

## Vuvuzela sound measurements

**To the Editor:** Our recent paper in the *SAMJ*<sup>1</sup> reported the maximum output levels of a vuvuzela at various distances from the horn. In response to enquiries, we provide additional information on the method and results reported in the earlier paper.

One commercial vuvuzela was used in the recording of sound levels at 4 different positions: (i) at the ear of the person blowing the vuvuzela; (ii) at the bell end; (iii) 1 m from the bell end; and (iv) 2 m from the bell end. All measurements were made approximately 1.6 m from the ground, in an open-air setting. Sound levels were measured twice at a single instance while the vuvuzela was being blown by one of the investigators. Measurements were made using a calibrated Type 1 Larson Davis SLM 824 sound level meter with a 2559 normal sensitivity microphone fitted with a manufacturer-supplied windscreen (WS001). Measurements were made using the fast response time option, which corresponds to a time constant of 0.125 s that is intended to approximate the time constant of human hearing.<sup>2</sup>

The initial report<sup>1</sup> provided the maximum instantaneous A-weighted sound pressure level (Lmax Fast [dBA]) averaged for 2 recordings during single vuvuzela blasts at 4 distances from the bell of the vuvuzela. This method is in agreement with the recommendation by the World Health Organization<sup>2</sup> for measuring individual sound events. A-weighting was used for all measurements to compensate for the non-linear sensitivity of the human ear, which is differentially sensitive to sound across the frequency spectrum (least sensitive at very high and very low frequencies). A breakdown of the average intensities at individual frequencies across the frequency spectrum is provided in Table I. A characteristically flat frequency spectrum was evident between 250 and 8 000 Hz. The average intensity difference between the individual frequency measurements (Table I) of the 2 recordings at each of the 4 respective distances from the bell of the vuvuzela was 0.6 dB ( $\pm 3.2$  dB standard deviation).

These measures provide an indication of the sound levels and frequency spectrum of a typical vuvuzela. There are now numerous types of vuvuzela made by several manufacturers, which may all produce varying intensity and frequency outputs. In addition to these variables, individuals blowing a vuvuzela will produce varying intensities depending on

their technique and the pressure exerted. Also, the sound level produced by multiple individuals simultaneously blowing vuvuzelas within a limited space cannot be predicted from these data.

### De Wet Swanepoel

Department of Communication Pathology  
University of Pretoria, and  
Callier Center for Communication Disorders  
University of Texas  
Dallas, USA  
dewet.swanepoel@up.ac.za

### James W Hall III

Department of Communication Pathology  
University of Pretoria, and  
Department of Communicative Disorders  
University of Florida  
Gainesville, Fla, USA

### Dirk Koekemoer

Research and Development Department  
GeoAxon  
Pretoria

- Swanepoel D, Hall JW III, Koekemoer D. Vuvuzela – good for your team, bad for your ears. *S Afr Med J* 2010; 100: 99-100.
- Berglund B, Lindvall T, Schwela DH, Goh KT, eds. *Guidelines for Community Noise. Technical Report*. Geneva: World Health Organization, 1999.

## Pandemic flu (H1N1) 2009 and pregnancy

**To the Editor:** We welcome the recommendations by Schoub *et al.*<sup>1</sup> and advertisements in local newspapers highlighting the importance of influenza vaccination (*Cape Times* 17 February 2010), but are concerned that there is no unified strategy to ensure that all pregnant women are offered influenza vaccine and have access to antivirals should they develop symptoms of infection.

A striking feature of the pandemic H1N1 infection has been the predilection of severe disease in pregnant women. This is not surprising as pregnancy causes immunological and physiological changes which are likely to contribute to an increased susceptibility to influenza infection and an excessive risk of influenza-related morbidity and mortality.<sup>2</sup> We have previously highlighted the problem of H1N1 in South Africa in pregnant women.<sup>3</sup>

Antivirals oseltamivir and zanamivir are effective against H1N1, and both may be used in pregnancy.<sup>2</sup> Despite a lack of formal trials in pregnancy, both have been widely used in the second and third trimester without proven adverse effects on the mother or teratogenic effects on the unborn child. Their use is justified on the basis that the potential benefit to the mother outweighs any potential risk to the fetus.<sup>4</sup> However, antiviral therapy must be initiated early to be effective, posing a considerable logistical challenge.<sup>5</sup> Vaccination is the most important weapon in preventing influenza infection and its sequelae in pregnant women. Pregnant women have been prioritised for vaccination in industrialised countries during the 2009/2010 season. The inactivated influenza vaccine is void of harmful effects on maternal or neonatal health.<sup>6</sup> Since pandemic H1N1 vaccines are produced using the same manufacturing and licensing process as seasonal influenza

**Table I. Average vuvuzela intensity measurements across frequencies at 4 distinct distances from the bell end of the vuvuzela (dBA)**

Frequency (Hz)	Intensity (dBA)			
	At ear	Bell opening	1 m	2 m
125	36	62	38	35
250	92	106	82	85
500	103	121	102	101
1 000	106	122	108	100
2 000	101	122	110	101
4 000	97	109	110	102
5 000	93	111	109	100
8 000	87	110	107	98

vaccines, it is anticipated that they will have similar safety profiles, with serious adverse events after vaccination being uncommon. However, ongoing monitoring and further data are needed.

