

iBudget

Florida



agency for persons with disabilities
State of Florida

iBudget Background

- iBudget implementation was authorized in s. 393.0662, F.S., in 2010
- Revisiting the algorithm was planned after a year of full statewide implementation (2013 - 2014)

iBudget Background

The main purposes of developing a statistical algorithm for calculating APD consumers' individual budgets are:

1. Increasing fairness of resource distribution based on consumers' individual characteristics and assessment results
2. Predicting resource needs before services are decided upon and managing funds scientifically; and

iBudget Background

3. Enhancing transparency of the fund distribution process and sustainability of APD's programs and services

How did we get here?



The algorithm was to be revisited after one full year of implementation statewide.

Family Care Council feedback December 16, 2014

Public meeting feedback occurred December 18, 2014



How did we get here?

Next public meeting on the algorithm will be held February 16, 2015, from 2 – 4 p.m. EST at the Agency for Persons with Disabilities State Office, Room 301, Tallahassee, Florida,

How did we get here?

Common recommendations of variables to consider from stakeholders

- Caregiver age
- Caregiver provides care to others
- Caregiver health status
- Caregiver employment status
- Protective Services Involvement

How did we get here?

Common recommendations of variables to consider from stakeholders

- Client age - 50 and above
- Carve out: Transportation, Dental, Support Coordination, Environmental Adaptations, and Medical Equipment
- Break out licensed facilities by rate levels
- Include data from the Physical section of QSI
- Include more QSI questions

iBudget Algorithm

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Current iBudget Allocation Formula

AGE

QSI
ASSESSMENT

- 1) Functional score
- 2) Behavioral score
- 3) Ability to transfer, self-protect, and maintain hygiene

LIVING
SETTING



Determine Individual Budgets



Current iBudget Allocation Formula

- Based on 2007-2008 fiscal year expenditures
- Age 21 was the key age factor
- Living settings divided into family home, independent/supported living, group home and residential habilitation center
- Group home
 - Combined group home setting dollars except residential habilitation centers

Current iBudget Allocation Formula

- Used QSI Functional and Behavioral Sum of Scores of all questions
- Additional QSI questions 18, 20, and 23 were additionally weighted
 - Question 18 = transferring
 - Question 20 = self-protect
 - Question 23 = maintain hygiene

2014-15 Algorithm Tasks

1. Evaluate and Refine the Florida APD's Current iBudget Algorithm
2. Update Statistical Models for the Florida APD's iBudget Algorithm to identify new algorithm options

2014-15 Algorithm Tasks

Examine Florida iBudget algorithm using the baseline data from July 1, 2013, to June 30, 2014

iBudget Algorithm Task 1b

Task 1B: Conduct outlier detection and regression models

iBudget Algorithm Task 1b



- Outliers are generally individuals with extremely high or extremely low expenditures
- These outliers can sometimes reduce the precision of the model estimation and prediction results.
- Hence in practice, outliers commonly need to be detected and removed from the data.
- It is typical that 10 percent of outliers are removed.



iBudget Algorithm Task 1b



Outliers:

- Among 29,766 individuals with APD waiver expenditure data in FY 13-14, 9.51 percent of the consumers (2,831 individuals) were detected as outliers
- These individuals' expenditures were removed from the data analysis of the algorithm



iBudget Algorithm Task 1c



Examine goodness of fit of the selected model



iBudget Algorithm Task 1c



- Evaluate results of the iBudget algorithm based on FY 2013 – 2014 claims,
- Which showed that the “r-square” values of the regression models based on the new data are:
- **Significantly higher than those based on the FY 2007 – 2008 claim data**



iBudget Algorithm Task 1c



- “r-square” is a number that indicates how well the statistical model fits the data
- “r-square” value is the fraction of the total variation of expenditures explained by the model
 - Total variation is the sum of squares of individual expenditures from the average



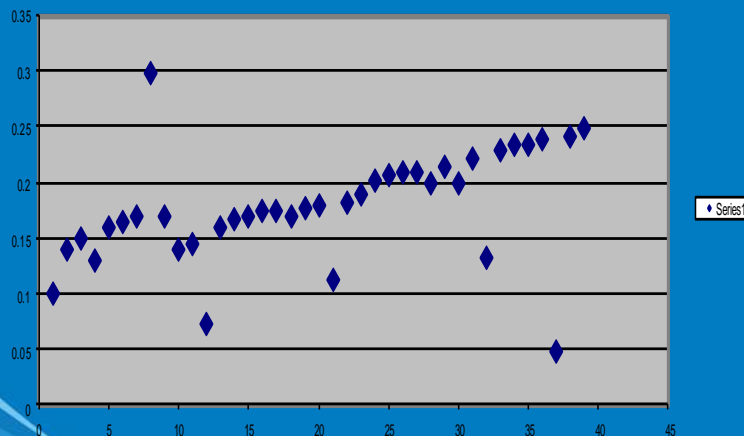
iBudget Algorithm Task 1c



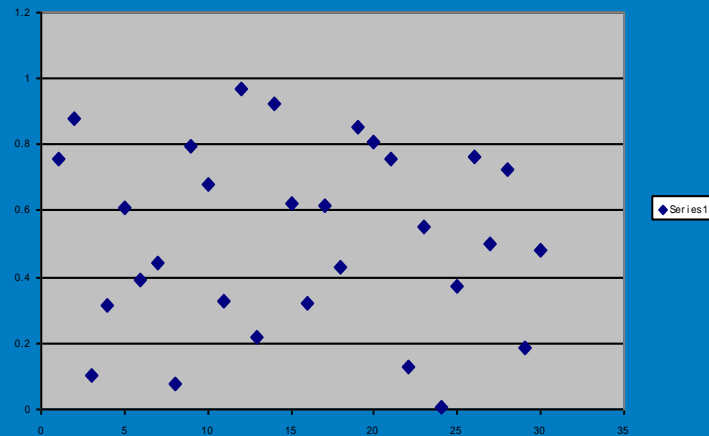
What makes a good algorithm?

