

IT'S ALL ABOUT THE NUMBERS

Dawn Cook, RN, CNLCP, CLCP

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 wheel chair with replacements every “X” years until age 21 and then every “Y” years, your table might look like this:

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

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.

Median vs. Mean

1
1
2
4
7
9
9
10
15

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 $\$25 \times 20 \times 4 \times 12 = \$24,000$ 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 $\$25 \times 365$ divided by 7×20 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 ($52 \times 7 = 364$ 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

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