

# FN241: Session 4

## Life Insurance Basic Concept

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# Reading

George, E. Rejda, and Michael McNamara,  
*“Principals of Risk Management and Insurance”*,  
Pearson; 12th Edition (2013).

***Chapter: 11***



# Life Insurance: Basic Concept

# Agenda

- Overview: Premature Death
- Amount of Life Insurance to Own

# Overview: Premature Death

- The death of a family head with outstanding unfulfilled financial obligations can cause serious financial problems for the surviving family members
- Life expectancy has increased significantly over the past century
- The purchase of life insurance is financially justified if the insured has earned income and others are dependent on those earnings for financial support

# Amount of Life Insurance to Own

## (1) The human life value approach

- The amount needed depends on the insured's human life value, which is the present value of the family's share of the deceased breadwinner's future earnings
- To calculate:
  - Estimate the individual's average annual earnings over his or her productive lifetime
  - **Deduct** taxes, insurance premiums and self-maintenance costs
  - Using a reasonable discount rate, determine the present value of the family's share of earnings for the number of years until retirement

# Amount of Life Insurance to Own

## (1) The human life value approach

**Example:** Assume that Richard, age 27, is married and has two children. He earns \$50,000 annually and plans to retire at age 67. (For the sake of simplicity, assume that his earnings remain constant.) Of this amount, \$20,000 is used for federal and state taxes, life and health insurance, and Richard's personal needs. The remaining \$30,000 is used to support his family. How much is Richard's human life value?

# Amount of Life Insurance to Own

## (2) The needs approach

- The amount needed depends on the financial needs that must be met if the family head should die
- Important family needs must consider:
  - An **estate clearance fund**: cash needed for burial expenses, uninsured medical bills, and taxes
  - Income needed for the **readjustment period**, a 1-2 year period in which the family adjusts to its new living standard
  - The **dependency period** is the period until the youngest child reaches age 18
  - Life income to the surviving spouse, including income during and after the blackout period. The **blackout period** refers to the period from the time that Social Security survivor benefits terminate to the time the benefits are resumed
  - Families should also consider special needs, e.g., funds for college education and emergencies

# Amount of Life Insurance to Own

## (2) The needs approach

<i>What You Will Need</i>	<i>Jennifer Smith</i>	<i>Your Needs</i>
<b>Cash needs</b>		
Funeral costs	\$ 15,000	\$ _____
Uninsured medical bills	5,000	_____
Installment debts	12,000	_____
Probate costs	3,000	_____
Federal estate taxes	0	_____
State inheritance taxes	0	_____
Total estate clearance fund	\$ 35,000	\$ _____
<b>Income needs</b>		
Readjustment period	24,000	_____
Dependency period	180,000	_____
Life income to surviving spouse	0	_____
Retirement income	0	_____
Total income needs	\$ 204,000	\$ _____
<b>Special needs</b>		
Mortgage redemption fund	200,000	_____
Emergency fund	50,000	_____
College education fund	150,000	_____
Total special needs	\$ 400,000	\$ _____
Total needs	\$ 639,000	\$ _____

<i>What You Have Today</i>	<i>Jennifer Smith</i>	<i>Your Assets</i>
Checking account and savings	\$ 10,000	\$ _____
Mutual funds and securities	35,000	_____
IRAs and Keogh plan	20,000	_____
Section 401 (k) plan and employer savings plan	40,000	_____
Private pension death benefit	0	_____
Current life insurance	60,000	_____
Other financial assets	0	_____
Total assets	\$ 165,000	\$ _____
<b>Additional life insurance needed</b>		
Total needs	\$ 639,000	\$ _____
Less total assets	165,000	_____
<b>Additional life insurance needed</b>	<b>\$ 474,000</b>	<b>\$ _____</b>

# Amount of Life Insurance to Own

## (3) The capital retention approach

- This approach preserves the capital needed to provide income to the family
  - Income-producing assets are preserved for the heirs
- To calculate:
  - Prepare a personal balance sheet
  - Determine the amount of income-producing capital
  - Determine the amount of additional capital needed to meet the family needs

# Amount of Life Insurance to Own

## (3) The capital retention approach

**Example:** Kevin, age 35, has a wife and two children, ages 3 and 5. Kevin earns \$60,000 annually. If he should die, he wants his family to receive \$40,000 annually.

