virus T1 isolated in feces showed a 96.5% genetic similarity to Sabin 1 vaccine strain (a 3.5% genetic divergence in this region).

Conclusion: The occurrence of iVDPVs appears to be very rare; the majority of patients stopped excretion of the virus after a certain period or have died. The overriding factor for the emergence of all VDPVs is the same as for WPV circulation, i.e., low routine OPV coverage rates in children. Thus, a community can become susceptible to the emergence of all types of VDPV producing an impact in the public health of the population. New polio vaccination strategies should be considered to avoid future VDPV cases and to be aligned WHO endgame strategies.

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83.017

Influenza vaccine: Immunization rates, knowledge, attitudes and practice of health care workers in Iran in 2008/09

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Background: Influenza is an important cause of excessive morbidity and mortality each winter. Its short incubation period and efficient transmission from person to person makes influenza hazardous to the patients and staff in healthcare facilities. The aims of this study were to determine influenza vaccine coverage and evaluate the knowledge, attitudes and practice about influenza and vaccine.

Methods: This study was a cross-sectional survey that was performed between October 2008 and February 2009 in 139 health care workers (HCWs) of health deputy of Tehran University of medical science, Tehran, Iran. They received a self-administered questionnaire and then the research assistant waited to collect them.

Results: The response rate to the questionnaire was 96.5%. The influenza vaccination coverage for the 2008—2009 seasons was 66.9% (range, 45% to 62%). Most HCWs (80.6%) had received an influenza vaccination in the past, and 65.4% intended to receive vaccination in the future year. The main reason given for being immunized was effectiveness of influenza vaccine (51.4%). The main reason given for not being immunized was concerned about sideeffects (23.1%). The knowledge score for the 35 items ranged from 0 to 34 (mean 17.37). Mean knowledge scores differed between courses. There was no significant difference in mean knowledge scores between female and male ($P > 0.05$) None of independent variables included age, sex, marital status, having children aged)16 years and courses were significant predictors of taking influenza immunization.

Conclusion: In our study, despite high coverage rate of influenza vaccination in comparison with other studies, we would expect higher rate because of free vaccine availability and Centers for Disease Control and Prevention (CDC) recommendation among HCWs to increasing vaccination rates.

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83.018

Variable serological response to PPV in HIV-positive patients — A need to review pneumococcal boost-prime strategies?

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Background: International guidelines recommend 23-polyvalent polysaccharide pneumococcal vaccination (PPV) for HIV-positive patients with CD4 >200 cells/mm3. Historical data shows suboptimal response to vaccination in HIV-positive patients when measured by pneumococcal-specific IgG and vaccine serotype-specific IgG2. There is little data to support the efficacy of vaccination in consistently producing serological response, or assessing the role of conjugate vaccine in adults.

Methods: In a cross-sectional study, 82 random samples were taken from HIV-positive outpatients. The samples were assessed for pneumococcal IgG and IgG2. IgG2 levels >69 μg/L are considered good serological evidence of response in the absence of baseline titres with which to compare post-vaccination response. Demographic, vaccination and laboratory data was recorded. Results were analysed using Fisher's exact test and two-tailed p values with GraphPad InStat.

Results: Four patients were excluded with no prior history of pneumococcal vaccination, and two for incomplete data. The remaining 76 patients(M = 47, F = 29) were aged between 21 and 71 years (mean = 39.1yrs, SD 9.86) at the time of first vaccination. Twenty-six patients (34%) received booster. Sixty-one patients (80%) were taking ART at the time of sampling. Thirteen patients (17.1%) had vaccine serotype-specific IgG2 titre ''69 μg/L at the time of sampling. Achieving an IgG2 titre'' 69 μg/L was not associated with any of the measured variables — age < vs ''35 yrs at vaccination($p = 0.54$); male vs female sex($p = 0.54$); CD4 count <200 vs'' 200 cells/mm3 at first vaccination($p = 0.58$); CD4 count <350 vs >350 cells/mm3 at first vaccination($p = 1.00$); CD4 count <350 vs >350 cells/mm3 at time of sampling($p = 0.34$); ART at sampling time vs no ART($p = 1.00$); single vs boosted doses($p = 0.19$); <234 weeks (4, years) since vaccination vs ''234 weeks($p = 0.37$).

Conclusion: In the HAART era only a minority of patients show adequate levels of vaccine serotype-specific IgG2 regardless of time since vaccination or booster dosing. Although immunoglobulin measurements are a surrogate marker of immunity, there is no reliable predictor of whether a HIV-positive patient will mount adequate serological response to PPV. Further studies are needed to assess the nature of response to PPV, alternative conju-

gate prime-boosting strategies, and the cost-effectiveness of mass-vaccination programmes.

