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Editorial

Influenza Vaccination and Healthcare workers: 'From Slumber Thou Rise'

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Seasonal influenza is one of the principal causes of vaccine-preventable disease with up to 500,000 deaths per year worldwide (Thompson et al., 2003). Annual influenza vaccination is the most effective method for preventing influenza virus infection and its complications (Cox and Subbarao, 1999) and has been reported to prevent influenza-related respiratory tract infection by 56%, pneumonia by 53%, hospitalization by 50%, and mortality by 68% (Gross et al., 1995).

Unvaccinated health care workers (HCWs) are the main source of nosocomial influenza (Maltezou and Drancourt, 2003) with health care personnel being responsible for up to 50% cases of acute respiratory illness recorded within the hospital during an influenza season in Japan (Kawana et al., 2006). HCWs may be infected in their workplace or may continue working while they are ill (Weingarten et al., 1989). Transmission of influenza from patients to HCWs (Kapila et al., 1977) from HCWs to patients (CDC, 1988) and amongst HCWs (Horman et al., 1986; CDC, 1992) has been plentifully documented in the medical literature. The possible consequences of infected HCWs include increased morbidity and mortality amongst patients at risk for contracting influenza and a high rate of 'sickness-absenteeism' amongst the workers themselves resulting in shortage of staff, additional cost to the health care sector and a general taxing of the health care delivery. Sickness absenteeism singly reaches proportions of 30-40% (Hammond and Cheang, 1984; Hansen et al., 2007; Sartor et al., 2002) during influenza outbreaks resulting in a severe compromise in functioning of the health care delivery system. Unvaccinated HCWs, paradoxically transmit influenza through asymptomatic shedding and by the cultural pressure to present for work when ill ('presentee-ism') (Tosh et al., 2009). Influenza vaccination of HCWs has been associated with reduced work absenteeism (Elder et al., 1993) and with fewer deaths among nursing home patients (Carman et al., 2000; Potter et al., 1997; Hayward et al., 2006) and elderly hospitalized patients (Thomas et al., 2006). Given the annual burden of nosocomial influenza as well as the benefits of HCW vaccination, the Center for Disease Control and Prevention, (CDC, USA) has recommended influenza vaccination of HCWs since 1960s and the current guidelines for influenza vaccination recommend routine vaccination for all HCWs (CDC, 2010). In times of vaccine shortage they constitute the most important group to whom vaccinations must be administered. The rationale of annual vaccination of HCWs is to limit the exposure to influenza of elderly persons and high risk patients, as they are the ones to use the health care system most frequently and their vaccination has limited effect. Vaccination is recommended for all personnel employed in health-care facilities with or without a health-care occupation, including permanent, casual and contract staff (Russel and Henderson, 2003).

However, despite strong, clear and emphatic recommendations in favor of a universal vaccination for HCWs the uptake rate rarely exceeds 40% and is reported to be low worldwide (Bertin et al., 2007; Fiore et al., 2007; Vaux et al., 2010). In the panic that accompanied the 2009 H1N1 influenza pandemic, an improvement of the uptake was noted with 64% of the HCWs receiving either the pandemic influenza A or the influenza vaccine, higher than any previous years but only 35% received both the vaccines (CDC, 2010). The response to vaccination in developing countries like India was even poorer, with dismal uptakes of the twin vaccination. Factors associated with a higher rate of influenza vaccination among HCWs include older age, being a hospital employee, having employer-provided health-care insurance, having had pneumococcal or hepatitis B vaccination in the past, or having visited a health-care professional during the preceding year. HCWs who decline vaccination indicate a variety of reasons for their response that include doubts about their risk for influenza and the need for vaccination, concern about vaccine effectiveness and side effects, and dislike for injections (Ofstead et al., 2010). Health care workers unfortunately continue with these fundamental misconceptions and unfounded fears about influenza and influenza vaccine despite more than four decades of data disproving these fears. However, these concerns are widespread, often anecdotal, emotional and not data driven (Poland et al., 2004). The problem assumes even greater dimensions in developing and resource poor countries where the infection control practices in health care delivery systems are suboptimal and those in the community are scant. Data on influenza burden in health care facilities as also in communities is sparse and there is a huge deficit of knowledge about vaccine

indications, effectiveness, side effects and severity of the disease as such. Influenza vaccine uptake in HCWs rates are abysmally low and in some areas approach as low as 5%

Trivalent inactivated influenza vaccine (TIV) has a 70-90% efficacy in healthy adults below 65 years of age, a category into which nearly all the HCWs fit. Vaccination is associated with less influenza, cumulative days of Influenza like illness and cumulative days of absenteeism from work (CDC, 2010; Bertin et al., 2007; Van der Wouden et al., 2005; Chan, 2007;Dunais, 2006; Wilde et al., 1999). While similar results have been shown with live attenuated influenza vaccine (LAIV), it is contraindicated in HCWs in close proximity with severely immunocompromised patients (CDC, 2010; Nichol et al., 2003) It has been estimated that nearly 80% of the health care workers must be vaccinated in order to achieve herd immunity within the health care facilities (Maltezou, 2008). Healthy HCWs and those who are not contacts of severely immunocompromised persons living in a protected environment should receive either LAIV or TIV whereas others, including pregnant women, should receive TIV (CDC, 2010).

Health care workers who should be vaccinated include physicians, nurses, and other workers in both hospital and outpatient-care settings, medical emergency-response workers (e.g., paramedics and emergency medical technicians), employees of nursing home and long-term-care facilities who have contact with patients or residents, and students in these professions who will have contact with patients (CDC, 2010; Poland et al., 2005; Talbot et al., 2005). The goal of coverage of the influenza vaccination should be of 100% of employees who do not have medical contraindications. Health-care administrators must consider the level of vaccination coverage among HCWs to be one measure of a patient safety quality program and consider obtaining signed declinations from personnel who decline influenza vaccination for reasons other than medical contraindications (CDC, 2010; Polgreen et al., 2008; Polgreen et al., 2008a). Influenza vaccination rates among HCWs within facilities must be measured regularly and monitored (CDC, 2010). An incentive for vaccination, an intensified advertising campaign, and offering a choice of influenza vaccines have been shown to improve vaccination rates in the workplace (Nowalk et al., 2010; CDC, 2005). A mandatory influenza vaccination policy for HCWs, exempting only those with a medical contraindication, has also been demonstrated to be a highly effective approach to achieving high vaccine coverage (Ajenjo et al., 2010; Pavia, 2010; Babcock et al.,2010). Hospitals and health-care systems that have mandated vaccination of HCWs often have achieved coverage rates of >90%, and persons refusing vaccination who do not have a medical contraindication have been required to wear a surgical mask during influenza season in some programs (Babcock et al., 2010). Worker objections, including legal challenges, are an important consideration for facilities considering mandates (Parmet, 2010) and need to be handled according to local laws and practices. Some states in the US have enacted laws that require HCWs to either receive influenza vaccination or indicate a religious, medical or a philosophic reason for declining vaccination (CDC, 2010). Similar initiatives need to be carved for vaccination of healthcare workers in the developing and resource poor countries where strategies for uniform vaccination of HCWs need to be promoted through aggressive campaigns, mandating and even linking accreditation, by appropriate authorities, of the healthcare facilities to the rate of influenza vaccination of the HCWs in that facility. Measures focusing on education, contestation of fear, amelioration of misconceptions, solution of financial issues, constitution of a registry system, and tracking of vaccination (Naz et al., 2009) are the desperate need of the hour. HCWs need to ensure to do no harm first and then proceed with the management of the sick attending their facilities. The sooner we arise from the deep slumber we are in, the better.

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