

Independent and Dependent Variable Analysis

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Dependent Variable Analysis:

The main dependent variable used in this study is the APD consumers' FY 2013-2014 expenditures with the following adjustments:

- 1) Removed expenditures for individuals who had fewer than 12 months' of claims in FY 13-14;
- 2) Removed expenditures for individual who were not actively enrolled on January 1, 2013.

The following potential adjustments will be considered in this analysis:

- 1) Include or remove expenditures for waiver support coordination (WSC), dental services, environmental adaptations, durable medical equipment, transportation, and geographic rate differentials for all waiver services;
- 2) Include expenditures for dental (\$601 and up), environmental medications, and durable medical equipment;
- 3) Include WSC, transportation, and dental (less than \$600);
- 4) Exclude WSC, transportation, and dental (less than \$600).

* It is recommended that no services be excluded from the dependent variable. A square root transformation was used to produce the most statistically valid prediction.

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1. Living Setting Variable.

Living Setting Levels (22 Levels)

Level	Descriptions
FH	Family Home (n=12810)
ILSL	Independent Living & Supported Living (n=4658)
NC	Not Classified (GH and 4 RH) (n=234)
RH1	Residential Habilitation - Basic (month/day) (n=272)
RH2	Residential Habilitation - Minimal (month/day) (n=1705)
RH3	Residential Habilitation - Moderate (month/day) (n=2798)
RH4	Residential Habilitation - Extensive 1 (month/day) (n=981)
RH5	Residential Habilitation - Extensive 2 (month/day) (n=158)
RHBF1	Residential Habilitation - Behavioral Focus - Minimal (month/day) (n=62)
RHBF2	Residential Habilitation - Behavioral Focus - Moderate (month/day) (n=565)
RHBF3	Residential Habilitation - Behavioral Focus -Extensive 1 (month/day) (n=493)
RHBF4	Residential Habilitation - Behavioral Focus -Extensive 2 (month/day) (n=222)
RHCTEP1	Residential Habilitation - Intensive Behavioral - Comprehensive Transitional Education Program - Day Level 3/4 (n=35)
RHCTEP2	Residential Habilitation - Intensive Behavioral - Comprehensive Transitional Education Program - Day Level 5/6 (n=100)
RHCTEP3	Residential Habilitation - Intensive Behavioral - Trillium - Comprehensive Transitional Education Program - Day Adult (n=11 consumers)
RHCTEP4	Residential Habilitation - Intensive Behavioral - Trillium - Comprehensive Transitional Education Program - Day Child (n=3 consumers)
RHIB1	Residential Habilitation - Intensive Behavioral - Day Level 1 (n=4 consumers) Residential Habilitation - Intensive Behavioral - Day Level 2 (n=16 consumers)
RHIB2	Residential Habilitation - Intensive Behavioral - Day Level 3 (n=71 consumers)
RHIB3	Residential Habilitation - Intensive Behavioral - Day Level 4 (n=145 consumers)
RHIB4	Residential Habilitation - Intensive Behavioral - Day Level 5 (n=108 consumers) Residential Habilitation - Intensive Behavioral - Day Level 6 (n=9 consumers)
RHLI	Residential Habilitation - Live In day (n=147 consumers)
SHC	Special Home Care (n=18)
Total Number:	N=25,625

The following six groupings are recommended for the tentative Regression Model 6c, page 9: (see proposed living setting groupings chart page 3)

- Family Home
- Independent Living and Supported Living
- Residential Habilitation (Standard and Live-in)
- Residential Habilitation (Behavior Focus)
- Residential Habilitation (Intensive Behavior)
- CTEP and Special Medical Home Care

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Proposed Living Setting Groupings

