

Study Protocol

Assessment of Compliance Level of Healthcare Personnel at AVBRH to Appropriate Hand Hygiene Practices: A Study Protocol

Abstract-

Background: WHO (The text must be full written , then the abbreviation is in parentheses) recommends washing hands with water and soap or alcohol - based hand rubs for cleaning hands. Hand hygiene has been considered as central component in every programs related to infection control. Its applicable to healthcare personnel handling critical patients as well. Poor hand hygiene during intrapartum and newborn care is associated with increased death rates among newborns due to sepsis. This study aims to assess the knowledge, attitude and practices of hand washing by healthcare staff in hospital.

Methodology: will be an observational study conducted among the healthcare (be attention to tenses) personnel at AVBRH hospital, Wardha. Tool consisting of self-administered observation record form on knowledge and practices of hand washing will be used for data collection from 60 healthcare workers (How were sample size calculated ?) . Data will be analyzed using appropriate statistical tests.

Expected Results- Appropriate levels of knowledge and practices about proper hand hygiene is expected within healthcare workers of AVBRH. Availability of alcohol -based hand rubs, sanitizers, soap and water is expected at all times.

Conclusion- Considering the pandemic situation, availability and use of hand sanitizers can be effective to limit the spread of infections COVID -19.

Keywords- WHO, Infection Control, Hand hygiene, hand washing, healthcare workers, compliance, knowledge, practices.

Introduction:

The WHO has recommended streamline or a piece of advice for hand hygiene and its bottom line is to wash hands by using soap and water while it seems dirty or involving blood sanguineous or other body fluids or after the lavatory. Since, the guidelines of WHO suggested washing hands with water and soap or one can be used alcohol - based hand rubs for hand washing. Hand hygiene has been considered as a foundation or central component or main ingredient in every programs related to infection control which is held by any of the healthcare personnel who are the supporters of a cause of

infection in critical patients through their hands. WHO introduced "Five moments for Hand Hygiene" to reduce the problems concerned with hand washing. According to the recommendation of WHO, the time duration required for the proper cleaning and removal of transient flora should be extended up to 15 - 20 seconds. Due to poor hand hygiene among the HCWs, this is a major cause of spreading of Nosocomial infection which leads to the increase in morbidity and mortality within the hospitalized patients. Our developing countries lead a high prevalence of infection by 19% which is a challenge for healthcare personnel. Washing hands cleanly and neatly is effectively the simplest method to prevent 50% of infection.

Hand hygiene has been considered as the treating interference that will cause the cross-transmission of pathogens in a healthy healthcare environment and hence, Hand hygiene according to WHO has been proven to decrease the occurrence of Nosocomial infections. Relevant hand hygiene practices have shown the reduction rates of all infections such as gastrointestinal, respiratory tract and skin infections. In today's Modern period, WHO has included the implementation of alcohol-based lotions or rubs. The highest rate of infection is found in the ICU, which is the place where very critically ill patients are placed, in such a critical care area chances of infections is majorly by touching the non-movable objects which may directly lead to object contamination. The WHO has put forward an application of evidence-based practice of hand hygiene which is referred to as "five - moments of hand hygiene". This five moments of hand hygiene is regarding to the washing of hands before performing any aseptic procedure, after the condition of being laid open to undesirable body fluids, or touching a patient or its surrounding. But from the another point of view, regular hand hygiene may be challenging to the HCWs lead hand dermatitis because of water, detergents and disinfectants. (some of these sentence was mention at the previous paragraph)

Now when we perform this hand washing method so it includes after doing some daily activities such as after arrival at work places it could be anything, after removal of gloves or socks, etc, before taking meals, after excretion of any sort of body wastes urination and defecation, after coming in contact with the contaminated equipment(1). Most of the healthcare associated infections are transmitted via healthcare worker's. This is because most of the pathogenic organisms stay on the body for maximum 60 minutes(1). The WHO (World Health Organization) has recommended the five steps moments of hand hygiene which should be performed by all healthcare workers before coming in contact with the patient or performing aseptic procedures, after dealing with the high risk body fluid procedure, etc (1). Sometimes in many hospitals, many of the healthcare workers had bad practices of hand hygiene, as they do not wash their hands cleanly and sometimes not at all(2). Washing hands daily for effective measure so as to prevent the infection. In hospital's major transmission or spread of infection is mainly among the front line survivor's that is healthcare worker's(4) (Where the 3rd references) . To avoid or prevent the spreading of infection among HCWs they have to apply alcohol-based hand sanitizers, or other antiseptic agents (4). The whole world is fighting with novel coronavirus pandemic

since 2019, so as the duty of healthcare worker's they can't avoid coming in contact with CoV 19 positive patients. Hence, hand hygiene is very much important for HCW(4). The whole world is fighting with the novel coronavirus pandemic since 2019. Novel coronavirus is the type of SARS-CoV-2 hence also known as COVID-19 or CoV-19. The emergence of the novel coronavirus CoV-19 has an major challenges for the public all around the world(5).

