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TABLE OF CONTENTS

9 Have You Checked the Crash Cart Lately?  
Andrea K. Goicoechea, MSN, RN, WHNP-BC, PHN

11 Online Sources for Selected Common DME

12 It’s All About the Numbers  
Dawn Cook, RN, CNLCP, CLCP

17 Replacement Intervals in Life Care Planning  
Dawn Cook, RN, CNLCP, CLCP

22 Hidden in Plain Sight: The Little-Known Factor in Life Expectancy of the Lower Limb Amputee  
Randall Alley BSc, CP
Tricia West, BSN, RN, MBA/HCM, PHN, CHN

DEPARTMENTS

4 From the Editor

5 Information for Authors

6 A Message from the President

7 Contributors to this Issue
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Welcome to this issue with information on DME, the durable medical equipment kind, not the physician examination called IME, independent medical evaluation, in some jurisdictions. We have decided to make this issue a little shorter in terms of text, favoring lists of useful references and some critiques of long-held assumptions. Getting these resources together will certainly help newer NLCPs, and they have all been and checked for relevance as of September, 2020.

We’d like to make these lists more comprehensive, so please share a favorite resource with me at whowland1@mac.com for inclusion in a later update and in the Crash Cart.

Getting these resources together will certainly help newer NLCPs, and they have all been and checked for relevance as of September, 2020.

I’d like to call your attention to an interesting article in the NEJM called “Rehabbed to Death.” This is the link. You will be asked if you want a free 3-month subscription—take it. https://www.nejm.org/doi/full/10.1056/NEJMtp1809354?query=TOC

Jane 31, 2019
DOI: 10.1056/NEJMtp1809354

Ms. P. was an 87-year-old woman with moderate dementia who lived alone in an apartment before being admitted to the hospital with pneumonia. During her hospitalization, she became deconditioned and could no longer walk without assistance. Friends and family were unable to provide the amount of help she needed to live safely at home, so she was transitioned to a nursing home for post-acute care, paid for by Medicare. She then developed diarrhea, however, and was readmitted to the hospital with a Clostridium difficile infection. She was transferred back to the nursing home for more rehabilitation, only to develop delirium, which led to a fall and a readmission. Shortly after Ms. P.’s third transfer to the nursing home, the 100 days of skilled nursing facility–based post-acute care covered by Medicare ended. She continued to need help with activities of daily living. Returning home was not an option, since her financial and social supports were limited. Ultimately, Ms. P. paid out of pocket for long-term care in the same facility until she exhausted her small savings and qualified for Medicaid, which then covered the cost of her nursing home care. She was hospitalized repeatedly until she died, a year after her initial hospitalization, never having returned home.

The author goes on to making some interesting observations about how funding and lack of integration contribute to this sort of tragedy. It also reminded me of how little actual clinical observation and decision-making can be involved in discharge planning. This despite the long-standing presence of what’s called “care management” in hospitals and MCOs. You think it’s going to be better than this, but it really isn’t, as so much of it is constrained by payer policies, EHR that won’t allow for thought or input on true patient individuality, and “work flow” that subtly alters clinician assessment and planning to the point where the actual patient is no longer, truly, a factor.

My personal experience with this came a few years ago when my sweet husband, then a hale and hearty 82-year-old with a good heart and lungs, a part time job, and no chronic illness of any kind, threw a big bunch of PEs. While I am sure the hospitalist and staff followed “the bundle” for PE care, nobody found out that he was not a couch potato and lived with an RN who could check INRs and adjust warfarin pm. Well, they found out about the second part, lol. They wanted to put him on a non-reversible anticoagulant (bad idea for an elder who’s physically active) for an hereditary coagulopathy. This diagnosis was soundly refuted by the hematology consult. But it was in the bundle...

The NEJM piece lists information it’s important to know because it focuses on looking at actual patient function, goals, and prognosis. The author is advocating for changes in the systems by which bundles are created and implemented, checkboxes completed, and billing and referral requirements fulfilled. Nobody asks if the next mandated step in the pathway is really what the patient needs or wants, or even thinks to speculate on possible answers. Why does this matter to NLCPs?

At discharge, these patients are often told they have to go to “rehab” (as post-acute care facilities are called on the wards) to “get stronger before going home.” When a seriously ill patient with poor rehabilitation potential is discharged to a post-acute care facility, an unspoken conversation ensues. Inpatient providers think, “I know this person is declining. But if she can’t go home, where will we send her besides a post-acute care facility?” The post-acute care providers think, “This person is clearly declining. Why did they send her here without talking about goals of care?” Patients and families think, “How did we end up in a nursing home? Aren’t there any other options?” Often, no one mentions the possibility of death or discusses the goals of care. In treating discharge to a post-acute care facility as a routine event, we are missing an opportunity to improve care for seriously ill older adults.

We don’t often do plans for 87-year-olds with dementia, but for disabled people of all ages. Do you see this sort of cookie-cutter approach in any life care planning? What can we do to reform this structure? It’s an interesting question.

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Information for Authors

AANLCP® invites interested nurses and allied professionals to submit article queries or manuscripts that educate and inform the Nurse Life Care Planner about current clinical practice methods, professional development, and the promotion of Nurse Life Care Planning. Submitted material must be original. Manuscripts and queries may be addressed to the Editor. Authors should use the following guidelines for articles to be considered for publication. Please note capitalization of Nurse Life Care Plan, Planning, etc.

