discomforts from taking part in this project?

- There are no foreseeable risk to the participants in the study.

What are the benefits of taking part in this project?

- The following benefits may occur from participation in this project.  
The benefits of participating in the project will provide the participant with current and emerging education on infection control and hand hygiene skills. This benefit will improve the care and competence of the health-care workers in providing safe and effective care to patients.

What are the costs of participating in this project?

- There is no cost of your participation in the project.

If you have any questions about this education and training session, please feel free to contact: Barbara Whitaker 1-618-791-3226 and/or [barbarajwhitaker@barnesjewishcollege.edu](mailto:barbarajwhitaker@barnesjewishcollege.edu).

If you have questions about your rights as a participant, or wish to obtain information, ask questions, or discuss any concerns about this project with someone other than the investigator(s), please contact the following:

Committee on the Use of Human Subjects in Research (CUHSR)  
Bradley University  
1501 W. Bradley Avenue  
Peoria, IL 61625 USA  
[ajs@bradley.edu](mailto:ajs@bradley.edu)  
1-309-677-3877

## **Consentimiento para participar en el programa de educación y formación.**

Investigador estudiante: Barbara Whitaker

Título del proyecto: Prácticas de control de infecciones en un hospital rural peruano: un proyecto de mejora de la calidad.

Entiendo que estoy participando en una sesión educativa y capacitación dirigida por Barbara Whitaker MPH, BSN, RN de la Universidad Bradley en Peoria Illinois, EE. UU., Goldfarb School of Nursing en Barnes Jewish College y Nurses2Peru, ambas de St. Louis, Missouri, EE. UU. La educación y la capacitación no deben durar más de 5 horas, ver desglose de cada sección.

**DECLARACIÓN DE CONFIDENCIALIDAD:** Toda la información obtenida a través de este programa educativo, será confidencial y segura. Permanecerá con el investigador y será anulada la identificación antes de la divulgación de cualquier información o trabajo publicado. No habrá información personal recopilada durante este programa educativo. Un tercero que no esté involucrado en la investigación o empleado por el hospital distribuirá un número PIN único.

Acepto voluntariamente participar en uno o más de los siguientes segmentos y entiendo que puedo retirarme de la participación en cualquier momento. (Marque las casillas correspondientes):

- Prueba previa y posterior de lavado de manos de infecciones (30 minutos cada uno)
- Introducción al control de infecciones y el lavado de manos (60 minutos)
- Lavado de manos: procedimiento - protocolos (60 minutos)
- Demostración y demostración de retorno (60 minutos) (“Glo Germ” y Luz Negra)
- Prevención de patógenos y enfermedades transmisibles (60 minutos)

¿Cuáles son los riesgos y las molestias de participar en este proyecto?

- No hay riesgo previsible para los participantes en el estudio.

¿Cuáles son los beneficios de participar en este proyecto?

- Los siguientes beneficios pueden ocurrir por la participación en este proyecto.

Los beneficios de participar en el proyecto brindarán al participante educación actual y emergente sobre el control de infecciones y las habilidades de higiene de manos. Este beneficio mejorará la atención y la competencia de los trabajadores de la salud para brindar atención segura y efectiva a los pacientes.

¿Cuáles son los costos de participar en este proyecto?

- No hay costo de su participación en el proyecto.

Si tiene alguna pregunta sobre esta sesión educativa y capacitación, no dude en comunicarse con:  
Barbara Whitaker 1-618-791-3226 y / o barbarajwhitaker@barnesjewishcollege.edu.

Si tiene preguntas sobre sus derechos como participante, o desea obtener información, hacer preguntas o discutir cualquier inquietud sobre este proyecto con alguien que no sea el (los) investigador (es), comuníquese con:

Comité sobre el uso de sujetos humanos en la investigación (CUHSR)  
Bradley University  
1501 W. Bradley Avenue  
Peoria, IL 61625 USA  
ajs@bradley.edu  
1-309-677-3877

Consentimiento informado del adulto:

Fecha de revisión y firma: \_\_\_\_\_

Nombre impreso:

Firma:

\_\_\_\_\_

\_\_\_\_\_

Director o coinvestigador (nombre en letra de imprenta)

