

Access to Pediatric Audiological Evaluation Facilities for Infants and Young Children in the United States: Results from the EHDI-PALS System

Naveen K. Nagaraj, Emilee Mertens, Beula M. Magimairaj, Randi Winston Gerson, John Whicker, & Karl R. White

INTRODUCTION

EHDI - Pediatric Audiology Links to Services (EHDI-PALS) is a web-based national directory of pediatric audiology facilities in the United States, launched in October 2012. One of the goals of state EHDI programs is to ensure early identification of all children born with permanent hearing loss. According to the Centers for Disease Control (CDC, 2010) 2 to 3 out of every 1,000 children born in the United States have some degree of permanent hearing loss. Identification before the age of three months and initiation of intervention before six months of age leads to significant gains in the speech and language development of children who are deaf or hard of hearing.

We analyzed the information of each facility registered in the EHDI-PALS system as of September 18, 2019 to identify the number of diagnostic facilities by state that can provide recommended diagnostic hearing evaluations for young children.

LIMITATIONS

EHDI-PAL facilities are encouraged to update their data annually. Update dates range from 2012-2019. As a result, state ratio data may potentially be misrepresented. Facilities are being contacted with reminders to update data.

METHODS

EHDI-PALS data is collected using a facility survey consisting of 68-questions. Data used in the current study were based on the latest available information for 1,232 facilities.

The following survey data related to diagnostic testing and reporting categories were analyzed.

1. Number and type of registered facilities
2. Types of diagnostic services offered by the facility.
3. Number of children under 5 years of age diagnosed in the past year.

