



ISSUE
PAPER

OVERVIEW DOCUMENT:
PREVENTION OF DISPROPORTIONATE
SPECIAL EDUCATION REPRESENTATION
USING RESPONSE TO INTERVENTION



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General and Special Education**

Overview Document:

**Prevention of Disproportionate Special
Education Representation Using
Response to Intervention**

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Introduction

Disproportionate special education representation exists when one or more groups participate in special education at levels significantly above or below their actual representation in the general population. Disproportionate representation exists in many educational programs and outcomes including Title I compensatory education, Head Start, below-basic levels of achievement on the National Assessment of Educational Progress (NAEP), and high school completion. This paper addresses the phenomenon of special education disproportionality and the implementation of prevention through response-to-intervention processes and decision making.

Legal Requirements

For a number of reasons, more scrutiny, litigation, and legislation were devoted to special education than to other kinds of disproportionality over the last 30 years (Reschly & Bersoff, 1999). The rich history of litigation and legislation regarding special education disproportionality culminated in significant legal requirements in the reauthorizations of the Individuals with Disabilities Education Act (IDEA) in 1997 and 2004. State education agencies (SEAs) and local education agencies (LEAs) must report special education representation by group across disability categories and special education placement options. The five groups officially defined by the U.S. Department of Education are Alaskan Native/American Indian, Asian/Pacific Islander, black, Hispanic, and white. If significant disproportionality by group exists, the state and local agencies must then review and perhaps revise policies, procedures, and practices regarding the identification and placement of students (IDEA, 2004, 20 USC 1400.618) and establish early intervening services by using 15 percent of IDEA monies in general education to prevent overidentification in special education (IDEA, 2004, 34 CFR 300.226). The latter requirement is especially important regarding the use of response-to-intervention processes and procedures to prevent disproportionality.

There are many unanswered questions in the disproportionality requirements. Among them are the following: (1) What statistic should be used? (Bollmer, Bethel, Garrison-Mogren, & Braun, 2007) (2) What level of disproportionality triggers a finding of *significant*, leading to scrutiny of policies, procedures, and practices and implementation of early intervening services? (3) What changes in policies, procedures, and practices are most likely to reduce significant disproportionality? (4) Are further sanctions contemplated if states and local districts go through the required steps and still have significant disproportionality?

Two National Research Council (NRC) Panels addressed special education disproportionality (Donovan & Cross, 2002; Heller, Holtzman, & Messick, 1982). Both panels asked why special education disproportionality is a problem in view of the normally desirable characteristics of education programs represented in special education. Some examples of these “normally desirable characteristics” are lower student-to-teacher ratio, individual diagnosis of learning and behavior problems, individualized educational planning and programming, and annual reviews of progress. Both panels formulated similar answers: Disproportionality is a problem if individuals in a group experience misidentification of educational performance as a disability, stigma from special educational categorical designations (especially mental retardation), limited educational opportunities due to restricted curricular offerings in special education, or limited career opportunities as a result of special education identification and placement.

Many potential solutions to special education disproportionality were attempted and failed over the last 30 years including making certain special education classification criteria more stringent (e.g., mental retardation), formulation and implementation of differing conceptions of nonbiased assessments (Reschly & Bersoff, 1999; Reynolds, Lowe, & Saenz, 1999), admonishments to teachers to adopt more culturally sensitive curricula and instructional practices, and scrutiny of the characteristics of minority children in special education. Despite these efforts, special education disproportionality has only improved slightly since 1970 (Donovan & Cross, 2002; *Minority Special Education Disproportionality*, 2007).

The history of failed efforts to reduce special education disproportionality led the most recent NRC Panel (Donovan & Cross, 2002) to this overriding conclusion: “There is substantial evidence with regard to both behavior and achievement that early identification and intervention is more effective than later identification and intervention” (p. 5).

Based on this conclusion, the 2002 NRC report strongly recommended that more attention be paid to what happens *before* children are referred to special education because previous efforts to resolve the problem through alternative assessments and other interventions *after* referral were ineffective. The 2002 NRC report strongly endorsed multitiered interventions as a means to prevent referral to special education through improved results in general education and effective early identification and early treatment of learning and behavior problems. The multitiered interventions discussed in the 2002 report are typically described as implementing response-to-intervention (RTI) processes and decision making at multiple levels. RTI, prevention of disability identification, and improvement of current patterns of disproportionality are described in a later section of this paper. First, some basic information is needed to understand the scope and nature of special education disproportionality.

Special Education Disproportionality Statistics and Misconceptions

Special education disproportionality has been well known at least since Dunn's (1968) polemical article in the flagship journal *Exceptional Children*. This article called attention to the overrepresentation of certain populations in special education programs for students with mild mental retardation, the dominant special education category in the late 1960s. Dunn's (1968) famous and often misstated assertion was:

In my judgment, about 60 to 80 percent of the pupils taught by these teachers are children from low status backgrounds—including Afro-Americans, American Indians, Mexicans, and Puerto Rican Americans; those from nonstandard English speaking, broken, disorganized, and inadequate homes; and children from other non-middle class environments (p. 6).

The following quotation from a recent article is an example of how Dunn's assertion has been misquoted, leading to significant misconceptions of special education disproportionality.