Text
- Manuscript length: 1500 – 3000 words
- Use Word© format (.doc, .docx) or Pages (.pages)
- Submit only original manuscript not under consideration by other publications
- Put the title and page number in a header on each page (using the Header feature in Word)
- Place author name, contact information, and article title on a separate title page
- Use APA style (Publication Manual of the American Psychological Assoc. current edition)

Art, Figures, Links
- All photos, figures, and artwork must be in JPG or PDF format (JPG preferred for photos).
- Line art must have a minimum resolution of 1000 dpi, halftone art (photos) a minimum of 300 dpi, and combination art (line/tone) a minimum of 500 dpi.
- Each table, figure, photo, or art must be submitted as a separate file, labeled to match its reference in text, with credits if needed (e.g., Table 1, Common nursing diagnoses in SCI; Figure 3, Time to endpoints by intervention, American Cancer Society, 2019). Graphic elements embedded in a word processing document cannot be used.
- Live links are encouraged. Please include the full URL for each.

Editing and Permissions
- The author must accompany the submission with written release from:
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- All accepted manuscripts are subject to editing, which may involve minor changes of grammar, punctuation, paragraphing, etc. However, some editing may involve condensing or restructuring the narrative. Authors will be notified of extensive editing. Authors will approve the final revision for submission. The author, not the Journal, is responsible for the views and conclusions of a published manuscript.
- Submit your article as an email attachment, with document title articlename.doc, e.g., wheelchairs.doc

All manuscripts published become the property of the Journal. Submission indicates that the author accepts these terms. Queries may be addressed to the care of the Editor at: journal@aanlcp.org

Manuscript Review Process

Submitted articles are peer reviewed by Nurse Life Care Planners with diverse backgrounds in life care planning, case management, rehabilitation, and nursing. Acceptance is based on manuscript content, originality, suitability for the intended audience, relevance to Nurse Life Care Planning, and quality of the submitted material. If you would like to review articles for this journal, please contact the Editor.

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Hi Everyone,

First, I hope everyone and your families are doing well and staying healthy.

As I reminisce on my bittersweet time during my presidency while writing my last President’s Letter for the AANLCP® Journal, I flash on all of the friendships I have developed, the knowledge I have gained, and the opportunities afforded me. The last two and a half years have been a roller coaster of emotions, starting with the elation when I picked up the phone and Victoria Powell first nominated me. I look forward to passing the reins so that someone else’s leadership skills can keep moving the AANLCP forward.

The mentorship program is finally back underway! If you are new to Life Care Planning and would like assistance, then, by all means, join the mentorship program. The Executive Board is excited to see Mentorship up and running again.

Our annual conference will be held March 11-14, 2021, at The Guest House in Memphis, TN. We look forward to seeing everyone there. Victoria Powell, Joan Schofield, and the conference committee are working hard to bring you a great 2021 conference. We have a new conference manager, Stacy Moffat, who has dedicated numerous hours to the AANLCP® and we look forward to meeting her in person in March.

I thank President-elect Evelyn Robert for stepping up to lead our Association now. She has the best interest of AANLCP® at heart and I wish her great luck and happiness. I would like to encourage all members to volunteer to join the Executive Board or a committee – you are the Association and can help it serve others as it has served you. Advocating for AANLCP® has brought me joy, and I look forward to many more years as a Nurse Life Care Planner with it.

Erin O’Connell MSN-RN, MBA, CNL, CNLCP®, MSCC, CCM®
AANLCP President August 2018 - Current
erin@oconnellandassociates.net
Contributors to this Issue

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was introduced to nurse life care planning via legal nurse consulting work and the San Diego chapter of AALNC. Her background is in research, public health, and women’s health. Andrea currently works as an independent contractor with Liz Holakiewicz & Associates, and is appreciative of her mentors and the support from AANLCP members.

Dawn Cook, RN, CNLCP, CLCP

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Tricia West, BSN, RN, MBA/HCM, PHN, CHN

has been doing legal nurse expert work since 1977. In her 40 years as a Registered Nurse, she has worked in intensive and cardiac care, acute and chronic hemodialysis, and quality assurance. She is the founder and CEO of P.J. West and Associates, Inc. a medical legal consulting company consulting as an expert in life care plans, billing analysis, Medicare set-asides, and standards of care. She can be reached at twest@pjwa.com.

Randall Alley BSc, CP

is a board-certified prosthetist is CEO, Chief Prosthetist and Head of User-Interface Technologies for biodesigns, a clinical services and R&D facility in Southern California. He has over 30 years’ experience fitting amputees, he was the principal investigator on two SBIR/DOD contracts, has contributed to five textbooks, received a Certificate of Appreciation from the US Army, the Clinical Creativity Award from the American Academy of Orthotistsand Prosthetists, and has over 10 patents for his human attachment technologies. He can be reached at ralley@biodesigns.com
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One benefit of membership in a professional association is access to practice and educational resources. AALNC offers members its online library of life care planning resources called “Crash Cart- Tools to Revive Your Practice.” Here are some updates and tips!

Becky Czarnik, MS, RN, CLNC, LNCP-C, AANLCP education chair, says the Crash Cart “supports the NLCP community by providing a place to look up information quickly to support the foundation of a life care plan. It’s a resource to start your research, find a gem to support your nursing diagnosis, or give you a helping hand when you are burning the midnight oil.” (personal communication, June 29, 2020). Rapid, straightforward access to timely resources is very relevant for efficiency and accuracy.

