IMPLEMENTATION FIDELITY AND CBM

Tanya L. Eckert, Ph.D.
NYS RtI TAC
Consortium Member
Central New York

RtI TAC Summer Institute
Albany, NY
June 28, 2010
Overview

- Define CBM implementation fidelity
- Describe why CBM implementation fidelity is an important component of an RtI model
- Identify factors that may influence CBM implementation fidelity
- Discuss CBM implementation fidelity procedures
- Review options for improving CBM implementation fidelity
What Is Implementation Fidelity?
Definition

- Implementation fidelity is:

  “The degree to which a procedure is implemented as planned.”

Gresham, Gansle, Noell, Cohen, & Rosenblum, 1993
In an RtI model, implementation fidelity is a critical component. Implementation fidelity includes assessing the integrity with which screening and progress monitoring procedures are completed (National Research Center on Learning Disabilities, 2006). Ensuring implementation fidelity is a resource-intensive process.
6 What Is It Important?
Important Considerations

- Many failures of education reform are attributed to poor implementation (Gresham, 1988; Levin, Catlin, & Elson, 2005)
- When schools adopt new initiatives without fidelity to essential program design features, results are often poor (Kovaleski, Gickling, & Marrow, 1999)
Important Considerations

- Implementation fidelity is typically assumed, rather than assessed.
- Outcomes cannot be determined unless school personnel verify that the procedure was implemented as intended.
Important Considerations

- Numerous studies confirm the importance of implementation fidelity to maximize program effectiveness (Foorman & Moats, 2004; Foorman & Schatschneider, 2003; Gresham et al., 2000; Kovaleski et al., 1999; Telzrow, McNamara, & Hollinger, 2000; Vaughn, Hughes, Schamm, & Klinger, 1998)

- Results suggest that program effectiveness can be attributed to three factors
Important Considerations

- **Three critical factors:**
  1. Implementation fidelity of the process at the school level
  2. Empirical support for instruction, intervention, or procedure
  3. Implementation fidelity at the teacher level
Important Considerations

- Consistent and detailed assessment of implementation fidelity will:
  - Ensure consistent, high-quality instruction
  - Enhance the efficacy of an RtI model
  - Produce better student outcomes
What Is CBM?
Curriculum-Based Measurement (CBM) refers to a set of short-duration fluency measures (or probes)

Assesses basic academic areas:
- Reading
- Mathematics computation
- Spelling
- Written expression
Within an RtI model, CBM is used to monitor student progress across the entire school year.

General uses:
1. Screening
2. Progress Monitoring
3. Instructional Diagnosis
Curriculum-Based Measurement

- Students are given standardized “probes” at regular intervals
- Probes scored for:
  - Speed or fluency
  - Accuracy of performance
- Brief and easy to administer
  - 1 to 5 minutes
Example:

I can say many numbers. First I say "one," and then I say "two." I can count very high, but I can't count every number. Even though I can write many numbers, I can never write every number. I would run out of time and space before I could finish. Numbers keep going forever.

I see numbers just about anywhere I look. Numbers help us every day. You can put them together to add. You can take them away to subtract. Numbers help measure how long, short, and wide things are. Numbers tell us how much food and toys cost. They tell us how many miles we have left to drive until we get home. Numbers tell us how fast we ran a race. They let us know how many points our team scored in a game. Numbers tell us how tall we are. They help us figure out how much we've grown. They let us know what size our hands and feet are.
Advantages:

- Brief and easy to administer
- Administration consistency
- Technically strong approach for quantifying student progress
- Reliable and valid measurement tool
- Improves instructional decision making
Why Is CBM Fidelity Important?
Importance of CBM Fidelity

- Key assumption underlying an RtI model is that the assessment process is reliable and valid (Fuchs, Fuchs, & Compton, 2004)
- The assessment process often adopted in an RtI model incorporates CBM
- There is ample evidence to substantiate the validity and utility of CBM (Fuchs, 1995, Shinn, 1998)
CBM and RtI

- In Tier 1, CBM is used to determine whether core general classroom instruction is effective.
- In Tiers 2 and 3, CBM is used to monitor the academic progress of at-risk students who are receiving group or individualized interventions.
## CBM and RtI

### Class Distribution by Scores and Percentile

Hartford School District - Wilson Elementary  
(A. Jones) Fall 2001-2002  
Reading - Curriculum Based Measurement

<table>
<thead>
<tr>
<th>Name</th>
<th>Corrects</th>
<th>Performance Summary</th>
<th>Potential Instructional Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gamble, K.</td>
<td>184</td>
<td>Above Average</td>
<td>Consider Need for Individualized Instruction</td>
</tr>
<tr>
<td>Best, V.</td>
<td>143</td>
<td>Above Average</td>
<td>Consider Need for Individualized Instruction</td>
</tr>
<tr>
<td>Lisonbee, L.</td>
<td>142</td>
<td>Above Average</td>
<td>Consider Need for Individualized Instruction</td>
</tr>
<tr>
<td>Rucksin, N.</td>
<td>135</td>
<td>Above Average</td>
<td>Consider Need for Individualized Instruction</td>
</tr>
<tr>
<td>Quandt, E.</td>
<td>127</td>
<td>Above Average</td>
<td>Consider Need for Individualized Instruction</td>
</tr>
<tr>
<td>Dement, B.</td>
<td>126</td>
<td>Above Average</td>
<td>Consider Need for Individualized Instruction</td>
</tr>
</tbody>
</table>

