REDUX: EMPIRICAL VALIDATION OF DURABLE MEDICAL EQUIPMENT VALUES IN LIFE CARE PLANS

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SESSION OBJECTIVES

- What is/are durable medical equipment (DME)and assistive devices (AT) defined in this study?
- What do we know about DME and AT when it comes to developing life care plans?
- What were the objectives and what did we do in the current study that differed from Marini & Harper 2005?
- Of the 127 specialists responding to the survey, what did we find?
- What can life care planners take away from this updated study on validating equipment replacement values?

WHAT IS DME AND AT IN THIS STUDY

- Power Wheelchairs for Adults, Power Wheelchairs for Children, Power Tilt/Recline: New Wheelchair, Ultralight Manual Wheelchair, Basketball Sports Wheelchair, All-Terrain Wheelchairs,
- Commode PVC Shower Wheelchairs, Power Scooters for Adults, three Wheeled Hand Cycle*, Standing Power Tilt and Recline Wheelchair*, Power Hospital Bed: New Bed Replacement, Clinitron Air Fluid Bed*, Hydraulic Bathtub: New Tub-lift Chair, Four Wheeled Walker, Gait Trainer for Child
- Gait Trainer for Adult, Standing Frame Manual Wheelchair, Power Standing Frame Wheelchair
- Indoor Wheelchair Elevator*, Respiratory Suction Machine, Nebulizer Machine
- New Home Ventilator, Environmental Control Units: Computer Replacement
- Environmental Control: Built in Receiver
- Modified Van Replacement*

WHAT IS DME AND AT IN THIS STUDY

- Power Hoyer®: New Lift Replacement, Power Hoyer®: New Sling Replacement, Manual Pump Hoyer®: pump replacement only, Power Hoyer®: replacement parts only, Power Track Ceiling Lifts: Lift Replacement, Bed Mattress: ROHO®
- Bed Mattress: Power Air Flow Mattress, Clinitron bed replacement parts*, Cushions: Replacement of High/Low Profile ROHO, Cushions: Jay® 2 gel , Cushions: Cloud/Foam, Indoor Wheelchair Elevator Replacement Parts*, Van Platform Lift*
- Platform Lift Replacement Parts*, Van Folding Ramp*, Folding Ramp Replacement Parts*, Power Wheelchair for Adults: New Batteries (2), Power Wheelchair for Adults: New Tires, Power Tilt/Recline: New Batteries (2)
- Power Tilt/Recline: New Tires, Ultralight Manual Wheelchairs: New Tires/Spokes, Basketball Sports Wheelchairs: Annual Spare Parts, All-Terrain Wheelchairs: New Batteries, Power Scooters: New Batteries, Power Scooter Tires
- Power Hoyer®: New battery, Power Hoyer® Sling, Manual Pump Hoyer Replacement, Power Track Ceiling Lifts: New Battery
- Power Hospital Bed: New Battery, Bed Mattresses: Power Box for Air Flow, Hydraulic Bathtub: Parts for Tub-lift Chair
- Four Wheeled Walker Tires, Respiratory Equipment: Ventilator Parts
- Power Wheelchair Adults: New Tires, Power Tilt/Recline: New Tires, Manual Wheelchairs: New Tires

WHAT IS DME AND AT IN THIS STUDY

- Oxygen (O2) Concentrator
- O2 Concentrator Filter
- Respiratory Suction Machine Filter
- Nebulizer Filter
- Power Wheelchair for Adults: Annual Maintenance cost
- Power Tilt/Recline: Annual Maintenance cost
- Ultralight Manual Wheelchairs: Annual Maintenance cost
- Power Scooters: Annual Maintenance cost
- Power Track Ceiling Lifts: Annual Maintenance cost
- Power Hospital Bed: Annual Maintenance cost
- Clinitron hospital bed annual maintenance cost*

WHAT DO WE KNOW ABOUT DME AND AT WHEN IT COMES TO DEVELOPING LIFE CARE PLANS?

- Some of us obtain strictly online pricing without any cold call sourcing
- Some of us call one to three sources in the geographical area for pricing
- Some of us call the direct source the evaluee deals with already
- Some of us use online catalogs for different pricing regardless of geographical location
- Some of us use consultants to obtain our pricing and we have no idea where they get it from (this one should be a little tougher to defend)
- Daubert and empirical validation to our opinions on replacement rates

- *None of these sources are inherently wrong, but they do represent the continuum of best pricing practices versus worst pricing practices*

WHAT WERE THE OBJECTIVES AND WHAT DID WE DO IN THE CURRENT STUDY THAT DIFFERED FROM MARINI & HARPER 2005?

