

[PICTURES IN CLINICAL MEDICINE]

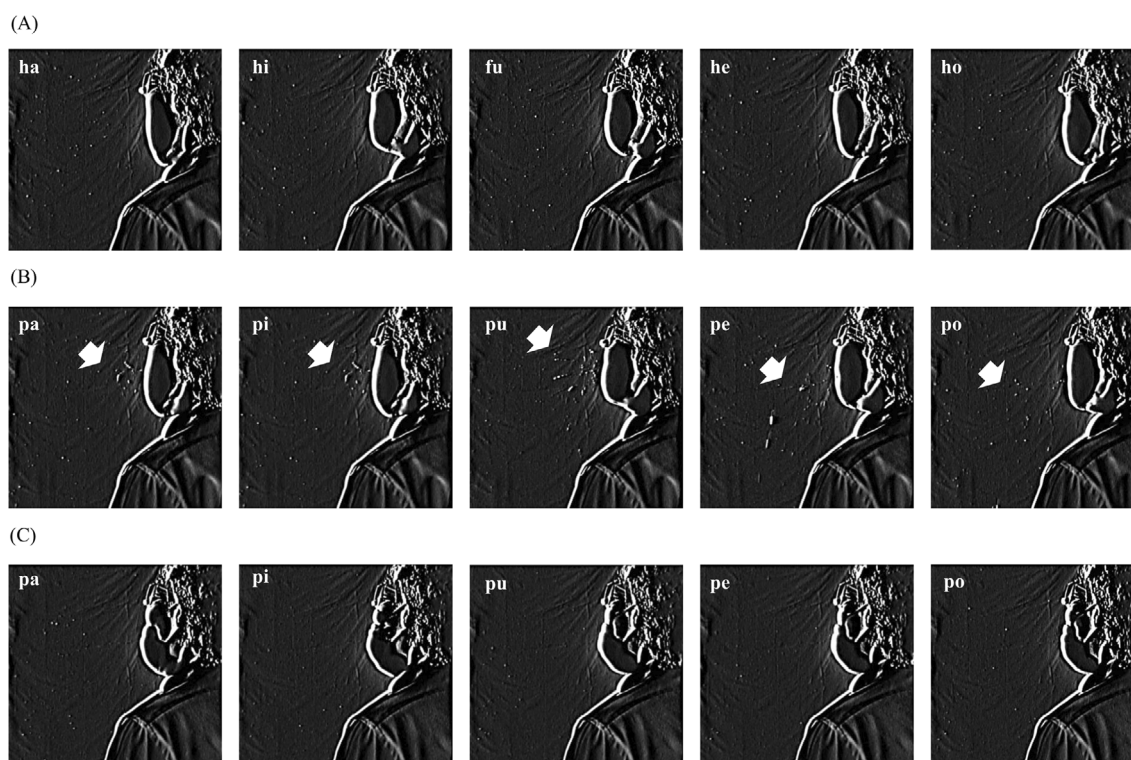
Speech Sounds and the Production of Droplets and Aerosols

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Picture.

The person-to-person transmission of severe acute respiratory syndrome (SARS)-coronavirus-2 has focused on particle production via talking, which may depend on the characteristics of speech sounds, such as plosives and fricatives. We visualized particle dispersion while vocalizing monosyllabic words using a particle visualization system (Shin Nippon Air Technologies, Tokyo, Japan), which allowed the visualization of particles $\geq 1 \mu\text{m}$ in diameter (1). Although we identified no apparent particles during ha, hi, fu, he, and ho (fricatives) vocalization without a mask (Picture A), particles were dispersed during pa, pi, pu, pe, and po (plosives) vocalization without a mask (Picture B). When wearing a

surgical mask, no apparent particles were detected even during plosive vocalization (Picture C). As distributions of speech sounds differ among languages, our findings support the notion that the differences in quantity of particle production among languages may influence the differences in SARS morbidity among countries (2), information that can be used to encourage people to wear masks.

The authors state that they have no Conflict of Interest (COI).

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