

## Computer-assisted Telephone Interview Techniques

**To the Editor:** Fox et al. used computer-assisted telephone interview (CATI) techniques in an outbreak of cryptosporidiosis (1). Australian health agencies have used CATI for several years. A case-control study during an outbreak of *Salmonella* Mbandaka in 1996 employed CATI to interview 15 case-patients and 45 controls; contaminated peanut butter was implicated (2). Foodborne disease outbreaks are often geographically widespread and suited to using CATI.

Australian health authorities investigate ≈100 outbreaks of foodborne disease each year, with 3–4 using CATI-based case-control studies. Some jurisdictions investigate outbreaks by using CATI interviews of controls sampled from a bank of potential study participants (3). Potential study participants are recruited at the conclusion of rolling risk factor survey interviews, similar to the Behavioral Risk Factor Surveillance System.

A “control bank” allows investigators to rapidly obtain contact details for appropriately matched controls because age and sex of all household members are recorded in a database. Using control banks with CATI allows completion of studies quicker than CATI or traditional methods alone (4). South Australia has used CATI during 11 case-control studies of salmonellosis, legionellosis, Q fever, campylobacteriosis, Shiga toxin-producing *Escherichia coli*, and cryptosporidiosis (<http://www.dh.sa.gov.au/pehs/notifiable-diseases-summary/current-outbreak-table.htm>).

During an Australian CATI survey about gastroenteritis, 5,123 (84%) of 6,087 households agreed to be in a control bank (5). This bank of 14,024

potential controls was used in 4 case-control studies of sporadic salmonellosis and campylobacteriosis. This system avoided randomly dialing thousands of households to enroll controls in young age groups. The control bank was used for 3 years after initial collection, although many jurisdictions update banks annually.

Investigators may find CATI useful, although it can be costly and introduce biases (4). Programming questionnaires can delay investigations, which makes paper-based collection better in small outbreaks (4). CATI cannot be used in areas where a small proportion of the population has telephones. Despite limitations, CATI, when combined with control banks, may improve outbreak investigations.

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**In Response:** We appreciate the comments of Martyn Kirk and colleagues, who describe their experience using computer-assisted telephone interview (CATI) techniques in Australia with geographically widespread foodborne outbreaks (1). The intent of our article was to illustrate 1 example of the use of the CATI infrastructure in investigating a large communitywide cryptosporidiosis outbreak (2); yet we recognize the applicability of this infrastructure to multiple acute infectious disease outbreak scenarios.

In our article, we comment that the use of existing CATI systems, like the Behavioral Risk Factor Surveillance System (BRFSS), can provide a practical means for obtaining controls in case-control studies, and the letter by Kirk and colleagues describes their use of the CATI infrastructure to create a “control bank” for acute infectious disease outbreak investigations. This control bank includes participants of longitudinal risk factor surveys, like BRFSS, who are subsequently recruited as controls for outbreak investigations. We acknowledge that a “bank” of these readily accessible controls could permit more rapid recruitment of participants in numerous age strata and obviate the need for extensive random digit dialing to recruit an adequate age-matched control population in many investigations. Nevertheless, in most epidemiologic investigations, controls need to be selected from the same geographic area as the case-patients, and even in large telephone surveys, the number of respondents in any

given region can be small. This would make it difficult to recruit enough controls within the small areas affected by most outbreaks, particularly within specific age strata. A control bank may therefore be more practical for use in large communitywide outbreaks, outbreaks that occur over large regions (i.e., an entire state), or in densely populated areas. Additionally, the lengthy start-up time required for questionnaire programming with a CATI system also supports the view that the CATI method may be maximally applicable in large-scale investigations.

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## Lack of Transmission of Vaccinia Virus

**To the Editor:** Recently, the US government completed a targeted vaccination strategy limited to healthcare workers, first responders, and the military because of concern that variola virus, the etiologic agent of smallpox, might be used as a biowarfare agent (1). A concern in such programs is the potential for unintended spread of the vaccine virus (vaccinia) from the primary vaccinee to contacts who may be at the greatest risk of having adverse reactions resulting from secondary transmission (2,3).

Contact spread of the live attenuated vaccinia virus is considered the predominant method of secondary transmission. The conventional methods of preventing a secondary transmission event in the household of a smallpox vaccine recipient include the use of bandages and long sleeves to limit direct contact with the lesion and immediate hand-washing when contact occurs (4).

Several recent reports have measured the presence of vaccinia virus on the dressings or hands of vaccinated persons; however, the recovery of vaccinia virus in the environment has not been evaluated after vaccination in a controlled setting (5–7). We present the first reported attempt to recover live vaccinia virus from the homes of recently vaccinated persons. This study was approved by the St. Louis University Institutional Review Board. We hypothesized that live vaccinia virus shed from the skin reaction could not be recovered in the natural environment, and as a result, constitutes a limited risk for contact transmission.

Three hundred eighty-seven environmental swab samples were collected on 3 different study days from 43 persons (mean age 24 years) with major cutaneous reactions. Persons

who participated in this study were selected from a randomized, double-blind, single-center study that compared the safety, tolerability, and immunogenicity of 3 smallpox vaccines (8,9). Following vaccination and after each study visit, the vaccination site was covered with an OpSite Post-Op dressing (Smith and Nephew, Massillon, OH, USA). On postvaccination days 7, 10, and 15, a sterile Calgiswab type 2 applicator (Harwood Products Co., Guilford, ME, USA), moistened in sterile water, was rotated over the linen from the study participant's bed (approximate location of sleeping area), the middle of his or her bath towel, and the inside area of a shirt sleeve adjacent to the vaccination bandage (before laundering). These sampling areas were chosen on the basis of the likelihood of exposure to the semipermeable bandage and the potential for another person to come in contact with the vaccinia virus in these areas. An additional 129 samples from the palm of the study participant's hand used to take the environmental samples were taken to serve as a control mechanism.

After sampling, the tip of the swab was stored in a 15-mL conical tube containing 3 mL multimicrobe transport media (Remel, Lenexa, KS, USA). The 15-mL conical tubes were returned to the clinic in a cooler on cold packs the same day. Recovery of vaccinia virus was determined by infectivity assay. Samples were tested for infectious vaccinia virus by inoculation of fluid cultures of Vero cells grown in 12-well plates. A sample was defined as positive if cytopathic effects were observed (10).

Concurrent with the environmental sampling, the lesion and the outside of the bandage covering the inoculation site for each study participant were swabbed with a Calgiswab Type 2 sterile applicator, and the samples were analyzed by infectivity assay. These samples served as a positive control, indicating that the method