- This 13-year-old update was driven by the membership who requested an updated study on the topic
- Foundation for Life Care Planning was gracious enough to fund this study
- Objectives were to duplicate the study and we added 11 more pieces of equipment not collected earlier. We aimed to see whether replacement rates of equipment and parts changed much in past 13 years
- Began the study in 2016, was hoping for 200 participants – double 2005 but got 127 this round
- And then there's Daubert 1993 ruling driving this kind of research

METHODOLOGY

- Sought out research grant from the FLCP with an RFP and solicited/received feedback regarding our survey and any equipment the committee wanted us to collect data on we added
- Obtained IRB approval
- Surveys were distributed in several forms by 4 research assistants covering four corners of the US geographically – Qualitrics online, hard copy in person, and cold call telephonically
- Criteria for participants was they had to be either DME equipment repairers or sales representatives
- Partially completed surveys from reps only selling certain equipment was still used as part of frequency count data, therefore cell sizes vary considerably

SAMPLE CHARACTERISTICS

- 576 participants solicited and 127 or 22% response rate
- 39 states represented with 2-8 minimum/maximum in each state
- There were 102 sales representatives and 25 DME repairers
- Nobody excluded from participating because we knew many suppliers would not have all of the items we were soliciting about
- Potential participants were only called or reminded a maximum of two times
- Although we attempted to get representation from all 50 states, due to results of first study, we did not look at geographic climate differences in this study

LITERATURE REVIEW

- Literature on the topic is sparse
- Amsterdam 2003 and 2010 discussed DME and conducted a small empirical study of 28 DME respondents with a 20% response rate
- Amsterdam cited factors that may lead to faster wear and tear or outgrowing of equipment such as age, environment, user behaviors and lifestyle (examples)
- Marini & Harper [2005] survey of 101 DME specialists from 45 states inquiring about replacement rates for 58 pieces of commonly used equipment in LCPs
- The overall findings validated pretty much the replacement rates we all have suspected and been using already (cite highlights)

TERMS AND STATS RATIONALE

- Mean, median, mode defined and why we used the median
- The mean is the overall average of sum total divided by sample size
- Median is the most middle number in the range in ascending/descending range and is most appropriate for outlier or skewed numbers
- Mode is the most frequent number

FINDING HIGHLIGHTS

- As with first study, due to growing spurts, child WCs and standers were outgrown quicker rather than wear and tear
- More active wheelchairs/sports wore out quicker
- Hospital beds had median of 10 years replacement
- Hoyer power lifts lasted about half as long as track ceiling lifts
- Airflow mattresses had to be replaced about midway through the life of a hospital bed
- Roho and gel cushions continue to last two or three years
- Respiratory equipment cited at replacement every five years

FINDING HIGHLIGHTS CONT'D

- Vans last every seven years and platform and folding lift replacement five years and parts in three years (only 10-12 responses)
- Wheelchair batteries continue to last about two years as do the tires
- Power lift batteries also last 2-3 years
- Power bed batteries last 3.5 years
- Respiratory equipment parts or filters every six months
- Small sample sizes for maintenance costs of replacing power WCs, scooters, and hospital beds. Contrary to what many life care planners have been doing (10% of the cost of the equipment maintenance every year), not remotely true

REPLACEMENT MEDIAN AND RANGE RATES OF EQUIPMENT IN YEARS

Table 1

Device	N	Median Replacement Rate (years)	Range
Power Wheelchairs for Adults	95	5	2 – 10
Power Wheelchairs for Children	90	4	1.5 – 10
Power Tilt/Recline: New Wheelchair	79	5	2 – 10
Ultralight Manual Wheelchair	94	5	2 – 10
Basketball Sports Wheelchair	34	4	3 – 10
All-Terrain Wheelchairs	37	5	1 – 10
Commode PVC Shower Wheelchairs	72	5	2 – 10
Power Scooters for Adults	86	5	1 – 6
Three Wheeled Hand Cycle*	29	3	3 – 10
Standing Power Tilt and Recline Wheelchair	56	5	3 – 10
Power Hospital Bed: New Bed Replacement	60	10	3 – 15
Clinitron Air Fluid Bed	24	10	2 – 15
Hydraulic Bathtub: New Tub-lift Chair	22	5	3 – 5

REPLACEMENT MEDIAN AND RANGE RATES OF EQUIPMENT IN YEARS

Table 1 Cont'd

Device	N	Median Replacement Rate (years)	Range
Four Wheeled Walkers	68	5	1 – 10
Gait Trainer for Child	33	4	1 – 10
Gait Trainer for Adult	37	5	2 – 15
Standing Frame Manual Wheelchair	50	5	.5 – 10
Power Standing Frame Wheelchair	42	5	2 – 10
Indoor Wheelchair Elevator	19	10	3 – 15
Respiratory Suction Machine	75	5	1 – 8
Nebulizer Machine	105	5	1 – 10
New Home Ventilator	58	5	1 – 10
Environmental Control Units: Computer Replacement	10	5	2 – 8
Environmental Control: Built in Receiver	8	3	1 – 3
Modified Van Replacement	22	7	3 – 15