Developed in 2015, the Crash Cart was created as a library of resources collected by and shared between AANLCP members. With a 2018-2019 website platform upgrade, the education committee was able to bolster its functionality with improved cross-referencing, searchability, and more reviewed resources. We are grateful to Shelene Giles, BSN, RN, BA, MS, CRC, CNLCP, MSCC that FIG Services, an AANLCP Diamond Partner, recently assumed its oversight at no cost to the Association.

Today, the Crash Cart contains 29 pages of resources with hundreds of practice and academic resources, searchable by category (topic) and/or resource thanks to the tireless work of the education committee.

Access it through Dashboard, following member login at the Premier and Premier Associate levels.
Search it easily by using the filtering checkboxes on the left sidebar with a simple mouse click. Resource Category lists the available topics pertinent to life care planning. Resource Type defines the tool or medium desired, like an article, guideline, book, website, or report.

Searching is best begun by looking for results in Resource Categories. Then select the Resources Type. You’ll find
- Clinical and association practice guidelines
- Research and review articles
- Coding resources
- Medical center protocols
- PDF Article and Articles have materials for download
- Websites is rich source for pertinent Internet links and related cross-referenced topics

The examples will help you understand that you might need to use more than one filter choice to locate pertinent items. Look around.

Example 1. Looking for “How often should you replace CPAP equipment and supplies?” (Peters, B., 2020) and the Department of Health and Human Services 2013 “Replacement schedules for medicare continuous positive airway pressure supplies” (Levinson, D., Inspector General, Department of Health and Human Services)? Find them under Medical Equipment and Supplies, DropMark PDF Capture, or Article (but not under Inhalation/Pulmonary Injuries)

Example 2. Look for a RESNA position paper on the application of wheelchair standing devices under Spinal Cord Injuries and PDF Reports but not under Medical Equipment and Supplies.

AANLCP members frequently contribute to the Crash Cart. Any useful practice resource is welcome for submission to the education committee for review (education@aanlcp.org). Take some time to become familiar with the AANLCP Crash Cart resource. The robust collection can offer a busy life care planner increased productivity, time savings, and precision in their work product. The Crash Cart library is a rich resource for Premier AANCLP and Associate members. All members can anticipate that it will continue to grow and be refined under AANLCP and FIG Services’ capable stewardship.

Education Committee directions follow, for possible link:

How to Use the Crash Cart

The Education Committee has worked hard to verify the relevance, timeliness, and accessibility of the article. We are in the process of improving the search function. This is a work in progress! Send any resources that you would like included to education@aanlcp.org.

1. Go to AANLCP.org website
2. Sign into the website
   a. Click on the “forgot password” if you need a new password
   b. At the bottom, click on support if you are not a member trying to log in
3. Click on the Crash Cart
4. The search page of the Crash Cart
   a. To get the best results, use “Resource Category” Scroll to the middle of the section
   b. Start your search by clicking on the broadest category, for example “Amputation,” “SCI,” or “Chronic Pain.” This will will automatically return the resources that are in this category. If this search gives you too many results, add another category to filter the returns further.
   c. Always look at the bottom for more resources
5. Click on “Access Resource” to obtain the resource.
   a. These are pdf files, so to save on your computer
      i. Right click to print or choose “Print”
      ii. Save as PDF to your computer in the folder of your choice
# Online Sources for Selected Common DME

## Current as of September 2020

### Article:

https://www.seniorliving.org/durable-medical-equipment/

### Catalogs

https://www.performancehealth.com

https://www.performancehealth.com/products/brand/sammons-preston

### Bath Chairs

https://www.adaptivemall.com/toiletbath/colbatchair.html


https://www.walgreens.com/q/bath+chairs

### Folding/Rollators, 4 Wheel/2 Wheel/Walker

https://www.bestreviews.guide/folding-walkers-with-seats

https://products.bestreviews.com/best-two-wheel-walkers

https://www.aginginplace.org/best-4-wheel-walkers-with-seats/

https://m.bestreviews.com

https://www.drivemedical.com/us/en/Products/Mobility/Walkers/c/Walkers

https://www.supportplus.com/FF2412.html

https://www.acaremedical.com/walking-aids/walkers

https://assistedlivingtoday.com/blog/best-walkers-for-seniors/

https://justwalkers.com/collections/rolling-walkers

https://www.mayoclinic.org/healthy-lifestyle/healthy-aging/multimedia/walker/sls-20076469

### Patient Lifts

https://www.caring.com/best-hoyer-lifts/

https://www.hoyerlift.com/

https://medmartonline.com/patient-lifts/

### Wheelchair/Scooter Lifts

https://www.unitedaccess.com/wheelchair-scooter-lifts/

https://www.mobilityworks.com/wheelchair-lifts/how-to-choose-a-wheelchair-lift/

https://www.mobilityworks.com/wheelchair-lifts/

http://blvd.com/vehicle-wheelchair-lifts


### Ramps for Home Access

https://www.bestreviews.guide/aluminum-wheelchair-ramps-for-homes

https://www.rollaramp.com/home-ramps/

https://expressramps.com/portable-wheelchair-ramps

https://101mobility.com/products/ramps-handrails/

https://www.handiramp.com/wheel-chair-ramp.htm

https://www.ezaccess.com/

### Auto Access Ramps

https://nmeda.com/handicap-minivan-ramps-side-entry-vs-rear-entry/

https://www.amramp.com/local/seneca-pa/

https://www.americanwheelchairs.com/specliftburrdual.shtml

https://www.handiramp.com/vanramps.htm

### Beds

https://www.tempurpedic.com/shop-mattresses/all/?c_
Abstract
After assessing, making nursing diagnoses, and stating the plan’s outcomes, the life care planner researches the cost of each item or service recommendation and may calculate the cost for lifetime needs. This is where errors can occur. An opposing attorney will likely look for this “low-hanging fruit.”

