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Megan M. Hybza

University of South Florida

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Increasing Medicaid Dollars Billed for Services by School Psychologists Using a Performance Improvement Package

by

Megan M. Hybza

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts
Department of Child and Family Studies
College of Behavioral and Community Sciences
University of South Florida

Major Professor: Trevor F. Stokes, Ph.D.
Marilee Hayman, MS,
Tracy Schatzberg, Ed.S

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Dedication

I dedicated this manuscript to my family: my father, mother, and two younger brothers. My father has given me the drive to take on all my professional goals, and he reminded me to never let anyone/anything bring me down. My mother has been my constant support throughout my schooling, and she helped me stand upright when the world felt sideways. My brothers have been my constant reminders to smile and laugh through the good and bad.

Thank you all for your continuous encouragement!
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Increasing Medicaid Dollars Billed for Services by School Psychologists Using a Performance Improvement Package

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ABSTRACT

Organization Behavior Management (OBM) is a subfield within the discipline of Applied Behavior Analysis (ABA) involving the application of ABA principles and practices to organizational settings. One successful intervention used in OBM is the implementation of a performance improvement package. This approach has proven to be an effective problem solving strategy in a variety of settings, based on effective components such as goal-setting, prompting, and feedback. In this endeavor a performance improvement package was applied within an educational setting. In this school district, school psychologists are required to complete documentation for Medicaid reimbursement to the district, but were inconsistent in doing so. The purpose of this study was to improve the consistency of billing for Medicaid reimbursement by 74 school psychologists serving 102 schools. A multiple baseline across three areas was used to assess the effectiveness of the intervention introduced in a sequential manner.
Introduction

Organizational Behavior Management (OBM), a subfield of Applied Behavior Analysis, is effective when implemented in organizational settings. Daniels and Daniels (2004, 4th ed), prominent OBM consultants, described the value of performance management within organizations. When performance management processes are utilized positive results can be seen immediately or over time. Performance management is user friendly and does not require staff members to have a specialized college degree to use the OBM procedures. Organizational Behavior Management has the flexibility to be used in a variety of settings, such as industrial plants (Goltz, Citera, Jensen, Favero, & Komaki, 1989), health facilities (Jones, Morris, & Barnard, 1986; Hawkins, Burgio, Langford, & Engel, 1992; Slowiak, Madden, & Mathews, 2005), and universities (Wilk & Redmon, 1990; Tittelbach, DeAngelis, Sturney, & Alvero, 2007. The behaviors of people are observed and modified; therefore, where ever there are people, OBM has made its mark.

Organizational Behavior Management is not the only scientific field within psychology that claims to be effective in changing organizational settings. Industrial/Organizational psychology takes its place alongside OBM. Both fields can claim to improve the organization, but OBM has the scientific advantage because change procedures are more frequently guided by data. Aubrey Daniels International sums up the OBM advantage best in a quote on the OBM Network website (www.obmnetwork.com):
“In today’s business environment, almost any technology, process, or innovation can be replicated, leaving most organizations without a decisive competitive advantage. However, leaders who embrace Organization Behavior Management (OBM) are gaining a competitive advantage that is nearly impossible to emulate. Why? Behavior is difficult to replicate—more so than any other aspect of business. Unless you have a strong understanding of human behavior and the scientific laws that support it, then it’s next to impossible.”

In order to have a successful organization, a business needs to focus on the behaviors of all employees through careful assessment. A business can use data to change problem behaviors to see the results they are looking for. Within the OBM literature, research data has shown that performance feedback is an effective intervention.

Feedback Alone

Performance is defined as “behaviors, tasks, and results that produce a specific outcome” (Daniels & Daniels, 2004, p.171), while feedback is defined as “information about performance that allows a person to change his/her behavior” (Daniels & Daniels, 2004, p.171).

A study by Goltz, Citera, Jensen, Favero, and Komaki (1989) asked the question, “Does individual feedback enhance the effects of group feedback?” The study examined “product handling” by twenty workers, which referred to the physical holding of the product while working with the product in a microelectronics plant. The feedback effectiveness was assessed using an ABCB reversal design, where A was baseline; B involved group feedback; C consisted of group and individual feedback; B was a reversal phase in which only group feedback was received.
The group feedback was displayed on a chart and cumulative graph. The chart also contained the handling behaviors being observed by the group’s overall performance and the group’s performance of each handling behavior, with a “Yes” or “No” score. “Yes” meant that everyone in the group performed the correct handling behavior, while a “No” was marked if only one person mishandled the product. The graphic feedback displayed the overall percentage for all the behaviors combined for that day. During the group plus individual feedback condition, the feedback chart also provided individual information on performance for each handling behavior, overall individual percentage for the day, and the groups’ percentages. This component allowed the individual to compare his or her percentages with the group percentages.

Results indicated that there was an improvement when individual feedback was added to group feedback compared to group feedback alone. However, when individual feedback was withdrawn and group feedback continued, little decrease in performance was observed. Handling behavior during the group only feedback condition maintained at a level similar to group plus individual feedback. Because the experimental design may have a problem of sequence effects in the condition order of ABCB, this study results are suggestive though not definitive in concluding that the individual feedback condition improved handling behavior.

Feedback was also examined in a study by Jones, Morris, and Barnard (1986), conducted in a mental health facility’s emergency room with 34 ER staff members as participants. The staff included psychiatrists, psychiatric medical residents, psychiatric social workers, and psychiatric nurses. The intervention consisted of didactic instruction and grouped graphic feedback. The state required that three forms (notice of rights, imminent harm applications, and witness lists) be filled out before a patient could be
detained involuntary for observation and treatment. Accuracy in completing these forms was the dependent measure for the study.