This issue was first brought to the forefront by Dunn (1968), who noted that 60% to 80% of the students being taught by teachers in mild mental retardation classes that year were minority students from low socioeconomic backgrounds. (Bollmer et al., 2007, p. 186)

Contrary to the misconception in the Bollmer et al. article, minority students are not now, nor have they ever been, anywhere close to 60 percent to 80 percent of the special education student population in any special education program or category. Many of the common misconceptions about disproportionality are clarified with a brief journey through special education prevalence statistics.

Disproportionality Statistics

Suppose the following item appeared in a national newspaper such as the *New York Times* or a specialized publication such as *Education Week*. Statements nearly identical to the following have appeared in such publications.

According to statistics compiled by the WESTAT Corporation through a contract with the U.S. Department of Education, Office of Special Education Programs, African-American students constituted approximately 15 percent of the overall student population but over 30 percent of the students in the special education category of mental retardation.

Here is a question: What proportion of African-American students in the United States are in special education under the category of mental retardation? Being a didactic sort, and from a long career as a college professor, I ask you to choose the best answer from the following choices regarding the proportion of African-American students in the category of mental retardation:

- | | | |
|-------|--------|--------|
| A. 1% | B. 2% | C. 4% |
| D. 8% | E. 16% | F. 32% |

If you chose the correct answer of 2 percent, you are in the minority of teachers, special education directors, school psychologists, doctoral students, and college professors who have responded to

this question over the last 20 years! The typical proportion of respondents answering this item correctly is at the chance level—yes, even among special education college professors and SEA and LEA special education directors. Clearly, there is confusion about disproportionality statistics that can lead to misconceptions that have two negative effects: (1) exaggerating the magnitude, making it seem impossible to resolve; and (2) creating egregious stereotypes of minority children, suggesting that a high percentage of them have a defect that prevents normal learning. Both are unfortunate misconceptions derived from confusing statistics.

Consider the actual national data for students ages 6–21 in the general population of students (see Table 1), students with disabilities across all special education disabilities (see Table 2), learning disabilities (Table 3), emotional disturbance (Table 4), mental retardation (Table 5), and other health impairment (Table 6). Four numbers are given in all tables except Table 1. First, the number (N) of students by group and total are given in each table. Second, the risk is reported in all tables except for the Estimated Population table where it is inappropriate. Next, the relative risk (Rel Risk) is reported. Finally, the composition (Comp) of the group is reported in the last column of the tables. Notes defining the statistics follow the tables.

Special Education Representation Tables

Table 1: 2006 Estimated Population		
<i>Population Age 6-21 By Group</i>		
Group	N	%
Am Ind	637,687	0.97
A-PI	2,766,281	4.2
Black	9,828,925	14.91
Hispanic	12,196,634	18.51
White	40,473,449	61.41
Total	65,902,976	100

Table 2: All Disabilities				
<i>2006 Age 6-21 By Group</i>				
Group	N	Risk	Rel Risk	Comp
Am/Ind	91,492	14.35%	1.59	1.53%
A-PI	131,099	4.74%	0.51	2.19%
Black	1,231,922	12.53%	1.48	20.60%
Hispanic	1,034,137	8.48%	0.92	17.27%
White	3,498,007	8.64%	1.13	58.43%
Total	5,986,657	9.08%		100.02%

Table 3: Learning Disabilities				
<i>2006 Age 6-21 By Group</i>				
Group	N	Risk	Rel Risk	Comp
Am/Ind	46,093	7.23%	1.81	1.74%
A-PI	45,065	1.63%	0.39	1.70%
Black	544,761	5.54%	1.47	20.52%
Hispanic	563,382	4.62%	1.19	21.22%
White	1,455,378	3.60%	0.76	54.82%
Total	2,654,679	4.03%		100.00%

Table 4: Emotional Disturbance				
<i>2006 Age 6-21 By Group</i>				
Group	N	Risk	Rel Risk	Comp
Am/Ind	7,159	1.12%	1.62	1.56%
A-PI	5,128	0.19%	0.26	1.12%
Black	131,773	1.34%	2.31	28.79%
Hispanic	50,756	0.42%	0.55	11.09%
White	262,917	0.65%	0.85	57.44%
Total	457,733	0.70%		100.00%

Table 5: Mental Retardation				
<i>2006 Age 6-21 By Group</i>				
Group	N	Risk	Rel Risk	Comp
Am/Ind	6,530	1.02%	1.32	1.28%
A-PI	10,758	0.39%	0.49	2.10%
Black	167,357	1.70%	2.78	32.75%
Hispanic	71,956	0.59%	0.72	14.08%
White	254,440	0.63%	0.62	49.79%
Total	511,041	0.77%		100.00%

Table 6: Other Health Impairment				
<i>2006 Age 6-21 By Group</i>				
Group	N	Risk	Rel Risk	Comp
Am Ind	7,426	1.12%	1.29	1.25%
A-PI	8,862	0.32%	0.34	1.49%
Black	103,456	1.05%	1.2	17.38%
Hispanic	58,631	0.48%	0.48	9.85%
White	416,698	1.03%	1.47	70.02%
Total	595,073	0.90%		99.99%

Note 1. Source of data is the *Data Accountability Center* website (U.S. Department of Education, Office of Special Education Programs, 2007).

Note 2. “N” refers to the number of students in various categories. “Am/Ind” refers to the American Indian group; “A-PI” refers to the Asian/Pacific Islander group.

Note 3. Risk statistics are calculated by determining the percentage of the total population that has a specific characteristic. Population totals always are used in the denominator. For example, in Table 5, the risk for mental retardation for white students is found by dividing 254,440 by 0.63 percent.

