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Glove Use in Restaurants: Efficacy is Questionable

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Abstract
Apparently there seems to be a growing consensus on the part of both industry managers and consumers that the use of gloves is an effective barrier to the spread of food-borne illness. However, with more than 13 years' experience as a food service manager and executive, the author has discovered otherwise.

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Glove use in restaurants: Efficacy is questionable

by Joseph West

Apparently there seems to be a growing consensus on the part of both industry managers and consumers that the use of gloves is an effective barrier to the spread of food-borne illness. However, with more than 13 years' experience as a food service manager and executive, the author has discovered otherwise.

The idea that glove use by food service workers prevents the spread of contaminants is appealing at first blush. Have you noticed the proliferation of glove use today by food handlers? Have you noticed how frequently they change gloves between tasks? Have you noticed an increase of hand washing by food handlers?

These are all-important questions. I have noticed a proliferation of glove usage; I have noticed how frequently they do not change gloves between tasks, and I have not noticed any increase in hand washing by food handlers.

Gloving seems like a simple solution to a chronic problem, but it is not, due to a number of significant reasons. Over the course of many years of personal observation in many different food service milieus, I have become convinced that a great number of food service workers fail to properly use and change single use gloves as directed. I have often observed them making sandwiches, handling money, and then, without changing gloves, making another ready-to-eat sandwich.

In addition, glove quality is poor and often allows the skin to come in contact with the food. Employees tend to rely on the gloves to the exclusion of handwashing and can either contaminate the gloves as they are putting them on or contaminate the food as a result of leaks in the gloves. The gloves function as a second skin and can become contaminated, thereby spreading the disease organisms from which they are supposed to protect the consumer. The single use gloves currently

FIU Hospitality Review, Volume 18, Number 1, 2000

used in the food industry are also clumsy and not suited to complex motions such as making sandwiches or broiling. The use of gloves in the food service environment is of no demonstrated benefit and is not warranted. Current research strongly reinforces the opinion that glove use is actually counter-productive to good sanitation and can negatively impact the health and general well-being of the public.

A review of the literature reveals that since the findings of Semmelweis in the middle of the 19th century, researchers have understood the implications of handwashing and gloving in the medical literature. In fact, glove use was prescribed to prevent the spread of infection from patients to the health care provider, while handwashing was demonstrated to prevent the spread of infection from healthcare providers to patients.

Gloves not effective

In fact, gloves alone have never been demonstrated to be effective in controlling microbial transmission. Fendler *et al* postulated that "the current status of gloving is the following":

- Gloving is a well-established infection control practice in healthcare environments;
- Gloving is generally recognized as an adjunct to, not a replacement for, hand washing;
- The value of gloving in food handling settings is assumed, but has not been proven;
- Indirect data indicate the potential for health hazards from gloving;
- A total regimen for hand hygiene needs to be considered and standards need to be established to ensure safe food handling.[1]

Furthermore, the authors concluded that their review of the literature clearly demonstrated that *current scientific evidence is* insufficient to support the premise that the use of a physical barrier on the hands of food handlers prevents the transfer of pathogens to food and consequently to support the requirement for no hand contact with ready-to-eat foods. This study is impressive in that the authors reviewed over a century and a half of scientific research, 226 published articles, and is the most extensive review to date.

The authors also found no quality standard for gloves used in the food service industry. Prior studies indicated that gloves presently in use in food service are of poor quality and have a higher rate of leakage than gloves that are presently used in the healthcare industry. They also found that resident microbes present in normal skin are generally non-pathogenic and are not responsible for food-borne illness. However, hands and contaminated gloves are a primary vector for transmission of transient microbes, both pathogenic and non-pathogenic,

FIU Hospitality Review, Volume 18, Number 1, 2000

acquired from the environment. In addition, it has been demonstrated that pathogens on the skin under gloves multiply rapidly in cases where the hands have been contaminated prior to the act of gloving. Given the low quality of gloves and the tendency of food service workers to rely on gloves instead of handwashing, this finding is a cause for concern.