There may be no right way or wrong way to arrive at the total cost. Being aware of common pitfalls can assist in determining the best methods for the varying frequencies and intervals that will be applied to each of the future medical care items so your report will reflect the best opinions about the cost of future needs in a defensible manner.

Before You Do the Math
Nurses sometimes joke that math is not their strong suit; many attorneys say the same. The life care planner determines future care needs before making any calculations. These may be based on research, journal and textbook articles, interviews with the patient, communications with medical providers, medical records reviews, and other resources. (AANLCP, 2013, 2015)

The nurse life care planner will then determine the current cost for the proposed future needs. Finding costs for particular items and services involves noting the description as well as determining the appropriate codes for the care. The life care planner needs to learn the language of medical coding and understand how to both describe and determine the service, for example, knowing the difference between a home health worker and a homemaker, in order to be able to conduct reasonable and transparent cost research.

Keywords: Life care plan, costs, life expectancy, medical economist
When constructing tables to present the future costs, plan columns for:

- Item
- Frequency
- Start and stop date or number of years
- Unit cost of the item, including repair/maintenance outside of warranty coverage
- Source for cost research
- Annualized costs for things utilized/provided every year
- One-time or limited duration costs

Provide a column for lifetime costs if client requests it, as these may be projected by a medical economist.

**Common Pitfalls in Life Care Planning Math and How to Reduce Math Errors**

### 1. Transcription Errors

Transcription errors for the cost entered into the life care plan can be prevented by care and double checks. Sometimes “cut and paste” from a data source can prevent you from transposing numbers or just putting the wrong information down. As you do more and more cost research, you will be able to notice if you make huge transcription errors, as you learn the usual cost of care.

### 2. Addition/Multiplication Errors

A calculator and calculating spreadsheet software will help you prevent these. A good rule of thumb is to add the values three times and two of those times should agree. The life care planner should also have someone else check the math, both horizontally and vertically throughout.

### 3. Using Life Expectancy

Life care planners sometimes do calculations based on life expectancy. Determine the method you will use and apply it to every “lifetime total” calculation that you do. Remember that some line items will not apply to the entire lifetime, adjust accordingly. Be consistent in the use of life expectancy tables. Be prepared and able to explain why you used a life expectancy table and what specific criteria you used. For example, did you use the table for that included all persons or a gender specific table?

### 4. Errors in Start and Stop Dates/Years/Ages

Starting and stopping services and goods at different points in life is very common in life care planning. For example, pediatric wheelchairs will only be used in the childhood years and then the cost of adult wheelchairs will need to be calculated. Determine if you will put the start and stop dates in terms of the patient’s age, the year that something will start, or if the service/good will be used for a determined period of time. For example, if you wish to say that the 2-year-old child will need a pediatric wheelchair with replacements every “X” years until age 21 and then every “Y” years, your table might look like this:

<table>
<thead>
<tr>
<th>Method</th>
<th>Age Method</th>
<th>Year Method</th>
<th>Number of Years Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric wheelchair</td>
<td>New wheelchair now (age 2) and every X years until age 21</td>
<td>New wheelchair now (2020) and every X years until 2039</td>
<td>New wheelchair now and every three years for 19 years (count the years: age 2,3,4 ... 20)</td>
</tr>
<tr>
<td>every X years</td>
<td></td>
<td>New wheelchair now (2039) and every Y years for life expectancy (indicate the year of life expectancy)</td>
<td>New wheelchair at age 21 and every Y years for life expectancy (count the years 21, 22, 23 ... to LE)</td>
</tr>
<tr>
<td>Adult wheelchair</td>
<td>New wheelchair at age 21 and every Y years for life expectancy (indicate the age of life expectancy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>every Y years; starting at age 21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Determining the number of wheelchairs will be based on your information above. The life care planner will designate how many wheelchairs and multiply by the cost. The calculations should result in a number of replacements that can be easily determined. (Albee, Cosby, Beach, 2020)
5. Providing Funds for Only a Partial Purchase of an Item

Durable medical equipment comes all of a piece. One cannot purchase three-fifths of a wheelchair and it is meaningless to budget for it in that manner. If item replacement or a service unit (e.g., MRI) comes due at one year before life expectancy, cost in full is indicated and should be so noted in the plan. (AANLCP, 2013).

6. Range of Costs Problems

The life care planner may choose to use a range of costs rather than a single cost or an average of the cost. Using a range means that you are adding more figures together to establish the minimum and the maximum amount of the item. This may present an opportunity for errors. When multiplying for frequency, annual, or lifetime costs remember to multiply both the minimum and the maximum costs (Ireland, Pearson, 2008).

