

# Regulatory Analysis Form

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INDEPENDENT REGULATORY  
REVIEW COMMISSION

(1) Agency

Insurance Department

McGinley

(2) I.D. Number (Governor's Office Use)

11-196

IRRC Number: 2081

(3) Short Title

Valuation of Life Insurance Policies

(4) PA Code Cite

31 Pa. Code, Chapter 83c, §§83c.1-83c.7

(5) Agency Contacts & Telephone Numbers

Primary Contact: Peter J. Salvatore, Regulatory Coordinator,  
1326 Strawberry Square, Harrisburg, PA 17120, (717) 787-4429  
Secondary Contact:

(6) Type of Rulemaking (check one)

- Proposed Rulemaking  
 Final Order Adopting Regulation  
 Final Order, Proposed Rulemaking Omitted

(7) Is a 120-Day Emergency Certification Attached?

- No  
 Yes: By the Attorney General  
 Yes: By the Governor

(8) Briefly explain the regulation in clear and nontechnical language.

The purpose of the rulemaking is to implement sections 301(c)(1) and 301(c)(3) of the act by adopting select mortality factors for use in determining minimum standards of valuation and by interpreting the minimum reserve standard for the valuation of life insurance plans with nonlevel premiums or benefits and plans with secondary guarantees. Reserves held by life insurance companies marketing life insurance policies in this Commonwealth must comply with the minimum standards of valuation. The Department's adoption of the rulemaking will help to assure the solvency of insurance companies by requiring adequate reserves. The rulemaking is patterned after the National Association of Insurance Commissioner's (NAIC) Valuation of Life Insurance Model Regulation adopted in March 1999 and part of a nationwide initiative by insurance regulators to achieve uniform reserve requirements.

(9) State the statutory authority for the regulation and any relevant state or federal court decisions.

The Department is adopting the rulemaking under the authority of sections 206, 506, 1501 and 1502 of The Administrative Code of 1929 (71 P.S. §§66, 186, 411 and 412) and sections 301(c)(1) and 301(c)(3) of The Insurance Department Act (40 P.S. §§71(c)(1) and 71(c)(2)).

## **Regulatory Analysis Form**

(10) Is the regulation mandated by any federal or state law or court order, or federal regulation? If yes, cite the specific law, case or regulation, and any deadlines for action.

No.

(11) Explain the compelling public interest that justifies the regulation. What is the problem it addresses?

The Insurance Department seeks to clarify the minimum reserve standards for life insurance policies with nonlevel premiums or benefits and universal life policies with secondary guarantees. Reserves held by life insurance companies that market life insurance policies in this Commonwealth must comply with the minimum standards of valuation. This rulemaking will help to assure the solvency of insurance companies by requiring adequate reserves. The compelling public interest justifying the regulation is that adequate reserves will be maintained to fund future policyholder benefit payments.

(12) State the public health, safety, environmental or general welfare risks associated with nonregulation.

If an insurer did not maintain adequate reserves, the insurer might not have sufficient funds to pay future policyholder benefits.

(13) Describe who will benefit from the regulation. (Quantify the benefits as completely as possible and approximate the number of people who will benefit.)

Residents of this Commonwealth who purchase life insurance contracts will benefit from the rulemaking in that the minimum reserve standards and hence the ability of an insurer to pay policyholder benefits will be strengthened.

## **Regulatory Analysis Form**

**(14) Describe who will be adversely affected by the regulation. (Quantify the adverse effects as completely as possible and approximate the number of people who will be adversely affected.)**

The minimum reserve standards in the rulemaking will not affect policies issued prior to the effective date of the rulemaking. An insurer may increase the premium rates for policies to be sold after the effective date of the rulemaking if reserves are greater because of the rulemaking.

**(15) List the persons, groups or entities that will be required to comply with the regulation. (Approximate the number of people who will be required to comply.)**

The rulemaking applies to all life insurance companies and fraternal benefit societies licensed to do business in the Commonwealth.

**(16) Describe the communications with and input from the public in the development and drafting of the regulation. List the persons and/or groups who were involved, if applicable.**

The proposed rulemaking underwent a 30-day public comment period. During the public comment period, the Insurance Federation of Pennsylvania provided comments that were considered in preparing the rulemaking. The IRRC had no comments during its review of the rulemaking.

**(17) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting or consulting procedures which may be required.**

The minimum reserve standards will have no impact on costs associated with current business since the standards do not apply to business issued prior to the effective date of the rulemaking. There may be some expense incurred by an insurer in modifying the reserve calculation system for new issues to comply with the minimum reserve standards.

**Regulatory Analysis Form**

**(18) Provide a specific estimate of the costs and/or savings to local governments associated with compliance, including any legal, accounting or consulting procedures which may be required.**

There are no costs or savings to local governments associated with this rulemaking since it will impose no compliance requirements on them.

**(19) Provide a specific estimate of the costs and/or savings to state government associated with the implementation of the regulation, including any legal, accounting, or consulting procedures which may be required.**

There are no costs or savings to state government associated with this rulemaking. The Department currently reviews valuation filings submitted by domestic life insurance companies and fraternal benefit societies for compliance with the minimum standards of valuation. The adoption of the rulemaking will not affect the time required to review a valuation filing.

