

The Role of Hand Sanitizers to Reduce the Biohazard in Universities Laboratories

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Abstract

Introduction: one of the motives has survived in nature may be their simplicity. The basic permanence strategies is the genetic encryption of its simple genomic which lead to achieve infection and continue in survived in nature. To prevent this microbe; human begins to use the simple and elementary way of infection proscriptio. Starting from the hands due to the hands consider the main pathway of germ transmission during healthy environmental therefore now, the hand hygiene considers the one of the most important motif of infection prevalence programs. However, the level of infection transmission can reduce by use HH alone in health care facilities (HCFs). This study sheds light on improving hand hygiene compliance using multidirectional and provide overview on hand hygiene enforcement among different specialization labourer in number of laboratories. **Methodology:** the standardized checklist which used for infection prevention by WHO was applied to collect the survey data. The WHO recommend confirmed that the best pursuit for hand hygiene. The checklist included five key moments must follow and noted when the health workers engage in hand hygiene. Subjects:

65 participants (40% female, 25% male) included: Research professor, Assistant professor, Lecturer, Graduate student, Laboratory technicians and under graduate student while the participating lab (n=8). After that make compared between (hygiene hand and rub hand) to show the best and simplest way **for** clean hand. **Results:** unfortunately, hand hygiene may be facilely forgotten by occupied employee or no attention to that. A study of 65 cases for hand hygiene, we found that hand were cleaned only 40 after smear skin of workers culture on brain media but the alcohol based hand rub show cleaned 100 percent and no microbes on culture of the time. **Conclusion:** the butter method for hands sterilization and reduce of infection transmission is the use of hand rub instead of washing with soap or clean powder and water; also HH should become an educational priority.

Keywords: Hand Hygiene, Infection, Hand rub, Laboratories.

Introduction

The importance of hand cleaning in patient care was noticed in the early 19th century that return to the chemist and pharmacist; Labarraque who provided the first disinfecting agent which represent the first antiseptis in surgery. He provided the first marker or sign of hand decontamination can reduce the incidence of puerperal fever and maternal mortality (1).

The major cause in the transmission of infection among different element was identified by the transfer of microorganisms by hands (2).

Hand hygiene also called hand washing is the cornerstone of infection control activities , it is a great way to prevent infections and ensure safe client care. the obligation of health care workers with good pursuit is low in most setting (3, 4). Many factors effect on hand hygiene applying , its promotion is particularly complex in developing countries where limited resources and culture – specific issues can strongly influence practices (5).

The microbes colonizing hand divided in two types which are : the flora consist of microorganisms living under the superficial cells of the stratum

comeum residently, it can also, be found on the surface of the skin. Staphylococcus epidermidis is the dominant species and oxacillin resistance is substantially high, particularly among HCWs. Other resident bacteria include. S. hominis and other coagulase – negative staphylococci. Followed by coryneform bacteria (propionibacteria, corynebacteria, dermobacteria and micrococci). Fungi is consider another type of flora , so the most common type of the resident skin flora. When present is Pityrosporum (Malassezia). Resident flora has two main protective functions: microbial antagonism and the competition for nutrients in the ecosystem (6). In general, resident flora is less likely to be associated with infections but may cause infections in sterile body , the eyes or on non – intact the skin (7). The transient flora, which colonizes the superficial layers of the skin is more easy to removal by routine hand hygiene. Transient microorganisms survive but do not usually multiply on the skin. They are often acquired by health care workers (HCWs) during direct contact with the source of infection or their nearby contaminated environmental surface and the organism most frequently associated with HCAs (8).

Aim: the purpose of this study was to provide basic data on hand hygiene and hand rub practices among workers in the research laboratories and asses each method was achieved more decontamination and removal of microorganisms, to determine the instrument available for hand hygiene or hand rub and to evaluation the health educational of workers.

Material and methods

Hand cultures were obtained from 65 people worked in different laboratories. This cross- sectional observational study took place over a three – week period. The details relevant to the pathogen osculate; hand hygiene implementation and cleaning technique among the workers were noted.