REPLACEMENT MEDIAN AND RANGE RATES OF EQUIPMENT ACCESSORIES IN YEARS

Table 2

Device	N	Median Replacement Rate (years)	Range
Power Hoyer: New Lift Replacement	54	5	2 – 15
Power Hoyer: New Sling Replacement	46	2.5	.5 – 10
Manual Pump Hoyer: pump replacement	41	3	.5 – 5
Power Track Ceiling Lifts: Lift Replacement	17	9	3 – 15
Bed Mattress: ROHO	43	3	2 – 6
Bed Mattress: Power Air Flow Mattress	45	5	2 – 10
Clinitron bed replacement parts	14	3	2 – 6
Cushions: Replacement of High/Low Profile ROHO	43	2.5	2 – 6
Cushions: Jay 2 gel	50	2.5	2 – 5
Cushions: Cloud/Foam	58	3.5	.5 – 5
Indoor Wheelchair Elevator Replacement Parts	13	5	1 – 10
Van Platform Lift	10	5	3 – 7
Van Platform Lift Replacement Parts	10	3	1 – 7

REPLACEMENT MEDIAN AND RANGE RATES OF EQUIPMENT ACCESSORIES IN YEARS

Table 2 Cont'd

Device	N	Median Replacement Rate (years)	Range
Van Folding Ramp	12	5	1 – 10
Folding Ramp Replacement Parts	12	3	1 – 5
Power Wheelchair for Adults: New Batteries	59	2.5	1 – 3
Power Wheelchair for Adults: New Tires	55	2	1 – 3
Power Tilt/Recline: New Batteries	49	2	1 – 3
Power Tilt/Recline: New Tires	43	2	1 – 3
Ultralight Manual Wheelchairs: New Tires/ Spokes	37	3	1 – 3
All-Terrain Wheelchairs: New Batteries	32	2	1 – 3
Power Scooters: New Batteries	47	2	1 – 3
Power Scooter Tires	46	2	1 – 7
Power Hoyer: New battery	40	2	1 – 5
Manual Pump Hoyer Replacement	36	5	.5 – 5
Power Track Ceiling Lifts: New Battery	16	3	.5 – 4

REPLACEMENT MEDIAN AND RANGE RATES OF EQUIPMENT ACCESSORIES IN YEARS

Table 2 Cont'd

Device	N	Median Replacement Rate (years)	Range
Power Hospital Bed: New Battery	22	3.5	1 – 10
Bed Mattresses: Power Box for Air Flow	35	3.5	1.5 – 10
Hydraulic Bathtub: Parts for Tub-lift Chair	11	3	2 – 5
Four Wheeled Walker Tires	40	2	1 – 6
Respiratory Equipment: Ventilator Parts	24	1.5	.5 – 5
Power Wheelchair Adults: New Tires	39	2	1 – 3
Power Tilt/Recline: New Tires	37	2	1 – 3
Manual Wheelchairs: New Tires	41	2	1 – 3
Oxygen (O2) Concentrator	75	.5	.5 – 12.5
O2 Concentrator Filter	75	.5	.5 – 2
Respiratory Suction Machine Filter	69	.5	.5 – 2
Nebulizer Filter	71	.5	.5 – 2

ANNUAL MAINTENANCE COST AND COST RANGE

Table 3

Device	N	Cost	Cost Range
Power Wheelchair for Adults	12	$250	$75 – $2500
Power Tilt/Recline	10	$85	$11 –$ 2500
Ultralight Manual Wheelchairs	12	$75	$35 – $400
Power Scooters	12	$175	$75 – $1500
Basketball Sports Wheelchairs	5	$265	$170 – 500
Power Track Ceiling Lifts	2	$187	$75 – $300
Power Hospital Bed	3	$65	$10 – $500
Clinitron Hospital Bed	2	$282	$65 – $500

STUDY LIMITATIONS

- Low response rate at 22% and not all 50 states represented
- Research assistants perceived some participants were using insurance allowances even though encouraged not to
- A few sample sizes were almost meaningless with only 2-3 respondents regarding maintenance costs
- Obtaining maintenance costs is time-limited and may not be useful after a year
- Each of you will have to decide you believe to be inadequate sound size to support/validate replacement rates for DME and AT

CONCLUDING COMMENTS

- Current study results remain relatively consistent/similar with what we opine in practice and my 2005 findings
- Even low sample sizes in some of our sample size cells is more supportive or validating to your opinions than our own n=1
- We found no geographic climate significant differences in wear and tear of equipment
- Future research can explore other types of equipment or AT. We added 11 new items in this study, but there are many more that could be explored
- *Questions or comments and thank you*

[Thank you again to FLCPR for their funding support] ☺