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COMMENTARY

Rethinking Response to Intervention at Middle and High School

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In "Response to Intervention for Middle School Students With Reading Difficulties: Effects of a Primary and Secondary Intervention," Sharon Vaughn and colleagues (2010) described a study in which they provided professional development to content area teachers, with the goal of integrating vocabulary and reading comprehension instruction throughout the school day in Tier 1 (i.e., in the general education classrooms). Against this enhanced instructional backdrop, the researchers randomly assigned at-risk students whom they identified based on inadequate performance on the previous year's high-stakes state reading assessment, to two conditions: business-as-usual school services or a researcher-designed, 32- to 36-week Tier 2 reading intervention focused on decoding, fluency, vocabulary, and comprehension. The researchers delivered this Tier 2 intervention in large groups (i.e., 10–15 students per group) to reflect a logistically feasible model for implementation in real schools. The instruction was conducted for nearly 100 hr per student ($SD = 23.1$) at one site and 111 hr ($SD = 11.6$) at a second site. With this ambitious randomized control trial, they examined the efficacy of a response to intervention (RTI) Tier 2 intervention at sixth grade.

Few researchers have focused on an older school-age population when studying RTI with such a well-conceptualized, comprehensive intervention. Many researchers avoid middle and high schools entirely because of the scheduling problems and compliance issues often encountered when working with adolescents. These complexities associated with middle and high school may help explain Vaughn et al.'s (2010) disappointing findings. On word-level skills, significant effects for two measures were moderated by students' incoming performance: On decoding, treatment effects were revealed only for students above the pretest mean; on spelling, only for students below the covariate mean. For fluency and comprehension measures, there were no statistically significant effects, and the Tier 2 intervention did not improve the chances of passing the high-stakes state assessment. Across measures, the median effect size was 0.16.

Vaughn et al. (2010) do an admirable job of discussing and contextualizing these findings, and they clarify another factor possibly contributing to their modest results: A disproportionate number of students in the business-as-usual condition received a second

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level of prevention activities designed and implemented by their own schools (i.e., 49% of controls but only 23% of experimental students). Nevertheless, the results of the researchers' more substantial and more carefully designed Tier 2 intervention are sobering and, in this commentary, we consider why differences between elementary versus middle and high school settings may require an alternative conceptualization of RTI at the higher grades.

The RTI Prevention Framework at the Elementary Grades

Children enter kindergarten with differing degrees of preparedness for academic learning. To address these inequities, schools must allocate resources early, as formal academic instruction begins. RTI is a framework for organizing such prevention activities. Before considering RTI at middle and high school, we summarize the typical RTI process at the elementary grades. This Elementary RTI Framework incorporates three levels of prevention services. We use the word *level* instead of *tier* to avoid widespread confusion over the term *tier*. The number of tiers in RTI systems ranges from 1 to 7 (Berkeley, Bender, Gregg Peaster, & Saunders, 2009), with *tier* referring to the sequence in which interventions are introduced. One school's Tier 2, for example, may be identical in intensity and instructional design to another school's Tier 5. For this reason, the term fails to communicate meaningfully about the intensity of instruction. By contrast, in our Elementary RTI Framework, every intervention (which represents a *tier*) is categorized within one of the prevention system's three levels, and each level is distinctive in terms of instructional intensity.

Primary prevention comprises the instructional practices that general educators conduct: the core instructional program; classroom routines that provide opportunities for instructional differentiation; accommodations that permit access to the primary prevention program for all students; and problem-solving strategies to address motivational problems that cause some students to fail to perform the academic skills they possess. Most core programs are designed using instructional principles derived from research, but few are validated because of the challenges associated with conducting experimental studies of complex, multicomponent programs.