Subject: 65 participants (40 female, 25 male) included:

- Research professor
- Assistant professor

- Lecturer
- Graduate student
- Laboratory technicians
- Under graduate student

Participating lab (n=8)

The data collected depend on the standardized infection prevention checklist which decided by the world health organization with some modification depends on the type of lab. WHO recommends established best applying for hand hygiene where by the WHO, There are five important steps when a health employee should practice hand hygiene (9).

- Before contact the source of infection
- After contact the source of infection
- Before contact the risk region of source infection
- After exposure to the fluid exposure risk
- After contact the source environment

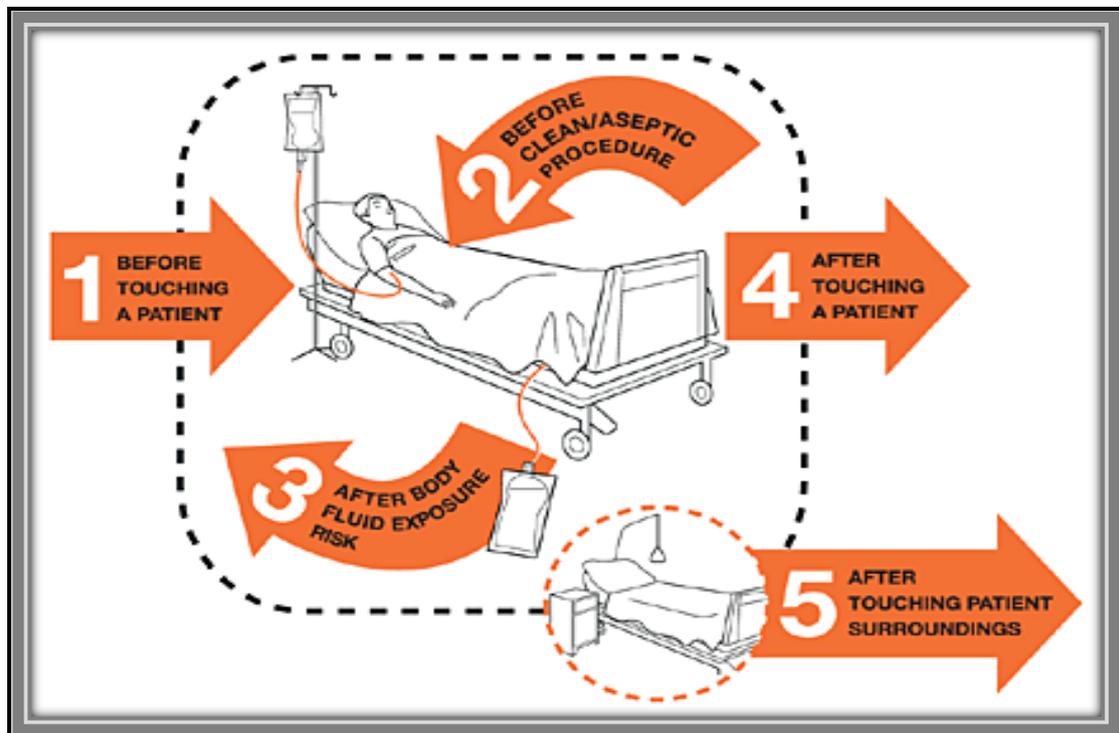


Figure (1): the WHO strategy for Hand Hygiene used (9)

Results and discussion

The present study was carried out to assess the hand hygiene compliance rate and show the role of it's in the spread of microorganism, also compered activity with rub hands activity by finger print researchers hand's culture in different time :before inter the lab, before wear gloves, before begin the work in the lab, after throw the gloves and after left the lab.

However such sort of studies are lacking in universities in Baghdad. The study provides that the hand hygiene compliance among workers is low and need to design HH promotion intervention program because unfortunately, The busy health care employee and no attention may be lead to the forgetfulness of use proper Hand Hygiene for cleaning . The results of 365 observation for hand hygiene showed that hand were cleaned only 40 percent of the time but the use of rub hand achieved cleaned 100 percent, Figure (2).