Firma:

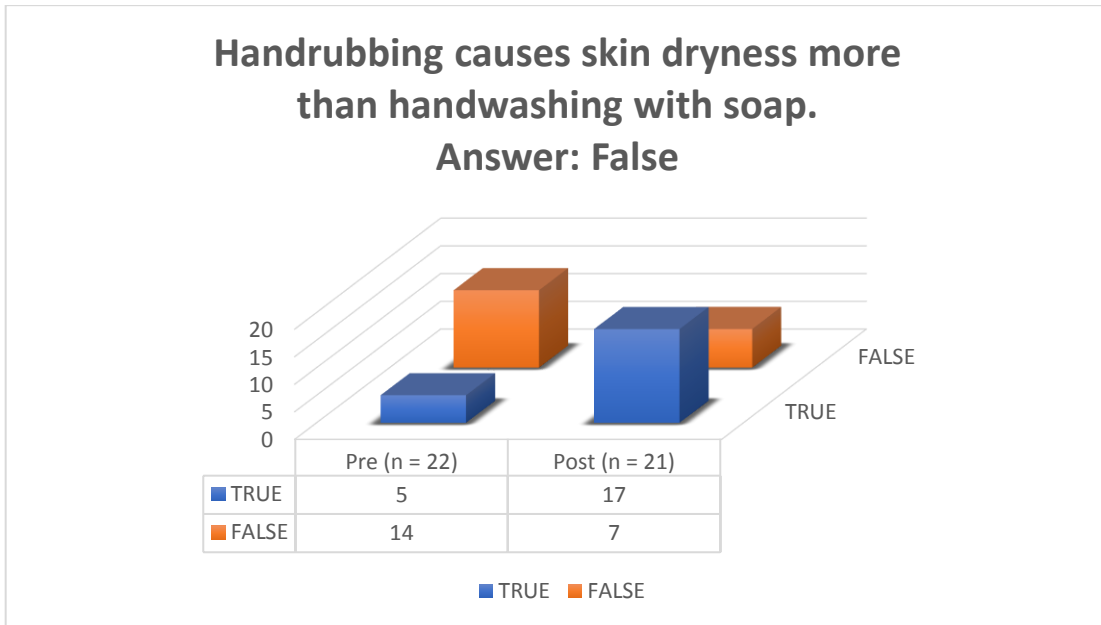
- Barbara Whitaker
- Kathleen Thimsen

\_\_\_\_\_

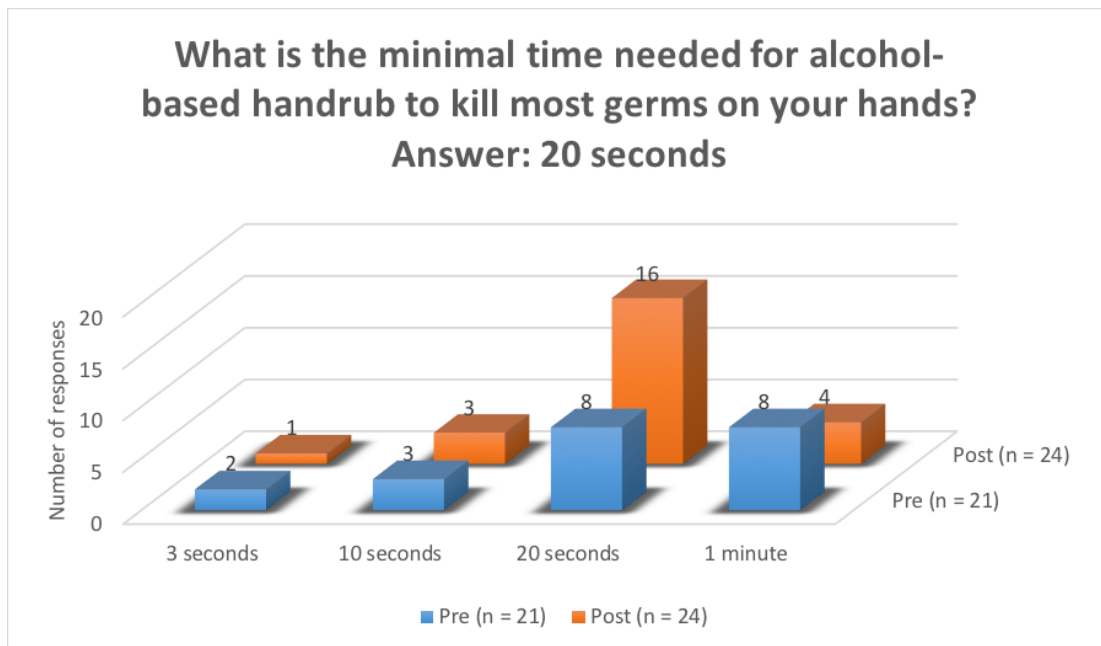
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Appendix U