During baseline, a state required training session was conducted to inform staff of new civil commitment procedures and train them to accurately complete forms. Intervention included a feedback package consisting of instructions and group graphic feedback. Intervention was assessed using a multiple baseline across the three required forms.

Instructions were given during three meetings, at which the mental health coordinator met individually or with up to three staff members at one time. During the meetings, participants were told about the study being conducted. Then, participants and the coordinator reviewed the civil commitment process to become comfortable talking to one another. Next, each staff member was given a folder that included a job aid on how to fill out each of the three forms and a rationale as to why the forms needed to be filled out completely and correctly. Following instructions, staff was given a graph displaying group mean percentages for the three forms completed correctly. Then, the staff was asked if they would like to receive an updated weekly graph. Results indicated that correct completion of the three forms increased during intervention and was maintained during a follow up condition when no graphic feedback was provided. This study adds to the literature on the effectiveness of group feedback.

The effect of sources of feedback was explored in a study by Tittelbach, Fields, & Alvero in their 2007 study. The study examined the effects of supervisor verse peer verbal feedback on accuracy and speed of a typing task behavior. The study included 63 undergraduate students and was conducted in a laboratory room. In the room, cubicles were set up containing a computer and printer inside. A pretest was given on the
participants’ ability to use on finger on each hand to type with looking at the keyboard with minimal mistakes in a 100 word document.

There were two independent variables: verbal feedback by the supervisor or by the peer, with feedback based on accuracy, speed, and combined. There was also a control group, which was given no feedback. A questionnaire was given at the end of the study to determine if the participants distinguished between the supervisor and peer, which determined that the participants were able to distinguish between the persons. Speed and accuracy were the dependent variables for the study.

The design was a 2X3X2 repeated-measures mixed factional design. Prior to baseline, participants were given instructions as they sat at the computers. They were told to type the letters as they appeared on the screen in both capital and lowercase format. A network computer was located in a separate room computing the participants’ performance. Feedback was given on the number of number blocks (4 minutes) completed, number completed accurately, and number copied inaccurately.

The baseline period was 35 minutes long, and the intervention condition consisted of eight, four minute blocks. The experimental condition contained separate supervisor and peer feedback phases, while the control phase was the same as baseline. Results indicated there was no difference between the effects of supervisor and peer feedback on an increase in typing speed and accuracy with verbal feedback.

The Hawkins, Burgio, Langford, & Engel (1992) study examined the effects of adding written evaluative feedback to a verbal feedback system on the use of a prompted voiding procedure by geriatric nursing assistants (GNAs). This study took place in a nursing home with 47 GNAs as participants.
Prior to intervention, the GNAs participated in a maintenance program that set goals, gave graphed feedback on staff performance, and provided verbal feedback by supervisor. Part of the maintenance program involved the use of a GNA self-monitoring form, supervisor monitoring, and individual performance feedback, given to each GNA by the head nurse. GNAs were given verbal and written instructions on how to implement the prompted voiding procedure. The self-monitoring forms were kept in the residents’ rooms and the GNAs were to record if they prompted the resident at their scheduled time and if the resident was wet or dry. Each GNA signed the self-monitoring form.

During staff meetings the head nurse gave individual verbal feedback and graphic feedback as a group. The head nurse praised individuals who completed 60% or more of the prompted voids that were assigned and corrective feedback to anyone under 60%. During the intervention condition consisting of written evaluative feedback, GNAs were given a memo to inform them that a letter would be sent out every two weeks describing their performance, which would be placed in their personal file and used in their annual performance evaluation. Letters contained praise to those who completed 60% or more of their assigned prompted voids, or a statement that there was need for improvement for those GNAs fewer than 60% performance.

A design with sequential introduction of individual feedback with different units was used, without repeated measures in baselines, technically not a multiple baseline design. The intervention effectively increased prompted voiding procedures across the three units. Results indicated that the addition of written evaluative feedback to verbal feedback can increase staff performance.
Performance Improvement Package

Review of the literature concerning feedback suggests that it alone does not improve performance to the fullest extent; the addition of other procedures along with feedback tends to improve its effects (Balcazar, Hopkins, & Suarez, 1985; Alvero, Bucklin, & Austin 2001).

One addition to performance feedback is goal setting. The study by Wilk & Redmon (1990) included three participants from an undergraduate admissions office and focused on the number of tasks they completed, overtime costs, and absenteeism. The tasks consisted of loading an application, recalculating a GPA, typing a label with a name and putting it on a folder. Data were recorded on a data sheet that the participants signed at the end of the day and put in a box on the supervisor’s door.

During the intervention condition, the supervisor met with each employee to talk about daily goals. These goals were specific and contained the precise number of tasks to be completed each day. To determine a goal, the participants’ past performances were reviewed and office needs were taken into consideration. Feedback was given by the supervisor a minimum of 2 times per day focused on the completion of meeting or approaching goals. Praise was given if an employee was working and prompts were given if there was a need to focus back on the goals. The study used a multiple baseline across participants design, with baseline data being self-monitored. Results indicated an increase in the number of tasks completed. Also, overtime cost decreased to $0.00, and hours absent from the eight hour work day decreased.