7. Averaging a Range of Costs

Using the average of the range of costs can be a useful way to simplify the math. For example, a several wheelchair costs could be given and then averaged. However, consider whether your final cost will cover the item if lower-cost choices become unavailable over the LE. Be sure to show what costs were found for each wheelchair and add all the costs, then divide the total by the number of items to get the average cost per one wheelchair. If you choose to show a number of items and remove the highest and the lowest cost first before averaging, be sure to explain this in your cost research notes or your methodology explanation. An economist may choose to take your middle number (median value) or may use your high and low values to calculate an average which may change the final total (Ireland, Pearson, 2008). Or the client may choose to have a high value and a low value listed separately. (see sidebar)

8. Multiplication Errors

These occur when determining item frequency, often when calculating the “horizontal” addition across the table. If an item is once a year, it is easy to do an annual or lifetime total cost. However, let's look at "Physical Therapy 12-16 times every 3 years, for 12 years." Since there are three factors to consider, the life care planner needs to be very careful. If ranges are desired, then this translates to:

a. Physical Therapy 12 times every 3 years for 12 years = 48 sessions TO 16 times every 3 years for 12 years = 64 sessions. Therefore the projected high-low range to cost out is 48 – 64 sessions every 3 years.

b. Averaging gives 14 times every 3 years for 12 years=56 sessions.

9. Items and Services that are for a Lifetime vs. Limited Time Period

If you are using a column for lifetime totals, you may need to add a column for items that are for less than a lifetime. Some examples include single purchases, therapy for a limited time, or home care starting at a later date. A column for one-time or limited duration could reflect the lifetime cost and would not be multiplied by the life expectancy. (Dillman, 2010)

10. Overlapping Time Periods

Since any year will include a birthday for the plaintiff, it is important to designate the ages or years that something will be needed to avoid having the plan say, “from age 20-30,” then “from 30 to 40.” This creates conflicting information for age 30 and will earn you a call from the economist. Intervals should be consistent. It would be better to say (for example) birth to 10, 11-20, 21-30, 31-40... (Ireland, Pearson, 2008), since each interval incorporates ten years of life equally.

11. Hourly and Daily Errors

Home care, for example, may require a specific number of hours per day, per week, or even per month.

A good rule of thumb is to multiply the cost by the exact interval that is being recommended and multiply by 365.25 days per year. For example: if two hours per day of nursing is needed, then multiply by 365.25 days by the two hours to get an annualized number of hours. Then you can multiply this by the life expectancy to come up with the lifetime total for this hourly item. Again, giving an annual total will make the economist's life easier.

12. Median vs. Mean

The mean of a range is the sum of all items divided by the number of items. The median is the number in the middle of the range. For example, in this list, the sum of these 11 numbers is 58. Thus their average is 58/11 = 5.3 (rounded). The median value, however, is 7, with four items greater and four less. Seen another way, if there are four nurses and Bill Gates in a room, their average worth is probably in the multimillions of dollars, but the median is more representative.
The following demonstrates how results may vary based on method. For 20 hours per week at $25 per hour:

- **Weekly method:** $25 per hour for 20 hours a week, then the result is $500 per week, and multiplied by 52 weeks is **$26,000 per year**. This is the simplest and allows for caregiver adjustment within the days, but lacks precision.

- **Monthly method:** You would say $25 per hour for 20 hours a week, four weeks a month and 12 months of the year you would get $25 X 20 X 4 X 12 = **$24,000 per year**. This will clearly underestimate need, because there are more than 48 weeks in a year due to the different number of days in the months.

- **Days of year method (365 days):** You may even try to factor $25 per hour times 365 days a year and divide by 7 days in the week, then multiply by 20 hours per week and you will get $25 X 365 divided by 7 X 20 hours per week = **$26,071.42 per year**. This is not significantly different that calculating by week, but does recognize that a year is slightly longer than exactly 52 weeks (52 x 7 = 364 days)

- **Leap year method:** In order to accommodate leap year (one extra day every four years), 20 hours of home care per week would be 365.25 divided by 7 days in a week, times 20 hours a week, times $25 per hour is **$26,089.29 per year** (Weed, Berens, 2010). This is the most precise method and is what the economist will likely use as a baseline when projecting from your data.

### Daily Items

These may be items like diapers, enteric feeds, medications, and wound dressings. There may be services such as housekeeping or care providers. As with the hourly calculation, determine the unit cost, then multiply by daily frequency and 365.25 days per year. Example: 6 diapers daily at a cost of $0.50 per diaper = $3 per day X 365.25 days per year = **$1,095.75 annually for diapers**.

Pitfalls: You may have thought to calculate how many diapers per month, then multiply by 12. However, it is difficult to say how many diapers per month, since the number of days vary per month.

### Conclusion:

Determining the exact cost of future medical care may be one of the last steps in developing a life care plan. However, it is not without pitfalls. Try to eliminate as many arithmetic errors as possible to provide the best estimate of costs for the plaintiff/patient. You can avoid explaining math errors at your deposition and focus on the assessment and resulting nursing and medical diagnoses, as the basis for an optimal plan of care into the future.

### RESOURCES


Dillman, E., 2019, The role of the economist in life care planning, in Life Care Planning and Case Management, 4th edition


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REPLACEMENT INTERVALS IN LIFE CARE PLANNING

Abstract
Nurse Life Care Planners provide a report that outlines the total cost for the life care plan (AANLCP, 2013, 2015) The steps involved use the Nursing Process (ANA, 2015), to review the records, communicate with the plaintiff/patient (if possible) and medical providers, then develop a list of future needs. For instance, in a life care plan, equipment recommendations may be made by the life care planner, physicians, chiropractors, therapists, and others (AANLCP, 2013, 2015). Determining when to replace items is a necessary step in formulating the total cost of the life care plan.