For reducing the transmission of this pandemic COVID-19 is only by the simplest method ie., hand hygiene and this is very effective among the public(5).The origin of the novel corona virus which is the main cause of current pandemic named COVID-19 is in Wuhan, China(7). This infection has started in December 2019, and now the spread has reached to 113 countries(7). SARS-CoV-2 or COVID -19 is mostly presents in Human's this does not infect any animals. This diseases shows some symptoms such as fever, cough, and dyspnea(7). Just like Severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle east respiratory syndrome coronavirus (MERS -CoV), these SARS -CoV -2/ COVID-19 also transmitted from person to person through respiratory droplets during sneezing and also by close contact(7). In healthcare sector the infection caused due to insufficient hand hygiene which is directly linked with the mortality rate, economical burden also the patients suffers a lot(10). Emergency Medical Service (EMS) is highly rated contaminated department where any type of patient arrives from different surrounding and are thus a high risk way of spreading microbial transmission. In EMS, hand hygiene practices are rarely been studies since, as we all know that this is a proven infection control intervention(10). Healthcare associated infections has many reasons lacking for the compliance of hand washing practices(11). This may includes lacking of required proper equipment, ratios of staff with patients which is very low, also some of them may have allergic infection from hand washing products, incomplete knowledge of some staff regarding the risks behind the infection and procedures, regarding bio-safety some of them shows a very casual attitudes towards infection control and doesn't even value time(11). In some sector's, main focus was given on the compliance or bad attitude of healthcare worker's towards hygiene, so many of studies also done for the barriers but instead they are lacking with the knowledge and attention related with the pediatric settings regarding hand hygiene compliance(12). As we all know small children's are generally affected by the infection's and caused harmful diseases therefore, it is very much essential to give focus on such setting in hospitals. In case of nursing education, compliance of hand hygiene is one of the most difficult task of outcomes(13). It is somewhat difficult to ensure nursing students to recognize the use of hand hygiene when, where, what and how in increasing rates of healthcare-associated infections(13) . Patient safety is the first most priority for any healthcare system, and most effective measure regarding hand hygiene(14). And for this, it is very much important to know that the healthcare staff has proper has proper knowledge about the technique and awareness about infection(14). Otherwise, if the health staff itself doesn't have proper information then this can lead to the major increase in the compliance related to the nosocomial infection(14). The only aim here was to analyze the effect of different methods, training related to hand hygiene and

education among nursing staff to ensure whether they maintaining proper awareness over the time(14). Chances of having transmission of microbial vector's such as *Staphylococcus aureus* and other common respiratory infection's is occurs mainly through face-touching behaviour(15). Most of the people had bad habits of not covering the face by using clothes before going outside. They may reach in hospital after coming from surrounding's with any type of microbial vector stuck on their face and these personnel's may come directly in contact with patient's or vice versa(15).

(The same references has been used in two successive sentences repealty , so the reference must be written once at paragraph end and there is no need to repeat it if the sentences are consecutive.)

The hand hygiene is globally a critical infection prevention or infection control practice across all over the healthcare sector's(16). There are many approaches come's forward to monitor hand hygiene compliance vary from a simple methods such as observational methods or using different products to taking example of advanced methods such as automated electronic monitoring system method. Current approach supports the multimodal supplemented by educating towards enhancement of hand hygiene performance(16). A practice of having hand hygiene at right time is a very much effective major for the prevention of healthcare-associated infections. This can be easily undertaken by any of the healthcare professionals(17). But in case of changing behaviour of staff requires a multifaceted approach to ensure the appropriate practice of hand hygiene. This article gives main highlights on two important aspects ie., the need of hand hygiene, when it is to be needed and how it is to be done(17). To convince the user's we only need to educate them and pay their attention towards the importance of hand hygiene, give the evidence in reducing bacterial flora which mostly present on the palm's of both the hands(18). The present study was done in a rural hospital so as to demonstrate the presence of bacterial flora. In order to reduce the outcome of floral bacteria present on the hands. It is very important to give the emphasis on teaching the healthcare workers the technique of using alcohol-based hand rub in different ways(18). Professionals were lacking with the congruence in hand hygiene training for infection prevention and control ie., IPC. Therefore, we need to give emphasize on the approach to train the professionals using the concept of "Train-the-Trainers"(TTT) specially for the Infection- prevention and control personnel and observe the impact on hand hygiene knowledge(19). As we know, Hand Hygiene is an essential factor for the safety of patients, for the quality care, this creates major challenges for the healthcare personnel(20). To overcomes with this major challenge, specially nursing staff has the proper knowledge about hand hygiene as they stay more in contact with the patients(20). It is very effective to provide the healthcare worker's with feedback related to their daily practices of hand hygiene, to monitor the compliance of hand hygiene to improve multidisciplinary program(21). Product using or consumption is less time consuming and is very much helpful in monitoring and collecting information about the frequency of hand hygiene and this information can be use as feedback for the healthcare personnel(21). To decrease the