Note 4. The relative risk is found by comparing the risk for one group with the risk for the other groups except the target group. For example, in Table 4, the relative risk for black students in emotional disturbance is found by dividing the risk for the black students by the combined risk for all other groups except black students.

$$\frac{131,773}{(7,159 + 5,128 + 50,756 + 262,917)} \div \frac{9,828,925}{(637,687 + 2,766,281 + 12,196,634 + 40,773,449)} = 2.31$$

Note 5. Composition is the makeup of a group. The composition of the entire population of persons ages 6–21 is given in Table 1. For example, the composition of the population is 61.41 percent white, that is, 40,473,449 ÷ 65,902,976. The composition of emotional disturbance (see Table 4) is 28.79 percent black, found by dividing the number of black students in emotional disturbance (131,773) by the total number of students in the category (457,733). So, the risk of emotional disturbance for black students is 1.34 percent, and the composition of emotional disturbance is 28.79 percent black. The emotional disturbance composition figure of 28.79 percent black can be compared to the black composition of the overall population (14.91 percent).

The presentation of the composition statistic without also presenting the risk statistic typically leads to an unfortunate misconception that a large proportion, perhaps even a majority, of minority students are placed in special education. Risk and composition must be differentiated in our thinking. Consider this example: In the overall prison population over age 18, two thirds are men (Warren, 2008). Or, to put it differently, among incarcerated individuals in the United States, about 65 percent are men and 35 percent are women. These are composition statistics because they refer to the proportions of persons in specific categories or statuses. This composition statistic is comparable to the special education composition statistic cited in the (hypothetical) example, which was that over 30 percent of students in the mental retardation category are black. Now consider another question: What proportion of men age 18 and older are in prison? The answer is 2 in 100, or 2 percent. This is analogous to the risk statistic of 1.7 percent representing the proportion of black students classified in mental retardation and placed in special education. Risk refers to the likelihood that an individual from a group will be in a specific status or category. In contrast, composition refers to the makeup of a group.

So, let us go back to the example and the facts in Table 5. In the category of mental retardation, the composition is about 50 percent white, 33 percent African-American, 14 percent Hispanic, 2 percent Asian, and 1 percent American Indian. In the example, the composition figure of approximately 30 percent was given. But are 30 percent of all African-American students in the mental retardation category? Well, of course not. In fact, about 2 percent (actually 1.7 percent) of all African-American students are in this category. Risk and composition statistics lead to very different impressions of disproportionality, and egregious conclusions harmful to minority children arise from confusing the two statistics.

The relative risk (Rel Risk) statistic is perhaps the most important statistic in Tables 2–6 regarding minority disproportionality. Relative risk is a comparison of the risk for one group

against the combined risk for the other groups, with the target group deleted. Relative risk can be interpreted as an indication of the degree of disproportionality. Equal representation is indicated by a relative risk of one (1.0). Relative risk values lower than one indicate disproportionality due to **under**representation, and values higher than one indicate **over**representation. For example, the relative risk of 2.78 for black students regarding mental retardation (see Table 5) can be interpreted as follows: Black students are 2.78 times more likely to be in the mental retardation category than the other four groups combined. Does this constitute *significant* disproportionality, specifically, overrepresentation? I certainly think so, although states vary widely in their criteria for what constitutes significant overrepresentation or underrepresentation.

Misconceptions and Facts About Disproportionality

Misconception 1: A large proportion of minority students are in special education. The **fact** is that the vast majority of all groups are in general education (see Table 2, which gives the proportions of each group participating in special education).

Misconception 2: Most minorities are overrepresented in special education programs. The **fact** is that representation in special education varies significantly by group. The minority group prevalence over all disabilities (see Table 2) compared with the overall prevalence of 9.08 percent reflects both underrepresentation (Asian/Pacific Islander and, perhaps, Hispanic and white) and overrepresentation (American Indian and black). In fact, Asian/Pacific Islander origin students are underrepresented to a greater degree than American Indian and black students are overrepresented.

Misconception 3: There is as much concern about underrepresentation as overrepresentation. The **fact** is that, to date, no SEA or LEA has been cited for underrepresentation by the federal Office of Civil Rights or sued in court on a class-action claim. The pattern of largely ignoring minority special education underrepresentation may change in the future because the IDEA statute and regulations refer to disproportionality rather than underrepresentation or overrepresentation. Clearly, the primary concern so far has been with overrepresentation.

Misconception 4: Accurate generalizations to states and districts can be made from national minority representation data. The **fact** is that wide variations from national representation results exist between states and within states across different school districts. For example, although Hispanic students are slightly underrepresented at the national level, they are both significantly overrepresented and underrepresented across states and districts (Donovan & Cross, 2002).

Misconception 5: Equal special education representation across groups should be expected. The **fact** is that all groups officially recognized in the United States are differentially represented across a wide range of medical diagnoses, mental disorders, educational statuses, occupations, and so on. Federal IDEA law does not require exactly equal representation. The language is “significant disproportionality” in IDEA (2004, Section 602(3)612(a)(24)).