New Level	Level	Descriptions
FH	FH	Family Home (n=12810)
ILSL	ILSL	Independent Living & Supported Living (n=4658)
	NC	Not Classified (GH and 4 RH) (n=234)
New-RH1 (Standard and Live In)	RHLI	Residential Habilitation - Live In day (n=147 consumers)
	RH1	Residential Habilitation - Basic (month/day) (n=272)
	RH2	Residential Habilitation - Minimal (month/day) (n=1705)
	RH3	Residential Habilitation - Moderate (month/day) (n=2798)
	RH4	Residential Habilitation - Extensive 1 (month/day) (n=981)
	RH5	Residential Habilitation - Extensive 2 (month/day) (n=158)
New-RH2 (Behavior Focus)	RHBF1	Residential Habilitation - Behavioral Focus - Minimal (month/day) (n=62)
	RHBF2	Residential Habilitation - Behavioral Focus - Moderate (month/day) (n=565)
	RHBF3	Residential Habilitation - Behavioral Focus -Extensive 1 (month/day) (n=493)
	RHBF4	Residential Habilitation - Behavioral Focus -Extensive 2 (month/day) (n=222)
New-RH3 (Intensive Behavior)	RHIB1	Residential Habilitation - Intensive Behavioral - Day Level 1 (n=4 consumers) Residential Habilitation - Intensive Behavioral - Day Level 2 (n=16 consumers)
	RHIB2	Residential Habilitation - Intensive Behavioral - Day Level 3 (n=71 consumers)
	RHIB3	Residential Habilitation - Intensive Behavioral - Day Level 4 (n=145 consumers)
	RHIB4	Residential Habilitation - Intensive Behavioral - Day Level 5 (n=108 consumers)
		Residential Habilitation - Intensive Behavioral - Day Level 6 (n=9 consumers)
New-RH4 (CTEP and Special Medical Home Care)	RHCTEP1	Residential Habilitation - Intensive Behavioral - Comprehensive Transitional Education Program - Day Level 3/4 (n=35)
	RHCTEP2	Residential Habilitation - Intensive Behavioral - Comprehensive Transitional Education Program - Day Level 5/6 (n=100)
	RHCTEP3	Residential Habilitation - Intensive Behavioral - Trillium - Comprehensive Transitional Education Program - Day Adult (n=11 consumers)
	RHCTEP4	Residential Habilitation - Intensive Behavioral - Trillium - Comprehensive Transitional Education Program - Day Child (n=3 consumers)
	SHC	Special Home Care (n=18)
	Total Number:	N=25,625

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2. Age effects:

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

***The ages proposed with the most significant predictors are: Ages 3-21, 21-30, and 31+**

3. Independent Variable Analysis:

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

APD developed the Florida Questionnaire for Situational Information (QSI) for assessing its consumers' individual characteristics and support needs. The QSI (Version 4) consists of three main parts:

- Part 1: Functional Status, with 11 elements (Q14-Q24) focusing on person's needs for assistance during the normal course of a routine day;
- Part 2: Behavioral Status, with 6 elements (Q25-Q30) focusing on major behavioral issues requiring support, assistance or intervention;
- Part 3: Physical Status, with 19 elements (Q32-Q50) focusing on health and physical I concerns.

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Elements in the three parts of QSI (Version 4)

Part 1. Functional Support Status		Part 2. Behavioral Support Status		Part 3. Physical Support Status	
Item Number	Item Description	Item Number	Item Description	Item Number	Item Description
Q14	Vision	Q25	Hurtful to Self/Self-Injurious Behavior	Q32	Injury to the Person caused by Self-Injurious Behavior
Q15	Hearing	Q26	Aggressive/Hurtful to Others	Q33	Injury to the Person Caused by Aggression toward Others or Property
Q16	Eating	Q27	Destructive to Property	Q34	Use of Mechanical Restraints or Protective Equipment for maladaptive Behavior
Q17	Ambulation	Q28	Inappropriate Sexual Behavior	Q35	Use of Emergency Chemical Restraint
Q18	Transfers	Q29	Running Away	Q36	Use of Psychotropic Medications
Q19	Toileting	Q30	Other Behaviors that May Result in Separation from Others	Q37	Gastrointestinal Conditions (includes vomiting, reflux, heartburn, or ulcer)
Q20	Hygiene			Q38	Seizures
Q21	Dressing			Q39	Anti-Epileptic Medication Use
Q22	Communications			Q40	Skin Breakdown
Q23	Self-Protection			Q41	Bowel Function
Q24	Ability to Evacuate (place of residence)			Q42	Nutrition
				Q43	Treatment (physician prescribed)
				Q44	Assistance in Meeting Chronic Healthcare Needs
				Q45	Individual's Injuries
				Q46	Falls
				Q47	Physician Visits/Nursing Services
				Q48	Emergency Room Visits
				Q49	Hospital Admission
				Q50	Days missed- illness

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125 independent variables were considered in one model. The independent variables were:

- 1) Independent Variables 1-36 (Q14-Q30, Q25-Q30, Q32-Q50):** The 36 elements in the QSI survey, including 11 elements (Q14-Q24) for the functional status support part, 6 elements (Q25-Q30) for the behavioral status support part, and 19 elements (Q32-Q50) for the physical status support part. Each score has 5 levels ranging from 0 to 4.
- 2) Independent Variables 37-39 (BS1, FS1, PS1):** Sums of raw scores for the three sections, named functional status raw score (FS1), behavioral status raw score (BS1), and physical status raw score (PS1). Specifically, the functional status raw score (FS1) is the sum of scores of the 11 elements (Q14-Q24) for the functional status support part, ranging from 0 to 44; behavioral status raw score (BS1) is the sum of scores of the 6 elements (Q25-Q30) for the behavioral status support part, ranging from 0 to 24; and physical status raw score (PS1) is the sum of scores of the 19 elements (Q32-Q50) for the physical status support part, ranging from 0 to 76.
- 3) Independent Variable 40 (Live)**
- 4) Independent Variable 41 (Age21)**
- 5) Independent Variable 42 (Age-Level):** A three-level indicator variable for Age with Age0-20, Age21-30, and Age31+.
- 6) Independent Variables 43-92 [variables (0 or 1) in QSI Questions 8 and 9]:** except Q8b1, Q8c1, and Q8d1 (none apply)
***Q8c4 and Q8c6 are significant and are present in tentative Regression Model 6c, page 9**
- 7) Independent Variables 93-104 (Q12a to Q12o):** Community Inclusion and Fulfillment of Valued Adult Roles for Persons 18 years and older. Each variable with scores 1-4.
Level 1: You do not need any personal support;