level of pathogen transmission and nosocomial infections the hand hygiene play very important role in every healthcare facilities. However, most of the interventions have not been sustainable(22). The given review gives an overview in community regarding hand hygiene which includes some aspects such as hand drying, and some issues related to hand hygiene behavior (23). Hand hygiene play's a role of barrier between the transmission of microbial infection both in community and healthcare sector's. Alcohol based hand rub's is a simplest method to stay away from bacterial infections(23). Most of the healthcare workers may recommends the problems with hand hygiene there are many factors which influence the level of hand hygiene(24). Lacking of products as well as facilities lack with the inappropriate location which may create the barriers. We aimed at making the hand hygiene practices very feasible while healthcare delivery. To ensure that the needed infrastructure is in proper place so that it doesn't cause any barrier for the healthcare worker's(24). Introducing alcohol hand rubs comes with the essential barrier's for the good hand hygiene practices. This is related with the increasing compliance especially when it is integrated within multi-modal strategies(24). Infection can be spread in any way such as if any person coughs or sneezes then microorganisms can easily contaminated via droplets for example airborne microorganisms easily infects the person via direct contact(25). Therefore hand hygiene is essential. In particular situations such as in pandemic outbreak, it is very much necessary to interrupt the transmission chain of any virus and this can only be done by practicing proper hand hygiene(25) (**un necessary repeated**) . As now currently we all, the whole world is dealing with the novel corona virus, but now it is very much in control of spreading and this is only due to proper hand sanitization and covering our face with mask. The transmission of infection is under control now. Pandemic outbreak can be achieved by self-isolation, maintaining social distancing, good hand hygiene and strictly follow up for infection control tool both in hospital premises and in public area(25). To achieve the success on Pandemic outbreak, one needs to use formulated effective hand sanitizers agents such as water, soaps, sanitizer liquids, water based or alcohol based hand sanitize, antimicrobial soaps such that, and now at present each and every hospital are widely using this effective hand sanitizers(25). Related evidences are reflected from GBD studies(26-30).

Methods-

Site of study - Acharya Vinoba Bhave Rural Hospital, Sawangi, Wardha.

Study Population - Healthcare professionals including nursing staff's at Acharya Vinoba Bhave Rural Hospital, Wardha.

Study Duration - 2 months study.

Study design. - Observational study.

Participants - Healthcare worker's specially main focus was given on nursing staff.

Sample size - 60 HCWs.

Research tool - Tool consisting of self - administered observation record form

contains observations including knowledge of hand washing and practice of hand washing among nurses.

Source of data collection - Data will be collected by using observation recorded form.

Expected outcomes-

This observational study will be done at *Acharya Vinoba Bhave Rural Hospital, Wardha* to assess the level of compliance of healthcare personnel to appropriate hand hygiene practices. To analyses the drift or direction of hand hygiene practices for 2 months. The study will be done on 60 healthcare worker's and main focus will be given on nursing staff as they are in close contact with the patients. We had done this study so as to get good results about proper hand hygiene within HCW as to reduce the rate of transmission. We expect at least 50% of the participants have a good knowledge of hand hygiene practices.

Discussion- (Should be delete)

WHO recommended five moment alcohol-based hand rubbing formula which has much better antimicrobial property. The commonly used cleaning agents among the HCW was soap and water. Most of the HCWs had the training on hand washing, from multiple sources. Many of the doctors who were directly comes in contact with the patients had trainings on hand washing than other HCWs. Having knowledge of hand sanitization is important because basic hand hygiene is very much important in preventing transmission of infection within patients and health workers. Some constraints may be observed among them such as lack of water and soap and knowledge of how to wash hands. For drying hands after washing most preferrable method is drying in free air. Hand washing can help the people from the bacterial infection or diseases can cause by viruses, bacteria's etc. This only protect people from the transmission with directly physical contact. But this does not mean that all the germs all over the body has been killed. And the illness caused by the bacteria or viruses or any type of germs can be very serious. Diseases like Diarrhea or respiratory infection and many more can be preventable by simply washing our hands daily. Unwashed hands can transfer many infection from one person to another person by touching their hands to objects such as handrails, surfaces of tables, toys of small children. Most of the skin and eye infections can be prevent only by hand washing. Few of the related studies were reported. Khanam et. al. assessed knowledge, attitude and practice on uses of plastic products, their disposal (31). Khandelwal et. al. assessed knowledge of Hepatitis B virus infection and its control practices among dental students(32). Similar study about Dengue was reported by Meshram et. al. (33). Pasari et. al. assessed knowledge about covid-19 and practices among hemodialysis technicians (34). Swapnil P. et. al. reported on knowledge, attitude and practices of allied health care professional students towards universal precaution (35-48).

Conclusion-Considering the pandemic situation, availability and use of hand sanitizers can be effective to limit the spread of infections COVID -19.

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