Graphs

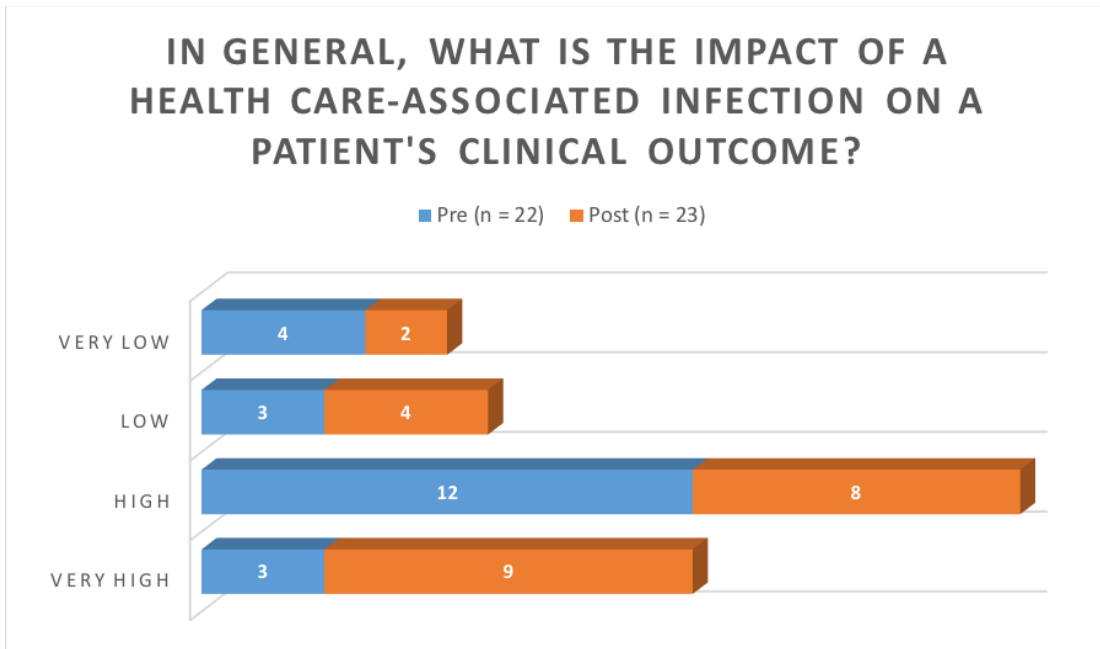


G1

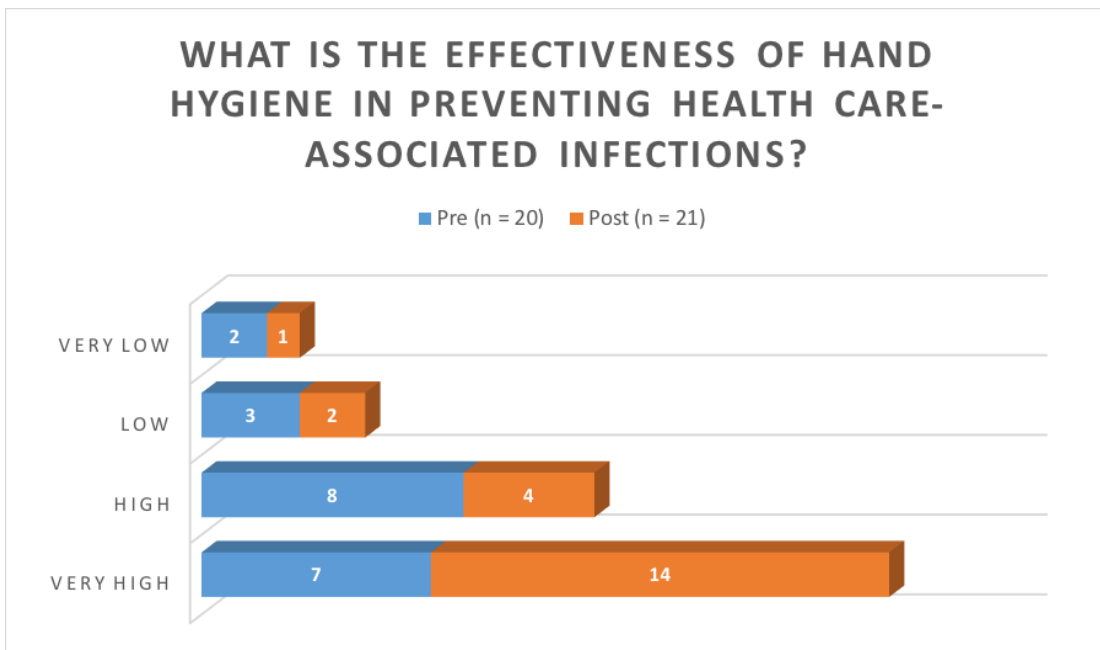


