



# THE EFFECTIVITY OF 70% ALCOHOL, 4% CLORHEXIDINE GLUCONATE SOAP AND IRGASAN DP 300 AS HAND SANITIZERS IN REDUCING NUMBER OF BACTERIA

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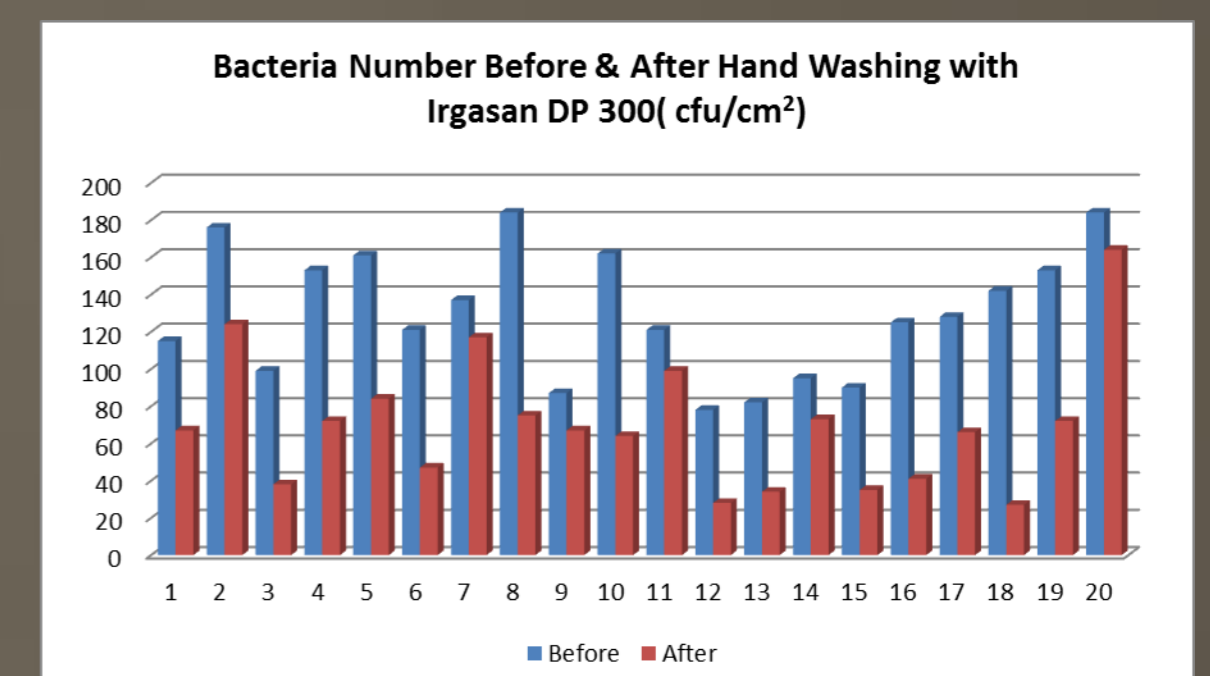
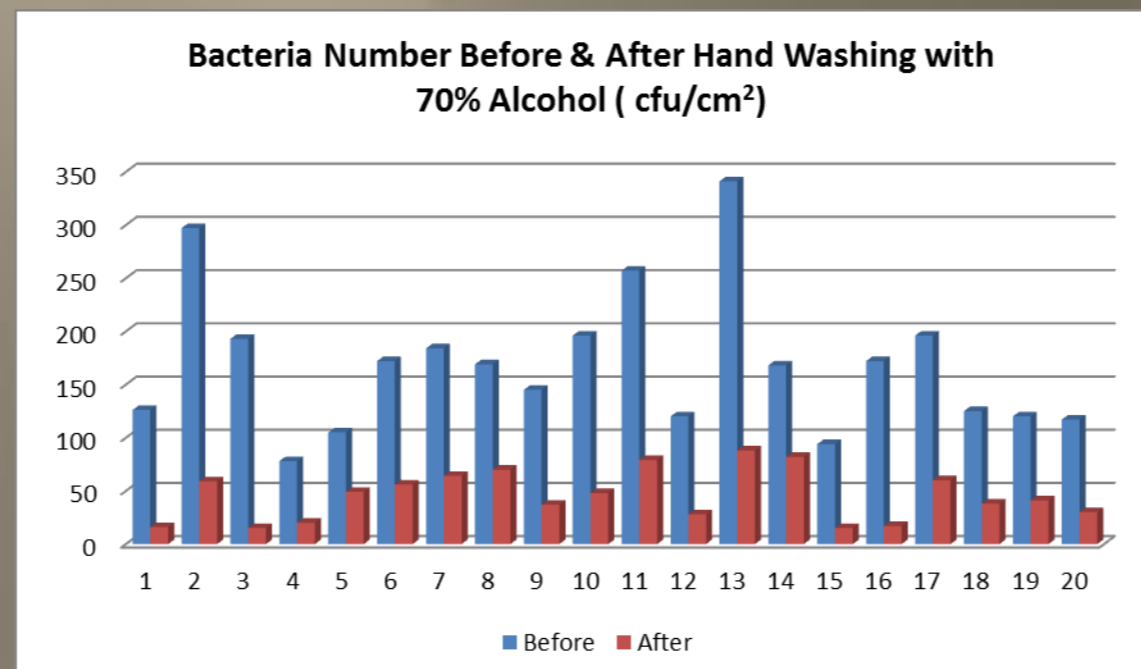
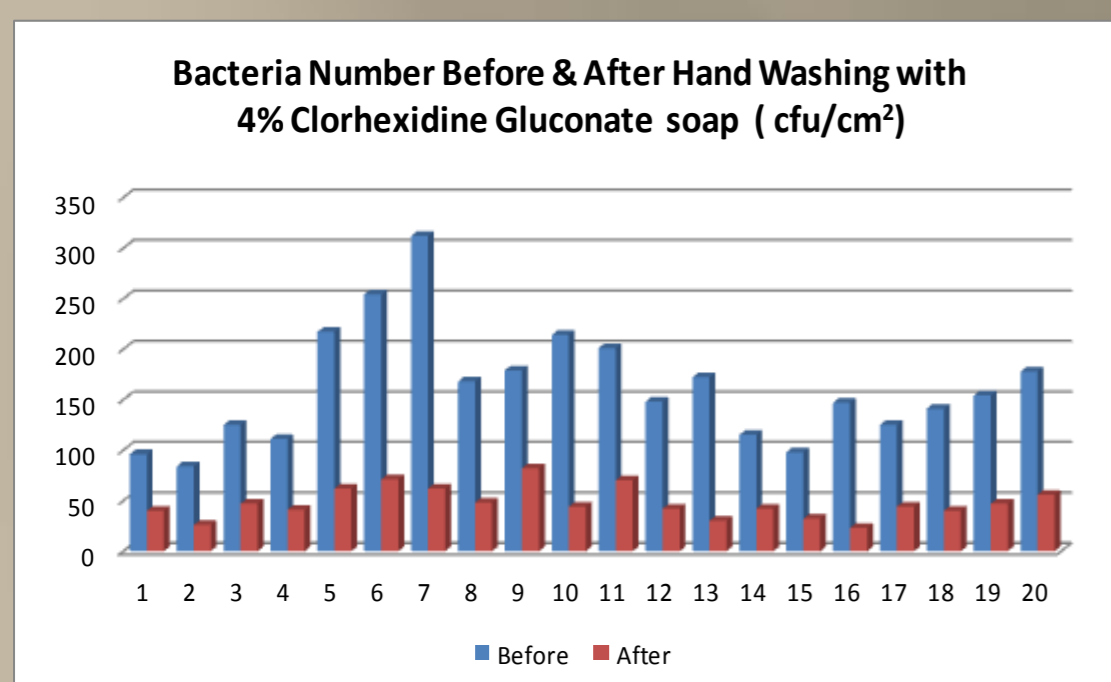
## BACKGROUND