Fendler *et al* offered the following nine realities of glove usage in food service:

- lack of compliance with single use requirement
- low frequency of changing gloves
- poor glove quality
- low handwashing compliance with a high reliance on gloves
- accelerated growth of microbes on gloved hands
- external glove contamination from both well and ill workers
- inability of gloves to kill microbes on contact in the manner in which sanitized skin can
- clumsiness of use in certain functions
- potential for allergic reactions from wearers

While this study was well written and thoroughly researched, another review of the literature was conducted to validate their findings with studies not referenced by them.

Gloves have punctures

A study conducted by Paulson[2] in 1996 demonstrated that E. Coli is easily transferable from dirty hands through clean gloves to the food surface. The study suggested that the transfer was made easy through pre-existing punctures in the outer surfaces of the gloves which were made prior to the food handlers actually gloving. In a separate study conducted by the same team and cited in the article, 80 percent of randomly selected vinyl food grade gloves were found to have pre-existing punctures and tears when removed from the package. Further, both food quality grade and hospital grade protective vinyl/latex gloves are known to be ripped, torn, or punctured while personnel perform their duties. In many cases these rips and tears remain unknown to the wearer.

In a study conducted for the food processing industry, Troller[3] found that the skin under gloves is occluded, and that heavily contaminated perspiration builds up rapidly between the internal surface of the glove and the skin. Accidental rips or tears in the glove then allow massive contamination of food. He also stated that gloves seemed to promote a kind of complacency that is not conducive to good hygienic habits. Gloves occasionally find their way into food products due to carelessness. He does not recommend glove use in

FIU Hospitality Review, Volume 18, Number 1, 2000

food processing or in the serving environment and strongly recommends effective handwashing. Interestingly, two studies[4] found that there is little hazard in routine handwashing with previously used soap bars, and both supported the frequent use of soap and water for handwashing to prevent the spread of disease.

Fendler *et al* published the only study of the effectiveness of gloving in the food service industry in December 1998.[5] They found that the potential for food workers to be a factor in transmitting foodborne disease continues to be significant; however, the most effective method to break the contamination vector between food service workers and consumers is still a topic of intense debate. They noted that their review of the existing literature clearly demonstrated that there is insufficient evidence to support the premise that the use of gloves on the hands of food service workers prevents the transfer of microorganisms to food and consequently to support the requirement for no hand contact with ready-to-eat food. In their study they examined six handwashing scenarios as follows:

- gloved hands, no glove changes
- gloved hands, hourly changing, no handwashing
- gloved hands, hourly changing, handwashing
- bare hands, no washing
- bare hands, hourly washing
- bare hands, hourly washing and sanitizing

Washing hands is effective

An analysis of the data for the different handwashing and gloving regimens found that the most effective procedure was bare hands with hourly washing and sanitizing, followed by bare hands hourly washing. Both hand washing techniques were clearly, statistically superior to any gloved techniques. The gloved hand with hand washing test demonstrated that while the washed hands inside the gloves were somewhat microbe free, the surface of the gloves was as contaminated as the hands which were not washed!

They also tested the efficacy of the gloves by having subjects don sterile gloves after having their hands contaminated with E. Coli. They found that one hour after activity all the gloves tested had surface contamination of E. Coli. The authors found that these results clearly have implications for gloving policies in the food industry. The researchers noted: "It is clear that a policy where gloves are employed to provide no bare hand contact with ready-to-eat food is not a panacea and may only serve to provide a dangerous false sense of security."

A strict hand washing policy that requires employees to wash their hands at the beginning of each task, after touching their face, mouth, hair, etc., or when using the toilet – what we have known for decades – is the only

FIU Hospitality Review, Volume 18, Number 1, 2000

way to ensure that that food-borne illnesses are not transmitted to our customers by our employees.

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FIU Hospitality Review, Volume 18, Number 1, 2000