DESIGNING A RESOURCE ALLOCATION MODEL FOR MEDICAID PERSONAL CARE SERVICES (PCS) FOR CHILDREN WITH CHRONIC ILLNESSES

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PRESENTER DISCLOSURES

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1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

EPSDT & PCS

- In 2008, 31 million children in the U.S were eligible for Medicaid early and periodic screening, diagnostic, and treatment services (EPSDT) [1].
  - In 2009, almost 3 million children in Texas eligible for EPSDT
- A subset of these children who face serious chronic illness and live in the community also require personal care services (PCS)
- PCS
  - provided by personal care assistants
  - to compensate for limitations in activities of daily living (ADL) and instrumental activities of daily living (IADL)
  - resulting from the child's illness or chronic conditions.

1. Centers for Medicare and Medicaid Services

TEXAS PCAF PROJECT

- In a collaborative project with the Texas Health and Human Services Commission, we at Texas A&M University and the Texas A&M University Health Science Center
  - developed an assessment tool (Personal Care Assessment Form 4-20 -- PCAF-4-20)
  - to determine a child's need for personal care services (PCS) in the home.
- Our effort was specifically designed to recognize the reality of home care for children.
  - Program staff and health professionals are dependent on reports from informal caregivers for information about a child's needs and strengths.

PRESENT STUDY

- Results of our efforts to develop a needs-based classification model for children receiving PCS.
- Develop a classification model that mimicked
  - the basic logic underlying the allocation of hours of PCS per week to children in the Medicaid PCS Program
- Produce a set of client categories (case-mix or classification groups) made up of of children
  - who receive roughly the same amounts of care
  - who share a number of important characteristics

NEED FOR CLASSIFICATION MODELS

- Substantial amount of variation in allocation of PCS hours depends on identity of the case manager completing the assessment
  - R^2=0.18
  - *one-fifth of the variation in the allocation of PCS for children in Texas may depend on which Case Manager assessed them*
- Variation in resource allocation that has no basis in client characteristics can quickly lead to inefficient, inequitable, and potentially ineffective resource allocation.
- When 2 children with the same basic needs receive different levels of service, this introduces inequity into the program.

METHODS

DATA COLLECTION

- *Data collection period*:
  - September 2008 – February 2009 in 9 state health regions
  - December 2008 – March 2009 in 2 health regions
- *Target population*:
  - all children, ages 4 – 20, receiving personal care services through the Medicaid PCS program
- *Method*:
  - Regularly scheduled evaluations
  - Personal Care Assessment Form (PCAF) 4-20.
  - Case managers employed by the Texas Department of State Health Services (DSHS)
- *Data*:
  - 2,842 assessments received
    - 83 assessments (3%) deleted – missing data/PCS denied

INSTRUMENT

- *PCAF 4-20:*
  - Purpose-built for Texas Health and Human Services Commission
  - Based on items included in the MDS & the MDS-HC
  - Addition/re-formulation of items to apply to children
  - Included ADL items: bed mobility, positioning when upright, eating, locomotion inside, locomotion outside, transfer, using toilet, dressing, personal hygiene, and bathing
    - rated on a 6 point scale: independent, needs set up only, needs supervision, needs limited assistance, needs extensive assistance, or total dependence.
  - Information about the child's health status came from
    - Caregiver/client reports recorded by a case manager
    - Case manager's unstructured observations of the child during the assessment process.

VARIABLES INCLUDED

- *Dependent Variable*
  - Amount of Personal Care Service (PCS) hours per week
    - Authorized by case managers, who completed a 7-day 24-hour flow-sheet

VARIABLES INCLUDED

- *Independent Variable*

Age
Gender
ADL needs (a single scale summarizing ADL needs)
IADL needs (a single scale summarizing IADL needs)
Presence of an intellectual disability
Complex medical diagnoses
Cognitive impairment
Socially inappropriate/destructive behavior
Urinary or bowel incontinence
Bed-bound
Need for two-person assistance with any ADL
Use of wheelchair
Barriers to care by responsible adults – Responsible adult's sleep frequently interrupted – Adult responsible for care of others in household – Adult is in school – Adult works full-time or part-time

ANALYSIS STRATEGY

- *SAS Enterprise Miner 6.1*
  - A statistical procedure that used hours as a dependent variables
  - Optimized a model's R^2 by picking certain breaks on the independent variables included in the model
- *Blended approach*
  - Specifying some aspects of the classification model
  - Based on conceptual or clinical considerations
  - Letting the software determine specific cut-points

RESULTS

DEVELOPING THE MODEL

- *Model 1*

  Simplest model included only a summary ADL scale (Hands-On ADL Scale).
  - Hands-On ADL Scale:
    - Based on the number of ADLs in which the child needed or received hands-on assistance.
    - Each level in the scale has a clear meaning.
  - N=2,759; Mean hours=25.4; R^2=0.20

DEVELOPING THE MODEL

- *Model 1*
  - R-square = 0.20

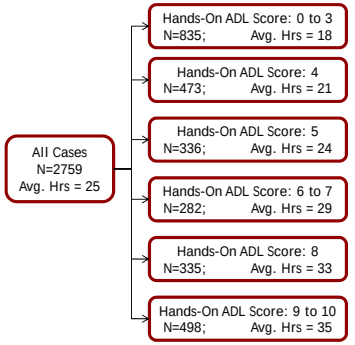

EXHIBIT 3: CLASSIFICATION SCHEME USING ONLY AN ADL SCALE

HANDS-ON HELP IN	AVERAGE HOURS	NUMBER OF CLIENTS
<= 3 ADLS	18	835
4 ADLS	21	473
5 ADLS	24	336
6 to 7 ADLS	29	282
8 ADLS	33	335
9 to 10 ADLS	35	498