- *High “r-square”—a measure that tells us how well a formula fits its data*

Higher r^2



Lower r^2



iBudget Algorithm Task 1c

- “r-square” value is a measure reflecting the model goodness of fit...the larger the number, the better the fit
- “r-square” value for 2010 algorithm with fiscal year 2007-2008 claims data before removing outliers = **0.52**
- “r-square” value for 2010 algorithm with fiscal year 2013-2014 claims data before removing outliers = **0.58**

iBudget Algorithm Task 1c

- “r-square” value for 2010 algorithm with fiscal year 2013 -2014 claims data after removing 10 percent outliers = **0.7338**
 - 9.51 percent outliers = (2,831 consumers)
- “r-square” value for 2010 algorithm with fiscal year 2007 - 2008 claims data after removing outliers = **0.6757**

iBudget Algorithm Task 1c



- This is a 5.8 percent increase from the “r-square” value of the 2010 chosen model



Algorithm Other States

- 1.0 is perfect fit to data; but difficult to achieve due to unique circumstances
- Wide range of “goodness of fit”
 - *Louisiana: .46*
 - *Georgia: .75*
 - *Colorado: .26 & .51 (two waivers)*
 - *Oregon: .45*
 - *Wyoming: about .80 (started at .50)*



iBudget Algorithm Task 1c



Conclusion for Task 1:

The iBudget Algorithm developed in 2010 fits the FY 2013 -2014 claims very well because as more customers are added based on the iBudget algorithm and the significant additional needs process the prediction accuracy is improved



iBudget Algorithm Task 1d and Task 1e



- Make recommendations for future algorithm
- Perform additional statistical analysis

This leads us to Task 2



Questions Task 1



iBudget Algorithm Task 2

2. Updated Statistical Models for the Florida APD's iBudget Algorithm
 - a) Determine and refine dependent variables
 - b) Determine and refine independent variables
 - c) Develop a method for identifying outliers

iBudget Algorithm Task 2

- d) Assess and provide the recommendations for improving data integrity
- e) Test the accuracy and reliability of the model
- f) Perform other statistical analyses as needed to develop a model
- g) Review, evaluate, and provide recommendation for improving the final model

iBudget Algorithm Task 2a

1. Remove expenditures for those who had fewer than 12 months FY claims in FY 13-14
2. Remove expenditures for individual who were not actively enrolled on January 1, 2013
3. Include or remove expenditures for support coordination, dental services, environmental adaptations, durable medical equipment and transportation.
4. Include or remove geographic rate differentials

iBudget Algorithm Task 2b

Determine and define independent variables

➤ Stakeholders requested we look at different age scenarios. Dr. Niu will be evaluating age variables for the following age groups:

-(0-20)

-(21-49)

-Over 50

-Additional analysis on ages (21-59) and

-Over 60

iBudget Algorithm Task 2b

- QSI data will be used with the most current data.
- The statistical analysis will use all questions from the QSI to determine what questions are predictors for the algorithm including:
 - Functional
 - Behavioral and
 - Physical

iBudget Algorithm Task 2b

- QSI Addendum questions recently added to the assessment tool and include Family Risk Factors for people in the family home such as:
 1. Primary caregiver unable to give care due to health status of primary caregiver
 2. Other in family home who also need to be cared for (child, elderly, other with a disability)

iBudget Algorithm Task 2b

➤ Continued:

3. Age of primary caregiver
4. Unemployment of caregiver due to primary caretaking responsibilities; but with services, will be able to work
5. Adult removed from living setting by Adult Protective Services

iBudget Algorithm Task 2b

QSI Addendum was completed by 3,000 families and is on-going in order to reach all customers to include in a future full model

1. The five predictors explain about 2 percent of the total variation of the dependent variable
2. If the primary caregiver is unable to give care due to the health status of the primary caregiver, is a predictor

iBudget Algorithm Task 2b

3. If there are others in the family home who also need to be cared for, is not a predictor
4. If the caregiver is unemployed due to primary caretaking responsibilities but with services is able to work, is a predictor
5. Adult removed from living setting by protective services, is not a predictor
6. Caregiver's age, is a predictor

iBudget Algorithm Task 2b

- Living Situation (family home, independent living/supported living, and licensed residential facilities)

Dr. Niu will evaluate all residential habilitation levels to better understand cost for those living settings and how they affect the algorithm

Next Steps

- Stakeholder/public meeting/call on February 16, 2015, 2 – 4p.m.
- Discuss the draft model for the new algorithm
- Discuss policy and implementation decisions
- Discuss next steps



Questions?

Please send any questions and suggestions on the algorithm to:

iBudgetAlgorithm@apdcares.org

Thank You!

