

The Medical Underwriting of Substandard Life Annuities

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Introduction

The medical underwriting of substandard life annuities has certain features that contrast it with life insurance underwriting. A life underwriter knows that any advance in medical knowledge leading to a longer life span of the insured individual will be advantageous to the insurance company, because more premiums will be paid and payment of a death claim will be deferred. The converse occurs in underwriting annuities, because an annuity contract promises to continue benefit payments while the annuitant is alive. If an individual lives longer, the insurance company will be forced to make unanticipated benefit payments. The underwriter who is reviewing substandard annuities has to worry about the likelihood of medical progress leading to improvement in longevity; this is completely opposite to life insurance underwriting. Substandard annuities most often arise in the settlement of litigations where an annuity is purchased by a defendant to provide lifetime payments to the injured plaintiff.

It therefore behooves us to consider the most common types of cases that are seen in substandard annuity underwriting and to discuss their major underwriting considerations.

Types of Cases

The pathologic processes seen in annuity underwriting differ from those encountered in life underwriting. Patients with neurological problems secondary to birth injuries and accidental injuries encompass over 90% of the cases.

Estimates of the number of persons permanently disabled by injury in the United States range from twenty to fifty per one million of population annually, with the peak incidence in the 16—30 age group, with the average being 23 years of age. Vehicular accidents and crimes of violence

generate a growing incidence that is approaching 14,000 permanent disability cases each year.

Because of the gradual improvement that frequently occurs after neurological injuries, it is risky to make an estimate of life expectancy or mortality class sooner than six to twelve months after the date of injury. Under ideal conditions, these estimates should wait until the patient has become stable and does not show any further improvement.

Underwriting Criteria

Let us now review the medical information that we have found most helpful in underwriting the most common conditions seen in applicants for substandard life annuities, viz., paraplegias and quadriplegias, cerebral palsy, mental retardation, Down's Syndrome and severe burns.

Paraplegias and Quadriplegias: The Spinal Cord Injury Centers have published very useful statistical studies of life expectancy applicable to these two conditions. Their tables⁽¹⁾, published in 1980, are based upon many years of accumulated experience. Unfortunately, for this same reason, they do not reflect the improved survival seen in more recent years. Young et al.⁽²⁾, have recently reviewed their experience for the last five years and show a much better survival in spite of the fact that all their patients had been admitted to a hospital within the first week since injury. This loads their tables with an early mortality that does not belong to our substandard annuity applicants.

Breithaupt et al., from Manufacturers Life Insurance Company⁽³⁾ have published several papers on survival from traumatic spinal cord injury. They relate mortality to the level and completeness of the lesion and have calculated a table of theoretical or derived expectation of life

at various ages of onset using the 1975-1977 Ontario mortality tables. By omitting the first year of exposure, they have selected a population that is more similar to the group of impaired annuitants. These authors show a much longer life expectancy than the one predicted by the 1980 S.C.I. tables. Both the S.C.I. and Breithaupt et al classify their patients into "incomplete" or "partial", and "complete" lesions. I have not been able to find a clear definition of these terms, but the "complete" category seems to fit into groups A and B of Frankel's classification⁽⁴⁾. "Incomplete" or "partial" lesions would belong to Frankel's groups C and D.

Frankel et al.⁽⁴⁾, have published a classification of patients with spinal cord injuries. It is based on describing the degree of preserved neurological function. The categories are:

- (A) Complete injuries with no preservation of motor or sensory function below the spinal cord lesion.
- (B) Preservation of sensation only.
- (C) Preservation of some non-useful motor function.
- (D) Preservation of useful motor function, but less than normal.
- (E) Complete recovery.

Mesard et al.⁽⁵⁾, have reviewed the V.A. experience in the management of Korea and Viet Nam veterans afflicted with spinal cord injuries. They report that the highest mortality occurs during the first year after injury, particularly in the first three months. The 10-year survival rate of those that survived the first three months after injury was practically similar for quadriplegics and paraplegics, 80% and 86% respectively.