Misconception 6: Discrimination in special education referral and eligibility evaluations accounts for minority disproportionality in special education. Disproportionality is the culmination of decisions made about individual students, not groups of students. The **fact** is that

little evidence of discrimination in individual special education referral and evaluation procedures has been identified in studies involving direct comparisons of race and ethnic groups prior to, during, and after special education referral and placement decisions (Hosp & Reschly, 2002; Reschly, Kicklighter, & McKee, 1988a; Reschly, Kicklighter, & McKee, 1988b; Reschly, Kicklighter, & McKee, 1988c; Reschly & Ward, 1991). Quantitative studies involving direct comparisons of minority and majority student referrals, evaluations, individualized educational programs, and placement decisions find little or no evidence of discrimination. The clear trend in these studies is that minority students at the same stages of the special education process, from referral to placement, have greater needs than comparable majority students at the same stages. For example, the level of failure in general education to prompt a teacher referral appears to be greater, not lesser, for minority than majority students.

Misconception 7: The minority students who are placed in special education were doing adequately in general education prior to an inappropriate referral. The **fact** is that studies of the general education performance of minority students referred for and placed in special education indicate significant educational achievement problems, often aggravated by challenging behaviors that existed for two or more years prior to referral. Moreover, the special education full and individual evaluation process likely reduces rather than increases minority special education identification and placement (Hosp & Reschly, 2003).

Misconception 8: Little is known about prevention of minority overrepresentation in special education. The **fact** is that much is known about prevention that typically is not implemented. The 2002 NRC Panel identified several proven interventions that reduce special education overrepresentation. Some examples are several early childhood programs including Head Start, early-grade interventions such as Success for All (Slavin & Lake, 2008; Slavin et al., 1996), and early reading and math interventions for at-risk children (Donovan & Cross, 2002; Vaughn, Linan-Thompson, & Hickman, 2003).

Misconception 9: Changes in special education policy and practices have the greatest potential for prevention of minority overrepresentation. The **fact** is there are no research or evaluation studies to validate any particular changes in special education processes or procedures other than prevention and early identification and treatment in general education. Response to intervention is designed to improve prevention and early identification and treatment of the kinds of academic and behavior problems that often lead to special education referral and placement.

Misconception 10: Minority students are disproportionately represented across all or most disability categories. The **fact** is that disproportionality occurs most frequently in the high-incidence categories of mental retardation, emotional disturbance, learning disabilities, and other health impairment. High-incidence disabilities are different from low-incidence disabilities in terms of (1) prevalence at ≥ 1 percent versus prevalence ≤ 0.5 percent; (2) identification in school settings after age 5 versus diagnosis in medical settings during early childhood, often at birth or soon after birth; and (3) referral prompted by low achievement and challenging behaviors versus referral due to identifiable sensory, physical, or severe cognitive deficits.

Overrepresentation of the kind that most often leads to sanctions against states and LEAs occurs in the categories of mental retardation and emotional disturbance, and occasionally in learning

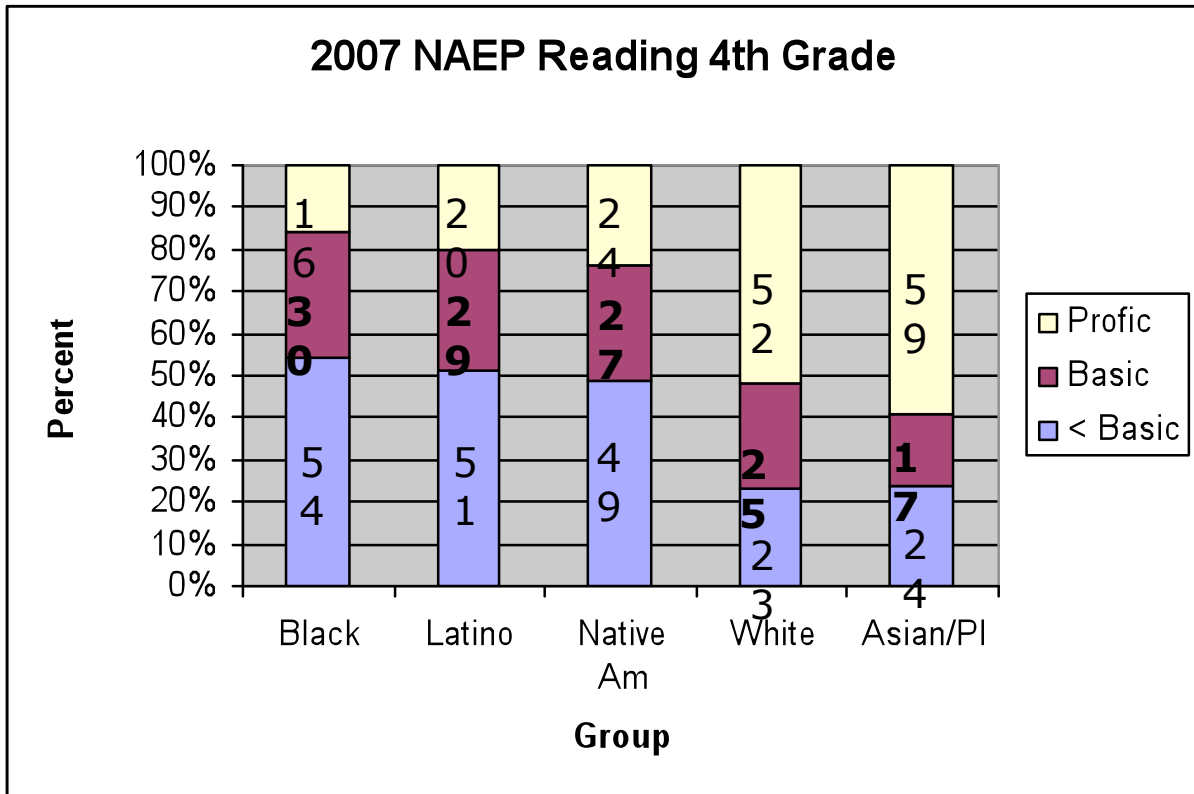
disabilities and other health impairment. The category of other health impairment most often involves children and youth diagnosed with attention-deficit hyperactivity disorder. These disabilities are most often identified first in school settings after two or more years of very low achievement, often accompanied by challenging behaviors.