RESULTS

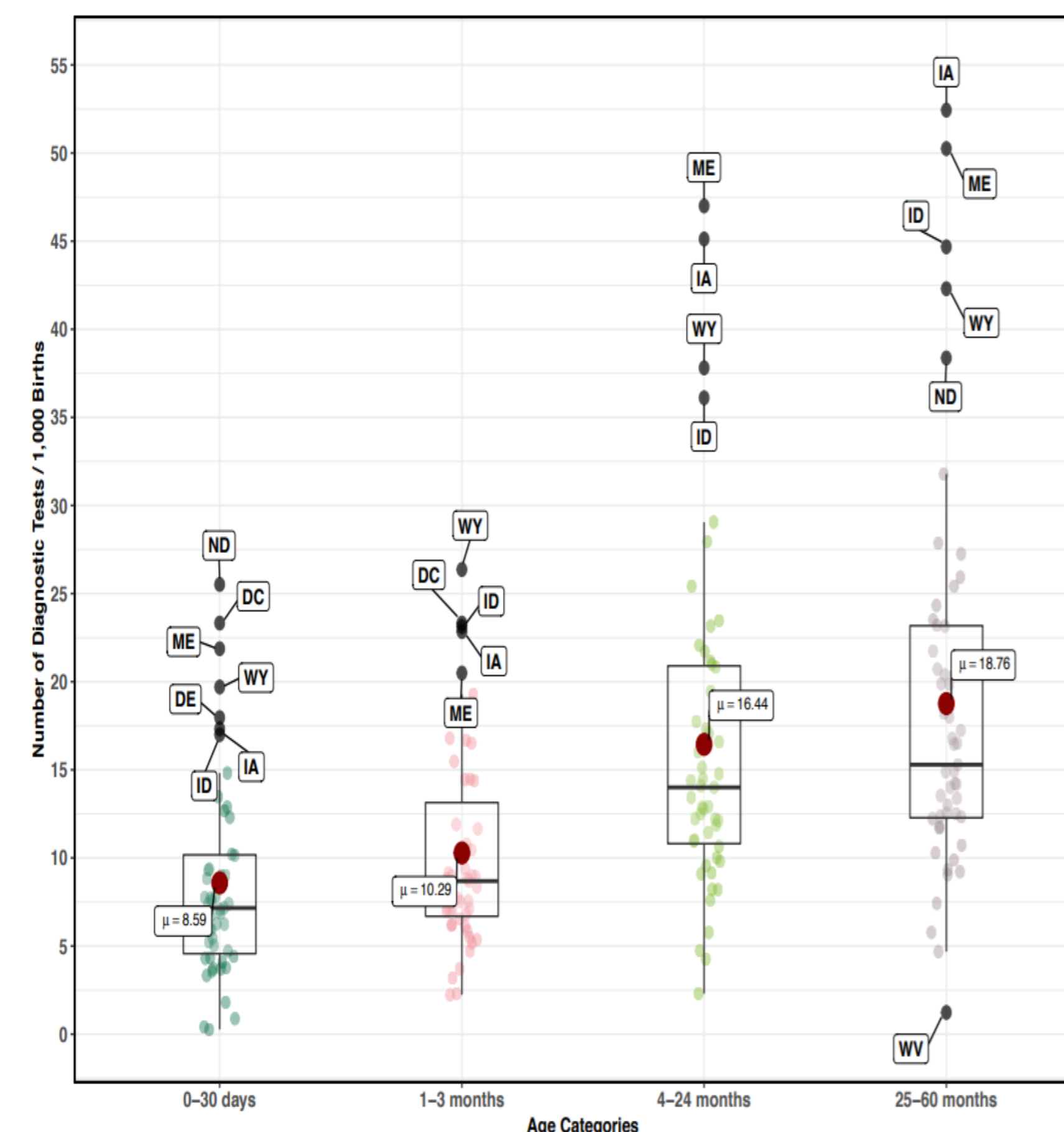
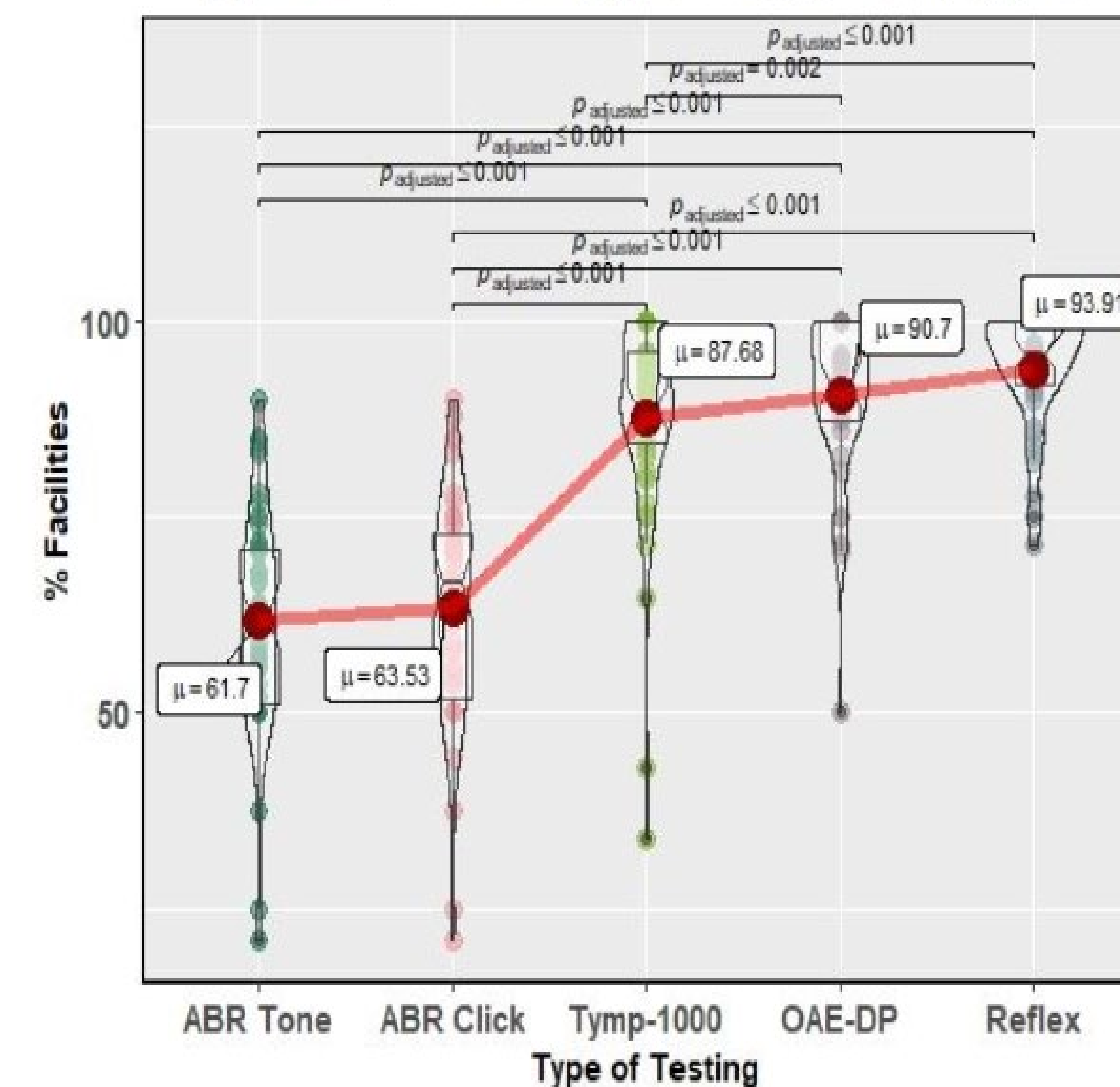


Figure 1. -Estimated average number of children reported as having diagnostic testing per 1,000 births in each state. Extreme data points in boxplots are labeled by state ID.

Tests: < Six Months Old
 $\chi^2(4) = 162.20, p < 0.001, W_{Kendall} = 0.45, CI_{95\%} [0.45, 0.70], n_{pairs} = 51$



Pairwise comparisons: Durbin-Conover test; Adjustment (p-value): Bonferroni

Figure 3- Statistical test details comparing differences in percentage of EHDIPALS facilities with diagnostic tests crucial for testing children under 6 months of age.

