

### Response to *The Possibility of Transmitting Infections with Vaginal Ultrasound Probes: Why the Guidelines Must be Met*

written by Mitchell J. Schwaber, Azza Vaturi, Bina Rubinovitch, Debby Ben-David, Ester Solter and Yehuda Carmeli

We read the response of our colleagues from the National Institute for Antibiotic Resistance and Infection Control, Ministry of Health (MOH), to our publication on the possibility of transmitting infections with vaginal ultrasound probes.

In the beginning of their letter, the authors explained the differences between low versus high levels of disinfection, emphasizing the need of high-level disinfection prior to every time endovaginal ultrasound probes were used.

The authors discussed whether an institutional review board would approve a clinical trial comparing high-level to low-level disinfection for vaginal ultrasound probes. However, the authors ignored the

basic fact that such clinical trials occur globally every day, and have for decades. Almost all vaginal and rectal digital examinations are conducted using gloves, without performing high-level disinfection of the examiners' hands before or after the examination.

The authors misled readers of the *Israel Medical Association Journal (IMAJ)* by incorrectly citing the MOH 2009 guidelines for hand disinfection before and after glove use. The 2009 and 2019 MOH guidelines recommend hand hygiene before and after glove use, using antimicrobial soaps (chlorhexidine scrub 4%) or alcohol-based hand rub (alcohol 70% + chlorhexidine 0.5%). The guideline does not mention the possibility of performing direct high-level disinfection of the hand skin prior to vaginal or rectal physical examination.

Furthermore, *primum non nocere*, we did not find any studies discussing the effects of high-level disinfection on the skin of the human hand. We wonder whether an ethics review board would approve such a clinical trial.

Implementation of these MOH guidelines will require additional budget, including trained technical personal to perform high-level disinfection of the probes, purchase more ultrasound probes, and design dedicated ventilated rooms to perform the disinfection process, as needed in gastroscopy and colonoscopy. Furthermore, all ultrasound units will need to reduce the number of examinations in order to allow time for high level disinfection. Did the MOH coordinate or plan those deep infra-structural changes with Israel hospitals, healthcare organizations, or private clinics before publishing the guidelines?

We call on the Israeli National Institute for Antibiotic Resistance and Infection Control at the MOH to collaborate with us to find more practical solutions for the safety of our patients.

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### Capsule

#### The culprit behind celiac disease symptoms

Celiac disease is a common autoimmune disorder, usually treated by adopting a gluten-free diet. However, people with this disorder may still exhibit gastrointestinal symptoms within a few hours of very slight exposure to gluten. To understand which arms of the immune system drive this response, Goel et al. characterized systematic cytokine profiles in patients

with celiac disease. Gluten-specific CD4<sup>+</sup> T cells were rapidly activated and released cytokines very shortly after gluten exposure. Thus, these T cells are the likely culprit behind gastrointestinal symptoms in celiac patients.

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### Capsule

#### Dissecting hyperactivation in AD

Progressive accumulation of amyloid  $\beta$  ( $A\beta$ ) in the brain is a defining feature of Alzheimer's disease (AD). At late stages of AD, pathological  $A\beta$  accumulations cause neurodegeneration and cell death. However, neuronal dysfunction, consisting of an excessively increased activity in a fraction of brain neurons, already occurs in early stages of the disease. Zott et al. explored the cellular basis of this hyperactivity in mouse models of AD.  $A\beta$ -mediated hyperactivation was

linked to a defect in synaptic transmission exclusively in active neurons, with the most-active neurons having the highest risk of hyperactivation.  $A\beta$ -containing brain extracts from human AD patients sustained this vicious cycle, underscoring the potential relevance of this pathological mechanism in humans.

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