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INTRODUCTION

Among the 6,346 number of board-certified pediatricians nationwide, there are only 61 board-certified Neurodevelopmental and Developmental and Behavioral pediatricians in practice in the Philippines at the time of writing. With the Philippine population currently reported at 100 million and an estimated 1.5 million persons with disability in the pediatric age group, this highlight the shortage of medical professionals assigned to the care of children especially those suffering from a wide variety of developmental and behavioral conditions. Long waiting list for developmental evaluation by subspecialists is now a pressing concern and a call for a unified approach in checking and monitoring the development and behavior of the pediatric age group is in the forefront.

Developmental surveillance and screening practices of pediatricians in the Philippines prior to referral to subspecialists are unknown. Certified developmental pediatricians often report getting referrals for evaluation without a formal developmental screening done. Numerous Filipino children wait for a long time in line to be seen by a developmentalist without getting initial advice or interim intervention. This led us to the research questions: (1) What is the current rate of implementation of developmental surveillance and screening guidelines among pediatricians in the Philippines, and what are the barriers to their implementation? and (2) What are the referral practices and attitudes of pediatricians for children they identify with developmental problems?

OBJECTIVES

General Objective

To describe the present developmental surveillance and screening (DSS) guideline awareness and implementation and to identify barriers to and factors associated with implementation among Philippine pediatricians.

Specific Objectives

1. To describe the current guideline implementation on DSS among Filipino pediatricians.
2. To identify and address barriers to and factors associated with implementation of DSS guidelines by pediatricians in the Philippines.
3. To describe and determine variables related to referral practices and attitudes of pediatricians to subspecialists and intervention services for children identified to be at-risk for neurodevelopmental disorders.

METHODOLOGY

Study design:

Cross-sectional (electronic survey form).

Study population:

Philippine-based board-certified, non-retired pediatricians, currently providing care to Filipino children.

Sample size:

At least 362 participants.

All authors have declared no conflict of interest.

METHODOLOGY CONT'N

During the review of literature, the primary investigator came across the study of Lipkin, et al. entitled "Trends in Pediatricians' Developmental Screening: 2002-2016." It was based on the findings of the periodic survey conducted by the AAP with the primary researcher being Blake Sisk, PhD. The primary investigator of this study was able to get a copy of the AAP survey questionnaire and the Department of Research of AAP, thru Dr. Sisk, gave the permission to use the questionnaire and adapt it to our local setting. The survey instrument had 26 items and took about 15 - 20 minutes to complete. Survey had 5 parts containing 4 items on identification of children at risk for developmental problems and autism, 6 items on referrals for early intervention or other services, 3 items on management of children with developmental problems and autism, 1 item on resources for managing patients with developmental problems and autism, and 12 items on practice characteristics.



Statistical analysis software STATA 13 was used to carry out statistical procedures. Relationship between the *a priori* variables identified, and the assessment of the developmental surveillance and screening guideline awareness and implementation were examined using linear regression models. Confounding factors were identified *a priori* and were included in all models regardless of statistical significance. Odds ratio and confidence interval were computed to determine association.

RESULTS AND DISCUSSION

Pediatricians (N=397) who participated were mostly females (85%) with a mean age of 51.55 ± 9.98 years old. Majority used clinical screening or non-standardized methods to identify children at-risk. About 28% used standardized screening tools with PEDS and M-CHAT as most widely used.

Use of formal (standardized) screening instrument to identify children from birth through 35 months of age at risk for either developmental delay or autism.



While majority of pediatricians through the study affirm the practice of developmental surveillance and screening, very few actually do so using standardized methods from birth through 35 months of age, despite recommendations. Current guidelines for the use of formal developmental screening tools as published in the Philippine Pediatric Society (PPS) Preventive Health Care Handbook did not seem to widely affect practice of Filipino pediatricians to formally identify those at risk, which may imply continuously low rates of identification and missed opportunities for early intervention, especially during the early period of brain development when children may be most sensitive to these.

RESULTS AND DISCUSSION CONT'N

Time limitations in practice, and lack in confidence, formal training, and medical staff to perform screening, are main barriers to standardized screening. These same factors were also the most frequently mentioned barriers to screening in previous studies in the US which directed them to form new policy statement, improve clinical algorithm for developmental surveillance and screening, and conduct more formal trainings not only for pediatricians but also for medical or clinical staff, that eventually contributed to a trend toward increased formal developmental screening of children in their country.

Our data showed a statistically significant association between screening of patients for developmental delays or autism and the different demographic factors of the pediatricians such as age, sex, number of years since pediatric residency completion, and location of pediatric residency.

The association between likelihood of pediatricians to screen and the age of around 50 years old as well as the pediatric residency completion of around 10 years ago is noteworthy. Those who are around age 50 at this time are the ones trained when the Philippine Society for Developmental and Behavioral Pediatrics (PSDBP) was established in 2000 wherein they spearheaded various lectures and conventions to increase awareness among colleagues regarding developmental and behavioral problems along with the importance of developmental surveillance and screening in the identification of children at risk for developmental problems or conditions. Those who graduated from pediatric residency 10 years ago and below were the ones who benefited from the added exposure to neurodevelopmental disorders due to rising cases encountered during pediatric residency as well as the increasing presence and availability of developmental pediatricians in training institutions and practice all over the archipelago. It was also during the last 10 years that formal training for the use of standardized screening tools such as the PEDS and MCHAT, including introduction of their standardized versions in the vernacular, were rolled out by the PSDBP to practicing pediatricians and residents in training. This development suggests that with the imposition of proper training and availability of standard screening materials, the practice and benefits of surveillance and developmental screening can increase. It can also widen the scope of identification and proper referral towards early detection of those at risk and continuous monitoring for problems, even before symptoms become overt. As to the location of pediatric residency, those who graduated from training hospitals in the Visayas are noted to be twice more likely to incorporate developmental screening in practice compared to those who graduated from hospitals in the NCR. Bearing in mind the barriers identified by respondents, a fast-paced work environment and a higher volume of patients in the NCR may have contributed to this difference.

CONCLUSION

Only one third of pediatricians use standardized screening tools resulting to late identification and referral for intervention of children with developmental concerns. Periodic use of standardized screening tools in pediatric practice must be imposed as it is a key component of essential childcare. PPS guidelines on developmental surveillance and screening must be revisited to form new policies and improve clinical algorithms to achieve universal screening and optimize developmental trajectories for children with delays in the Philippines.