LETTERS TO THE EDITOR

A New Practical Diagnostic Test for Creutzfeldt-Jakob Disease

To the Editor—Our article "A Practical Approach to Avoiding Iatrogenic Creutzfeldt-Jakob Disease (CJD) from Invasive Instruments"[1] included the recommendation that all patients with either cerebellar or mental abnormalites be tested for elevated levels of 14-3-3 protein in spinal fluid. Although this test has proved invaluable as a diagnostic aid for nearly 2 decades, the protein was from the start recognized as being a "marker protein" that was not causally related to CJD, and efforts to detect the pathogenetic prion protein in spinal fluid have continued. Two just published independent studies[2,3] of a newly modified prion protein amplification test named RT-QuIC (real-time quaking-induced conversion) now justify those efforts.

One study of 48 CJD and 39 control patients yielded a sensitivity of 96% and specificity of 100%[2]; the second study of 110 patients with various forms of prion disease and 400 control patients yielded a sensitivity of 85% and specificity of 99%.[3] Test results are available within 24 hours of specimen collection.

We regret that the timing of our diagnostic test recommendations just missed the pubication dates of these 2 new articles but are delighted to be able to add the RT-QuIC spinal fluid test as perhaps the easiest, fastest, most accurate, and practical premortem diagnostic test for prion disease.

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Pitfalls in Microbiological Sampling of the Healthcare Environment. A Response to "Evaluating a New Paradigm for Comparing Surface Disinfection in Clinical Practice"

To the Editor—The recent study "Evaluating a New Paradigm for Comparing Surface Disinfection in Clinical Practice"[1] by Carling et al has advanced the science of both cleaning and cleanliness with exploration of fluorescent markers and environmental screening. Undoubtedly, fluorescent gel applied to key surfaces leads to a more accurate assessment of cleaning, and the study design utilized this method to standardize the testing of 2 different disinfectants. The results equivocally demonstrate that one agent was better than the other for removing bioburden.[1] However, the authors then examined their quantitative data against microbiological standards proposed a decade ago.[2,3] They found that precleaning soil was uniformly low, which, according to these standards, represented a hygiene-level pass for ~85% surfaces. This finding is clearly unhelpful for both housekeeping and infection control staff because it negates further monitoring, research, and enthusiasm toward improvement.

It is possible that this hospital sustains exemplary cleaning practices as routine, or certainly did during the course of this study. Housekeepers and domestic staff always react to environmental monitoring,[4,5] and this reaction could explain the low level of soil found on surfaces before cleaning. However, the interpretation of bioburden against previously proposed microbiological standards is subject to methodological confounders that were not detailed in the study. First, the original standards for surface level cleanliness were based on routine cleaning with *detergent*, not disinfectant, and were aimed at UK hospitals.[2–4] Routine use of disinfectant has a measurable and long-lasting effect on hospital surfaces.[3,5,6] It is not surprising, therefore, that the precleaning bioburden measured in this study was low; any proposed cleaning standards would require adjustment to reflect habitual exposure to biocidal disinfectants.

Second, while dip slides are relatively malleable, they could not be expected to pick up the full complement of bioburden on items such as a call button, a light switch, and some types of handles, rails, and bars. The preferred method for accurately screening irregular and/or small surfaces is to swipe a moistened swab over a specified area and then inoculate the slide or plate with the swab.[3]

Third, the article does not mention the pressure used to apply the dip slides to the selected surfaces. This is important, because if too much pressure is applied on the surface, the agar breaks up and renders quantitative assessment of counts invalid. If too little pressure is applied or pressure is not applied for an adequate length of time (10 seconds is advised), the dip slide will fail to pick up all superficial (newly shed/planktonic) microbes on sampled surfaces.[3,7,8] The correct pressure for dip-slide sampling has been quoted as 25 g/cm^2 (without lateral movement) by food industry microbiologists and should have been predetermined within an appropriate training process before the study began.[3,7]

Fourth, the dip slides were incubated for only 24 hours; this time period is insufficient to permit retrieval of environmental organisms, and particularly so when the study surfaces have been habitually exposed to disinfectants.[7] In our experience, both agar plates and dip slides should be incubated for at least 48 hours at 30°–35°C to recover the greatest possible yield of cultivable aerobic organisms.[9] Additionally, the agar(s) used on the dip slides and incubation conditions are not mentioned in the Methods.

Finally, 2 standards were originally proposed: 1 quantitative (<5 cfu aerobic flora/cm^2) and 1 qualitative (<1 cfu specific pathogen/cm^2).[2] These standards were designed to be used together and, indeed, have been shown to be linked (for coagulase-positive staphylococci) when screening hand-touch sites.[9] The second standard was not used in the present study. The choice between 2.5 cfu/cm^2 (as in this study) vs 5 cfu/cm^2 (as originally suggested) does not necessarily represent a significant problem; several studies have examined both and little difference overall was found.[3,5] Future work will demonstrate which density adequately predicts risk in a range of healthcare environments. However, quantitative aerobic colony counts performed in isolation only provide a general level of contamination and not necessarily an infection risk for patients.[3]

Considering these concerns together, it is possible that the low level of bioburden reported in this study did not reflect true contamination of hospital surfaces and should not have been interpreted in accordance with previously proposed microbiological standards. Surface sampling is fraught with potential pitfalls and has always complicated reliable assessment of cleanliness. Recent work on surface biofilm in the healthcare environment has introduced yet another hurdle for healthcare monitoring.[8] Despite these new findings and the concerns listed above, it is very gratifying to see increasing interest and support of basic cleaning in our hospitals. It has been a long time coming.[10]

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Reply to Dancer

To the Editor—We very much appreciate Dr. Stephanie Dancer's comments related to our recent report, "Evaluating a New Paradigm for Comparing Surface Disinfection in Clinical