THE EFFECTIVENESS OF PRESCHOOL SCREENING
AT IDENTIFYING FUTURE SPECIAL EDUCATION PLACEMENT

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BACKGROUND

Early identification has become recognized nationwide as a necessary tool in providing the most effective treatment and intervention services to children with disabilities. While the effectiveness of early intervention programs has received a good deal of attention (see Castro & Mastropieri, 1986 for a meta-analysis), much less attention has been paid to the efficacy of preschool screening programs. Due to the paucity of research, preschool screening programs must rely on the documented benefits of early childhood intervention programs for continued governmental support (Thurlow & Gilman, 1999). Although effective intervention programs are necessary to justify the existence of screening programs, screening programs also need to be independently validated in order to assure their continued support.

The majority of the extant research on preschool screening concerns the concurrent or predictive validity of individual screening instruments. Relatively few studies have examined the relation between preschool screening results and later school performance (Drillien, Pickering, & Drummond, 1988; Meisels, Wiske, & Tivnan, 1984; Thurlow & Gilman, 1999), even though one of the fundamental purposes of developmental screening is the ability to accurately identify children who will have future problems in school (Lichtenstein & Ireton, 1984; Meisels et al., 1984).

The ability of screening results to predict the need for special education later in elementary school has been supported by some studies (Kochanek & Hennen, 1988; Meisels et al., 1984; Miller, 1988), but not by others (Stone, Gridley, & Treloar, 1992). The present study contributes to this important area of research by utilizing integrated statewide datasets to examine the efficacy of the preschool screening program used in the State of Florida to identify children with disabilities.

METHODS

Database Integration

For the purposes of the present study, data from Florida Department of Health birth certificate records and Florida Department of Education public school records (academic year 2001-2002) were integrated with the Children's Registry and Information System (CHRIS). CHRIS is a statewide database developed in 1990 in response to the need to track children who receive services under IDEA, Part B. The CHRIS database contains referral, screening, evaluation, and eligibility information for preschool children throughout Florida. Additional information about CHRIS may be obtained from the CHRIS website at www.chris.miami.edu.

The integration of data sets was accomplished using deterministic data linkage techniques whereby a child's unique record was identified in multiple databases and joined across data sets to establish one record. Records were linked based on an exact match of a child's last name, first name, and date of birth. If any of the matching variables differed, the pair was considered a non-match and was not included in the linked sample.

Sample

The sample consisted of 11,384 children (7,178 boys) who were born in Florida, were screened for a disability when they were 3 or 4 years-old, and attended 3rd, 4th, or 5th grade at a Florida public school during the 2001-2002 academic year.

Children were categorized into three groups based on the outcome of the preschool screening and their preschool disability status.
- **PND (Passed Screening/No Disability):** Children who passed the preschool screening and did not receive further evaluation (n = 5,037).
- **FND (Failed Screening/No Disability):** Children who failed the preschool screening, received further evaluation, and were determined ineligible for special education services as the result of a staffing (n = 929).
- **FD (Failed Screening/Disability):** Children who failed the preschool screening, received further evaluation, and were determined eligible for special education services as the result of a staffing (n = 5,418).

Outcome disability status at 3rd, 4th, or 5th grade was determined from the Florida public school record database for children in the PND, FND, and FD groups as well as for the entire public school population.

RESULTS

The proportion of children with a disability at outcome was 17.2% for the entire public school population, 17.9% for the PND group, 37.6% for the FND group, and 65.0% for the FD group. The majority of children in the PND and FND groups who had an identified outcome disability had specific learning disability (46.1% and 37.0%, respectively) or speech/language impairment (26.6% and 31.5%, respectively). Of the children in the FD group who did not have a disability at outcome, 73.6% were identified with speech/language impairment as preschoolers. These data are summarized in Tables 1 and 2 are presented graphically in Figure 1.
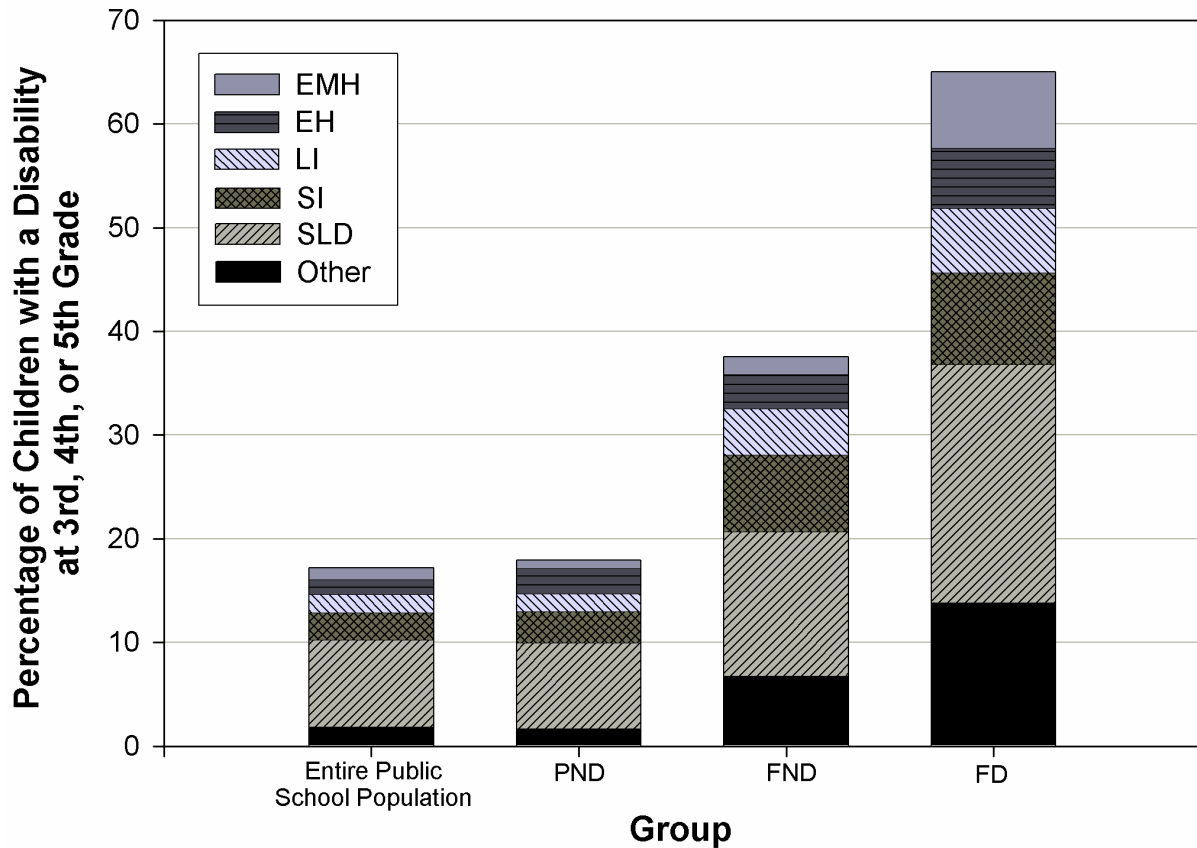