**Above Average >= 124 (75th %ile)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Corrects</th>
<th>Performance Summary</th>
<th>Potential Instructional Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damon, C.</td>
<td>105</td>
<td>Average</td>
<td>Continue Current Program</td>
</tr>
<tr>
<td>Waters, J.</td>
<td>94</td>
<td>Average</td>
<td>Continue Current Program</td>
</tr>
<tr>
<td>Smallwood, V.</td>
<td>93</td>
<td>Average</td>
<td>Continue Current Program</td>
</tr>
</tbody>
</table>

**Average >= 61 (25th %ile)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Corrects</th>
<th>Performance Summary</th>
<th>Potential Instructional Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moon, K.</td>
<td>60</td>
<td>Below Average</td>
<td>Further Assess and Consider Individualizing Program</td>
</tr>
<tr>
<td>Mckenney, B.</td>
<td>44</td>
<td>Below Average</td>
<td>Further Assess and Consider Individualizing Program</td>
</tr>
<tr>
<td>Ward, D.</td>
<td>43</td>
<td>Below Average</td>
<td>Further Assess and Consider Individualizing Program</td>
</tr>
</tbody>
</table>

**Below Average >= 34 (10th %ile)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Corrects</th>
<th>Performance Summary</th>
<th>Potential Instructional Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nankivell, R.</td>
<td>33</td>
<td>Well Below Average</td>
<td>Begin Immediate Problem Solving</td>
</tr>
</tbody>
</table>

CBM and RtI

![Graph showing the number of words read correctly over school weeks for Tier 1 and Tier 2.]
CBM and RtI

Hartford School District - Wilson Elementary
Viviana L. (Grade 3)
Reading - Curriculum Based Measurement

Words Read Correct (WRC)

Above Average
Average
Below Average
Student

Benchmark Period
Fall Winter Spring

©2002 ICS Pearson, Inc.
Because CBM is a key outcome measure in an RtI model, it is critical that CBM administration procedures are followed as described.

Deviations in CBM administration can affect student performance and result in invalid assessment findings.
Is It Really That Important?
Numerous studies have identified administration deviations that may alter students’ CBM performance.

The setting, timing conditions, and administration instructions may affect students’ CBM performance.
Derr-Minneci and Shapiro (1992) reported higher oral reading fluency when students were:

- Assessed by the classroom teacher (vs. school psychologist)
- Assessed at the teacher’s desk (vs. reading group or office)
- Timed (vs. not time)
Evans-Hampton et al., (2002) reported higher mathematics computation fluency when students were:
- Timed (vs. not time)
Colon and Kranzler (2006) reported:

- Students read significantly more words and made significantly more errors during:
  - the fast condition (“Read as fast as you can without making mistakes”)
  - than during the best condition (“Do your best reading”)

CBM Instructions
Really Important!

- Adherence to standardized CBM administration procedures is critical.
- The same CBM administration procedures need to be used when comparing a student’s performance across time or to a normative group.
- Deviations in settings, timing procedures, and instructions will result in an unreliable and invalid assessment.
What Factors Influence Fidelity?
Factors Influencing Fidelity

Four general categories of factors may influence the implementation fidelity (Gresham et al., 2000; Reschly & Gresham, 2006)

1. Complexity
2. Materials and resources required
3. Credibility
4. Personnel
Complexity

- The less complex a procedure, the greater the implementation fidelity
- The less time intensive a procedure, the greater the implementation fidelity
Materials and Resources

- If no new or substantial resources are required to implement the procedure, the greater the implementation fidelity.
- If resources are readily accessible, the greater the implementation fidelity.
Credibility

- The more credibility the procedure has, the greater the implementation fidelity.
- If teachers believe the procedure is effective or if the procedure is consistent with their teaching philosophy, they will implement the procedure with fidelity.
The more expertise associated with the personnel implementing a procedure, the greater the implementation fidelity.

The greater the motivation of the personnel implementing a procedure, the greater the implementation fidelity.

The less personnel associated with implementing a procedure, the greater the implementation fidelity.
How Can Fidelity Be Assessed?
Common Procedures

- Student performance/permanent products
  - Reviewing CBM probes
- Personnel self-reports
  - Rating scale, checklist, interviews
- Direct observation
  - Observation by a teacher mentor
  - Audio taped recording of session reviewed by a peer or teacher mentor
How Can Fidelity Be Improved?
Ensuring Fidelity

- Direct and frequent assessment is considered best practice (National Research Center on Learning Disabilities, 2006)

- **Critical considerations:**
  - Frequency of implementation fidelity assessments
  - Fidelity assessment findings
  - Remediation efforts for unacceptable levels of fidelity
Ensuring Fidelity

Proactive Recommendations:
- Engage in professional development regarding CBM administration procedures
  - Include modeling, coaching, and feedback
- Continually engage in “refresher” administration sessions
Ensuring Fidelity

- Clearly define personnel responsibilities
- Definitively describe CBM procedures
- Ensure that all materials are easily accessible
- Routinely conduct fidelity checks
- Create a data system for measuring CBM outcomes and implementation fidelity
Ensuring Fidelity

- Create a feedback system for implementation fidelity
- Create accountability measures for non-compliance
- Identify teacher mentors for CBM administration procedures
- Consider soliciting requests for additional support and training from teachers
Ensuring Fidelity

- Creating a system of fidelity checks should occur within a collaborative and positive environment that promotes teacher improvement (National Research Center on Learning Disabilities, 2006)

- Honest and open communication can help a school support its teachers while ultimately improving the RtI model (National Research Center on Learning Disabilities, 2006)
Your Challenge . . . .
Final Considerations

- Does your school have a CBM implementation fidelity system developed and implemented on an ongoing basis?
- Can your school document that it has a CBM implementation fidelity system developed and implemented on an ongoing basis?