

Evaluation of the Usability of the New York Early Hearing Detection and Intervention- Information System (NY EHDI-IS)

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Background and Purpose

- The New York Early Hearing Detection and Intervention- Information System (NY EHDI-IS) collects information related to hearing screenings, diagnostic testing, amplification, and referral to the local Early Intervention Program (EIP) for infants in New York State (NYS).
- The NY EHDI-IS acts as a repository of this information for health care providers and other stakeholders (e.g., birthing facilities, hospitals, audiologists, and early intervention programs) to use to ensure infants with hearing loss are identified and receive early intervention (EI) services as soon as possible and no later than six months of age.

Purpose

- To evaluate the usability of the NY EHDI-IS by focusing on perceived effectiveness, efficiency, and satisfaction with the system.
- To identify areas for improvement where the NY EHDI-IS does not meet the needs of the data reporters.

Methods

Data collection procedure: A survey was sent to 631 end-users who accessed the NY EHDI-IS at any point in 2021. End-users includes hospital-based newborn hearing screening programs, audiology practices, primary care practices, and others such as early intervention providers and County Health Department Early Intervention Programs.

Instrument: User's perception was measured by using a customizable health Information Technology Usability Evaluation Scale (ITUES) tool¹. The tool consisted of 22 items rated on a five-point Likert scale (Figure 1). A higher scale value indicates higher perceived usability of the NY EHDI-IS.

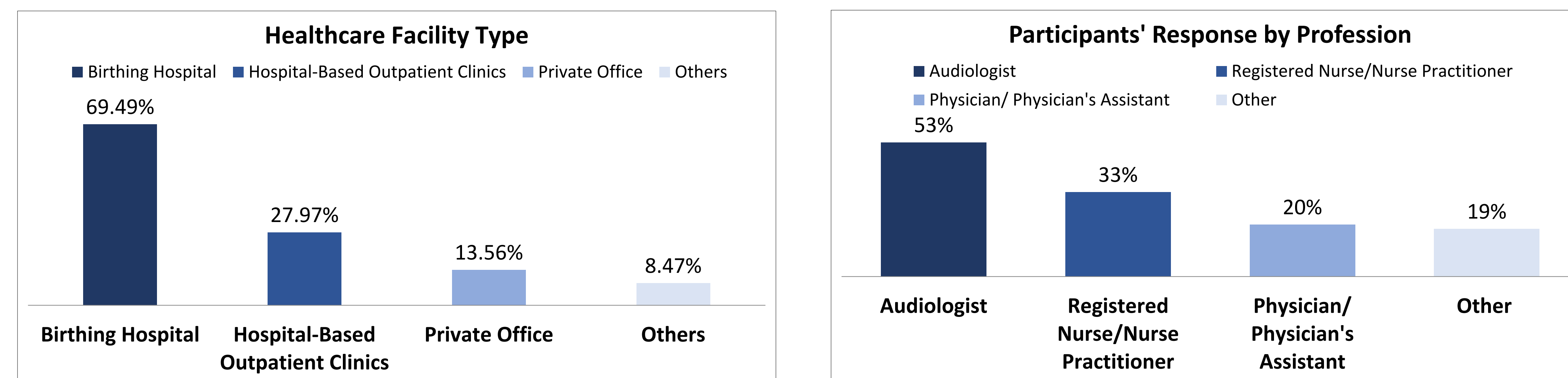
Indicator: User satisfaction captures user-system interaction, whereas perceived efficiency evaluates task accomplishment through system use, and effectiveness represents higher expectations of system impact. The overall Health-ITUES score was the mean of all the items with each item weighted equally.

Figure 1: The Health Information Technology Usability Evaluation Scale (ITUES)

Effectiveness
I am comfortable with my ability to use EHDI-IS
Learning to operate EHDI-IS is easy for me
It is easy for me to become skillful at using EHDI-IS
I find EHDI-IS easy to use
I can always remember how to log on to and use EHDI-IS
Whenever I make a mistake using EHDI-IS, I recover easily and quickly
Efficiency
Using EHDI-IS is useful for documenting diagnostic evaluations
Using EHDI-IS is useful for documenting referrals to Early Intervention
Using EHDI-IS enables me to document diagnostic evaluations more quickly
Using EHDI-IS enables me to document referrals to Early Intervention more quickly
I think EHDI-IS has been a positive addition to Audiology
I think EHDI-IS has been a positive addition to my practice or clinic
EHDI-IS is an important part of my role in documenting diagnostic evaluations
EHDI-IS is an important part of my role in documenting referrals to Early Intervention
Satisfaction
Using EHDI-IS makes it easier to document diagnostic evaluations
Using EHDI-IS makes it easier to document referrals to Early Intervention
Using EHDI-IS makes it more likely that I have access to hearing screening results
I am satisfied with EHDI-IS for documenting diagnostic evaluations
I am satisfied with EHDI-IS for documenting referrals to Early Intervention
I document diagnostic evaluations and Early Intervention referrals in a timely manner because of EHDI-IS
Using EHDI-IS increases my ability to document diagnostic evaluations
I am able to find prior hearing screening results whenever I use EHDI-IS

Findings

Figure 2: Participants' Response by Healthcare Facility Type and profession.



- A total of 118 users completed the survey (response rate = 19%). (Figure 2)
- The average usability scale score was 3.7 out of 5. (Table 1)
- For the subscales, the average usability rate for participants' perceived effectiveness, efficiency, and satisfaction was 79%, 71%, and 71%, respectively. (Table 1)
- On average, 3 of 4 participants reported satisfaction with using NY EHDI-IS to access hearing screening results. However, 23% of the participants perceived difficulties documenting diagnostic results; and 16% when entering Early Intervention referrals into NY EHDI-IS .
- Only 57% of the participants perceived documentation of diagnostic evaluations and Early Intervention referrals into NY EHDI-IS as an essential part of their role.

Table 1. Scale scores for the Health-ITUES subscales

Scale	Mean	Min	Max
Perceived Effectiveness	4.0	3.63	4.15
Perceived Efficiency	3.6	3.28	3.85
Perceived Satisfaction	3.5	3.35	3.97
Overall Health-ITUES score	3.7	3.4	4

Conclusions

These findings suggest that the NY EHDI-IS greatly influences perceived usefulness, perceived ease of use, and satisfaction. However, additional efforts are needed to enhance the usability of the NY EHDI-IS and improve tracking and surveillance activities. This includes providing additional training and technical assistance to NY EHDI-IS users with a focus on the requirements for reporting and documentation, accuracy and completeness of data, and timely reporting.

Limitation

- The response rate for the NY EHDI-IS Usability Evaluation Survey was 19%.
- 84% of the participants indicated using NY EHDI-IS for more than a year. However, the results may vary in users with low NY EHDI-IS competency.

References

1.Yen PY, Wantland D, Bakken S. Development of a Customizable Health IT Usability Evaluation Scale. AMIA Annu Symp Proc. 2010;2010:917-921. Published 2010 Nov 13