Secondary prevention (not to be confused with the secondary grades in middle and high schools) usually occurs as small-group tutoring, with the tutor using a validated instructional program. Secondary prevention is reserved for students at risk for serious long-term academic difficulties. Risk is identified via screening. Brief tests are administered to all students to eliminate true negatives from consideration; students who fail that universal screen receive a second stage of testing to discriminate true positives from false positives (e.g., Compton et al., in press). Conducting a second stage of screening is efficient in that schools avoid providing secondary prevention to false positive students (who would develop nicely without intervention). Secondary prevention differs from primary prevention because secondary prevention is empirically validated (whereas primary prevention is research principled) and because it relies on adult-led tutoring in groups of 2–5 students (whereas primary prevention relies primarily on whole-class instruction and sometimes peer tutoring). Secondary prevention can involve only one tier of validated tutoring program, but it can also incorporate a series of validated tutoring programs.

When validated tutoring at the secondary prevention level is implemented with fidelity, a large majority of students are expected to benefit, based on the validation research associated with the small-group tutoring program. However, approximately 5% of the general population is not expected to respond and, for these students, most intensive intervention is required at the *tertiary prevention* level. In using the term *most intensive intervention,* we refer to two kinds of practices. The first involves tutoring programs that have been validated as successful for this 5% of the population. Tertiary tutoring programs rely on complex, multicomponent instructional routines and more hours of teaching over longer periods of time with lower (often 2:1; sometimes 1:1) tutor:student ratios. A second type of most intensive intervention involves individualized instruction, whereby

teachers systematically experiment with different instructional components, using ongoing progress-monitoring data as the dependent variable to decide which components enhance progress. With this process, teachers inductively tailor an individualized program. In a series of randomized control trials (see Stecker, Fuchs, & Fuchs, 2005), such inductive, data-based individualization has been shown to be effective for students with learning disabilities. The greatest potential for accelerating the academic progress of most difficult-to-teach learners at the tertiary level, however, may exist for a combination of the two approaches. That is, the teacher begins with a more intensive validated tutoring program, while conducting frequent progress monitoring to tailor that program for maximal effectiveness.

Distinctions Between Elementary Versus Middle and High School

In these ways, the Elementary RTI Framework reflects three assumptions that may not apply at middle and high school. The first assumption is that *screening is required to identify risk before academic deficits materialize.* In the early grades, a major challenge for screening is that many scores cluster near the bottom range of the scale, creating a floor effect. This makes it difficult to distinguish between false and true positives. Consider, for example, quantity discrimination as an index of numerosity for predicting student success in learning formal school mathematics. When measured at the start of first grade, quantity discrimination accounts for 25%–63% of the variance in year-end math outcomes (e.g., Chard et al., 2005; Clarke & Shinn, 2004; Lembke & Foegen, 2006). Even so, such measures produce large percentages of false positives: children who fail the quantity discrimination screen but develop adequately without secondary prevention (e.g., Fuchs, Fuchs, Compton, Bryant, Hamlett, & Seethaler, 2007; Seethaler & Fuchs, in press). This is problematic for Elementary RTI because serving large numbers of false positives in secondary prevention, when these students would do fine without those services, not only stresses the resources available in schools to serve students who truly need secondary prevention but also requires students who do not require secondary prevention to miss portions of the primary prevention program. Given the false positive problems, a second stage of more in-depth testing is required for students who fail the universal screen.

At middle and high school, however, academic deficits are well established. Moreover, because a greater range of performance in the academic domain can be sampled than in the elementary grades, it is easier to design middle and high school tests whereby students do not cluster near the bottom of the scale, creating meaningful distinctions among students with deficits of larger and smaller magnitudes. For these reasons, at middle and high school, it no longer makes sense to allocate scarce resources to screening for the purpose of identifying students at risk for academic failure. It makes more sense to rely on teacher nomination or existing assessment data to identify students with manifest academic difficulties, which is what Vaughn et al. (2010) did when they relied on the existing high-stakes reading assessment scores to identify students who required intervention beyond the primary prevention program. In contrast to the Vaughn et al. approach, however, it may make sense to gather additional assessment data or scrutinize available data to create functional tutoring groupings with similar instructional needs and, perhaps more important, to distinguish (a) students whose academic deficits are so serious that they warrant immediate tertiary prevention from (b) students likely to succeed with secondary prevention. It is possible that the Vaughn et al. distinction between students at the benchmark "bubble" versus those who scored reliably below the benchmark score might have been useful for such purposes.

