iBudget Florida

apd

agency for persons with disabilities
State of Florida

iBudget Algorithm

For todays meeting the PowerPoint and handouts, along with all previous PowerPoint presentations, audio recordings and transcriptions please visit:

http://apd.myflorida.com/ibudget/rules-regs.htm

Scroll to the appropriate date and meeting and open documents.

iBudget Algorithm

– Meeting participants on the phone will have an opportunity to asks questions at the end of the presentation and type questions via Lync during the meeting.

iBudget Algorithm

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Current iBudget Algorithm

- Age (under 21, over 21)
- Living setting (family home, supported living, group home, residential habilitation center)
- QSI Functional and Behavioral Sum of Scores of all questions
- Additional QSI questions
  - Question 18 = transferring
  - Question 20 = maintain hygiene
  - Question 23 = self-protect

Algorithm Tasks

1. Evaluate and Refine Florida APD's current iBudget algorithm

2. Update Statistical Models for Florida APD's iBudget algorithm to identify new algorithm options

R - Square Value

Examine goodness of fit of the selected model

"r-square" is a number that indicates how well the statistical model fits the data.

What makes a good algorithm?

"r-square" value is a measure reflecting the model goodness of fit…the larger the number, the better the fit.

Outliers

- Outliers are generally individuals with extremely high or extremely low expenditures.

- 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.

  – Result: Tentative proposed model would have 4.94% outliers (1,265 consumers)

Stakeholder Feedback 2/16/15

You requested APD to look at the following:

- To check supported living (SL) and test for people in SL who have a live in rate and look at personal supports quarter hour in conjunction with this analysis

- To remove the 6,300 people from the dependent variable for those that had a reduction but did not request a hearing

- To add back the FY 2007 -2008 transportation expenditure difference of $20 million compared to current levels

Stakeholder Feedback 2/16/15

You requested APD to look at the following:

- To take a closer look at the cost of residential living settings

- To take a closer look at services that have ratios like ADT and Companion to see if there is a correlation to the prediction of cost

- To take a closer look at people ages 3 - 12 and 13 - 20 separately

Stakeholder Feedback Results

You requested APD to check supported living and test for people in SL who have a live in rate and look at personal supports quarter hour in conjunction with this analysis.

-Results: This independent variable was significant and is captured by QSI questions Q18 and Q20. The proposed tentative model includes these questions.

Stakeholder Feedback Results

You requested APD to remove the 6,300 people from the dependent variable for those that had a reduction but did not request a hearing.

-The result of removing valid expenditures compromises the integrity of the data. The proposed tentative model does not remove these actual expenditures from FY 2013 -2014.

Stakeholder Feedback Results

You requested APD to add back the FY 2007 -2008 transportation expenditure difference of $20 million compared to current levels.

-It would be arbitrary to adjust expenditure levels for the algorithm and therefore the number would undermine the data integrity.

-Transportation is partially addressed through QSI questions 12f, 18, and the Functional Sum of scores. These questions were found to be significant predictors.

Stakeholder Feedback Results

You requested APD to take a closer look at the cost of residential living settings.

-Results: This grouping, which we believe to be objective and valid statistical indicators, substantially improved the algorithm's accuracy. Living settings are recommended to be grouped into the following:

1. Family Home
2. Independent Living and Supported Living
3. Residential Habilitation (Standard and Live-in)
4. Residential Habilitation (Behavior Focus)
5. Residential Habilitation (Intensive Behavior)
6. CTEP and Special Medical Home Care

Stakeholder Feedback Results

You requested APD to take a closer look at services that have ratios like ADT and Companion to see if there is a correlation to the prediction of cost.

-Results: Analysis showed there is a correlation of ratios to level of need and QSI questions captured the correlation. Q18 and Q20 partially capture the correlation ratios and are statistically validated predictors. Ratios are changing variables and cannot be used in a predictive model.

Stakeholder Feedback Results

You requested APD to take a closer look at people ages of 3 -12 and 13 – 20 separately.

-Results: Separating the ages of people from 3 -12 and 13 – 20 was not significant.

Discussion

Questions from the audience will be taken now.

What Variables Were Tested?

Age of people including:

1. 3-20 and 21+
2. 3-20, 21-30, 31-40, 41-50, 51-60, and 61+
3. 3-20, 21-30, and 31+
4. Additional breakout ages; 3-12 and 13-21

What Variables Were Tested?

