

## Short Communication

# Evaluation of microbiological hazards in barbershops in a university setting

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Accepted 28 February, 2012

There is a growing concern that barbershops could serve as a potential source of bacterial, fungal or even viral infections and little is known about microbiological hazards of barbershops in the university environment in Nigeria. This study evaluated microbiological hazards of barbershops in a university setting in Nigeria. To determine the types of microorganisms prevalent in barbershops, combs, brush, clippers and apron used in barbershops were sampled with a moistened sterile cotton swabs. All the samples collected were transported to the laboratory without delay for culture and treated according to standard method. A variety of selective and differential microbial media were used for presumptive identification of contaminating microorganisms which were authenticated by Gram staining, microscopic examination and biochemical tests. Five bacterial and five fungal species were isolated from swab samples. The bacterial isolates included *Streptococcus* sp., *Staphylococcus aureus*, *Enterococcus* sp., *Staphylococcus epidermidis* and *Enterobacterium* sp. The five fungal isolates were identified as *Aspergillus* sp., *Trichophyton* sp., *Penicillium* sp., *Rhizopus* sp., and *Mucor* sp. The results of our study clearly indicate that much effort has to be put in educating clients of barbershops and service providers about hazards inherent in barbering practice and the importance of putting preventive measures in place.

**Key words:** Bacteria, fungi, potential pathogens, contamination, barber shops.

## INTRODUCTION

Barbers are important professionals in the community and in most cases barbershops are owned, cared and financed by individual members of the community. It is a demand on their profession to utilize instruments such as knife, blades, clippers which makes it necessary to evaluate health hazards relating to their profession and practices and to identify professional practices linked with infection transmission (Chanda and Khan, 2004; Wazir et al., 2008). Health has been declared as the fundamental human right. Despite this recognition, there is a denial of

this right to millions of people especially in the developing countries. Healthcare is one of the most important aspects of all human endeavours aimed at improving the quality of life, since sound health is essential for the strength and prosperity of a nation. In developing countries, infections remain the main cause of morbidity and mortality in humans where it is mostly associated with poverty and overcrowding. In the developed countries, increasing prosperity, universal immunization and antibiotics have reduced the prevalence of infectious diseases. However, in the developing countries, it is known that infectious diseases cause about 25% of all human deaths and account for over 11 million deaths yearly (Kumar and Clark, 2005). Many of the infectious diseases affecting developing countries are preventable

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**Table 1.** Microbial isolates from the babershops.

Isolate	Identified organisms	
	Bacteria	Fungi
1	<i>Staphylococcus aureus</i>	<i>Mucor</i> sp.
2	<i>Streptococcus</i> sp.	<i>Penicillium</i> sp.
3	<i>Enterobacterium</i> sp.	<i>Trichophyton</i> sp.
4	<i>Enterococcus</i> sp.	<i>Aspergillus</i> sp.
5	<i>Staphylococcus epidermidis</i>	<i>Rhizopus</i> sp.

or treatable but have continued to thrive due to lack of personal and environmental hygiene, ignorance and poor political commitment from the government. Important routes of transmission of bacterial, fungal or viral infections include airborne, faeco-oral spread, vector borne and direct spread either through person to person transmission or by direct inoculation (WHO, 2006).

It has been shown that barbering operations include cutting, face and scalp massaging, nail trimming, pedicure, manicure and shampooing/dyeing of hair and various health hazards including communicable diseases and skin conditions are associated with barbers' profession to which their clients are exposed to (Janjua and Nizamy, 2004). The diseases of primary importance linked to barbering and barbering profession/practices are ringworm (via direct contact), infestation of head louse, staphylococcal infection, scabies (via contaminated towels, combs and aprons) and hepatitis and HIV (via contaminated blades and clips) (Wazir et al., 2008; Arulogun and Adesoro, 2009). A significant proportion of population is enjoying the services of barbers in the community including the university community and their shops and professional practices may be a source of transmission of various infections-directly or indirectly and some bacterial infections can occur without breaking the skin and for this reason equipment must be cleaned between each client (Salami et al., 2006). The person at risk may be the next client on whom the contaminated instrument is used. Organisms that can cause potentially serious infections may be transmitted where appropriate precautions are not taken. For example, where instruments and materials used on client are not sterilized or are not properly handled and used hygienically, sharp instruments such as razors, clippers and scissors may become contaminated if they pierce the skin of infected person (clippers can accidentally pierce and penetrate the skin) and it should be noted that blood and body fluids do not have to be visible on instruments or working surfaces for infection to be transmitted and both clients and operator are at risk (Ibrahim, 2007).