### Personal balance sheet

<i>Assets</i>	
House	\$225,000
Automobiles	20,000
Personal and household property	40,000
Securities and investments	60,000
Checking account	5,000
Individual and group life insurance	200,000
401(k) plan	70,000
Total	<u>\$620,000</u>
<i>Liabilities</i>	
Mortgage	\$100,000
Auto loan	10,000
Credit cards	5,000
Total	<u>\$115,000</u>

### Income-producing capital

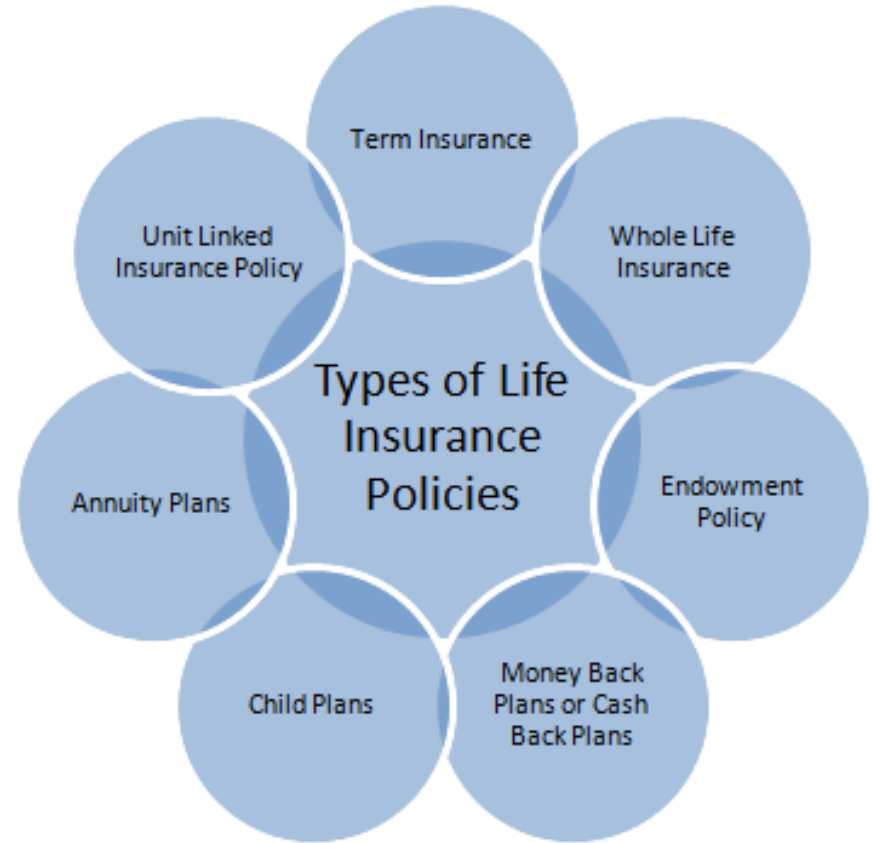
Total assets	\$620,000
Less:	
Mortgage payoff	\$100,000
Auto loan and credit card debts	15,000
Final expenses	15,000
Emergency fund	50,000
Educational fund	100,000
Non-income-producing assets (automobiles, personal and household property, value of home)	<u>285,000</u>
Total deductions	<u>565,000</u>
Capital now available for income	\$ 55,000

### Additional capital needed

Income objective for family	\$ 40,000
Less:	
Income from capital now available (\$55,000 × 5%)	-2,750
Social Security survivor benefits	<u>-13,000</u>
Income shortage	\$ 24,250
Total new capital required (\$24,250/.05)	\$485,000

# Types of Life Insurance

- Life insurance policies can be classified in two general categories:
  - Term insurance provide temporary protection
  - Cash-value life insurance has a savings component and builds cash values, and protection
- There are many variations of both types available today



Question?