Influenza vaccine uptake<sup>7</sup> in the northern hemisphere has been poor even in the face of the pandemic.<sup>8</sup> The incorporation of the pandemic strain into the regular seasonal vaccine for the southern hemisphere requires a new focus on vaccination by health care providers who do not deal with the 'classic' risk groups (mostly the elderly and chronically ill) and who have little experience and lack awareness of the topic.

We urge public health officials to accelerate and intensify planning for the 2010 influenza season, and suggest:

- widespread and strategic informing of health care professionals – particularly those primarily involved in the care of pregnant women – on the importance of vaccinating pregnant women against influenza
- increasing efforts to improve influenza vaccine uptake by pregnant women by community-based information campaigns
- informing health care professionals on the need for timely diagnosis and immediate antiviral treatment of pregnant women with suspected influenza
- training and equipping all antenatal clinics to diagnose and treat women with symptoms of acute influenza.

Good uptake of the vaccination requires early action to ensure that health care workers are aware of the risks associated with H1N1 in pregnant women and their potential reluctance to be vaccinated. Given our scarce health care resources, our priority must be to keep pregnant women well and out of hospital. Vaccination is central to any prevention strategy, while neuramidase inhibitors may reduce the severity of disease, reducing the likelihood that women may need hospitalisation.

**M I Andersson**  
**G van Zyl**  
**W Preiser**

Division of Medical Virology  
Faculty of Health Sciences  
Stellenbosch University and  
NHLS Tygerberg, W Cape  
andersson\_m@sun.ac.za

**E Langenegger**  
**G Theron**

Department of Obstetrics and Gynaecology  
Stellenbosch University and  
Tygerberg Hospital  
Western Cape

1. Department of Health. Recommendations pertaining to the use of viral vaccines: Influenza 2010. *S Afr Med J* 2010; 100(2): 88-89.
2. Rasmussen SA, Jamieson DJ, Macfarlane K, Cragan JD, Williams J, Henderson Z. Pandemic influenza and pregnant women: summary of a meeting of experts. *Am J Public Health* 2009; 99 Suppl 2: S248-S254.
3. Langenegger E, Coetzee A, Jacobs S, le Roux A, Theron G. Severe acute respiratory infection with influenza A (H1N1) during pregnancy. *S Afr Med J* 2009; 99(10): 713-714, 716.
4. Elliott EJ. Pregnancy and pandemic flu. *Clin Infect Dis* 2010; 50(5): 691-692.
5. Maritz J, Maree L, Preiser W. Pandemic influenza A (H1N1) 2009: the experience of the first six months. *Clin Chem Lab Med* 2010; 48(1): 11-21.
6. Pool V, Iskander J. Safety of influenza vaccination during pregnancy. *Am J Obstet Gynecol* 2006; 194(4): 1200.

7. Munoz FM, Greisinger AJ, Wehman OA, et al. Safety of influenza vaccination during pregnancy. *Am J Obstet Gynecol* 2005; 192(4): 1098-1106.
8. Beigi RH, Switzer GE, Meyn LA. Acceptance of a pandemic avian influenza vaccine in pregnancy. *J Reprod Med* 2009; 54(6): 341-346.

## Medical electives in South Africa

**To the Editor:** I read with concern and interest the 'personal view' expressed by Matthew Kirkman,<sup>1</sup> a foreign elective student.

I deplore the actions of the surgeon described in this report – to the point that I suspect this would constitute negligence and patient abandonment, and feel that this should be reported to the management of the hospital concerned.

I also need to share my concern that this young person has an undue issue with aspects that he describes as of 'ethical concern'. Firstly, as a trainee registered with the HPCSA, he was working in a training hospital, to which patients are admitted knowing that students may interact with them; no specific 'consent', written or otherwise, was therefore required, as it was implied by presenting themselves for treatment. The patient would have consented to the procedure, including, it is to be hoped, being informed that an assistant is required by law, to assist in all surgical procedures. The law does *not* state the level of assistance required, except that it is to be a medical assistant (which could include student, intern, CSMO, GP or specialist).

Secondly, he appears to have an incorrect balance of the ethical concepts: his concern for autonomy of the patient should be more tempered with justice and beneficence – doing the right thing in the best interest of this patient (in this case the dressing). In bringing into the argument the issue of the extent of the informed consent, he has lost perspective on the place he was at, namely intra-operatively: the patient had already consented to the procedure – the law again does *not* dictate the 'who' and the 'how'; that is medical decision making. This also begs the issue of students needing patient assent for bedside procedures, which is given readily, when requested in a professional and dignified manner.

Admittedly, the student felt out of his depth, which I sympathise with, but I agree that he made the best decision under the circumstances. Ethical principles apply to the group in general, and are applied on an individual basis as the patient's need dictates.

Thirdly, ethical dilemmas are confronted by doctors every day. This does not mean that the decisions are easy, or that there will be a ready option in every case. The ethical issues must be balanced with their application to the culture of the region, which differs markedly across the world.

**Timothy C Hardcastle**

Trauma Unit  
Inkosi Albert Luthuli Central Hospital, and  
Department of Surgery  
University of KwaZulu-Natal  
Durban  
timothyhar@ialch.co.za

1. Kirkman MA. Medical electives in South Africa. *S Afr Med J* 2009; 99: 789-790.