Living settings (22 levels and combinations)

Please see pages two and three of the "Independent and Dependent Variable Analysis" handout, which is also posted on APDs' website.

What Information Was Used In Model Analysis?

Questionnaire on Situational Information (QSI)

All QSI questions 1 – 50 were used in a model to predict outcomes including:

1. Community inclusion and life change and adjustment information

2. Functional status

3. Behavioral status

4. Physical status

What Information Was Used In Model Analysis?

Other Information Requested

1. Was a child involved in Community Based Care system
2. Community Safety Indicator
3. Participation in the Florida Pre-Paid Mental Health Program
4. Participation in the Florida Chronic Disease Management Program

What Information Was Used In Model Analysis?

Other Information Requested

5. Disability Type
6. Nursing
7. Consumer Directed Care (CDC+)
8. Employment Information

What Information Was Used In Model Analysis?

An "Interaction term" shows the effect of independent variables associated with different living settings

Interaction of two independent variables: "Two independent variables **interact** if the **effect** of one of the variables differs depending on the level of the other variable."

For example, the effects of FSum (Function Score Sum) on Claim may depend on FH, SL, and RH.

9. Interaction terms including:

Family Home-Behavior Sum

Family Home-Functional Sum

Family Home-Physical Sum

9. Interaction terms including:

Supported Living-Behavior Sum

Supported Living-Functional Sum

Supported Living-Physical Sum

Residential Habilitation-Behavior Sum

Residential Habilitation-Functional Sum

Residential Habilitation-Physical Sum

Discussion

Questions from the audience will be taken now.

Tentative Model Recommendations

Living Setting

FH =   Family Home

Live2ILSL =   Living setting, Independent and Supported living

Live2RH1 =   Residential Habilitation (Standard and Live-in)

Tentative Model Recommendations

Living Setting

Live2RH2 =   Residential Habilitation (Behavior Focus)

Live2RH3 =   Residential Habilitation (Intensive Behavior)

Live2RH4 =   CTEP and Special Medical Home Care

Age

Age = 3 – 20

Age = 21 – 30

Age = 31+

BSum = Behavior Sum

FHFSum = Family Home Functional Sum

SLBSum = Supported Living Behavior Sum

SLFSum = Supported Living Functional Sum

Tentative Model Recommendations QSI

Q8C4 =   Mental Health, Anxiety Disorder

Q8C6 =   Mental Health, Post-traumatic stress disorder

Tentative Model Recommendations QSI

Community Inclusion & Fulfillment of Valued Adult Roles

Q12f =   The person can use the community transportation system (if available)

Q12g =   The person can attend and participate in community clubs, organizations and activities

Q12b =   The person can find a job and manage a career

Tentative Model Recommendations QSI

Q16   =   Functional Status, Eating

Q18   =   Functional Status, Transfers

Q20   =   Functional Status, Hygiene

Q21   =   Functional Status, Dressing

Q23   =   Functional Status, Self-protection

Tentative Model Recommendations QSI

Q28   =   Behavior Status, Inappropriate Sexual Behavior

Tentative Model Recommendations

Q33   =   Physical Status, Injury to the Person Caused by Aggression toward Others or Property

Q34   =   Physical Status, Use of Mechanical Restraints or Protective Equipment for Maladaptive Behavior

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Q36   =   Physical Status, Use of Psychotropic Medications

Q39   =   Physical Status, Antiepileptic Medication Use

Q43   =   Physical Status, Treatments including Nursing

Tentative Model Recommendations

Multiple R – Squared for tentative model after removing 4.9% outliers (1,265 consumers):

"R-square"

0.7563

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Tentative Model Recommendations

Multiple R – Squared for tentative model after removing 9.34% outliers (2,393 consumers)

"R-square"

<u>0.8008</u>

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Next Steps

- Tentative proposed model

- Run proposed model and provide impact analysis

- Run case studies on model

- Next public meeting on the algorithm will be March 23, 2015, from 2 – 4 p.m. ET at the Agency for Persons with Disabilities State Office, Room 301, Tallahassee, Florida.

Discussion From Phone Participants

Questions from the audience

Thank You!

Please send any questions and suggestions on the algorithm to:

iBudgetAlgorithm@apdcares.org