The Connection Between Disproportionality and RTI

Response to intervention (RTI) and disproportionality are connected by research on referrals, specifically, the reasons that individual children and youth are referred for evaluations that lead to identification in the disability categories most often involved with disproportionality, that is, mental retardation, emotional disturbance, learning disabilities, and other health impairment. Teacher referrals to these categories in the early to middle elementary school grades, when most students with disabilities are identified, typically implicate reading or math deficits alone, reading and mathematics deficits combined, or behavioral challenges and, in many cases, deficits in all three domains (Donovan & Cross, 2002). RTI processes and procedures apply evidence-based interventions with progress monitoring and decision rules to prevent the development of serious achievement and behavioral problems. The 2002 NRC Panel offered the following three recommendations to reduce disproportionality:

- Prevention in the early grades is essential to improved patterns of disproportionality. Enormous differences across groups exist by fourth grade in reading (see Table 7). Children who read below a basic level in Grade 4 are unlikely to (1) read well by age 18, (2) successfully complete challenging course work in high school, (3) access and successfully complete postsecondary educational opportunities, and (4) acquire employment that will support a family well. Negative outcomes are more likely, such as dropping out, unemployment, and incarceration (Donovan & Cross, 2002).
- Reading, mathematics, and behavior problems can be identified in the early grades when they are less severe and more amenable to successful treatment. Universal screening followed by early intervention is essential to producing better outcomes in key domains and improving current patterns of disproportionality.
- Screening and early intervention in key domains must apply evidence-based practices in a multitiered system that emphasizes prevention and early identification and treatment (National Institute of Child Health and Human Development, 2000; National Mathematics Advisory Panel, 2008; Reschly & Bergstrom, 2009; Snow, Burns, & Griffin, 1998).

Table 7. NAEP Reading Scores Across Groups



Source: *The Nation's Report Card: Reading 2007* (pp. 54–55). Authors: Lee, Grigg, & Donahue. Published by the National Center for Education Statistics. (NAEP is the National Assessment of Educational Progress.)

Response to Intervention

RTI is a data-based process to establish, implement, and evaluate interventions that are designed to improve human services outcomes. As a system, RTI depends on a graduated series of interventions, called tiers, that vary by intervention intensity and measurement precision. Services are provided based on empirically validated interventions, revised as needed through progress monitoring and formative evaluation, and evaluated through comparing results to goals (Reschly & Bergstrom, 2009; Reschly & Tilly, 1999).

RTI Basic Principles

The term *RTI* has become popular and sometimes has been misused. General consensus exists around the following essential RTI components and processes (Barbour, 2002; Batsche et al., 2005; Gresham, 2002; Marston, 2002; Reschly & Bergstrom, 2009; Tilly, 2008; VanderDerHayden, Witt, & Gilbertson, 2006; Vaughn & Roberts, 2007):

- RTI processes and procedures establish systems for the delivery of interventions through multiple tiers that vary in intensity of intervention and measurement precision. Although three tiers are typically used, some RTI systems use four or even five tiers. This paper discusses a three-tiered model.
- Identification of overall goals and specific objectives is based on priorities established in educational, family, and community systems. Goals most often originate in federal, state, and local standards for academic achievement and local standards for behavior and emotional regulation.
- Periodic universal screening of all students assesses curricular and instructional effectiveness and individual risk status, using measures related to socially valid outcomes (state and local achievement and behavior standards).
- Student academic, behavioral, and emotional regulation needs are determined in relation to socially validated priorities including identification of significant differences between current and desired levels of performance. Gaps in expected and actual performance levels are the focus of RTI interventions.
- RTI interventions are based on selection of empirically validated interventions in the domains of academics, behavior, and emotional regulation; matched to student needs; and implemented over a sufficient period of time with good treatment fidelity to achieve goals. These generally effective interventions typically are based on experimental studies comparing treatments or based on results from multiple single-subject research studies. Meta-analysis results are used frequently to identify likely effective academic and behavioral interventions (Kavale, 2007; Vaughn, Gersten, & Chard, 2000).
- Frequent progress monitoring is used with appropriate measures, results compared to developmental benchmarks and goals, graphing of results against goals, and formative evaluation decision rules specifying changes in interventions (if results do not meet goals) or raising goals (if results exceed goals) (U.S. Department of Education, Office of Special Education Programs, n.d.).