This brings us to the second Elementary RTI assumption that may not apply at middle and high school: *Determining responsiveness to less intensive levels of the prevention system is required to identify students who need more intensive services.* Academic deficits accumulate and become more dramatic and severe as stu-

dents advance through school. As the Vaughn et al. (2010) study reminds us, whereas research demonstrates that validated small-group tutoring delivered in the early grades can alter the course of academic development for many children, the more serious academic deficits associated with middle and high school make large numbers of students resistant to the remedial intensity offered at secondary prevention. Torgesen et al. (2001) illustrated this with 8- to 10-year-olds with learning disabilities who already experienced severe reading deficits. Effecting meaningfully important reading improvement required much greater intensity than what is offered at secondary prevention: two 50-min sessions each day of one-to-one tutoring. And separate from the larger academic discrepancies, adolescents with longstanding serious academic problems frequently demonstrate low motivation and poor academic self-confidence (e.g., LeCompte, 1987; Phelan, Yu, & Davidson, 1994), further complicating and compromising the success of secondary prevention tutoring. Therefore, compared to the elementary grades, many more middle and high school students will be unresponsive to secondary prevention and instead will immediately require the instructional intensity available at tertiary prevention.

In this vein, it is unfortunate that middle and high school resources for secondary prevention require large instructional groupings of 10–15 students—the group size used not only by Vaughn et al. (2010) but also by the participating middle schools as they designed their own versions of secondary prevention. If the students who qualified for the Vaughn et al. study could have been served in groups approximating the typical size in elementary-grade RTI research (i.e., 2–5 students), tutors might have been able to address more effectively student motivation and academic self-confidence issues to circumvent the attendance problems Vaughn et al. encountered, thereby enhancing outcomes. In a more direct way, tutors might have been able to provide greater opportunity for responding, more meaningful corrective feedback, and a greater emphasis on student needs within smaller instructional groups.

Even with the intensity created with groups of 2–5 students, secondary prevention may be appropriate for only a subset of students, perhaps Vaughn et al.'s "bubble" students. Restricting participation in secondary prevention to students for whom the likelihood of success is good creates a better opportunity to serve this population more effectively, which in turn enhances schools' opportunity to provide appropriately intensive tertiary prevention. This is the case because when secondary prevention is offered to a mix of students, some of whom seem likely to respond and others of whom have such large deficits that secondary prevention's intensity is manifestly insufficient, a higher proportion of both subsets of students may fail to respond, thereby flooding tertiary prevention and watering down the intensity required at the tertiary level. This parallels the need for high-quality primary prevention to avoid overwhelming secondary prevention with inappropriate students and thereby decreasing the intensity available at secondary prevention. For these reasons, moving students with the greatest academic deficits directly to a well-conceptualized, most intensive tertiary prevention level may produce more reliable and substantial outcomes for both subpopulations of students.

The third questionable assumption is that *the nature of effective intervention is the same across the grades.* It is instead likely that adolescents require different instructional emphases and strategies. Consider reading. Although the word-reading difficulties associated with phonological processing deficits characterize the behavioral phenotype of children with early reading problems, adolescents with reading difficulties present a more complicated array of weaknesses, ranging from word recognition to higher order language and metacognitive skills. Shortfalls in any of these areas have been implicated as a significant contributor to comprehension failure, appreciably decreasing students' ability to use text to acquire