Figure 1:   Distribution of Disability Outcome by Group.

Table 1: Percentage of Children in the Public School Population, PND, FND, and FD Groups for Each Outcome Disability Category.

Outcome Disability	Population (n = 656,023)	PND (n = 5,037)	FND (n = 929)	FD (n = 5,418)
None	82.8	82.1	62.4	35.0
EMH	1.2	0.8	1.7	7.3
EH	1.4	2.4	3.3	5.8
LI	1.7	1.7	4.4	6.2
SI	2.7	3.1	7.4	8.8
SLD	8.4	8.3	13.9	23.0
Other	1.9	1.7	6.8	13.8

Table 2: Distribution of Preschool Disability by Outcome Disability for Children in the FD Group.

Preschool Disability	None	EMH	TMH/PMH	EH	SED	LI	SI	SLD	AT	Other	Total
DD	294	160	24	74	18	76	42	346	56	51	1141
EMH	18	135	29	6	2	12	3	35	7	3	250
TMH/PMH	5	8	58	0	1	1	0	1	11	4	89
EH	31	1	0	101	26	1	1	16	9	1	187
SED	15	2	0	20	15	0	0	3	3	1	59
SI and/or LI	1394	62	6	90	20	226	418	550	24	70	2860
SLD	104	25	2	21	7	17	8	276	13	10	483
AT	7	1	2	0	1	1	0	5	120	2	139
Other	26	4	10	4	3	3	6	14	3	137	210
Total	1894	398	131	316	93	337	478	1246	246	279	5418

This study revealed an overall sensitivity of 86.5% and specificity of 87.7% for the identification of children eligible for special education services, either as preschoolers or at 3rd, 4th, or 5th grade outcome (see Table 3).

Table 3: Classification Accuracy

	Regular Education (Preschool and Outcome)	Special Education (Preschool or Outcome)
Passed Preschool Screening	4134	903
Failed Preschool Screening	580	5767

True Positives (TP) = 5767
True Negatives (TN) = 4134
False Positives (FP) = 580
False Negatives (FN) = 903
Sensitivity (TP/(TP+FN)) = 86.5%
Specificity (TN/(TN+FP)) = 87.7%

CONCLUSIONS

The screening program used throughout the State of Florida is doing an effective job of identifying children who need special education services. The vast majority of children who passed the screening given at age 3 or 4 years did not require future special education services. Efforts to improve early identification should focus on preschool children who failed the screening but whom, following a staffing, were not identified with a disability. Over one-third of these children were enrolled in special education later in elementary school.

Early identification and service provision most likely played an integral role in the shift from special to regular education for the 35% of children who were identified with a disability as preschoolers but not at outcome.

PUBLIC HEALTH IMPLICATIONS

Identification of the problem areas in the early identification of children with disabilities is essential for targeted improvements in the system. The present study supports the use of screenings to identify children at risk for disabilities and identifies a group of children that should be the focus of system improvements. Accurate early identification of children with disabilities and subsequent early intervention will minimize associated negative effects and improve child outcomes.

DISABILITY ABBREVIATIONS

DD – Developmentally Delayed
EMH – Educable Mentally Handicapped
TMH – Trainable Mentally Handicapped
PMH – Profoundly Mentally Handicapped
EH – Emotionally Handicapped
SED – Severely Emotionally Disturbed
SI – Speech Impaired
LI – Language Impaired
SLD – Specific Learning Disabled
AT – Autistic
Other – Hearing Impaired, Visually Impaired, Dual-Sensory Impaired, Orthopedically Impaired, Traumatic Brain Injured, Established Conditions, Hospital/Homebound, Other Health Impaired

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