DEVELOPING THE MODEL

EXHIBIT 4: CLASSIFICATION SCHEME FOR 4-20 YEAR OLDS USING AGE AND THE ADL SCALE (N=2,715; Mean hours=25.4; R^2=0.30)

GROUP (1-14)	AVERAGE HOURS	NUMBER OF CLIENTS
4 TO 9 YEARS OF AGE		
1. Hands-On Assistance in up to 4 ADLs	**17**	443
2. Hands-On Assistance in 5 or 6 ADLs	**22**	218
3. Hands-On Assistance in 7 to 9 ADLs	**26**	134
4. Hands-On Assistance in 10 ADLs	**29**	172
10 TO 15 YEARS OF AGE		
5. Hands-On Assistance in up to 1 ADL	**15**	170
6. Hands-On Assistance in 2 or 3 ADLs	**17**	147
7. Hands-On Assistance in 4 or 5 ADLs	**22**	249
8. Hands-On Assistance in 6 to 8 ADLs	**28**	124
9. Hands-On Assistance in 9 or 10 ADLs	**32**	241
16 OR 17 YEARS OF AGE		
10. Hands-On Assistance in up to 7 ADLs	**22**	177
11. Hands-On Assistance in 8 to 10 ADLs	**37**	104
18 TO 20 YEARS OF AGE		
12. Hands-On Assistance in up to 3 ADLs	**24**	188
13. Hands-On Assistance in 4 to 6 ADLs	**34**	140
14. Hands-On Assistance in 7 to 10 ADLs	**44**	208

DEVELOPING THE MODEL

Age ✔
Gender
ADL needs (a single scale summarizing ADL needs) ✔
IADL needs (a single scale summarizing IADL needs)
Presence of an intellectual disability
Complex medical diagnoses
Cognitive impairment
Socially inappropriate/destructive behavior
Urinary or bowel incontinence
Bed-bound
Need for two-person assistance with any ADL
Use of wheelchair
Barriers to care by responsible adults – Responsible adult's sleep frequently interrupted – Adult responsible for care of others in household – Adult is in school – Adult works full-time or part-time

DEVELOPING THE MODEL

- Model 2 is our preferred model and was chosen on the basis of its
  - statistical fit,
  - general applicability, and
  - conceptual clarity.
- Based on two fundamental questions asked in sequence:
  - How old is the child?
  - In how many ADLs does the child need hands-on assistance?

BUILDING CORRIDORS

CORRIDORS AROUND GROUP MEANS			
Group	Hours at 30% of Cumulative Distribution	MEAN HOURS (Percent Cumulative)	Hours at 80% of Cumulative Distribution
4 TO 9 YEARS OLD			
1. H-OA in up to 4 ADLs	11	17 (54)	23
2. H-OA in 5 or 6 ADLs	16	22 (56)	30
3. H-OA in 7 to 9 ADLs	20	26 (55)	35
4. H-OA in 10 ADLs	21	29 (57)	40
10 TO 15 YEARS OLD			
5. H-OA in up to 1 ADL	10	15 (58)	21
6. H-OA in 2 or 3 ADLs	12	17 (60)	22
7. H-OA in 4 or 5 ADLs	17	22 (61)	29
8. H-OA in 6 to 8 ADLs	21	28 (56)	38
9. H-OA in 9 or 10 ADLs	22	32 (56)	44
16 OR 17 YEARS OLD			
10.H-OA in up to 7 ADLs	16	22 (53)	28
11.H-OA in 8 to 10 ADLs	27	37 (56)	43
18 TO 20 YEARS OLD			
12.H-OA in up to 3 ADLs	17	24 (55)	32
13.H-OA in 4 to 6 ADLs	27	34 (55)	43
14.H-OA in 7 to 10 ADLs	32	44 (55)	58

DISCUSSION

EXCLUSIONS FROM MODEL

- *Medical diagnoses or conditions.*
  - Effects operate through the child's ADL needs
- *Cognitive function*
  - "indirect" effect on PCS authorization.
- *IADL scale*
  - Highly correlated with age/ADLS
- *Continence*
  - Highly correlated with age/ADLS
- *Caregiver barriers to care*
  - All families reported caregiver barrier(s), hence no variance
  - Nature of barrier has no statistically significant effect

STRENGTHS & LIMITATIONS

- Designed to mimic as closely as possible the current patterns of care provision.
- May or may not reflect the ideal pattern of care provision.
- The classification models represent
  - the collective wisdom of hundreds of DSHS case managers as they attempt to meet the needs of thousands of children facing a wide variety of challenges in a diverse array of environments.
  - the requests for services made by thousands of concerned adults seeking personal care for the children for whom they are responsible.

CONCLUSION

- Average hours/corridors for each group
  - Used as potential benchmarks for the administrative review of PCS allocations.
    - By government agencies or
    - By child advocacy groups
  - Used as rough starting points for the consideration of the services needed by specific children
    - by case managers
- Must recognize that the classification model provides a structure based on those characteristics shared by children involved in the PCS program.
- Beyond these shared characteristics, a wide array of special circumstances affect a specific child's care needs and have to be considered in the decision to authorize PCS hours.

THANK YOU

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