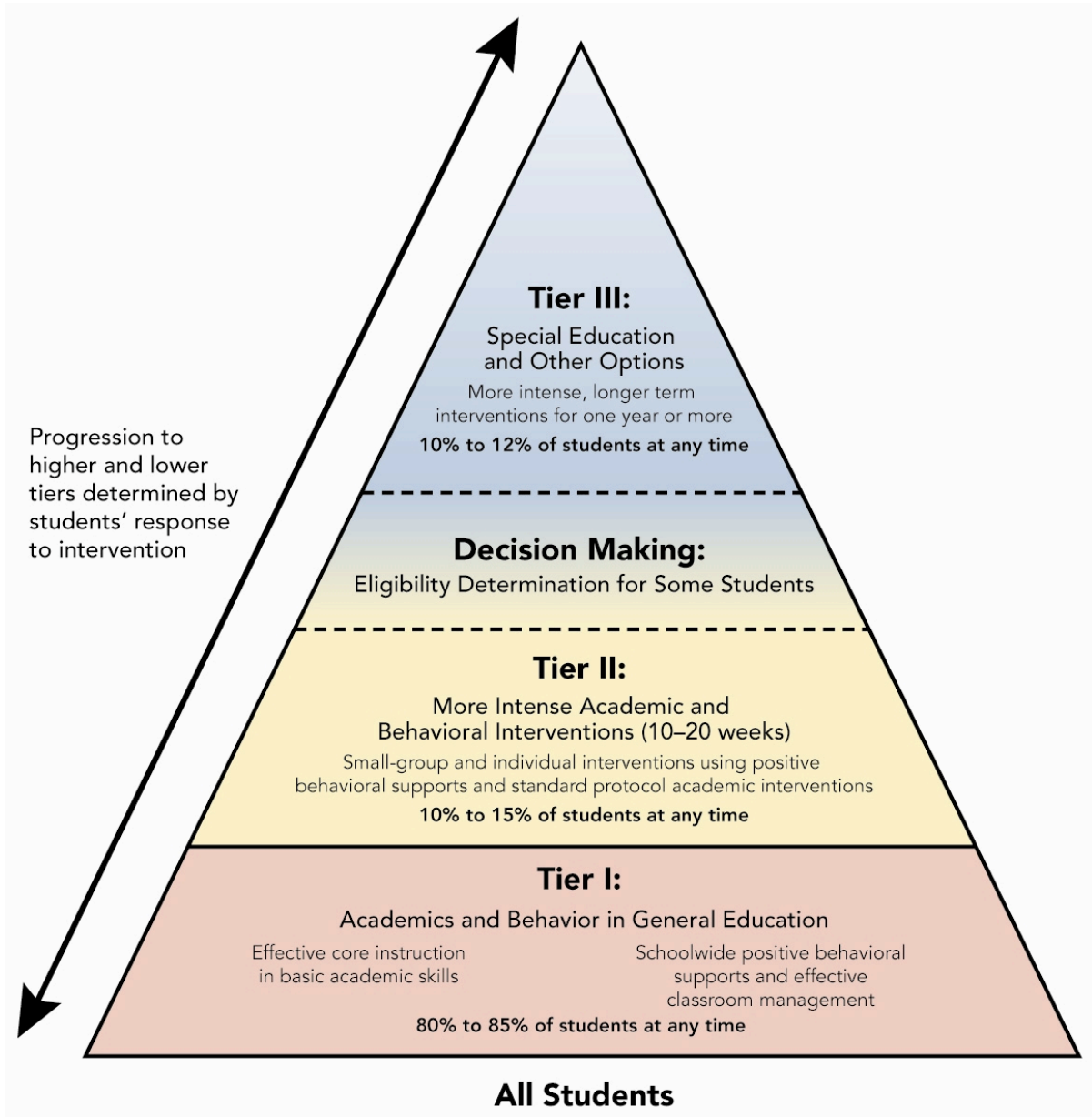
- RTI models differ in the breadth with which they are used in educational decision making. Some models address only what are described here as Tiers I and II. Other models use RTI data as the foundation of special education identification and to monitor and improve special education program results.
- Evaluation of individuals, classrooms, and schools is based on RTI data, including decisions about curriculum and instructional procedures.

Multiple Tiers of Intervention

An illustration of a typical RTI model appears in Figure 1. Multitiered systems are organized around levels of instruction or intervention that are matched to the needs of students. The goal is the improved performance of all students. The basic principle is that the greater the needs of a student, the more intense the intervention. The tiers are prevention (Tier I), early identification and intervention (Tier II), and intensive treatment (Tier III). Typically, Tier III is needed only for a small portion of students and may or may not involve special education.

Prevention of overidentification of minority children as students with disabilities depends very much on what is done in Tiers I and II. For example, the goal in Tier I is 80 percent to 85 percent of students on course to meet state standards and pass benchmark tests. If 50 percent or more of a minority group reads at the below-basic level in Grade 4 (see Table 7), the probability of passing a benchmark test is markedly diminished. Most important to this discussion, the *risk* of being referred to special education, either before or after reaching fourth grade, is markedly increased for students performing at below-basic levels in reading and mathematics. Greater risk of referral translates into greater risk of being identified in one of the high-incidence disabilities described earlier. Moreover, when severe educational achievement deficits exist for several years (e.g., Grades K–3), along with behavioral challenges, remediation of the deficits, accomplishment of close to or average achievement levels, and return to general education from special education become increasingly unlikely.

Figure 1. Multitiered System With Tiers Varying in Intervention Intensity and Measurement Precision



Developed by D.J. Reschly, S.M. Smartt, and R.M. Oliver (with Sugai, Horner, & Gresham's [2002] approach to multiple tiers as a starting point).

Prevention and Early Identification and Intervention

Tiered systems subscribe to the old adage “An ounce of prevention is worth a pound of cure.” In fact, prevention is the most economical and humane method known to educators. Prevention and early identification and intervention reduce the prevalence and severity of significant achievement and behavioral problems. When problems do emerge, interventions are implemented before these problems become too severe and too difficult to resolve. For example, multiple studies demonstrate the effectiveness of identifying potential reading problems as early as kindergarten and intervening at ages 5–7 before the problems become severe.