The aim of this study was to assess the microbiological hazards and practices linked with their transmission in the barbering practice. It is hoped that the result of this study will sensitize the barbers to this type of hazard in

their practice which would gear them to uptake preventive measures against transmission of potential pathogenic organisms.

## MATERIALS AND METHODS

Samples were collected from five different barbershops: four barbershops within the University campus and one barbershop located opposite university main gate. To determine the types of microorganisms present, comb, brush, clippers and apron were sampled with a moistened sterile cotton swab. After taking each swab, the swab stick was placed back into the casing to avoid contamination and was labelled appropriately. All the samples collected were transported to the laboratory without delay for culture and treated according to standard method (Anderson and Palombo, 2009). A variety of selective and differential microbial media were used for presumptive identification of contaminating microorganisms. Gram staining, microscopic examination and confirmatory biochemical tests were performed to further identify bacteria and fungi (Anderson and Palombo, 2009).

## RESULTS AND DISCUSSION

Table 1 shows the microbial isolates from the babershops while Table 2 shows the numbers of bacterial and fungal isolates from each barbershop.

This study evaluated the microbiological hazards associated with barbershops in Kogi State University Anyigba, Nigeria and its environs. In barbershops people could expose themselves not only to the contaminated instruments but also to varied types of chemical and thermal hazards. Ringworm a condition caused by dermatophytes are easily transmitted by direct contact or by contact with contaminated equipment and towels is of primary importance. If towels, brush, apron, clippers, combs and razors are used on an infected client successively without proper cleaning and disinfection, the likelihood of spreading an infectious diseases or infestation is almost certain. The practice of barbering has continue to expose its practitioners and their customers to multiple infectious diseases. Different microbiological reports have supported this view that barbershops are contributing to the spread of infectious diseases and allergic conditions including scabies, ringworm infection and dermatitis. A cross-sectional

**Table 2.** Total number of bacterial and fungal isolates from each barbershop.

Babershops	Number of samples	Bacterial isolales (Number)	Fungal isolates (Number)
A	8	<i>Staphylococcus aureus</i> (3) <i>Enterobacterium</i> sp. (2) <i>Enterococcus</i> sp. (1)	<i>Penicillium</i> sp. (2) <i>Rhizopus</i> sp. (2) <i>Mucor</i> sp. (3)
B	6	<i>Streptococcus</i> sp. (2) <i>Staphylococcus aureus</i> (3) <i>Enterococcus</i> sp. (3)	<i>Aspergillus</i> sp. (3) <i>Trichophyton</i> sp. (1)
C	6	<i>Staphylococcus aureus</i> (4) <i>Streptococcus</i> sp. (3) <i>Staphylococcus epidermidis</i> (1)	<i>Rhizopus</i> sp. (1) <i>Aspergillus</i> sp. (2) <i>Penicillu</i> sp. (2)
D	8	<i>Enterobacterium</i> sp. (3) <i>Staphylococcus aureus</i> (3)	<i>Aspergillus</i> sp. (2) <i>Mucor</i> sp. (3) <i>Penicillium</i> sp. (2)
E	6	<i>Staphylococcus aureus</i> (5) <i>Enterobacterium</i> sp. (1) <i>Enterococcus</i> sp. (2)	<i>Trichophyton</i> sp. (4) <i>Aspergillus</i> sp. (1) <i>Rhizopus</i> sp. (3)

survey in 2001 among 150 barbers reported that cross-infection happened in barbershops (Zahraoui-Mehadji et al., 2004).

Bacterial and fungal species were isolated from swab samples taken from instruments used by barbers operating in Kogi State University Anyigba and its environs. The presence of these microorganisms, some of which are pathogenic microorganisms, is an indication that barbers could be contributing towards the spread of skin and blood-borne disease within Anyigba. This study has revealed that barbering procedures particularly in the study area (Kogi State University Anyigba and its environs) present the risk for fungal and bacterial infections through the use of non-potent disinfectants and improper handling and through infected individuals. Therefore, barbers could serve as potential core group for indirect pathogenic fungal and bacterial infections in the general population. This should be of great concern and calls for prompt and effective control of infections in barbering shops and a comprehensive approach has to be adopted with the involvement of all relevant sections and groups. It is recommended that enough attention should be given to hygienic practices in barbershops through routine supervision and monitoring by agencies of the government. In addition, practical-oriented training on how to carry out decontamination with emphasis on the use of correct procedure and potent disinfectants should be organized for the barbers. All these can be organized through the barbers' union using peer education approach. To minimize transfer of microorganisms,

operators must perform procedures in a safe and hygienic manner.

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