

# Comment on: Impact of diabetes status on immunogenicity of trivalent inactivated influenza vaccine in older adults

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April 16, 2024

## Abstract

Recently, Spencer et al. published their interesting article in *Influenza and Other Respiratory Viruses* providing evidence that there is no impact of diabetes status on immunogenicity of trivalent inactivated influenza vaccine in older adults. Although we agree with the conclusion, we suggest that the transportation condition of the serum samples should be added in the description of serological surveys of influenza in the future. Stability of specific influenza antibodies in sera samples stored in differing conditions should be considered.

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Article type: Letter to the Editor

**Title: Comment on: Impact of diabetes status on immunogenicity of trivalent inactivated influenza vaccine in older adults**

**Running Head: Stability of influenza antibodies in serum samples**

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**Keywords:** influenza, vaccine, serologic response, specific influenza antibodies

**Dear Editor,**

Recently, Spencer et al. published their interesting article in *Influenza and Other Respiratory Viruses* providing evidence that there is no impact of diabetes status on immunogenicity of trivalent inactivated influenza vaccine in older adults (Spencer et al. 2021).<sup>1</sup> Although we agree with the conclusion, we suggest that the transportation condition of the serum samples should be added in the description of serological surveys of influenza in the future. Stability of specific influenza antibodies in sera samples stored in differing conditions should be considered.

Firstly, the key to this study was the banked serum samples which were collected from Marshfield, Wisconsin and Pittsburgh, Pennsylvania of previously study in 2011-2012. According to the manuscript, “HI assays were conducted simultaneously on paired pre- and post-vaccine sera or paired post-vaccine and day 365 sera from each participant at the Battelle Memorial Laboratory (Aberdeen, Maryland)”, the sera samples should be transported from Wisconsin and Pennsylvania to Maryland. Notably, the transportation condition and the HI assays detection time of the serum samples were not mentioned in the manuscript. There is no evidence regarding the stability of HI titers during long-term storage and repeated freeze-thawing. We suggest that the transportation condition of the serum samples should be added in the description of serological surveys of influenza in the future.

Secondly, the banked sera samples from different regions and periods were valuable in terms of scientific significance for evaluating the stability of HI titer levels during long-term stored sera samples. Based on the previously study, “Each serum sample was tested in HI assays against the A strains in the 2011–2012 TIV (A/California/7/2009 [H1N1]; A/Perth/16/2009 [H3N2])”, the sera samples at Day 21 were tested by the same 2011–2012 TIV A strains.<sup>2</sup> To determine whether the HI titers of the serum samples was stable during ten years storage, we strongly suggest that a comparative analysis of each sample HI titers from the two studies should be carried out.

Several studies have investigated the effect of repeated freeze-thaw cycles (FTCs) on specific antibody present in serum samples for influenza and severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2).<sup>3-5</sup> Torelli et al. proved that specific influenza antibody present in serum samples are stable up to 14 freeze-thaw cycles.<sup>3</sup> The stability of SARS-CoV-2 IgG and other immunoglobulins in multiple blood sample types stored in differing conditions and multiple FTCs was evaluated. Through SARS-CoV-2 antibody detection with serum and plasma samples, the IgG response was stable and reliably detected after multiple FTCs and storage at common laboratory conditions. IgM detection was variable due to the labile nature of this antibody class.<sup>6</sup> However, to the best of our knowledge, the stability of specific influenza antibodies in sera samples after stored in differing conditions has not been assessed. So we suggest that a comparative analysis of specific influenza antibody present in serum samples from the two studies should be carried out.

Thank you for your attention in considering this comment and we are looking forward to your response.

**Conflicts of interest**

The authors declare no conflict of interest relevant to this article.

**Acknowledgments**

This work was supported by the National Natural Science Foundation of China under Grant number 32072893 and 31772750, Key Project of Scientific Research and Planning of Jilin Provincial Department of Education under Grant number JJL [2019] No.73 and Research and innovation team of new veterinary diagnostic reagents and reference materials of Jilin Provincial Department of science and technology Talent project.

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