Readers are referred to the following online resources for positive intervention results in reading, mathematics, and behavior:

- The Florida Center for Reading Research (www.fcrr.org)
- Vaughn Gross Center for Reading and Language Arts (www.texasreading.org/utcrla/)
- Texas Three-Tier Reading Model (www.texasreading.org/3tier/)
- Center on Instruction: Grades K–12 Math Resources (www.centeroninstruction.org/resources.cfm?category=math&subcategory)
- Interventions for Reading, Mathematics, and Behavior (www.interventioncentral.org/)
- Behavior Prevention and Early Identification and Treatment (www.pbis.org)

Three National Comprehensive Center on Teacher Quality (TQ Center) papers support the implementation of evidence-based practices in behavior, learning strategies, and reading (Oliver & Reschly, 2007; Schumaker, 2008; Smartt & Reschly, 2007).

Three-Tiered RTI

Tier I

Tier I is the standard or core curriculum and behavior program that is universal, that is, it is delivered to all students. Tier I is designed to prevent learning and behavior difficulties through effective instructional and behavioral interventions and, for those who initially fall below expectations, the delivery of more intense interventions *within* the general education classroom. Universal screening in Tier I is used to determine the success of the overall academic and behavioral program and to identify individual students at risk for poor educational outcomes (Reschly & Bergstrom, 2009). Universal screening is accomplished in different domains using measures that are direct measures of skills in a normal environment (Hosp, Hosp, & Howell, 2007). Progress monitoring is increased to perhaps biweekly or monthly for students performing below benchmarks. Tier II is considered for students who continue to perform below expectations even with more intense teacher-designed classroom interventions.

Tier II

Tier II interventions are designed and implemented either in the classroom or in a combination of the general education classroom and pullout, small-group tutoring sessions. The purpose of Tier

II is to resolve learning and behavioral difficulties and to return the student to the general education program without the need for more intense programming. Tier II results also contribute to the diagnostic process to determine if more intensive Tier III interventions are needed. In Tier II, progress monitoring is increased to at least weekly, and individual progress is represented on a graph with benchmark levels of performance, individual goals toward the benchmarks, and plotting of weekly progress against goals. If the weekly progress exceeds the goal for three weeks, the goal is increased. If the progress falls short of the goal for three weeks, the intervention is enhanced. Using progress monitoring with these kinds of decision rules produces an effect size of at least 0.7 standard deviation on academic achievement. Tier II interventions vary in length, but most academic interventions should be delivered for at least 20 weeks (Vaughn et al., 2003).

The decision-making stage depicted on Figure 1 occurs after the Tier II intervention has been implemented for a significant time period. The decisions possible are (1) fade and eventually discontinue Tier II because the student's progress meets benchmarks, (2) continue Tier II for a few more weeks because the student has been making good progress and is close to meeting the benchmark, (3) consider Tier III interventions that are more intense and intended for longer time periods of at least a year or more if progress is not approaching benchmark levels.

Special education identification often is considered at this stage; however, I emphasize that Tier III interventions other than special education are appropriate for many students. Minority disproportionality can be influenced at this stage as well. Rigorous application of categorical eligibility criteria with minority students can potentially reduce special education identification. For example, forbidding using the standard error of measurement to permit mental retardation identification at slightly above existing cut scores of 70 or 75 reduces mental retardation identification.

Academic performance and behavior are inextricably connected: Academic success or failure both influences and is influenced by behavior. Effective, challenging instruction also influences and is influenced by behavior. Tiered systems promote early intervention into both the academic and behavioral problems that students experience. Effective interventions for either the academic or behavioral domain depend on simultaneous interventions to achieve significantly better results.

Tier III

Tier III represents intensive treatment of academic and behavioral problems after prevention and early-identification and early-treatment interventions have been insufficient. For many children and youth, Tier III is placement in a special education program. The effects of special education placement typically are more positive if direct, intense, and systematic instruction is delivered with frequent assessment of progress and application of decision rules about enhancing interventions or raising goals depending on results (Kavale, 2007). Although it is more difficult at this than other stages, disproportionality in special education can be influenced by concerted efforts to assist children in reaching general education benchmark goals and then, with a gradual, progressive plan, removing students from special education. Less evidence exists to date on procedures for removing children from special education after initial placement.

Differences Across Tiers

Although the three tiers are linked to one another, they are different in several important ways. The primary differences are in the intensity of student needs, the intensity of instruction/intervention, and the precision of measuring student progress. Intensity of need, the first difference, is defined by how far below benchmark standards the student's current performance is and by the student's rate of progress. The greater the gap between performance and rate of progress, the greater the student's need. The second difference, intensity of instruction, is defined by conditions including the size of the instructional group, the amount of time devoted to instruction in a specific area, the degree to which instructional objectives are analyzed in terms of prerequisite skills and whether each is taught systematically, the frequency of feedback about performance, and the use of incentives to increase and sustain motivation. Generally, the greater the student's need, the greater the intensity required to achieve progress toward benchmark standards.

