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## Disparities in Arkansas mandated immunization coverage among natural home and foster-care adolescents

Jerome Ngundue

Walden University, USA

**Statement of the Problem:** Pulaski County, Arkansas adolescent birth cohort (PCABC) reported immunization rates and uptake for routinely required recommended five vaccines for school entry (FVSE) were persistently low compared to United States (U.S.) average (CDC, 2012). Anecdotal evidence indicated vaccine coverage disparities among foster-care (FCA) and natural-home adolescents (NHA). Arkansas laws require five vaccines for school entry (FVSE) to prevent nine common childhood diseases. The study problem was that Pulaski County, Arkansas adolescent birth cohort (PCABC) immunization rates were low compared to U.S. adolescents for diphtheria- pertussis-tetanus, Hepatitis B, measles-mumps-rubella, poliomyelitis, and Varicella FVSE. This study examined the extent to which: PCABC immunization rates were significantly different from those estimated for US adolescents in 2006–2008; NHA and FCA immunization rates were different in 2003–2008; sociodemographic variables mediate associations between home of residence (HOR), NHA or FCA, and up to date (UTD) status for FVSE and; vaccination game theory (VGT) estimated deaths differ between individual-equilibrium and group-optimum behaviors.

**Methods:** The methodologies applied were direct standardization,  $\chi^2$ , multiple logistic regressions, and VGT to analyze PCABC retrospective secondary data from the Arkansas immunization registry.

**Results:** The results revealed that US adjusted UTD coverage rates for Hepatitis B, measles-mumps-rubella, and varicella were greater than those for PCABC. Race-adjusted FCA immunization rates were 120% higher than for NHA. Race mediated the association between HOR and UTD FVSE status, and African Americans had 80% greater odds of being UTD with FVSE compared to Caucasians. Group-optimum behavior was associated with fewer estimated deaths than individual equilibrium; thus, it is protective against disease outbreaks.

**Conclusions:** Positive social change may occur among the PCABC when healthcare providers include these results in communications with parents at FCA and NHA community health clinics. Parental vaccine acceptance for their children may increase vaccinations and improve PCABC health and wellness.

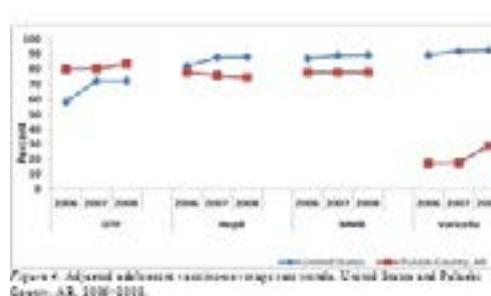


Figure 4: Adjusted adolescent vaccination coverage rates (percent). United States and Pulaski County, AR, 2006-2008.

### Biography

Jerome Ngundue is the Pandemic Influenza and Public Health Preparedness Planner at Arkansas Department of Health. He is also a Reviewer for Translational Research Grants at University of Arkansas Medical Sciences and conference abstracts for American Public Health Association, APHA. He serves on several advisory boards and committees. He has presented his papers at several international scientific conferences, United States National Immunization conference, workshops, and forums. His expertise and passion includes vaccine preventable diseases, population immunization, pandemic influenza preparedness, planning, and response. His research areas include "Community health, immunizations, and infectious diseases".

nesmakhealth@yahoo.com