Borges et al.⁽⁶⁾, have performed a 15-year prospective follow up of the Viet Nam War paraplegics. They encountered a corrected death rate of 20%, not significantly better than one displayed by the World War II and Korean War veterans 15 years after injury. However, the percentage of renal deaths in the Viet Nam War group was approximately half that of the other two groups. The authors attributed this improvement to an effort to avoid the use of internal catheters, including the development of external sphincterectomy, an important therapeutic advancement in the treatment of detrusor-sphincter dyssynergy frequently present in these patients. This treatment tends to prevent the development of vesicoureteral reflux and pyelonephritis that used to lead to uremic death in these patients.

Other impairments that may shorten the life span in spinal cord injury patients are the development of recurrent decubitus ulcers, uncontrollable by medical or surgical treatment, as well as their complication, chronic unresponsive osteomyelitis.

It is also worthwhile to remember that the higher the level of the lesion, the more complete is the paralysis of the respiratory muscles and the poorer the cough reflex. Patients with high level lesions breathe only with the diaphragm. They are more prone to develop respiratory infections and less able to fight them.

The underwriting of annuitants with quadriplegias and paraplegias is a good example of conditions that used to exhibit significant extra mortality and that at present have a much better prognosis. The average shortening of life expectancy in patients who have survived the first year with these conditions may be around 10% ⁽⁷⁾.

Cerebral Palsy: This is a loosely defined term which encompasses a group of chronic non-progressive disorders that cause impairment of motor function in children.

A common cause is anoxic encephalopathy occurring during the perinatal period. Life expectancy varies widely in these patients and is mainly related to the degree of associated mental retardation.

Mental Retardation: The life expectancy of patients with mental retardation has been reviewed by McCurley et al., in Ireland ⁽⁸⁾, Balakrishnan et al., in Canada ⁽⁹⁾, and Miller et al., in the U.S.A. ⁽¹⁰⁾ The results have been concordant in spite of the differences in date of the studies and in geographical locations. Miller et al. ⁽¹⁰⁾, recalculated the median age at death for the three studies. In profound retardation, the median age at death varied between ages 14.5 and 24.1; in severe to moderate retardation, between ages 38.4 and 40.6. For mild to borderline mental retardation there was no significant shortening in life expectancy.

It is not easy to evaluate the degree of mental retardation in young children. When it is possible to perform satisfactory psychometric tests, mental retardation relates in the following manner to the I.Q.:

I.Q.	Mental Retardation
68 — 83	Borderline
52 — 67	Mild
36 — 51	Moderate
20 — 35	Severe
Under 20	Profound

One common trait of the profoundly retarded is that they usually lack the ability to learn to walk. Uncontrolled bouts of generalized seizures, sometimes present in these individuals, cause hypoxemia with further increase in brain damage. They are also responsible for instances of accidental injury and of aspiration pneumonitis. The main killer of profound or severely mentally retarded patients is aspiration

pneumonitis. A finding of poor or absent gag reflex or a history of repeated bouts of pneumonia strongly suggest a short life span.

Down's Syndrome: Many children affected with this disorder die during childhood from either leukemia or congenital heart disease. For those who have survived childhood and have no evidence of heart disease, life expectancy is to approximately age 55. A significant number will develop Alzheimer's disease around age 40.

The survival of patients affected with neurological conditions depends to a great extent on the level of chronic care available to them. Patients with loving and devoted families that give lots of support and care should have a better life expectancy. We also believe that the same applies to self-motivation and adaptation to the handicap. Individuals who have been successfully rehabilitated and are able to attend college or work, also have a better life expectancy.

Severe Burns: There are no statistics on long-term life expectancy of handicapped patients that have survived severe burns. It is known that there is an increased incidence of skin cancer and of suicide. The National Institute for Burn Medicine has an adequate data base and would be willing to perform a study of this group if it would get the necessary financial support needed for this undertaking ⁽¹¹⁾.

Other Impairments with which we are more familiar through our life underwriting experience may be graded by assessing them debits and calculating the life expectancy using the 1965-1970 Intercompany Select and Ultimate Basic Tables for Males and Females. For example, a newly discovered male diabetic patient age 35 might warrant +100 debits. Using the 1965-1970 Intercompany Select and Ultimate Basic Tables for males in his age group it is easy to determine that his life expectancy would be 30 years instead of the 37 years predicted for his group.

Conclusions

New and better medical treatment of existing substandard annuitants can measurably prolong the life expectancy of some annuitants with chronic ailments, especially those with spinal cord injuries, causing significant loss to the insurance company. Such contingencies must be seriously considered in the underwriting of this annuity class of business.

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