A third difference across the tiers is measurement frequency and precision. For example, all students initially are screened for academic and behavioral problems in Tier I (prevention). Progress toward meeting benchmark expectations is assessed perhaps three times per year. This amount of assessment is adequate for students who are performing academically and behaviorally at or above benchmarks. For students who are performing below benchmarks, however, the initial response is to provide more instructional opportunities in the general education classroom and to increase the measurement of progress to perhaps twice per month. If intensified instruction within the general education classroom is not sufficient to move the student to benchmark levels, then Tier II likely will be considered. In Tier II, progress monitoring typically is increased to once per week or more, depending on whether the student's issues are academic or behavioral and on the intervention goals and objectives.

In good multitiered systems, there is symmetry among tiers, student needs, instructional/intervention intensity, and measurement precision. Increases or decreases in any component produce increases or decreases in the others. Of course, not all students need intensive instruction and increased measurement precision to meet educational and behavioral goals. In addition, resources are not available to deliver *all* tiers to *all* students. Data-based decision making in multitiered systems enhances efficient and effective resource utilization.

Decision Making for Student Movement Within Tiered Systems

Student academic and behavioral performance and needs drive the movement between tiers, both to higher and to lower tiers. We endorse the premise that all students are general education students, which is consistent with the report by the President's Commission on Excellence in Special Education, *A New Era: Revitalizing Special Education for Children and Their Families* (U.S. Department of Education, Office of Special Education and Rehabilitative Services, 2002). All students begin at Tier I and remain there unless educational achievement and/or behavior fall below benchmark levels despite additional efforts at making improvements within the general education classroom.

Students receiving services at Tier II spend all or nearly all of their school day in general education. Special education students also spend, on average, most of the day in general education classrooms (Holdheide & Reschly, 2008). Increased integration of students with disabilities into the general education environment and curriculum is a key goal established by Congress in recent reauthorizations of IDEA (1997, 2004).

Scientifically Based (Evidence-Based) Instruction

Tiered systems nearly always endorse scientifically based instruction, which are cardinal features of the No Child Left Behind Act (2002) and IDEA (2004). Although the terminology has evolved from “scientifically based” to “evidence-based,” the same goal exists—namely, to implement academic instruction and behavioral interventions that have proven effective when matched to specific student needs. A wide range of evidence-based instruction/interventions is available, but some strategies are not used as frequently or as well as they could be. Improving achievement and behavior and reducing gaps among groups depends on applying the most effective instruction/interventions available. A critical factor is the preparation of education professionals.

Evidence-based instructional principles generally work equally well with diverse groups of students. For example, direct, systematic instruction using evidence-based principles for teaching reading or mathematics works as well with minority students as with majority students (see online resources listed on p. 15). In fact, both the National Reading Panel and the National Mathematics Advisory Panel were explicit in endorsing the superiority of direct, systematic instruction with progress monitoring for students who struggle with achievement. By way of a caveat, the direct, systematic instructional principles in academic subject areas and behavior with progress monitoring and decision rules are not incompatible with culturally sensitive curricula and instruction. Cultural sensitivity and the use of culturally appropriate curricula and language support effective interventions and positive results in RTI systems.

Preparation of Teachers and Professionals in Related Services

Highly effective general and special education teachers and related-services personnel (e.g., school psychologists and school social workers) are crucial to the successful implementation of a tiered system of prevention, early identification and intervention, and intense treatment. Each tier in Figure 1 depends on teachers; in addition, higher tiers depend on both teachers and other personnel such as counselors, speech and language therapists, and psychologists. Expertise from multiple disciplines is required as student needs become more complex and intense. Expertise in evidence-based instructional and behavioral interventions is essential, along with competencies such as assessing progress, comparing current results to benchmark trajectories, and applying decision rules to determine changes in interventions and/or goals.

Preparation and continuing education for teachers and related-services professionals vary significantly regarding competencies needed for the effective prevention, early identification and intervention, and intense treatment components of a multitiered system. Some preparation and continuing education programs do a good job with the critical competencies, and others fall well below what is needed in evidence-based principles and practices (Smartt & Reschly, 2007). For

example, most teachers today are not well prepared in scientifically based reading instruction, effective classroom organization and behavior management, critical competencies related to improved achievement, or overcoming gaps among groups. Moreover, even fewer teachers and related-services professionals are well prepared in monitoring progress against benchmark goals, graphing results, and conducting formative evaluation. In addition, few teachers and related-services professionals have the critical skills required for delivering Tier II and Tier III academic and behavioral interventions.

In order to understand the preparation needs of teachers and related-services professionals, it should be recognized that not all teachers and related services professionals need to be prepared in the competencies required at all levels. It is obvious, for example, that schools need more general than special education teachers and, for that matter, that schools need more general education teachers than Tier II teachers. Furthermore, other education professionals contribute to and, in some cases, implement interventions in Tiers I, II, and III. What may be less obvious is that to be effective, teachers and related-services personnel working at different tiers need overlapping but different skill sets. For example, Tier III teachers need more thorough training in task analysis, effective individual behavior interventions, and measurement of small changes in academic and behavioral competencies. Tier I teachers need to know about some of these techniques but in less depth and in the context of applications to entire classrooms of students rather than to small groups or to individuals.

Summary

Prevention of the poor achievement and behavioral patterns that lead to referral to special education is the most effective strategy to reduce disproportionality in special education. Response-to-intervention processes and procedures are designed to improve achievement and behavioral outcomes through prevention and early identification and treatment. RTI procedures and processes, featuring evidence-based practices, have significant potential for improving achievement and behavior and for reducing minority referrals to special education. Improved achievement and reduced referral rates have the most potential for significantly changing current patterns of special education disproportionality.

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