new vocabulary, information, and knowledge. Even when concentrating specifically on reading comprehension, the traditional focus on strategy use and question answering may be inappropriate for adolescents with substantial knowledge and vocabulary deficits. Innovation is required to address the academic needs of adolescents with serious, accumulated deficits across a range of subcomponent skills within any given academic domain. Moreover, effective intervention must be contextualized within a delivery model that motivates the adolescent, creatively engaging the peer group to support effectiveness. Without peers endorsing the importance of academic intervention, even the most sophisticated programs may prove effective. We are not simply suggesting the use of conventional peer-mediated approaches to intervention; instead, it may be necessary to rethink how intervention materials and procedures are fundamentally engineered and packaged to enlist the peer group's endorsement.

A Modified RTI Model at Middle and High School

This leads us to propose a modified RTI model at middle and high school. In this model, the Elementary RTI Framework is turned upside down in some critical ways. At the elementary grades, the RTI model encourages practitioners to move students to increasingly intensive levels of the prevention system when those students reveal a failure to respond to more normal or standard forms of instruction. By contrast, in the middle and high school RTI model, we believe that practitioners must place severely discrepant students immediately in the most intensive level of the RTI framework (even as they continue to participate in primary prevention to further acquire content knowledge).

In a related way, in terms of accountability for student outcomes, the measurement of "response to intervention" is critical to RTI at all grades, but in differing ways. Elementary RTI increases accountability for outcomes for the purpose of identifying and circumventing risk for academic failure. The focus, therefore, is on monitoring response to intervention for the purpose of introducing greater intensity only as needed, working hard to avoid that need. By contrast, the goal of accountability and intensity within RTI at middle and high school is to ensure that teachers view their mission as reducing and eliminating already existing, sizable academic deficits. Here, the focus is therefore on monitoring response to intervention to determine when important academic benchmarks have been achieved for the purpose of transitioning students down the RTI pyramid in the direction of less intensive and more standard or normalized levels of the prevention system.

Conceptualizing RTI at middle and high school in this way introduces new opportunities to improve outcomes for students to overcome sizable academic deficits and restructures existing opportunities. (Although some students are already identified and served by remedial and special education services, the instructional intensity of these services often fails to meet the standards of tertiary prevention. Our argument applies to all students with academic deficits, whether or not they are served through general, remedial, or special education.) Given the limited time remaining in these students' school careers, many older students, including those with and without identified special needs, deserve these new or restructured opportunities for decreasing academic deficiencies, with the goal of eliminating this major obstacle toward successful adult life. The outcomes of students with large academic deficits are, after all, far from satisfactory. According to the National Longitudinal Transition Study—2 (Wagner et al., 2003), one-quarter of students with learning disabilities, who by the time they reach high school are more than 3 years below grade level in reading and math, drop out of school; in 2007, only 46% had regular paid employment within 2 years after leaving school. These sobering data should be viewed as indicating a public health crisis; it should create a sense of urgency to enhance resources at middle and high school for meaningfully intensive RTI secondary and tertiary prevention services.

Research to Support a Modified RTI Model at Middle and High School

A modified RTI model at middle and high school raises important questions that need to be addressed with programmatic research. In terms of assessment, questions include the following: Is teacher nomination an accurate means of identifying students who require services beyond primary prevention? What forms of existing data sources, such as performance on high-stakes testing or schools' benchmark assessments, might be used instead of or in combination with teacher nomination to enhance decision making? What is an accurate means for distinguishing students who require immediate tertiary prevention from those who are likely to succeed with secondary prevention? Which assessments and benchmark scores provide a reliable means for deciding when to move students from tertiary to secondary prevention—and sometimes back again? Important questions concerning intervention include the following: What is the optimal group size for secondary and for tertiary prevention to balance effectiveness and efficiency? What are effective strategies for engaging students who have experienced long histories of school failure? What are the critical academic targets for increasing the probability of successful adult life outcomes? How does the nature of effective intervention change for adolescents?

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