G2

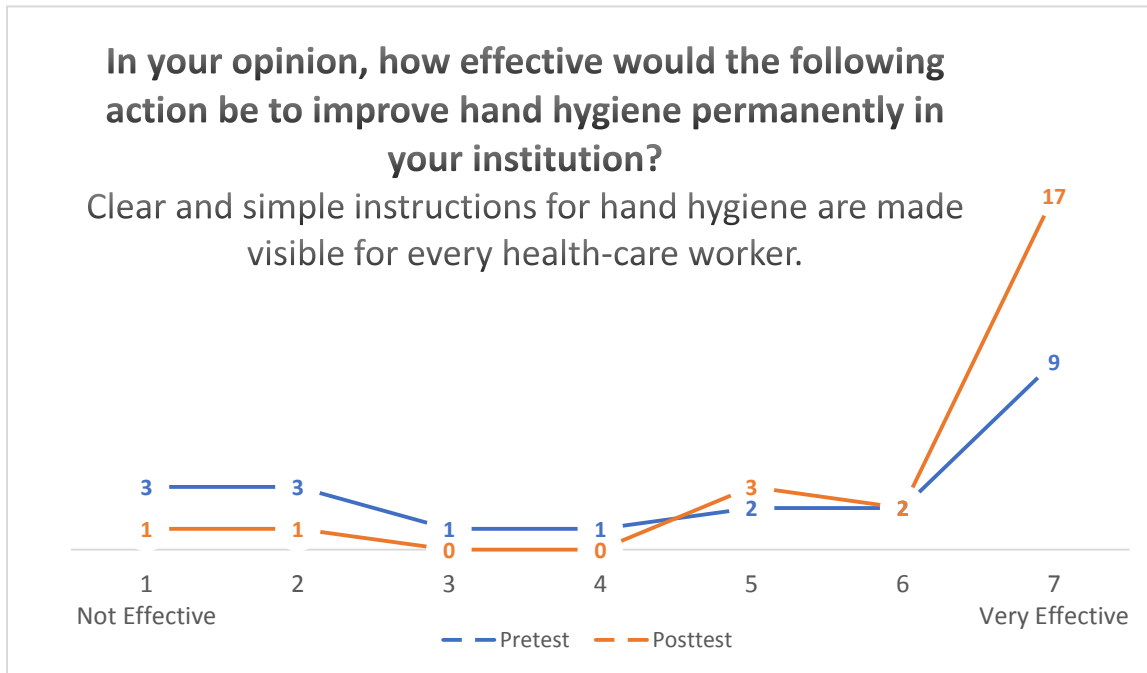




G3



G4



G5