A second addition to performance feedback is recognition and praise by the supervisor, Brown et al. (1981) examined the effects of supervisor verbal feedback and verbal feedback plus praise on staff at a residential facility for individuals with handicap
and intellectual disabilities during a morning and afternoon shift. Three categories of staff behaviors were assessed: social interaction defined as positive or neutral verbal, gestural, or physical contact with a resident, direct care stimulation defined as working directly with the resident in care work such as dressing and talking with them at one time, and off-task was defined as a staff member engaged in behaviors such as talking with other staff or reading a book and not engaged in behavior dealing with the unit or residents. The supervisor recorded data at hourly intervals using time sampling procedures.

During baseline, staff members were to perform their jobs as usual. They were told that observations were being conducted to provide information on how much time was spent on different tasks. Before the feedback condition began, staff members were informed that they would be receiving feedback on their performance. During this condition, the supervisor provided feedback to each staff member individually. Supervisors did not provide approval or disapproval of staff performance at the time. During the feedback plus praise condition, the supervisor used provided positive statements about staff’s member’s performance in one of the three categories of behaviors which were the focus of the study. A multiple baseline across staff and a reversal design was used to assess the effects of the intervention. During intervention, mean percentages of feedback alone did little to improve performance; the addition of feedback plus praise increased direct care/stimulation across both shifts and decreased off task behavior.

Another performance improvement component that has been added to feedback is task clarification. Task clarification, goal-setting, and feedback have been combined in several studies (Tittelbach, DeAngelis, Sturney, &Alvero, 2007; Amigo, Smith, &
Ludwig, 2008). The effects of the combined intervention components were used to decrease table busing times in a franchise pizza restaurant in the study by Amigo, Smith, & Ludwig, 2008. The study used an ABC design, indicating that phase A was baseline, B was task clarification and goal-setting, and lastly phase C was group and individual feedback.

During phase B, the participants were given a memo instructing them on the correct steps to be used when bussing a table. A goal was set to reduce the time to bus a table to three minutes or less. Participants were reminded of the goal throughout the study. During phase C, the manager informed participants individually of their busing performance by providing graphic feedback displaying his or her average time; the goal was also reviewed at this time. Group graphic feedback of the combined average busing time for all participants was posted in the back of the restaurant. Results indicated that both intervention phases reduced table busing time to less than three minutes, meeting the established goal. The nature of an ABC design made interpretation of data difficult; however, the B phase was an improvement on baseline, while the C phase was associated with maintenance.

In a more sophisticated experimental design, Tittelbach et al. (2007) examined the effects of task clarification, feedback, and goal-setting on student advisor’s office and customer service behaviors. These behaviors included: punctuality (arrival 5 minutes before/after shift begins), client greeting (address client verbally, such as “hello”), and correct front desk behavior (sitting up correctly and facing clients while behind the desk).

Unlike the Amigo, Smith, and Ludwig, 2008 study, this study combine all three components in a multiple baseline design across behaviors design. The data were made up of the average percentage across all 10 participants. During baseline, role plays were
shown for correct office and customer service behaviors. During intervention, a goal was stated by the supervisor for future performance. A task clarification sheet was given describing average group performance and verbal feedback was also given to the group. Results indicated a strong effect across all behaviors, especially greeting.

Another study, by Anderson, Crowell, Hontula, and Siroky (1988) took place at a university bar in need of major cleaning components. Thirty bar employees participated in the study. The bar was divided into eleven work areas with check lists indicating completion of cleaning tasks for each area. After the employees cleaned, data were collected with the number of check marks producing a percentage, the dependent variable for the study.

Intervention included a task clarification checklist that was always visible to employees. The check list was explained for the required cleaning tasks. The checklists were located in every work area. Employees were then divided into 3 groups and given visual feedback through charts placed on a wall in the bar. Feedback was staggered between the three groups. A multiple baseline across groups design was used to assess the intervention. Baseline data displayed a downward trend, which was reversed during the task clarification phase and continued to increase with feedback phase.

In addition to the three components previously mentioned (feedback, goal-setting, task clarification), performance contingent consequences have also been added to intervention packages. In a study by Slowiak, Madden, and Mathews (2005), the effects of the intervention package were examined in relation to telephone customer service in a medical clinic. Greeting, friendly voice tone, and closing were the three customer service behaviors targeted.
An ABAB reversal design was used to assess the effects of the intervention package. The intervention consisted of a job aid, placed as a visual reminder, the location of the three target behaviors. Task clarification was given as a handout to participants describing the telephone customer service standards of the clinic. Definitions of the three target behaviors were given as well. Goals were also set for all three behaviors based on baseline data. Performance feedback was also part of the intervention package. Feedback was given twice a week by email to each individual, in the form of a bar graph of the three behaviors and goals. If goals were met the individual was given a list of bonus items given as a reward. Data indicated an obvious increase from baseline to the first intervention phase; when reversed to baseline, there were still increased effects from the previous phase at the same level as improvement during intervention.

A contingent consequence within a lottery system was added in a study by Cook & Dixon (2005), which extended the effects of verbal feedback to graphic feedback and a lottery for financial rewards to assess their effects on the completion of forms. The participants included three adult supervisors in an agency that served individuals with developmental disabilities by providing group homes. Direct-care staff completed the forms that were used during the study. The four forms included a shift summary report, daily observation report, behavioral tracking sheet, and a program task analysis sheet.

A multiple baseline across participants design was used to assess the effects of the three different intervention conditions. During baseline, the participants were to perform their normal daily duties. In the verbal feedback condition the investigator and participant would meet once per week and give their score on the level of completeness on each form for that week. During the comparative graphic feedback condition, a graph was given to the participant weekly, displaying their progress along with the other two
participants who names were not reported. When a lottery system was added in the third
d condition, whichever participant had the highest score on their level of completeness for
the week received three lottery tickets, then 2 tickets for second highest score, and one
for the last participant. At the end of each week, a $50 cash prize was given to the
winner whose ticket was drawn.

