Influenza immunisation: knowledge and actions taken by UK HIV positive adults

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Influenza is an important cause of respiratory illness in the general population and is responsible for exacerbations of pre-existing respiratory diseases (which are more common in those living with HIV)(1, 2). Current evidence suggests that individuals with HIV who are not using antiretroviral therapy (ART) have a higher rate of complications associated with influenza and an increased duration and severity of illness - though the extent to which ART reduces this is uncertain (3, 4).

The Trivalent Inactivated Influenza Vaccine (TIV) is effective in preventing influenza in individuals with HIV (5). It is recommended for all HIV-positive patients in the UK with a target of 95% coverage, although uptake may be suboptimal (6-13). There are limited data regarding rates of immunisation in the UK HIV positive population, or health beliefs concerning influenza immunisation which may influence health-seeking behaviour. Here we report data from a large metropolitan HIV service regarding use and health beliefs surrounding influenza immunisation in people living with HIV infection.

We conducted a cross-sectional study of HIV-positive adults presenting for routine care at an HIV care service in London, UK between September and December 2014. Individuals attending for routine clinic appointments during the study period were invited to complete an anonymous questionnaire which detailed demographics; ART use; influenza immunisation in the previous year and intentions regarding immunisation in the 2014-15 season. For those who had not been vaccinated, the reasons underlying this decision were sought. Questions explored participant's knowledge regarding the efficacy of the influenza vaccine and the clinical course of influenza in HIV-infected individuals.

Two hundred and fifty three individuals completed the questionnaire between October and December 2014. 195 participants were male (83% of those reporting their gender), 39 female and 19 did not state their gender; 177 (70%) were White, 47 (18.6%) Black African or Black Caribbean and 89% were using ART. The median age of study participants was in the 55-64 age category compared to a median age in the total clinic population of 47 years (IQR 41-53 years).

One hundred and sixty three respondents (64%; 95% CI 58% to 70%) had or planned to have influenza immunisation in 2014 - 15 and 171 participants (68%; 61% to 73%) recalled immunisation in 2013-14. Of these, 68 (40%) reported that this was given in GP practices and 56 (33%) in HIV care services - with the remainder provided by pharmacies, supermarkets and workplaces.

Immunisation rates were lower in younger patients, with 157 of 223 (70%) above the age of 45 reporting immunisation in the 2013-14 season compared to 14 of 30 (47%) younger participants (p=0.018). 34 of 39 women (87%) reported immunisation compared to 65% of men (127 of 195, p=0.025). There was no significant difference between White and Non-White ethnic groups. The use of ART was associated with a higher rate of immunisation uptake (70% vs 43% p= 0.01) although only 21 participants were not using ART.

Amongst 65 participants stating that they had not been immunised in 2013-14, reasons given were as follows: 16 (25%) didn't think they needed immunisation, 15 (23%) reported concern about adverse events and 14 (22%) that they hadn't considered it. Only 3 participants indicated that they had not been immunised because this wasn't easily available.

Survey responses suggested a good level of knowledge regarding influenza immunisation: 130 (51%) respondents agreed with the statement "Flu is more severe in people with HIV" and 88 (35%) thought that influenza immunisation this year would give some protection against influenza next year. One hundred and seven (42%) of respondents disagreed with the statement that immunisation "means I can't catch flu at all this year". Only 23 (9%) thought that influenza immunisation would "make me feel terrible".

Health beliefs appeared to influence immunisation rates (Table 1): 39% of those who agreed with the statement that "influenza immunisation will make me feel terrible" reported immunisation compared to 74% of those who disagreed (p= 0.003). Agreement with the statement that influenza immunisation would provide some protection against flu next year was also associated with a higher rate of immunisation (83% compared to 58%, p= 0.006). There was no significant difference in immunisation uptake between those who did or did not agree that influenza is more severe in those with HIV.

In summary, our study demonstrates a considerably lower uptake of influenza immunisation than the BHIVA guideline target of 95%. This was particularly marked in younger (<45 years) participants, amongst whom only 47% reported immunisation.

