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**Publication:**  
***“Surface Microbiology of the iPad Tablet Computer and the Potential to Serve as a Fomite in Both Inpatient Practice Settings as Well as Outside of the Hospital Environment”***

**Journal Citation:**  
PLoS ONE 9(10): e111250. doi:10.1371/journal.pone.0111250

**Study Location:**

- Northeastern University: 6 months following distribution of iPads to Department of Pharmacy Practice faculty working in hospital and non-hospital settings (e.g., ambulatory care clinics or purely academic).

**Study Location:**

- Convenience microbiologic sampling of iPads when faculty were on campus and not at their practice site.

**Methods:**

- Study objective was to elucidate the presence of microorganisms on iPads under conditions of normal usage and to compare species prevalence by type of practice site.
- 30 iPads from pharmacy faculty with practice sites located physically in hospital (n=14) and non-hospital settings (n=16); outpatient ambulatory care clinics (n=7) or purely academic positions with no clinical practice (n=9).
- Faculty were not given any instructions on how to use their iPads, hand hygiene when using it, or when and with what to clean the surface of the device.
- 5 (4 wet, 1 dry) flocked nylon swabs were used to sample each iPad screen, swabs were immersed in neutralizer solution and then plated on a variety of selective agars for Gram-positive and Gram-negative organisms.
- Faculty members answered an electronic survey to classify the physical location of their practice settings, categorize the overall frequency of use, use in patient care areas, use of device covers, and cleaning habits.

## Results/Conclusions

- No differences in cleaning or usage between groups; only about half of the faculty in either group had cleaned their iPad at least once within the 6 months after their distribution.
- More hospital faculty used their iPads at their practice sites (78.6% vs. 31.3%;  $p=0.014$ ) and within patient care areas (71.4% vs. 18.8%;  $p=0.009$ ) than the non-hospital group.
- Mean organism recovery tended to be low, ranging from 1–3 log colony forming units (CFU)/mL; coagulase-negative Staphylococci was commonly recovered from the majority of iPads.
- Pathogens such as MRSA (64.3% and 37.5%), VRE (7.1% and 0%), and *P. aeruginosa* (7.1% and 6.3%) were isolated from both hospital and non-hospital faculty iPads, respectively.
- Tablet computers can be reservoirs of pathogens and a means by which organisms can be moved from patient to patient within a variety of healthcare institutions and infection prevention strategies related to the devices should be employed.

## Limitations

- The raw numbers isolated ( $n=1$  for VRE and  $N=2$  for *P. aeruginosa* overall) were too low to draw any generalizable conclusion about the frequency of isolation of these pathogens.
- Confirmatory testing to definitively identify organisms isolated on selective agars were not performed for any pathogen; *Clostridium difficile* screening was not performed.
- Weak methodology: it would be expected that iPad use at practice sites and in patient care areas would be significantly higher for the hospital group, particularly since  $>50\%$  of the non-hospital group had no clinical practice duties.
- Weak discussion: no recommendations offered for frequency or type of cleaning based on findings.