Results indicated that the verbal feedback condition increased the mean
percentage of forms completed. When graphic feedback was added to verbal feedback in
the second condition no significant increases in percentages were seen. The highest
increases were seen in the lottery condition for all participants. Performance feedback
with or without the other two conditions added, showed improvements in the each
participant’s percentage of form completeness.

A study by Loewy & Bailey (2007) incorporated all these successful interventions
to assess their effects on customer service behaviors. The study took place in two
national home improvement chain store locations; each location had about 150
employees. Greeting, eye contact, and smiling were the dependent measures for this
study. Observations were recorded in the front of the store at other high-traffic areas
within the store. Data were collected on an average of once out of every three days. The
intervention was assessed using an A-B-C and multiple baseline design.

During the graphic feedback condition, group performance levels were posted
outside their break room. Managers prompted staff members to look at the graphs.
During the second condition, managers announced a goal at the staff’s daily meetings.
The goal was also posted on the graphs, marked by a red dashed line. When the goal had
been met for the posted feedback, the manager would give written feedback on the graph
itself. Managers also gave verbal praise to individual staff members when they were observed engaging in one of the targeted behaviors (greeting, eye contact, and smiling).

Results indicated a slight improvement in performance during the graphic feedback condition, and then a decrease. Little change was indicated during the second condition. The researches propose that this slight change in performance may have been due to a lack of consequences.

A study by Godbey & White (1992), examined the effects of behavior monitoring, setting objectives, giving feedback, and praise on the accuracy of computerized summaries of court case activity. Five staff members of the local court system served as participants in the study. Audit procedures were used as the measurement procedure for the study, since during the audits the accuracy of the first 100 filing documents would be examined. During baseline, participants were instructed to improve the accuracy of computerized summaries of court activity. In this condition, two audits were conducted and used for baseline data. An ABCA design was used to assess the intervention.

During the first intervention phase, group meetings were held. At this time, staff members were asked to identify behaviors they could utilize in to reduce the errors shown in the computerized summaries. Participants were given assignments for each week and then praised upon completing assignments in an individual memo. The author of the study provided prompts and verbal praise for working on assignments. After six weeks, the study procedures reversed to baseline. The intervention condition was re-established and modified so there were no more meetings or memorandums. The intervention still consisted of monitoring computerized summaries and informal weekly conversations. Results of the study indicated an increase in accuracy during the first intervention phase. When the study reversed to baseline the percentages stayed the same and showed an
increase during the second intervention study. The ABAC design leads to sequence effects which were likely demonstrated in the study.

Prompting is yet another component that has been added to feedback packages. The Milligan and Hantula (2004) study found that prompting alone can effect performance. The study had only one participant who was owner/operator of a pet grooming store. The owner recorded grooming and sales on index cards in the store. These cards were then used as prompts for additional purchases. The prompts were written on the back of the cards.

Three types of prompts were used, “specific products”, “non-specific”, or “no prompt”. The index cards were shuffled and turned over so that prompt was visible to the owner. A research assistant recorded data while dressed as a grooming assistant. An A’ABC design was used to assess the effects of the intervention. During the alternating treatments phase, the owner recorded normal store procedures on index card, along with whether or not a prompt was used. During the full prompt phase, the no prompt cards were taken out. Results indicated that the use of the index cards increased the owners prompting behavior for asking customers to buy additional products.

In the 2007, Squires et al. study examined 10 employees of a restaurant. The target behaviors were greeting (verbal acknowledgement of customer within 3 sec) and up-selling (asking the customer to purchase additional items). Students observed and recorded data about the two behaviors while seated at a nearby table pretending to read. A multiple baseline across behaviors with a reversal design was used to assess the effects of task clarification, prompts, and feedback on target behaviors. During task clarification, both greeting and up-selling behaviors were described and examples of correct behavior were modeled. The visual prompts were two posters; one for greeting
and another for up-selling. The posters were placed in the store and said “Remember to (greet/up-sell).” During the feedback condition, a line graph was presented displaying percentage of group performance. The graph was updated daily. All three intervention conditions were effective in increasing the two target behaviors. When the intervention reversed back to baseline, target behaviors decreased. Structure of the design was open for sequence effects.

The performance improvement package procedures, including written and graphic feedback, prompting, praise, and contingent consequences have been effective in the management of behaviors.

Current Study

The purpose of this current study was to expand upon the previous performance improvement literature. A performance improvement package with the components of goal-setting, prompting, and feedback was used to improve dollars billed to Medicaid for services provided by school psychologists, and to increase the number of school psychologists who turned in their required documentation for Medicaid billing. Experimental control was demonstrated within a multiple baseline design across three large service areas of a county school system.
Method

Participants and Setting

The study took place within the Hillsborough School District which has an enrollment of 192,749 students. The school district was divided into 7 geographical areas of schools that include the pre-k through secondary level. School psychologists were assigned schools within areas to provide psychological services, and three of the district’s seven areas were the focus for the study. Area A employed 24 school psychologists. Area C had 25 school psychologists and Area B had 25 school psychologists, for a total of 74 psychologists. A school psychologist must have had at least a master’s degree and 1200 internship hours. Most psychologists had a master’s degree and an Ed.S. Criteria for the three areas selected included the potential for funds to be generated because the schools had a substantial number of ESE students enrolled. According to the September 2008 enrollment count there were 6,468 ESE students enrolled in the district, which is 3.4% of the total students.