Keywords: Self-care deficits, mobility impairment, health maintenance, replacement, DME, equipment

What is Durable Medical Equipment?
Durable medical equipment (DME) is defined by HealthCare.gov as equipment and supplies ordered by a health care provider for everyday or extended use. CMS (Centers for Medicare and Medicaid Services) defines DME related to durability. This definition indicates the equipment:

• can withstand repeated use
• has an expected life of at least 3 years (referred to as the Minimum Lifetime Requirement, MLR)
• is primarily and customarily used to serve a medical purpose
• is generally not useful to an individual in the absence of an illness or injury
• is appropriate for use in the home (CME 42 CFR 414.202)
Replacement Intervals

One of the factors in determining total cost is the replacement interval for items that are reasonably expected to wear out and need to be repurchased (Albee, Cosby, Beach, 2020). Equipment wears out and needs to be replaced. The frequency of replacement is sometimes difficult to determine. Also, consider that equipment for a child may need more frequent replacement to account for growth. Adaptive equipment, e.g., for athletics, may need more frequent replacement due to wear and tear. However, several sources can help guide decisions on replacement intervals.

Once the replacement interval is known, the life care planner can calculate how many replacements are needed over a lifetime. Calculating annualized costs for equipment is not the best approach, otherwise the report may end up recommended with only enough monetary value for a portion of the cost of an item, either at the end of life or for the specified time interval (Ireland, Pearson, 2004). Recognize that durable medical equipment comes all of a piece. One cannot purchase three-fifths of a wheelchair and it is meaningless to budget for it in that manner. If item replacement comes due at one year before life expectancy, cost in full is indicated and should be so noted in the plan. (AANLCP, 2013).

Some equipment may already be purchased before the creation of the life care plan. In this case, the life care planner or the economist will need to know the date of the next purchase and the intervals for replacement afterward (Dillman, 2018).

Determining Replacement Intervals

There are many ways to determine replacement intervals, and the life care planner may choose them based on many factors. There may be no right way or wrong way to determine the interval for replacements, but being aware of common sources can help the life care planner determine best methods for intervals that will be applied to each of the future medical care equipment items. It is also important to remember that many estimates on replacement intervals are not determined by the actual useful life of an item as determined by historical data, but on coverage decisions determined by insurance carriers, including Medicare/Medicaid. When an item is covered by a life care plan, these do not come into play; therapists and patients may have more realistic estimates for the actual life of an item.

1. Manufacturer’s warranty and extended warranties
   - The medical providers or vendors for the plaintiff/patient may have individualized recommendations for replacement intervals for their patient. These may be used and should be quoted as the source of the replacement interval in the life care plan.

2. Recommendations from physicians, therapists, or vendors
   - Medicare (cms.org) has lists of equipment and replacement intervals for items that Medicare may provide payment for.

3. Research life care planning journals
   - Journal of Nurse Life Care Planning
   - Journal of Life Care Planning

4. Medicare
   - Medicare (cms.org) has lists of equipment and replacement intervals for items that Medicare may provide payment for.

SPECIFIC EQUIPMENT

Adapted Vans, Cars, and Equipment

Normally, vans and cars have a replacement interval of 5-10 years (Henry, 2020), but the additional equipment in an adapted vehicle may have shorter replacement values. The adaptations may require more research into the specific manufacturer’s recommendations, or the life care planner could speak with vendors for more input. Another resource for replacement intervals is a Certified Driver Rehabilitation Specialist (CDRS). Equipment such as steering knobs, left foot accelerator pedal, push-pull steering control, and panoramic mirrors may be added to a vehicle (King, 2018). Remember to account for any warranty in force at purchase; it may be different for a used vs new vehicle.

Prosthetics

Artificial arm and leg prosthetics have to be replaced when they wear out or beyond repair. A useful method for determining prosthetic replacement intervals is to look at the history of the prosthetic user (Powell, 2020). The Amputee Coalition discusses wear and fit issues on its website. However, many life care plans are developed at the beginning of the prosthesis use, and there may not be a history to review.

Medicare designates prosthetics to have a useable life of no less than five years (cms.org).

A recent article in the JNLCP states that 5 years may be a reasonable replacement interval; there are also guidelines for the various parts and accessory replacements for prosthetics (Berry, 2020). Extended warranties may lengthen the life of prostheses (Hsu, Waryck, 2017), and this could be considered when planning how often to replace components of a
prosthetic. Check with the current provider to see what is available.

Facial prosthetics have a shorter lifetime of 2-4 years, although replacements can be made for half the original cost (Duncan, Calhoun, 2015). Finger prosthetics may have a shorter replacement interval depending on their components and “skin”; providers should be consulted.

Service Dogs

Service dogs might not be a piece of equipment but if they are needed for the plaintiff, then replacement intervals must be considered. Service dogs generally have a working life of about 8-10 years and then will need to be retired (Guide Dogs of America, n.d.). (The JNLCP plans an article on service dogs for February 2021 ~ Ed.)

Common DME in Life Care Planning

CMS says that DME has a reasonable useful lifetime (RUL) of five years and will not replace the equipment before five years unless it is lost, stolen, or broken (Noridian, 2017). The ruling was updated in 2017 and includes orthotics and prosthetics.

