



Targeting Parents with Concerns Increases Efficacy of Developmental Screening for 4 Month Old Infants

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Problem: Few infants receive services

- Individuals with Disabilities Education Improvement Act (IDEA) 1997, 2004 Part C; must find eligible children
 - Only 1.8% through age 2 years receive Part C Early Intervention services (Bailey et al 2004)
 - 12.8% documented health care need (birth through age 17) (van Dyck et al. 2004)
 - 30%-50% reach kindergarten without identification (Glascoe, 2003)
- Current screening strategies not successful:** Primary Barrier Physician Time: 83% Physicians cite time; 49% cite reimbursement for time (Sand et. al. 2005)
- Parent information tests used to address time: Ages and Stages Questionnaires (ASQ) used in office practice: did not meet standards of 70-80% sensitivity/specificity (Hix-Small et al. 2007)

Solution: Alternative model using non-physician professionals

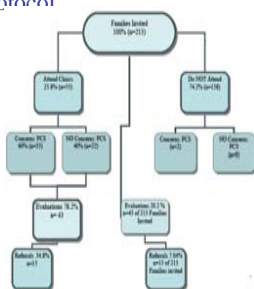


Purpose: Create an efficient child find protocol

- Screen fewer infants
- Refer more for evaluation

Method:

Subject Selection: 213 invited



Method: Invite, survey parents (step 1); screen (step 2)

Step One: Parent Concerns Survey (PCS) (Glascoe, 1997, 2002)



Step Two: Meade Movement Checklist (MMCL)

- ICC .82 (Boltjes, 2000)
- 90% agreement with standardized training
- Concurrent validity to MAI $r = .75$ $p = .0001$
- Predictive validity BSID II $r = .62$ $p = .0001$ (Meade, 1987)
- Standardized 447 Australian infants
- Normalization :998 Australian infants



Data Analysis: MMCL scores compared BSIDII, MAI and Ages at age 6months; ASQ at age 8 months.

- Determine efficacy;
- Positive predictive value PPV as best measure

Results I: Parents who choose to attend had significantly more concerns as measured on PCS. ($X^2=6.43$, $p=.011$)

	Sensitivity ^a , specificity ^b as measured by parent concerns and parent choice to attend clinics (Group 1 and Group 2)		Total
	# of Parents Attending Clinic	# of Parents not Attending Clinic	
# Parents concerned	33	2	35
# Parents not concerned	22	9	31
Total	55	11	66
^a Sensitivity:	33/55= 60.0%		
^b Specificity:	9/11= 81.0%		
^c Positive Predictive Value	33/35= 94.2%		
^d Negative Predictive Value	9/31= 27.2%		

Results II: Targeting infants increased PPV from 32% Sensitivity^a, specificity^b of MMCL and BSID PDI to optimal 70%

MMCL	PDI of BSID > 1.0 SD below mean	PDI of BSID within 1SD of mean	Total
MMCL > 6 risk points	7	3	10
MMCL 6 or less risk points	1	32	33
Total	8	35	43

^aSensitivity = 7/8 = 87.5 %
^bSpecificity = 32/35 = 91.4 %
^cPositive Predictive Value 7/10 = 70.0 %
^dNegative Predictive Value 32/33= 96.9%

Results III: Significant correlations between MMCL support use as step two: MMCL to MAI ($r=.58$; $p=.01$); to BSID II ($r=-.48$; $p=.01$).

Results IV: 27.7% (n=15) infants referred for evaluation

-34 were 'risk positive' but 19 risk + scored as NORMAL.

Conclusions: Target and combine two tests to create an efficient model as recommended (Portney and Watkins, 2000)

- Targeted infants whose parents had concerns
- Combined two tests resulted in an efficient model (PPV 70%)
- Excluded almost 75% of the well baby population from screening
- Saved physicians valuable office time for those needing further evaluation
- Answered parent questions when problem small: 61% were feeding

What this study adds: BUILD IT AND THEY WILL COME
 Implementation could revolutionize infant screening protocols

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