Catastrophic damages: Assessment of earning capacity loss

A look at the process of valuing the loss of an individual's lifetime capacity to perform work

By Joseph T. Crouse

In cases of catastrophic injury, an economist should be retained to perform a present-value calculation of a life-care plan and an economic assessment of earning capacity loss. This article, *in two parts*, explains the basics underlying these two economic assessments through an integrated case study. This article, *part one*, looks at assessing the loss of lifetime earnings.

Assume an eleven year-old child, Abigail, sustained a catastrophic injury at birth as a result of alleged medical malpractice. As a result, she suffers from hypoxic-ischemic encephalopathy, spastic quadriparesis, and profound developmental delay. Abigail is unable to sit up, stand, walk, talk and swallow. She also has no head control and requires a GJ tube.

The medical doctor opines that she will most likely require 24-hour, seven-day-a-week, one-on-one attendant care for the rest of her life. It is clear that she will never be capable of employment.

In assessing loss of lifetime earnings, a variety of issues need to be considered. Assessment of lifetime earning capacity includes consideration of pre-injury and post-injury annual earning capacity and pre-injury and post-injury worklife expectancy. Once these are determined, present value is calculated. In order to consider the effects of Abigail's disability on annual earning capacity and worklife expectancy, data from the U.S. Census Bureau's American Community Survey (ACS) can be utilized.

Human capital is defined by economists as the acquisition of knowledge, skill, and understanding as a result of education, training, and experience that allows an individual to sell his or her services in the marketplace in exchange for compensation. The predictors of human capital are two-fold: intelligence and physical ability. Since Abigail is too young to undergo intelligence testing, the precursors to human capital are used to define earning capacity loss. Parental level of educational attainment can be used as an estimate of the child's capacity to complete formal education. There is a strong positive correlation between intelligence and level of educational attainment.

Annual Expected Earnings

Abigail's mother is a high school graduate and her father completed the 10th grade. Abigail's pre-injury expected earnings are presented in a range based on two scenarios. In the first scenario, her expected earnings are represented by the average annual earnings that accrue to workers with some high school education but no degree and no disability. In the second scenario, her expected earnings are represented by the average annual earnings that accrue to workers with a high school diploma but no disability.

Due to a combination of impairments and the opinion of the medical doctor, Abigail will be unable to perform any type of substantial, gainful work activity. Therefore, she is 100 percent occupationally disabled as a result of injury. The expected average earnings considered for Abigail are presented in Table 1 (on page 48).

All figures are stated in terms of current-year dollars. In addition, fringe benefits would be added at the national average rate of 27.5 percent as reported in the U.S. Bureau of Labor Statistics publication "Employer Costs for Employee Compensation." For simplification and clarity of presentation, fringe benefits are not considered in this analysis.

Worklife Expectancy

The next decision point in an economic assessment of earning capacity loss is defining the pre- and post-injury worklife expectancy of the individual. Worklife expectancy is a statistical average, derived by summing a series of joint probabilities of life, participation, and employment (LPE) from a given age through age 89. The notion of discounting an individual's future earning capacity by the probability of being alive and employed first appeared in an appellate court decision entitled *O'Shea v. Riverway Towing* (1982) written by Richard A. Posner.

Abigail's worklife expectancies are presented in a range comprised of four scenarios based on her projected level of educational attainment and pattern of employment. Typically, males have worklife expectancies that are greater than females. However, a specific female may demonstrate a work pattern that is more like that of an average male of the same age and level of education than that of a female. Since Abigail is a child, we include both scenarios in our analysis. The worklife expectancy values can be found using the *Gamboa Gibson Worklife Tables* (2015) or through extraction from the American Community Survey public microdata files. The worklife expectancy values are contained in Table 2 (on page 48).

In the first scenario, Abigail's pre-injury worklife expectancy is like that of an average female with some high school education and no disability. Next, in the second scenario, Abigail's pre-injury worklife expectancy is like that of an average female with a high school diploma and no

Table 1: Earning Capacity

Source	Education	Disability Status	Pre-Injury	Post-Injury
ACS	Some high school	No disability	$35,034	
	High school diploma	No disability	$43,076	
		100% occupational disability		$0

Table 2: Worklife Expectancy

Source, Gender	Education Level	Disability Status	Pre-Injury	Post-Injury
ACS, Female	Some high school	No disability	23.7 yrs.	
	High school diploma	No disability	31.4 yrs.	
ACS, Male	Some high school	No disability	33.1 yrs.	
	High school diploma	No disability	37.7 yrs.	
		100% occupational disability		0 yrs.

disability. Third, Abigail's pre-injury worklife expectancy is like that of an average male with some high school education and no disability. In the final scenario, Abigail's pre-injury worklife expectancy is like that of an average male with a high school diploma and no disability.

Her post-injury worklife expectancy is zero since she is 100 percent occupationally disabled. The worklife expectancies that are presented in Table 2 are for females and males beginning at age 19 (when it could have been reasonably assumed she would finish high school).

Lifetime Loss

Abigail's loss of lifetime expected earnings is calculated by multiplying her pre-injury worklife expectancy by her pre-injury earning capacity under each scenario. Since this is a case of total disability, the post-injury earning capacity and post-injury worklife expectancy are zero – this greatly simplifies the calculation. This loss does not take into consideration fringe benefits, though they can easily be added at the national average rate.

The loss of lifetime expected earnings must be stated in present value. The present value figures are unadjusted for either inflation or real wage growth. It is assumed that future increases in real wage growth will be offset by the real rate of interest or discount over the remaining life expectancy. Table 3 summarizes Abigail's loss of earnings under each scenario.

Table 3: Loss of Expected Earnings

Basis for Earnings and Worklife Expectancy	Loss
Some High School, Female Worklife	$831,497
High School Diploma, Female Worklife	$1,351,341
Some High School, Male Worklife	$1,159,140
High School Diploma, Male Worklife	$1,622,498

Conclusion

An economist must consider the best available data in assessing how worklife expectancy and earning capacity combine to form an earning capacity loss. It is through these assessments that individuals like Abigail may be made economically whole following a catastrophic injury.

In a future issue —
Present-value calculation of a life-care plan for catastrophic injuries

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