- Pressure reducing beds, mattresses, and mattress overlays used to prevent bed sores
- Blood sugar monitors
- Blood sugar (glucose) test strips
- Canes (white canes for the blind are not covered)
- Commode chairs
- Continuous passive motion (CPM) machines
- Crutches
- Hospital beds
- Infusion pumps and supplies
- Manual wheelchairs and power mobility devices (power wheelchairs or scooters needed for use inside the home, not only for outside use)
- Nebulizers and some nebulizer medications
- Oxygen equipment and accessories
- Patient lifts
- Sleep apnea and Continuous Positive Airway Pressure (CPAP) devices and accessories
- Suction pumps
- Traction equipment
- Walkers
- Orthopedic shoes only when they’re a necessary part of a leg brace
- Arm, leg, back, and neck braces (orthotics)
- Artificial limbs and eyes
- Breast prostheses (including a surgical bra) after a mastectomy
- Ostomy bags and certain related supplies
- Urological supplies
- Therapeutic shoes or inserts for people with diabetes who have severe diabetic foot disease
- Cataract glasses (for aphakia, absence of the lens of the eye)
- Conventional glasses or contact lenses after surgery with insertion of an intraocular lens
- Intraocular lenses (DHHS, n.d.)

If All Else Fails

If the life care planner is unable to find a replacement interval for the DME after considering the warranty, the plaintiff’s history of replacement needs, physician or therapist recommendations, or searching literature and internet information, it is reasonable to assume the five-year rule could apply to equipment that is similar to the equipment that is covered by Medicare. Items such as slide boards, commode chairs, shower chairs, elevated toilet seats, hand-held shower heads, grab bars, eating devices, cooking devices, hand controls, and one-footed foot pedal and steering knob for driving could be reasonably replaced at five-year intervals. One way to manage this is to put in an annual allowance for such materials and allow the individual to manage how to apply it.

Finally, be aware that if an individual has equipment received from a charity or other source that is not a vendor, it will likely not be covered for any warranty and the vendor may not even consent to service it for any reason. It may be best to provide for new DME as soon as possible to protect the user from interruptions in service, e.g., a broken bed.

Conclusion

Determining the replacement intervals for all of the equipment needed in the life care plan is one of the steps in determining the overall lifetime cost of that item. Explaining your methodology or resources used in determining the replacements provides further evidence of the accuracy and reliability of your plan.

_________ (2015) Nurse Life Care Planning Scope and Standards of Practice. Wendie Howland, Editor. AANLCP.


Dillman, E., 2019, The role of the economist in life care planning, in Life Care Planning and Case Management, 4th edition


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Hidden in Plain Sight: The Little-Known Factor in Life Expectancy of the Lower Limb Amputee

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Keywords: prosthetics, limb loss, socket, interface, falls

Abstract
Advanced prosthetic systems for lower limb over the years have expanded prosthetic users’ functional capabilities. However, the risk of falls in the above knee amputee (AKA) and amelia community remain high. In 2016 Wong et al. studied 41 transfemoral amputees and found that 56.1% (23/41) reported at least one fall, and 26.8% (11/41) had experienced a fall-related injury requiring medical care.

Component manufacturers have not addressed this adequately. Falling results in more than scrapes and bruised egos. The individual may suffer trauma, increased fear of falling, lengthy hospital or long-term care facility stays, and mobility and social activity restriction.
The prosthetic socket, or interface decreases quality of life and life expectancy, by increased fall incidence and energy expenditure, adverse effects on the residual limb, and increased sedentary behavior.

Background

Before discussing the interface, let’s start with a primer on lower limb prosthetic providers and systems.

The origin of prosthetics as a science is attributed to the 16th-century French surgeon Ambroise Paré. The word prosthesis comes from the Greek prosthesis, a putting or adding to (Augustyn, 2019). Though it is somewhat of an oversimplification, the job of the orthotist is brace while the job of the prosthetist is to replace. The question arises as to just how well one replaces, and to what level are we (the patient, the prosthetist, the allied health community and family or friends) satisfied with the replacement varies with every case.

Prosthetist reimbursement has always been controversial, since most people regard a prosthetic’s price only in terms of its components. However, the L codes originally meant to cover components and the prosthetist’s services do not typically cover time for labor and repair codes after delivery. When payers discount component reimbursement, this affects prosthetists far more than manufacturers.

Consider the cost of an incredible technology boom from a renewed and reinvigorated research sector, resulting in newly introduced and future technology derived from the Department of Defense, the merger of artificial intelligence, robotics, exoskeletons and soft matter physics (neuromuscular integration). New technology is not only expensive, it often lacks an established L code, so providers use “miscellaneous” codes (L5999 and L7499 for lower and upper limb prosthetics, respectively). Payers see miscellaneous codes as red flags, especially as they may include staggering price tags. Technology offers some amazing, safety-related, and very beneficial upper and lower limb capabilities, and patients typically do not want to or cannot pay for them.

As one might imagine, if these systems do get paid for initially, they require frequent repair and replacement, so extended warranties are highly recommended. The bottom line is, costs are increasing as component capabilities increase, patient awareness of and desire for advanced technology are increasing while reimbursement is experiencing severe downward pressure across the U.S. The prosthetist is caught in the middle.

Prosthetic Interface

Although prosthetists spend considerable time pondering the latest microprocessor knee, ankle, or foot, the most critical determinant of a successful outcome is the interface to capture and control the limb. Current interface designs have changed little since the 1980s. There is often a low threshold for success, set by the prosthetist, patient, allied health community, the media, and the incredible capability of the wearers themselves, who often astound and impress us with how they can do so much with so little. We actually applaud all those individuals who accepted what they were given and somehow got on with life. They had no way of knowing how much their amazing abilities and determination would hinder progress of the entire prosthetic industry.