The settings for the study included the various schools that were within each of the three areas, from which the school psychologists were assigned. Another location was the school district administrative building where the supervisor for Psychological Services was located, along with the Medicaid building where Medicaid functions were performed. 34 individual schools were located within Area A, Area B had 38 schools, while Area C included 30 individual schools, for a total of 102 schools.
Prior to the beginning of this research, approval was obtained from the Hillsborough School District and The Institutional Review Board (IRB) at the University of South Florida.

Performance Analysis

A performance analysis was conducted prior to baseline. The Performance Diagnostic Checklist (PDC) (Austin, 2000) was used to assess areas for performance improvement within duties of billing among the school psychologists. The analysis was based on direct observation and interviews with several school psychologists, the Supervisor of Psychological Services, and an employee of the Medicaid budget department. The PDC included four sections; antecedents and information, equipment and processes, knowledge and skills, and consequences.

Results of the assessment indicated that the school psychologists did not have a system in place for antecedents, information, and consequences. The school psychologists were not given frequent antecedent stimuli, such as there were no prompts or reminders to turn in billing. Also, goals were not set for the completion of billing. The school psychologists did not have adequate information on where the dollars for billing were dispersed once reimbursed. Finally, school psychologists were provided with infrequent and inconsistent feedback on their billing performance, along with no performance contingent consequences.

Medicaid System

Hillsborough School District participated in a state-wide program for schools known as Medicaid Certified School Match (MCSM) program. The program matched funds on a “fee for service” basis for reimbursement. The requirements for Medicaid reimbursement for services provided to a student were:
1. Student must be in the ESE program: To be an ESE student they must meet the criteria of deaf/hard of hearing, emotional/behavioral disability, autism spectrum disorder, physically impaired with orthopedic impairments, physically impaired with other health impairments, or physically impaired traumatic brain injury.

2. Student identified as ESE must have an Individual Education Plan (IEP). The IEP is developed with parental involvement. The IEP identifies individual goals that need to be addressed based on assessment data. Program monitoring is required, and services must be provided in the least restrictive environment. Other sections of the IEP include present level of performance, academic goals, and teaching strategies.

3. Student must be under 21

4. Disabled under IDEA: determined to have handicap condition under guidelines for IDEA federal legislation.

5. Student must be Medicaid eligible: parent/guardian has completed a Medicaid application at the Florida Department of Children and Family. The department determines student’s eligibility based on family income. However, a child receiving Social Security Income (SSI) is automatically eligible for Medicaid.

The MCSM program covered a variety of services, such as nursing, social work, and behavior analysis. This study focused on the behavior services provided by school psychologists. The school psychologists billed under three categories: group service, individual service-evaluation, or individual service-all else. The MCSM Coverage and Limitations Handbook states “If services are rendered to or on behalf of an individual Medicaid-eligible student, regardless of which service or combinations of services are being rendered, the school district must bill for individual behavioral services...a group of
students” (Handbook, 2005). To bill Medicaid for services provided, each school psychologist was required to document service activity on an electronic or paper billing form. A single form could contain multiple students/services provided so that it was not necessary to fill out a form for each service activity.

System Analysis

The billing procedures operated as follows: First, the school psychologists ascertain if the student was on the Medicaid eligible list. Once a child was found to be Medicaid eligible his/her information was imputed into the school district’s computer system. At the end of each month, Information Systems (IS) sent the Budget Department at Medicaid a list of the current Exceptional Student Education (ESE) students, the information was downloaded into the Medicaid tracking system.

The Medicaid Budget Department downloads the list from the MTS, downloads the information into an Access file and put the file into the IDEAS system, which was the computer communications system within the school district. There was a Medicaid section located in IDEAS (Internal District Electronic Access System), where the school psychologist could electronically retrieve and pull for a current list of Medicaid eligible students for billing purposes.

The school psychologist could also download the Medicaid billing form from the Medicaid section in IDEAS. Once downloaded, the school psychologist completed the form and sent it by email or mail to the Medicaid budget department. The completion of all relevant forms would take each participating school psychologist 5-15 minutes each fortnight.

When a completed form was received at the Medicaid office, an employee inputted the information from the forms into a spreadsheet. Information on the spread
sheet includes: student number, name, service ID provider, and school psychologist’s name, date of service, procedure code, units, and diagnosis code. Numerous forms were added to the spread sheet then “batched.” To batch the information meant to send it to Tallahassee, FL, which was the fiscal agent. The information was processed in Tallahassee and a check was sent electronically back to Medicaid for the school district of Hillsborough County containing 58% of the amount billed. For example, when Medicaid batched on Wednesday, the money would arrive on Monday. That money was put into the district’s funds, which would then be allocated by the district according to set priorities.

Data collection and Dependent Variables

Every two weeks (2 fortnights), data was collected through the Medicaid tracking system. The amount of billed Medicaid dollars was the primary dependent variable. The amount was calculated by multiplying the units of time by the procedure code amount. 15 minutes was equivalent to 1 unit. The three procedural codes; group services, individual-evaluation, and individual-all else had designated fees. The groups service and individual-all else were $9.66 per unit, while group service was $4.95 per student, per unit. There was a protocol to round up the time when billing the units. For example, a school psychologist billed for 16 units (4 hours) for an individual evaluation which cost $10.00 a unit. The billed amount calculated to $160.00. A secondary dependent variable was the number of school psychologists who turned in billing

Interobserver Agreement

The data were assessed for interobserver agreement by having a second person independently score the data from 6 of the 19 two-week periods (32%). The reliability observer scored data sets in an order determined from a table of random numbers with the
requirement that interobserver assessment was assessed on at least two data points in each experimental condition for each area. The order of scoring; Area A: 10, 8, 9, 12, 11, 1. Area B: 4, 8, 2, 10, 17, and 16. Area C: 19, 9, 2, 5, 3, 17.