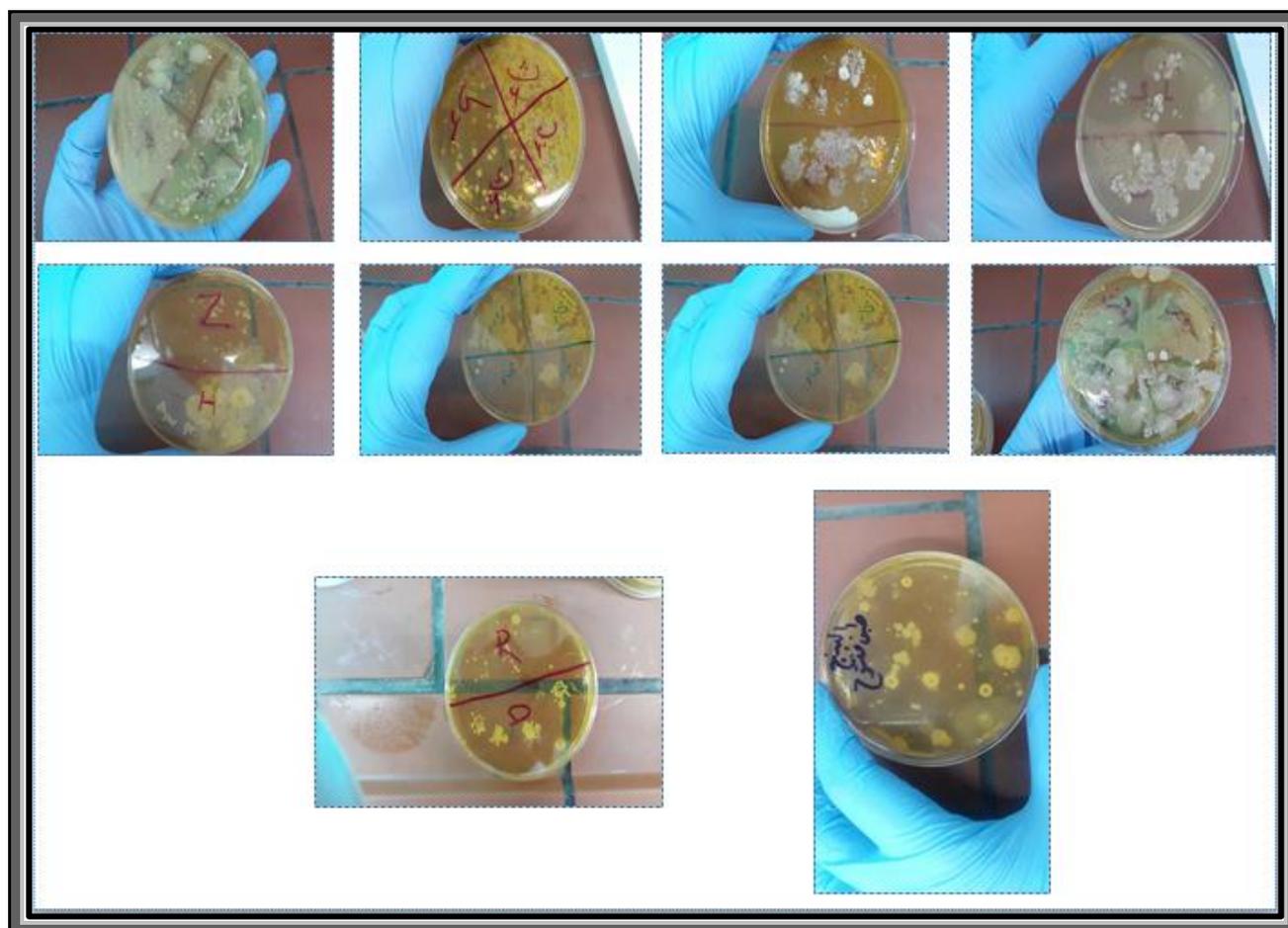


Figure (2): Finger print researchers hands

Many instructions can be administrative on one unit to help workers reminders such as a posters near sinks. Also can improving or facilities hand hygiene fulfillment by the use of an alcohol based hand rub instead of clean with soap and water. As well as the easy use of hand rub, it no requires time, more effective against different type of microorganisms and is less harmful or irritating to skin than traditional hand washing with soap and water (10). This mean that the time necessary for HH would decrease from 1.3h(17% of total health care workers time) to 0.3h (or 4% of total time) when used rub hands (11).

Still, more research is needed to establishing the effectiveness of each strategy formed , to identify the most successful strategy and increase personal understanding to the risks connected with work in laboratory by offering appropriate training to mitigate those risks and follow the required safety practices in their work. This project will serve to ensure safe work practices in university laboratories in Iraq and minimize risk to acceptable level (12,13).