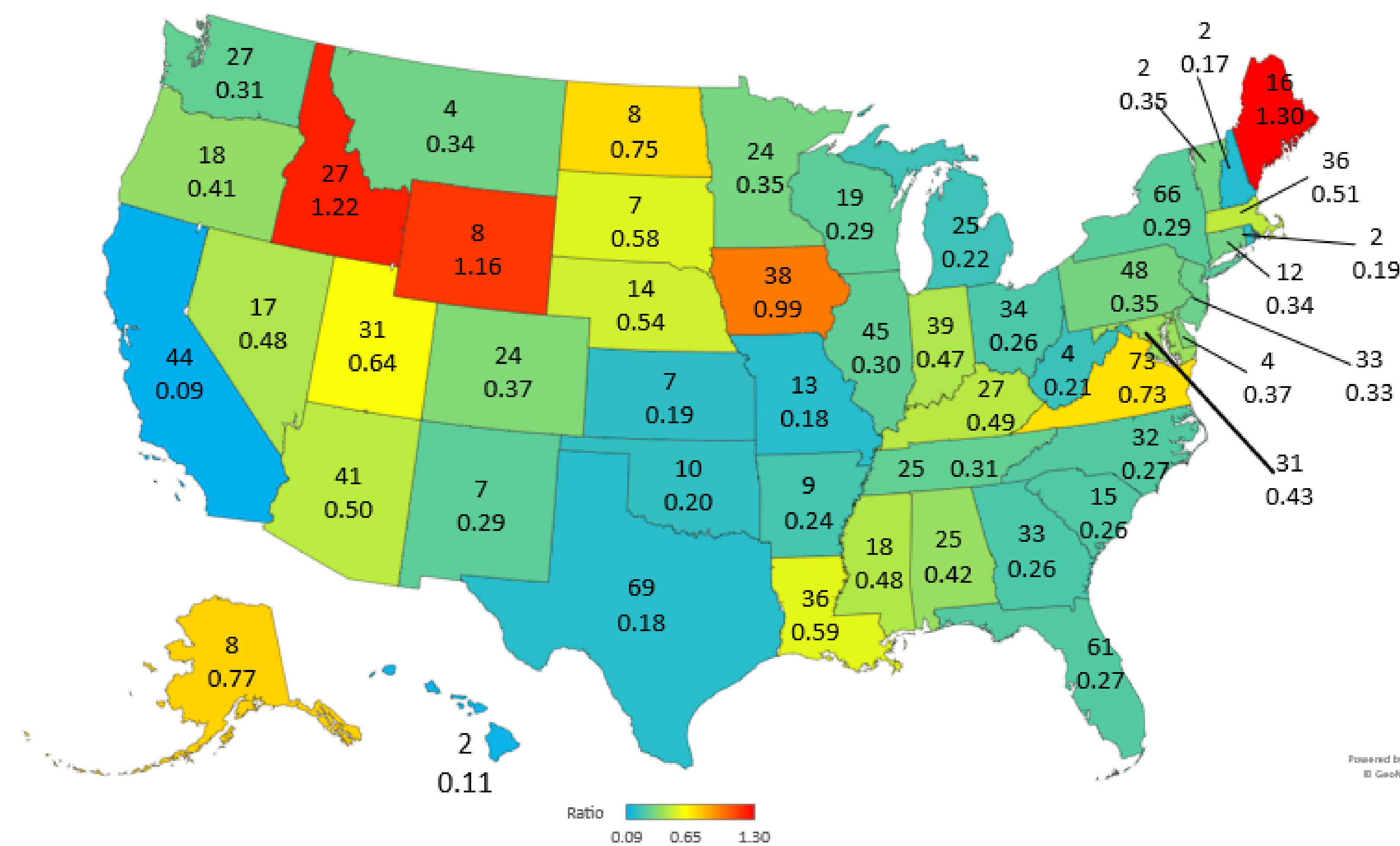


Figure 2- Ratio of number of registered EHDIPALS facilities in the United States per 1,000 births. State labels show the number of registered facilities in each state (top number) and the ratio of facilities per 1,000 births (bottom number).

CONCLUSIONS

Most facilities are well equipped to provide diagnostic audiology services to 7- to 60-month-olds. However, a significant number of facilities are not equipped to provide diagnostic audiology services to children in the birth to 6-month age range due to lack of access to ABR procedures. On average, 62% of facilities offer ABR testing which may be due to lack of equipment or lack of training.

More children receive a diagnostic evaluation at 25-60 months than earlier which may be due lack of access to ABR or low follow-up rate after failed newborn hearing screening. Pediatric audiology facilities need to update their EHDI-PALS profile so parents can find a facility to meet the needs of their child.