The IOA score was calculated by two week periods as a percentage. The percentage was calculated by taking the smallest total score divided by the largest total score total multiplied by 100, and there were 6 scores for each Area, for a total of eighteen scores. The eighteen scores were added and divided by eighteen for the mean scores and the overall reliability scores. IOA scores were calculated for dollars billed to Medicaid for reimbursement by school psychologists and the number of school psychologists who turned in billing. The Medicaid tracking system also includes a Quality Control file, which takes 30 forms at random to check the billing amount with the system. IOA was calculated agreement by two week periods, as a percentage.

Social Validity

A social validity questionnaire was administered by the Supervisor of Psychological Services to the school psychologist after the study had been conducted. The questionnaire contained six questions for the school psychologists to rank on a five point scale: 5=Agree, 4=somewhat agree, 3=neutral, 2=somewhat disagree, 1=disagree. The questions related to information provided by the supervisor, acceptability of performance improvement package, value of completing billing, and the likelihood of continuity of participation in the program.

Experimental Design

A multiple baseline across the three school district areas was used to evaluate the effects of the intervention. The intervention was implemented in a staggered manor across the areas to demonstrate experimental control. Experimental control was
demonstrated when an intervention was implemented, and a behavior change was
displayed for billing by psychologists in that area only. The logic of single-case design
could be applied to between-group comparisons using the repeated measures within a
multiple baseline design according to Kazdin (1982, pg. 229).

**Procedure**

**Baseline.** At the beginning of the school year all school psychologists received
training in Medicaid documentation procedures. Training was conducted by a senior
fiscal analyst from the Medicaid’s budget department and included information on the
basics of Medicaid, instructions on how to retrieve the Medicaid eligibility list online
through IDEAS and how to complete the billing form. During baseline, the school
psychologists were required to turn in billing within a one year period. The Supervisor of
Psychological Service did not provide any feedback to the school psychologists on their
billing activity.

**Performance Improvement Package.** During the intervention phase a
performance improvement package was implemented. The package was include goal-
setting, prompting, and feedback.

1. **Goal-setting.** An email was sent out to the school psychologists in the areas
targeted by the intervention by the supervisor of psychological services stating
that a new goal for Medicaid billing activity was to be put into place. The new
goal required school psychologists to complete documentation for Medicaid
billing on a weekly basis; this differed from baseline, which required billing on a
yearly basis. The email content follows:

   Hello Area___-
Over the past 4 years, Medicaid reimbursement dollars have been lower than previous years. I would like to see those dollars increase, but need your help. I ask that everyone who has provided services to a Medicaid-eligible, ESE student please complete billing in a timely fashion.

Our goal is to consistently complete required documentation for Medicaid billing at the end of each week. Last year I sent a similar email out to school psychologist in Area 2, by providing a goal, prompting, and feedback on my end, they were able to increase their monthly billing by thousands of dollars! I understand that this may require additional work on your end and I’m assured it can be done. With effort from both you and me, I know your Area will also increase dollars billed. An increase in dollars billed means more money is reimbursed for the school district.

I appreciate those who are already extending the effort to consistently complete documentation. I look forward to meeting our goals of completing required documentation on a weekly basis, and most importantly increasing Medicaid reimbursement dollars.

Best-Supervisor of Psychological Services

2. Prompting. Prompts were sent out every Friday morning by the Supervisor of Psychological Services. Prompts were sent electronically to the school psychologists’ email to remind them to turn in their billing at the end of the week. The prompt content was as follows:

Hello Everyone-

This is just a reminder to complete the required documentation for Medicaid billing.

Thank you!
3. **Feedback.** Group written and graphic feedback was given to the school psychologists every two weeks based on their billing performance. A written statement of praise or need for improvement was sent out electronically by the Supervisor of Psychological Services which contained two graphs, one displayed the billed Medicaid dollars, and the second graph displayed the number of school psychologist who turned in billing. Positive feedback was provided routinely, except on those occasions participation or dollars billed were judged by the experimenter as not showing improvement consistent with the goal set or showed a decline below the level set by the goal. The email content included:

*Dear Area___*

*I appreciate your effort in the Medicaid billing these last few weeks. I want to thank you for completing your documentation for Medicaid billing and keeping our goal in mind.*

*Please keep up the good work. I have attached a graph, which displays the Area’s dollars billed for Medicaid reimbursement.*

*Thanks! Supervisor of Psychological Service*

*Dear Area ____-*

*I appreciate your effort in completing billing each week. From the information given to us by Medicaid, it seems that very little billing has been sent in. I know that documentation activity requires extra work, but I do hope you keep our goal in mind. I have attached a graph, which displays our billed dollars to Medicaid.*