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83.019

The generation of immortalized human B-lymphocytes secreting neutralizing monoclonal antibodies against Dengue virus

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Background: Dengue is an important re-emerging disease affecting humans in more than 100 countries worldwide. Presently, over 2.5 billion people live in risk areas and 50 to 100 million people suffer from dengue fever (DF) each year. The World health Organization (WHO) estimates that currently 500,000 cases of Dengue Hemorrahagic Fever / Dengue Shock Syndrome (DHF/DSS) and more than 20,000 deaths occur per year. At the moment, there are no effective vaccines or drugs available to prevent or treat Dengue disease. Chimeric viruses, DNA, inactivated and subunit recombinant vaccines are also of interest but they are still in preclinical development. At present, vaccine may not be available for the next 3-5 years because the complex immune reactions that are involved in dengue immunopathogenesis needs further clarification. In this study, we propose a novel method of immortalizing and cloning Dengue virus specific B lymphocytes from convalescent patients secreting neutralizing antibodies. Upon which, DNA from these B lymphocytes were extracted and sequenced. Sequential cloning method was employed to clone in the variable light (VL) chain and variable heavy (VH) chain fragments into the IgG1 framework vector. This recombinant vector was transfected into suspension human embryonic kidney (HEK) 293 cells for transient expression of the dengue-neutralizing antibodies belonging to the various IgG subclasses. The antibodies isolated will prove useful tools for studying the immunology of Dengue virus infections and as possible future therapeutic reagents to prevent virus dissemination in infected individuals.

Methods: Ebv immortalization. ELISA. PRNT. Immunofluorescent Microscopy. Molecular Cloning. Antibody purification.

Results: Antibody generated.

Conclusion: Human antibody responses are important to resolve Dengue infections naturally and the best strategy is to isolate and produce the anti-dengue antibodies that resolve infections in human patients. These therapeutic antibodies are have predictable pharmacokinetics properties and display low toxicological risk. A research collaboration involving the National University of Singapore (NUS), Novartis Institute of Tropical Diseases, Singapore (NITD) and Defence Science National Laboratories, Singapore (DSO) aims to produce human monoclonal antibodies (mAb), that can efficiently neutralize the Dengue virus. Each antibody will be fully cloned and expressed recombinantly as IgG class.

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83.020

Factors Contributing to Uptake of the Publicly-funded HPV vaccine in Toronto

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Background: In August 2007 the Government of Ontario announced that, for the first time, it was offering the quadravalent HPV vaccine to grade 8 females in all Toronto schools beginning September 2007. Uptake of the vaccine in the 2007/2008 province-wide program was much lower than anticipated. The provincial HPV vaccination rate was 58% for the first dose, which was lower than other school-based vaccination programs. For a vaccine with such far-reaching impact on a woman's health, this is a disappointing and not well understood outcome. We assessed parental factors for and against the HPV vaccine.

Methods: A random sample of parents of grade 8 females in Toronto who were eligible for the publicly-funded HPV vaccine in the 2007-2008 academic session were asked to respond to questions regarding the HPV vaccine program in Toronto. We conducted telephone interviews and used standardized questionnaires to capture data. We conducted bivariate statistics to compare the responses of parents who allowed their daughters to be vaccinated against HPV with those of parents who did not. Multivariate logistic regression statistics was calculated with SPSS to identify the predictive factors that were significantly associated with HPV vaccine uptake.

Results: Of the 138 respondents, 75.4% had vaccinated their daughters. Concern over safety of the vaccine (27.3%) and inadequate information (21.2%) were the most commonly reported reasons given by parents to not allow their daughters to be vaccinated. Religious affiliation was not associated with a difference in parental decision to vaccinate. Parents whose daughters were vaccinated were more likely to agree with the importance of vaccination prior to sexual activity onset (OR=10.46, 95% CI: 1.72-63.59, $p<0.05$) than parents whose daughters were not vaccinated. Parents whose daughters were vaccinated were less likely to agree that vaccination would encourage earlier sexual activity (OR=0.14, 95% CI: 0.02-0.91, $p<0.05$) than parents who did not approve vaccination for their daughters.

Conclusion: Parents need more information about safety and efficacy of the vaccine. Parental attitudes towards the importance of vaccinating before becoming sexually active and how the vaccine relates to sexual activity were the most significant predictors of vaccine uptake. Future public health HPV vaccine campaigns must address these issues.

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