The Interface and Falls

One of the most dangerous activities an individual with a lower limb prosthesis can undertake is ambulation. While a misstep can always occur and can happen to anybody whether or not they require a prosthesis, the reason for the fall may not be immediately apparent. What caused the toe to drag on the floor and strike an object? Why did the prosthetic knee suddenly buckle without warning? What lies at the heart of most stumbles or falls is the fault of the interface.

Traditional prosthetic interfaces do not prioritize controlling the underlying bone within the socket, and dissociate the wearer from the outside world due to the dampening effect of the design. After amputation, the distal end of the bone is now largely free to move. So controlling this unwanted motion should be the highest priority. This is not the case, and instability caused by a hypermobile bone results in
individual may never want to use a prosthesis again.

Manufacturers have incorporated stumble recovery into many microprocessor knees. However, even as the prosthetic knee attempts to recover, the interface limits the technology’s effectiveness in preventing a fall by allowing bone motion within the socket and masking sensations that would otherwise serve as a warning. After one or two falls, an individual may never want to use a prosthesis again.

**The Interface and Energy Consumption**

Besides fall risk, another significant interface factor in prosthetic abandonment is energy consumption. While numerous studies have been done on energy consumption and transfemoral amputees, most focus on either knee and/or foot/ankle systems and their effects on energy expenditure, and ignore the role the prosthetic interface plays in energy loss (Traugh et al., 1975, as cited in Kaufman et al., 2008, and Datta et al., 2005). Unwanted bone motion within the socket robs energy that would otherwise be used for locomotion. With energy expenditure as much as 49% higher in unilateral transfemoral amputee patients and 280% higher in bilateral transfemoral amputee patients (Huang et al., 1979), it’s no wonder many transfemoral amputees favor a wheelchair or abandon prostheses altogether.

**A Possible Solution?**

One manufacturer, biodesigns, has developed the High-Fidelity™ or Compression-Release Stabilized interface system (Alley et al., 2011) to stabilize the bone within the interface, return balance confidence through greater control and improved proprioception and sensation. By reducing wasteful motion within the interface, it reduces the energy spent during ambulation reducing discomfort, pain and soft tissue injury often associated with traditional sockets.

Regardless of what interface is used, recognizing the prosthetic interface’s role in outcome will help to serve the prosthetic community that relies on it. An experienced nurse life care planner can help the physiatrist and rehabilitation team recognize interface socket-related influences on recovery and quality of life.

To address the multifaceted needs for these patients, the experienced Life Care Planner will collaborate with a team: the physiatrist (a physician with special education and experience in rehabilitation), prosthetist, rehabilitation nurse, psychologist, physical and occupational therapists, patient and family will work to identify the functional, emotional, psychological, and rehabilitative goals related to the patient’s specific needs, interests, resources and goals. The team will develop a a comprehensive approach with a realistic timeframe to address these needs and reentry into everyday life and community.

**The Nurse Life Care Planner follows the nursing process:** assessment, analysis, plan development, implementation, re-evaluation, and revision. The NLCP will plan to have the most up-to-date information for the physiatrist prior to the visit in order to make the encounter most efficient, and will attend the visit if possible. Patient evaluation and re-evaluation should include:

- Review of the medical records
- History of current medical condition
• Past medical history including those not related to current injury
• Physical exam and a thorough assessment of pain and current symptoms
• Medications and their effectiveness
• Psychosocial history, support systems, and coping
• Pre-amputation activity baseline and current levels
• Past and current vocational history and status
• Hobbies and recreational interests
• Prosthetic history: what worked and what did not
• Adaptive and other equipment

Revisit this plan periodically to assure it is current and addresses status changes. Future needs may include:
• Prosthetics available as needs change and new technology is available
• Emotional support with family and friends involvement

**REFERENCES**


**Summary:**

Communication with other medical and paramedical specialties to keep up to date with the patient’s rehabilitation status and assure successful reintegration into the community is essential. Teamwork is critical in developing a comprehensive rehabilitation program to work towards the most favorable outcomes for the patient with a lower extremity amputation.
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2012
XII.1 Coding and Costing
XII.2 Electrical Stimulation Technology
XII.3 Preconference / Brain Injury
XII.4 Veterans Administration

2013
XIII.1 LCP for Motor and Developmental Disorders
XIII.2 Ethical Topics in LCP
XIII.3 Preconference / Exemplars in NLCP
XIII.4 Home Modifications

2014
XIV.1 Technology Updates
XIV.2 LCP Across All Ages
XIV.3 Psych topics in LCP
XIV.4 LCP and the ACA

2015
XV.1 Topics in Translation
XV.2 Updates in Spinal Cord Injury
XV.3 Burns
XV.4 Perinatal / Childhood

2016
XVI.1 Pain
XVI.2 GI Issues
XVI.3 International LCP
XVI.4 Home Care

2017
XVII.1 Brain Injury
XVII.2 The Business of Life Care Planning
XVII.3 Back and Spine
XVII.4 Mobility and Extemity Function

2018
XVIII.1 Costing and Coding

2019
XIX.1 Presidents Issue
XIX.2 Licensure I Qualifications I Certifications
XIX.3 New Directions in Pain Management
XIX.4 Technology Updates

2020
XX.1 Spinal Cord Injury Updates
XX.2 Advances in Amputation
XX.3 Evidence Based Practice
XX.4 Durable Medical Equipment and NLCP