*Thanks- Supervisor of Psychological Services.*

The additional time required by the Supervisor of Psychological Services for implementation of these procedures was minimal, less than a few minutes per fortnight. The supervisor received a report in a word document containing a summary of graphs and
information. The supervisor attached the report in an email and sent the group feedback to each area as appropriate. The experimenter received a summary of information in a spreadsheet format from the Medicaid budget department, collated the information and graphed it. The graphs and the content of feedback were sent by email to the Supervisor of Psychological Services. This process required no more than thirty minutes of the experimenter’s time each fortnight. The fiscal analyst who was responsible for Medicaid billing continued his activities without change, except that batching was placed on a routine. The batched information was sent to the experimenter each fortnight to be reviewed and sent to the Supervisor of Psychological Services. Additional activities required only a few minutes.
Results

Dependent Variables

Dollars Billed. Based on the data collected across 19 billing periods, the performance improvement package increased the amount of dollars billed to Medicaid for all three Areas. Figure 1 displays the total amount of dollars billed to Medicaid for all three Areas. The x-axis spans across 19 billing periods, each billing period equals 2 weeks. The y-axis is the total in dollars billed. In Area A, the baseline mean= $322.62; Area B, M= $929.59; Area C, M=$1,576.69. According to the multiple baseline design’s sequential introduction of the performance improvement package, billing consistently increased following the change of experimental conditions. During the performance improvement package the average of dollars billed in all three Areas increased; Area A, M= $1,984.96; Area B, M= $4,293.53; Area C, M= $19,106.87. Overall the package lead to an improvement from a baseline data mean of $1,028.12 to a performance improvement package mean on $23,226.47, which meant that under the performance improvement package billing averaged $22,198.35 more per billing period in the performance improvement package conditions. In fact, the 38 baseline periods resulted in $40,538.00 totals in billing, whereas the 19 intervention periods totaled in $98,770.42 total. Medicaid billing is reimbursed by the state 58% of the amount billed.
Figure 1. Dollars Billed by School Psychologists across three Areas.
Number of School Psychologists. Based on the data collected throughout the study, the performance improvement package increased the number of school psychologists who turned in billing to Medicaid within a two week billing period. Figure 2 displays the number of school psychologists who turned in billing to Medicaid. During baseline the average number of school psychologist turning in billing was: Area A, M= .6; Area B, M= 1.08; Area C, M=1.88. The average number of school psychologists turning in billing increased to Area A, M=4.33; Area B, M= 6.33; Area C, M=5.67 during the intervention phase. Therefore, during baseline conditions 38% of psychologists participated per billing period, whereas during the performance package, 58% of the psychologists participated actively in the program per billing period.
Figure 2. Number of school psychologists who turned in documentation for Medicaid billing.
**Interobserver Agreement**

The IOA score was calculated as a percentage in two week periods. The percentage was calculated by taking the smallest total score divided by the largest total score and multiplied by 100; there were 6 scores for each Area, for a total of eighteen scores. Two disagreements were identified for the dollar amount scores, a difference totaling $.24 and $106.26, with an overall IOA score of 99.77%. There was one disagreement in the number of school psychologists who billed, a difference of one, with an overall IOA score of 99.3%.

**Social Validity**

Based on the results of the School Psychologist Questionnaire, the school psychologists agreed that the Supervisor of Psychological Services provided them with information on how to complete billing, feedback and graphs were understood, and it was recommended that the supervisor continue to provide feedback on billing activity. When asked if the goal was acceptable and obtainable, 46% of the school psychologists agreed or somewhat agreed, 23% were neutral, and 30% somewhat disagreed. 65% of the school psychologists said they would continue to bill on a weekly basis, while one school psychologist reported the goals were unacceptable and unobtainable, and would not continue to bill Medicaid on a weekly basis.
Table 1

Social Validity Questionnaire for School Psychologists
Completed by 18% of school psychologists
Average Percentage Scores
N=13

5-Agree, 4-Somewhat Agree, 3-Neutra, 2-Somewhat Disagree, 1-Disagree

a. My supervisor provided me with information I needed to complete my Medicaid billing.
   5 4 3 2 1
   92% 7% 0% 0% 0%

b. I understood the feedback and graphs that my supervisor provided for me.
   5 4 3 2 1
   76% 7% 7% 7% 0%

c. The goal to complete my Medicaid billing on a weekly basis is acceptable and obtainable.
   5 4 3 2 1
   23% 23% 23% 23% 7%

d. I recommend that my supervisor continues to give me feedback on my Area’s performance.
   5 4 3 2 1
   46% 54% 0% 0% 0%

e. It is important to be informed on the Medicaid billed amounts.
   5 4 3 2 1
   54% 31% 15% 0% 0%

f. I will continue to complete my Medicaid billing on a weekly basis.
   5 4 3 2 1
   23% 38% 31% 0% 7%
Discussion

The current study evaluated the effects of a performance improvement package on the documentation of Medicaid billing by school psychologists across ten months of the school year. The results of the study showed that, consistent with the multiple baseline design, the sequential introduction of the performance improvement package was followed by prompt increases in the dollars billed to Medicaid by school psychologists. In addition, the number of school psychologists who turned in billing for Medicaid reimbursement increased. These changes resulted in a substantial increase in income for the school district. The increase in the income for the district averaged $12,875 per fortnight with the total investment of additional time of two-four hours of all personnel involved. These benefits were obtained in a cost efficient manner even though only 58% of school psychologist participated during the intervention condition. These results demonstrate an excellent return on investment of time and resources.

The results of introducing the performance improvement package consisting of goal-setting, prompts, and group written and graphic feedback improved billing to Medicaid by school psychologists support the findings by Balcazar, Hopkins, & Suarez (1985) and by Alvero, Bucklin, & Austin (2001) who showed that the additional components of graphic feedback, prompts, and praise added to feedback will increase success.