Skin contains some bacteria such as *Staphylococcus sp.*, *Corynebacterium sp.*, *Propionibacterium etc.* The microorganisms in the hand cause the spreading of nosocomial infection. Washing hands is the most effective way to control infection. The number of microorganisms on the skin can be reduced by washing hand with soap containing hexachlorophene or other disinfectants materials. It is important to know the effectiveness of antiseptic hand sanitizer to reduce bacteria growth in the hands.

## METHODE

Research methode quasi - experimental on one group (one group pre test - post test design). There are 3 groups consist of 20 healthcare worker each group. The sample is taken from hand before and after hand washing with hand sanitizer, then be cultured in Trypticase Soy Agar (TSA) media with pour plate methode during 24 hours in 37°C, and count the number of bacteria. Data analyzed by paired sample T test and One way ANOVA

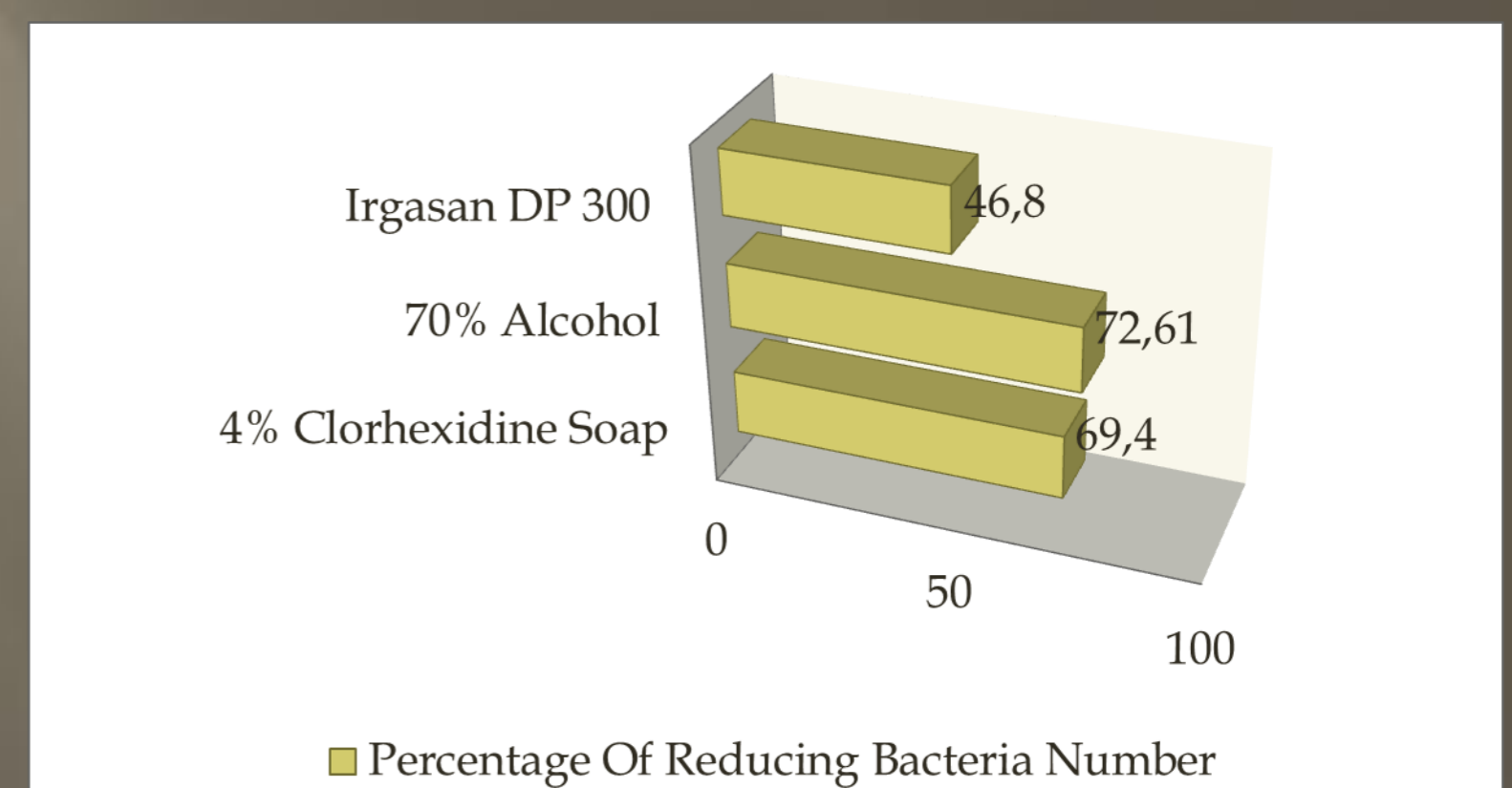
## RESULT



There is a significant difference between the average number of bacteria before and after washing hands with 4% Clorhexide, 70% Alcohol and Irgasan DP 300 (p value = 0.00 (P<0,05)).

Table . The average number of bacteria before and after washing hands with three kinds of antiseptics

ANTISEPTICS	4% Clorhexidine Soap	70% Alcohol	Irgasan DP 300
The average number of bacteria before washing hands	161.9	168.7	129.6
The average number of bacteria after washing hands	47.4	45.6	69.7
The Percentage of reducing bacteria number	69,5	72,6	46,8
p value on T test paired sample	0.00	0.00	0.00



Graphics . The Average Percentage of Reducing bacteria number after washing hands with 3 kinds of Antiseptics.

## DISCUSSION

Alcohol is an antiseptic with denaturation mechanism and powerful of action in the range of seconds to minutes (Erlawan, 2004). Alcohol is very effective to reduce the bacteria number on hands, which is an average 3.5 log 10 after the application for 30 seconds and 4.5 to 5.0 log 10 after the application for 60 seconds (Boyce *et al*, 2002). Rubbing the hands with 70% alcohol and be dried for 15 seconds, 30 seconds and 60 seconds have the same efficacy in killing bacteria on hands (Selvi Puspitasari, 2009). Washing hands with Irgasan DP 300 soap is able to decrease bacteria number significantly lower than regular soap, but it requires repetition to get better results , needs 7 times repetition ( Lyli *et al*, 1974). Antimicrobial activity of Chlorhexidine resulted in precipitation of bacterial cell components and better killing Gram-positive bacteria, but less killing Gram-negative bacteria, fungi and tubercle bacillus and its activity can be reduced by natural soaps, various organic anions, nonionic surfactants and hand creams containing anionic emulsion material (Boyce *et al*, 2002) washing hands with Chlorhexidine 1.5% + cetrimide 15% 1: 150 v / v in the basin can still be used when it's done a good drying after washing hands (Endang S.L dan Helmia F., 2004)

## CONCLUSION

There are differences between 3 Antiseptics as hand sanitizer to reduce number of bacteria in hands. 70% Alcohol is most effective to reduce number of bacteria and to prevent spreading of nosocomial infection.

## Reference

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