The WHO improvement the strategy of hand hygiene by the five key moments for hand hygiene and the five steps approaches are depicted in figure (3).(4,9)

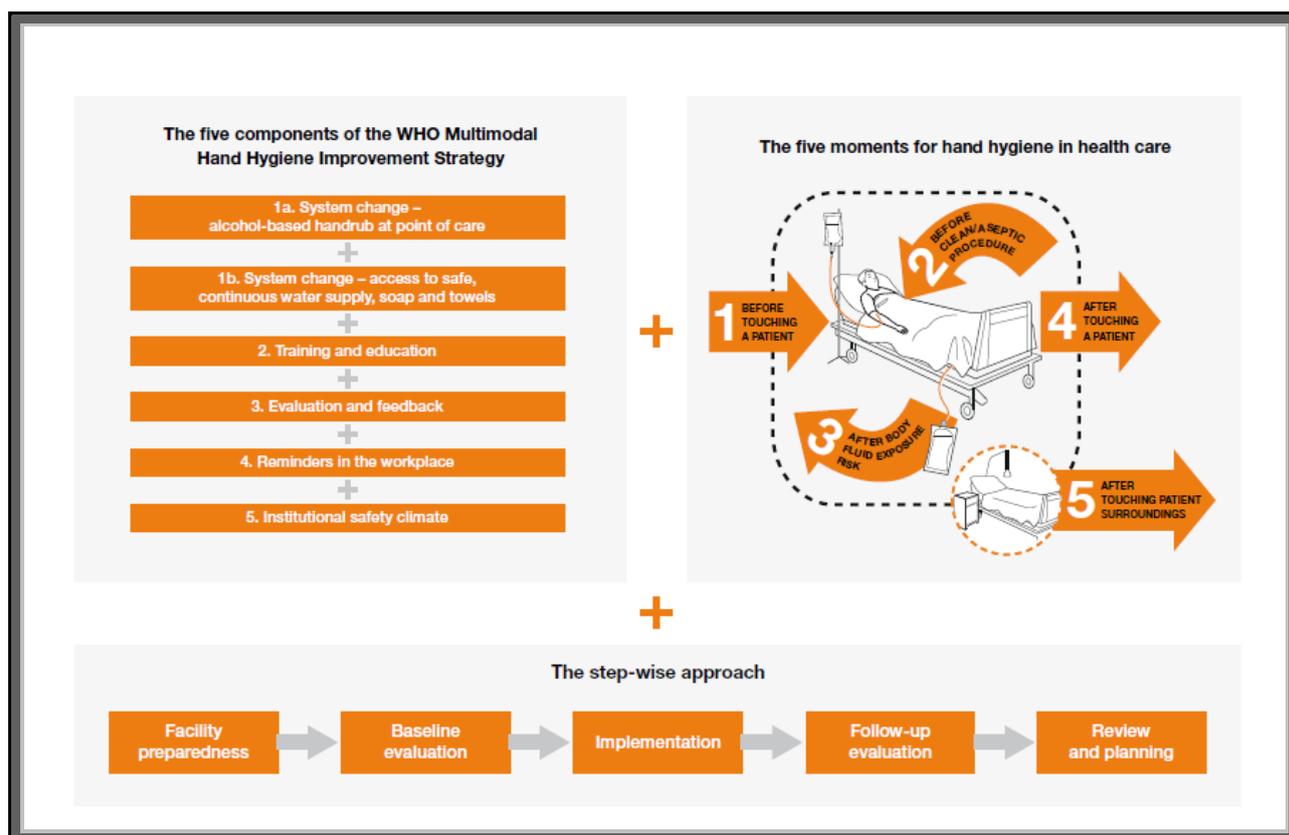


Figure (3): The WHO strategy for Hand Hygiene used with five steps approaches

Conclusions

An educational on Hand hygiene should become priority; all medical students or workers should provide advice currently by posters or short videos and booklets, and the alcohol hand rub was the easiest methods and most effective for decontaminating hands and reducing the rate or level of the risk of infection transmission among employee. This study support that the need for research on the behavioral aspects of biological safety.

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