This study was valuable because the education system is in need of additional funding and the performance improvement package utilized the money the school systems may have readily available. This study was the first to assess the effects of a
performance improvement package on documentation for Medicaid billing within a school system. The findings of this study support a performance improvement package as an effective, and social valid intervention to increase the dollars billed to Medicaid, and the number of school psychologists who turned in billing. The study was also valuable in the context of shrinking school budgets. In fact, during the conduct of this study school psychologists’ contracts were cut from twelve months to ten months with the accompanied reduction in salary and associated decline in morale.

Experimental control was demonstrated within the multiple baseline design. Stable baselines were established prior to intervention, with Area B showing greatest variability. Following the introduction of the intervention, the first data point showed small if any effect and a much larger increase in the second data point of intervention. After the initial substantial increases the level of the data decreased and stayed at a level consistently higher than baseline. The increase from the first to the second intervention data point appears to be a result of having received the first feedback on performance, even though the intervention began two weeks earlier with the introduction of goal-setting and prompting. Thus, the intervention package had been fully implanted prior to the second data point of the intervention. It should also be noted that there were large increases in the dollars billed at the beginning of the intervention, and these effects were transitory. Thus, the initial increase of dollars billed were likely the result of the school psychologists having months of billing documentation yet to be completed and turned in to Medicaid. Prior to the performance improvement package the school psychologists were required to turn in Medicaid billing documentation within a one year time frame, while the intervention package set a goal for billing to be turned in at the end of each
A benefit of this study was that the performance improvement package components fit within the system without excessive additional time needed from all participants involved. The time required by each school psychologist was less than 15 minutes per fortnight, and the additional time required for administration and supervisor time was 35 minutes per fortnight. The Medicaid budget department suggested the use of the performance improvement package to be utilized within the social work and nursing departments that also bill to Medicaid for reimbursement. Before the performance improvement package is adapted to a broader area a recommendation would be to bill on a monthly basis rather than a weekly basis. A pilot study was conducted prior to this study containing a similar performance improvement package, during the pilot study school psychologists were required to turn in billing on a monthly basis rather than weekly during the intervention phase. Results from the pilot study showed that school psychologist averaged $5,000 billed to Medicaid each month. In the current study, the dollars billed to Medicaid maintained around an average of $2,000 every two weeks, totaling an average of $4,000 every month. The two studies came to similar results, one of which billed monthly and the other weekly showing that the school psychologists apparently do not need to bill on a weekly basis in order to see successful results.

Based upon the outcomes of this research the following recommendations can be made. The performance improvement packages components of goal-setting, prompting, and feedback should be incorporated in ongoing programs. Feedback to a group rather than to individuals is adequate and recommended. The goal setting should be for performance improvement rather than absolute numbers for consistency across areas.
where they may be varying possibilities for billing, e.g. special education center versus regular school. Forms completed by school psychologist for Medicaid billing should allow for multiple students in recording efficiently on the same page for optimal use of time.

Social validity data showed that the program was well received, informative, provided relevant information, important, and the school psychologists were likely to continue the program. However, the percentage of school psychologists who returned the social validity questionnaire was low at 13 percent of school psychologists who participated. This was probably due to timing of administration, being after the school year had concluded. The reaction school district administration may be characterized by one administrators comment that such a large change in dollars generated that it cannot be ignored.

One limitation to the study was the experimenter analyzed and graphed the data as it came through the Medicaid tracking program. If the performance improvement package is to be maintained, this may create the need for a systems consultant or training of a current employee to analyze and graph data for feedback. Only a small amount of additional time is needed to analyze and graph the data, approximately one hour each month. The additional employee would need to be trained and skilled in Microsoft Excel or a similar spreadsheet and graphing program.

Another limitation to this study was the performance improvement package itself. The results of this study cannot determine if one component (goal-setting, prompting, or feedback) was attributed to the increase in the two dependent variables. The data show that when goal-setting and prompting had been implemented alone prior to the first intervention data point the outcomes were smaller than during subsequently billing.
periods after which the feedback component was added. However, given that the
package of procedures was easy to administer with little time involve and the effects were
robust, then component analysis does not need to be warranted.

Future research should collect data on the day billing was received at the
Medicaid budget department and compare those data to the day the school psychologist
provided services to the Medicaid eligible student. The future research idea would offer
a detailed system analysis of the date billing and services were completed. Future
research could also assess the maintenance of effects. During the pilot research, it was
found that following withdrawal of the performance improvement package dollars billed
dropped to baseline level. This suggests that the program needs to continue or other
maintenance strategies need to be examined.
References


Appendices
Appendix A: A social validity questionnaire given to the school psychologists

Name: ________________________________
Date: ________________________________

Questions for the School Psychologists to Answer:

5-Agree, 4-Somewhat Agree, 3-Neutra, 2-Somewhat Disagree, 1-Disagree

Please circle the rate number for each of the following questions.

a. My supervisor provided me with information I needed to complete my Medicaid billing.
   5  4  3  2  1
b. I understood the feedback and graphs that my supervisor provided for me.
   5  4  3  2  1
c. The goal to complete my Medicaid billing on a weekly basis is acceptable and obtainable.
   5  4  3  2  1
d. I recommend that my supervisor continues to give me feedback on my Area’s performance.
   5  4  3  2  1
e. It is important to be informed on the Medicaid billed amounts.
   5  4  3  2  1
f. I will continue to complete my Medicaid billing on a weekly basis.
   5  4  3  2  1