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Level 2: You need personal support and it is limited to occasional reminders or verbal prompts and/or physical assistance;

Level 3: You need personal support and require daily reminders, verbal and/or physical prompts;

Level 4: You need personal support from someone and require supervision to complete.

*Q12f, Q12g and Q12b capture these variables and are significant in tentative Regression Model 6c,

page 9

8) Independent Variable 105 (CBC): Variable indicating whether the individual is a child involved in the Community-Based Care system.

*This variable is not predictive.

9) Independent Variable 106 (Safety): Community Safety indicator. The default value is zero. Value is set to 1 if there is a record of the consumer ever having been in any one of the following program components (i.e., residential living settings).

- 71 = Adult Mentally Retarded Defendant Program
- 72 = Juvenile Mentally Retarded Defendant Program
- 95 = Jail pre-sentencing (all jail and prison situations prior to May 2007)
- 98 = Jail post-sentencing
- 99 = Prison

*This variable is dropped because the data is not reliable

10) Independent Variable 107 (MenH) (Note: APD decided in December of 2009 not to use this variable in the analysis since it is not reliable): participation in Florida Medicaid Pre-Paid Mental Health Plan.

*This variable is dropped because the data is not reliable.

11) Independent Variable 108 (DMYN): Variable indicating participation in Florida Medicaid Chronic Disease Management Program.

*This variable is dropped because the data is not reliable.

12) Independent Variable 109-111 (Disability Type):

Primary Disability Type;

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Secondary Disability Type;

Other Disability Type

*This variable is not predictive.

13) Independent Variable 112 (Nursing)

*This variable is significant and captured well in question 43 of the QSI.

14) Independent Variable 113 (CDC)

*This variable is not predictive.

15) Independent Variable 114-116 (QSI 13): Employment Information Q13a, Q13b and Q13c.

*This variable is picked up in Q12b and is significant

16) Independent Variable 117-125 (Interaction terms):

Family Home

Independent Living and Supported Living

Residential Habilitation (Standard and Live-in)

Residential Habilitation (Behavior Focus)

Residential Habilitation (Intensive Behavior)

CTEP and Special Medical Home Care

“Interaction term” shows the effect of independent variables associated with different living settings

Nine interaction terms are considered:

Residential Habilitation Groupings

FH-BSum = Family Home-Behavior Sum

FH-FSum = Family Home-Functional Sum

FH-PSum = Family Home-Physical Sum

SL-BSum = Supported Living-Behavior Sum

SL-FSum = Supported Living-Functional Sum

SL-PSum = Supported Living-Physical Sum

RH-BSum = Residential Habilitation-Behavior Sum

RH-FSum = Residential Habilitation-Functional Sum

RH-PSum = Residential Habilitation-Physical Sum

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*FH-FSum, SL-BSum, and SL-FSum are predictors in tentative Regression Model 6c, page 9

Regression Model 6c: Square-root of FY13-14 claims (unadjusted) as the dependent variable
 Model Selected after removing 4.94% outliers (1,265 consumers).

(Intercept)	Family Home and Age 3-20
Live2ILSL	Living setting, Independent and Supported Living
Live2RH1	Residential Habilitation (Standard and Live-in)
Live2RH2	Residential Habilitation (Behavior Focus)
Live2RH3	Residential Habilitation (Intensive Behavior)
Live2RH4	CTEP and Special Medical Home Care
Age21-30	Ages 21-30
Age31+	Ages 31+
BSum	Behavior Sum
FHFSum	Family Home Functional Sum
SLBSum	Supported Living Behavior Sum
SLFSum	Supported Living Functional Sum
Q8c4	Mental Health, Anxiety Disorder
Q8c6	Mental Health, Post-Traumatic Stress Disorder
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
Q16	Functional Status, Eating
Q18	Functional Status, Transfers
Q20	Functional Status, Hygiene
Q21	Functional Status, Dressing
Q23	Functional Status, Self-Protection
Q28	Behavior Status, Inappropriate Sexual Behavior
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
Q36	Physical Status, Use of Psychotropic Medications
Q39	Physical Status, Antiepileptic Medication Use
Q43	Physical Status, Treatments including Nursing

Multiple R-squared: 0.7563	