



Research Letter from ... a Turkish Bath

## Beware of Medics Bearing Mobile Phones!

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Long before the origins of the Ottoman Empire, we in Turkey established a tradition of steam baths. As well as being a vital part of our social life, hammams have served to purify and relax many a body and soul. Naturally, order and cleanliness remain essential to the good functioning of hammams to this day. But can the same be said of our hospitals or, for that matter, of medical institutions elsewhere?

One of our eminent experts on infectious disease, Hakan Leblebicioglu, has teamed up with medical staff at the Ondokuz Mayıs University in Samsun to look at an unexpected source of danger in hospitals: the mobile phone! In their research paper "Are we aware how contaminated our mobile phones are with nosocomial pathogens?" (*Annals of Clinical Microbiology and Antimicrobials*, 2009, 8: 7), Fatma Ulger *et al.* report that an astonishing 94.5% of mobile phones used in hospitals "demonstrated evidence of bacterial contamination" and that some are contaminated with the dreaded nosocomial (i.e. hospital) pathogens – an increasing source of deadly infection for hospitalised patients worldwide!

Ulger *et al.* looked at the hospital workplaces with the "highest hygiene standards" – operating rooms and intensive care units. Their experimental procedure was straightforward and direct: they simply took swabs from the dominant (phone-holding) hands and mobile phones of 200 "health care workers" (doctors, nurses and other hospital staff) in the tertiary intensive care units and 14 operating rooms of the university hospital. These swabs were streaked out onto plates containing "blood agar supplemented with 5% defibrinated sheep blood" and incubated aerobically for two days at body temperature. Anything that grew on the plates was isolated and identified using "gram stain, colony counts, morphology, catalase and oxidase reactions". Staphylococci were distinguished by a "slide coagulase test" and antibiotic resistance was determined for Staphylococci to oxacillin (a test for multidrug-resistant *Staphylococcus aureus* or MRSA), and of gram negative bacteria to ceftazidime.

So, 94.5% of the phones were contaminated with one bacterium but 35% were also home to a second microbe and 11% hosted three or more bugs of various types. Many phones carried infections resistant to antibiotic treatment – one in eight handsets had MRSA, including phones from the intensive care unit!

### Dangerous bugs

Nosocomial infections (also known as 'hospital-acquired infection' or 'healthcare-associated infections') are secondary to the hospital patient's original condition. Infections are considered 'nosocomial' if they first appear 48 hours or more after hospital admission or within 30 days following discharge. The chance of catching and dying from one of these infections is on

the rise. For example, in France, infection rose from 6.9% of patients in 2001 to 7.5% in 2006, some patients were even infected twice! Favourite sites for microbes were the urinary tract, skin and mucous membrane, inside the lungs and around surgical wounds. Up to 30% of patients in intensive care units became infected. And around half of the 9,000 people who died with a nosocomial infection would probably have survived if they hadn't been infected! In Italy, about 7% of hospitalised patients were infected (half a million patients), directly contributing to up to 7,000 deaths annually.

### Clean your hands ... and phones!

In the Turkish study, only one in 20 phones was found to be free of bacterial contamination – hardly surprising since "the rate of routine cleaning of HCWs' mobile phones was only 10.5%" – 89.5% of the participants never cleaned their phones at all!

But what about all those prominent signs forbidding mobile phone use within hospitals, often accompanied by an explanatory note to the effect that phone use interferes with sensitive medical equipment? Unfortunately, it seems that the risks of electronic interference have been vastly exaggerated. For example, a recent Dutch study recommended a "safe zone" of just one metre from intensive care equipment. It seems that within hospitals, as elsewhere, mobile phones have become the preferred method of communication. Even within operating rooms and intensive care units, medical staff are carrying and using their phones!

"During every phone call the mobile phones come into close contact with strongly contaminated human body areas with hands to hands and hands to other areas (mouth, nose, ears)." As such, the Turkish researchers warn, "Mobile phones are particularly problematic when compared to immobile devices and it may facilitate transmission of bacterial isolates from patient to patient in wards or hospitals. Our results suggest mobile phones could act as a reservoir of infection which may facilitate patient-to-patient transmission of bacteria in a hospital setting." However, as Ulger *et al.* admit, a big failing of their study was the lack of "molecular tests" for showing the exact clonal relationship between microbes found on hands and phones – basically, they couldn't trace who was the least hygienic and who the most dangerously infectious.

"Developing active-preventive strategies like routine decontamination of mobile phones with alcohol-containing disinfectant materials might reduce cross-infection. We could easily avoid spreading bacterial infections just by using regular cleansing agents and rearranging our environment."

Personally, I think we ought to try a more traditional Turkish solution, obliging more of our "health care workers" to go for a daily cleansing in the hammam. Mind you, a steam bath might not be quite so healthy for their phones!