Limitations of this study include recruitment at a single study site during a single influenza season. The study population was slightly older than the UK HIV infected population as a whole. Data collection was anonymous and consequently self-reported immunisation rates could not be confirmed with health records. However, this approach may improve reporting of health beliefs although they may still be subject to social desirability bias, which could inflate the reported immunisation uptake (as this would be perceived as being the "right thing to do"(14). As individuals who declined to participate in this study might be expected to also have a lower rate of uptake of influenza immunisation, our reported uptake level could, if anything, be an over-estimate.

As this study assessed health beliefs amongst patients regarding influenza immunisation (and responses were anonymous) we are unable to assess the impact of the beliefs and practice of clinicians on immunisation uptake. Advice provided by clinicians to patients regarding immunisation may be a strong influence on behaviour, which is not assessed here.

Our study suggests that efforts to improve rates of influenza immunisation uptake amongst those with HIV infection should seek to increase awareness of the immunisation programme and address concerns regarding the perceived adverse effects of immunisation. That 52% of

those who had not been immunised reported that this was because they were not aware immunisation was recommended, or hadn't thought about it, suggests that strategies such as health education campaigns to increase awareness of the benefits of immunisation, or electronic prompts for clinicians within consultations or direct to service users may result in improved uptake (9).

1. Hayward AC, Fragaszy EB, Bermingham A, Wang L, Copas A, Edmunds WJ, et al. Comparative community burden and severity of seasonal and pandemic influenza: results of the Flu Watch cohort study. Lancet Respir Med. 2014;2(6):445-54.
2. Drummond MB, Kirk GD. HIV-associated obstructive lung diseases: insights and implications for the clinician. Lancet Respir Med. 2014.
3. Cohen C, Simonsen L, Sample J, Kang JW, Miller M, Madhi SA, et al. Influenza-related mortality among adults aged 25-54 years with AIDS in South Africa and the United States of America. Clin Infect Dis. 2012;55(7):996-1003.
4. Couch RB. Influenza, influenza virus vaccine, and human immunodeficiency virus infection. Clin Infect Dis. 1999;28(3):548-51.
5. Remschmidt C, Wichmann O, Harder T. Influenza vaccination in HIV-infected individuals: systematic review and assessment of quality of evidence related to vaccine efficacy, effectiveness and safety. Vaccine. 2014;32(43):5585-92.
6. Geretti AM, Brook G, Cameron C, Chadwick D, Heyderman RS, MacMahon E, et al. British HIV Association guidelines for immunization of HIV-infected adults 2008. HIV Med. 2008;9(10):795-848.
7. Fernandez-Ibieta M, Ramos-Amador JT, Aunon-Martin I. HIV-infected children vaccination coverage and safety in a Western European cohort: a retrospective study. Int J STD AIDS. 2007;18(5):351-3.
8. Durham MD, Buchacz K, Armon C, Patel P, Wood K, Brooks JT. Seasonal Influenza Vaccination Rates in the HIV Outpatient Study-United States, 1999-2013. Clin Infect Dis. 2015;60(6):976-7.
9. Stowers C, Healey L, O'Connor CC. Short message service broadcasting to improve the uptake of influenza vaccination in HIV-positive patients at a metropolitan sexual health clinic. Sex Health. 2014;11(6):590-1.
10. Lim PL, Tan J, Yusoff Y, Win MK, Chow A. Rates and predictors for influenza vaccine prescriptions among HIV-infected clinic patients in Singapore. Annals of the Academy of Medicine, Singapore. 2013;42(4):173-7.
11. Sorvillo FJ, Nahlen BL. Influenza immunization for HIV-infected persons in Los Angeles. Vaccine. 1995;13(4):377-80.
12. Montaner JS, Phillips P, Zala C, Craib KJ, O'Shaughnessy MV, Schechter MT. Adherence to guidelines for the prevention of HIV-related respiratory diseases. Eur Respir J. 1996;9(11):2318-22.
13. Gifford AL, McPhee SJ, Fordham D. Preventive care among HIV-positive patients in a general medicine practice. Am J Prev Med. 1994;10(1):5-9.
14. Adams SA, Matthews CE, Ebbeling CB, Moore CG, Cunningham JE, Fulton J, et al. The effect of social desirability and social approval on self-reports of physical activity. Am J Epidemiol. 2005;161(4):389-98.