## Regulatory Analysis Form

(20) In the table below, provide an estimate of the fiscal savings and costs associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years. N/A

	Current FY Year	FY +1 Year	FY +2 Year	FY +3 Year	FY +4 Year	FY +5 Year
<b>SAVINGS:</b>	\$	\$	\$	\$	\$	\$
<b>Regulated Community</b>						
<b>Local Government</b>						
<b>State Government</b>						
<b>Total Savings</b>						
<b>COSTS:</b>						
<b>Regulated Community</b>						
<b>Local Government</b>						
<b>State Government</b>						
<b>Total Costs</b>						
<b>REVENUE LOSSES:</b>						
<b>Regulated Community</b>						
<b>Local Government</b>						
<b>State Government</b>						
<b>Total Revenue Losses</b>						

(20a) Explain how the cost estimates listed above were derived.

N/A.

## Regulatory Analysis Form

(20b) Provide the past three year expenditure history for programs affected by the regulation.  
N/A.

Program	FY -3	FY -2	FY -1	Current FY

(21) Using the cost-benefit information provided above, explain how the benefits of the regulation outweigh the adverse effects and costs.

No costs or adverse effects are anticipated as a result of this regulation.

(22) Describe the nonregulatory alternatives considered and the costs associated with those alternatives. Provide the reasons for their dismissal.

Adding Chapter 84c is the most efficient method to achieve consistency with the authorizing statute. No other alternatives were considered.

(23) Describe alternative regulatory schemes considered and the costs associated with those schemes. Provide the reasons for their dismissal.

No other regulatory schemes were considered. The adoption of the rulemaking is the most efficient method of updating the regulatory requirements.

## **Regulatory Analysis Form**

(24) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulation.

No.

(25) How does this regulation compare with those of other states? Will the regulation put Pennsylvania at a competitive disadvantage with other states?

The rulemaking will not put Pennsylvania at a competitive disadvantage with other states. It merely provides for consistency with the statute. The insurance industry has strongly endorsed adoption of this rulemaking in all states, as it will enhance the financial stability of the insurance industry. However, failure to adopt the rulemaking could place Pennsylvania at a competitive disadvantage with other states. For this Commonwealth to have different reserve requirements than other states which have implemented the NAIC Valuation of Life Insurance Model Regulation would place a financial burden on insurers doing business in Pennsylvania and may cause life insurers to cease doing business in the Commonwealth, to the detriment of Pennsylvania insurance consumers.

(26) Will the regulation affect existing or proposed regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

The rulemaking will not affect existing or proposed regulations of the Department or other state agencies.

(27) Will any public hearings or informational meetings be scheduled? Please provide the dates, times, and locations, if available.

No public hearings or informational meetings are anticipated.

## **Regulatory Analysis Form**

**(28) Will the regulation change existing reporting, record keeping, or other paperwork requirements? Describe the changes and attach copies of forms or reports which will be required as a result of implementation, if available.**

The adoption of the rulemaking does not change existing reporting, record keeping or other paperwork requirements.

**(29) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.**

The rulemaking will have no effect on special needs of affected parties.

**(30) What is the anticipated effective date of the regulation; the date by which compliance with the regulation will be required; and the date by which any required permits, licenses or other approvals must be obtained?**

The rulemaking underwent a 30-day public comment period and will take effect upon approval of the final form regulation by the legislative standing committees, the Independent Regulatory Review Commission, the Office of the Attorney General and upon final publication in the *Pennsylvania Bulletin*. The rulemaking will apply to policies issued on and after the effective date of the rulemaking.

**(31) Provide the schedule for continual review of the regulation.**

The Department reviews each of its regulations for continued effectiveness on a triennial basis.



<p>CDL-1</p> <p style="text-align: center;"><b>FACE SHEET FOR FILING DOCUMENTS WITH THE LEGISLATIVE REFERENCE BUREAU</b></p> <p style="text-align: center;">(Pursuant to Commonwealth Documents Law)</p>	<p style="text-align: center;"><b>RECEIVED</b></p> <p style="text-align: center;">2000 MAR 16 AM 10: 53</p> <p style="text-align: center;">REGULATORY REVIEW COMMISSION</p>	
<p># 2081</p>		
<p>Copy below is hereby approved as to form and legality. Attorney General</p> <p>By _____ (Deputy Attorney General)</p> <p>_____</p> <p style="text-align: center;">Date of Approval</p> <p>→ Check if applicable. Copy not approved. Objections attached.</p>	<p>Copy below is hereby certified to be a true and correct copy of a document issued, prescribed or promulgated by:</p> <p style="text-align: center;"><b>Insurance Department</b></p> <p style="text-align: center;">_____ (AGENCY)</p> <p>DOCUMENT/FISCAL NOTE NO. <u>11-196</u></p> <p>DATE OF ADOPTION: _____</p> <p>BY: <u>M. Diane Koken</u> <b>M. Diane Koken</b> <b>Insurance Commissioner</b></p> <p>TITLE: _____ (EXECUTIVE OFFICER, CHAIRMAN OR SECRETARY)</p>	<p>Copy below is hereby approved as to form and legality. Executive or Independent Agencies</p> <p style="text-align: center;"><i>[Signature]</i></p> <p style="text-align: center;"><u>3/16/00</u> DATE OF APPROVAL</p> <p style="text-align: center;">(DEPUTY GENERAL COUNSEL) (<del>CHIEF COUNSEL, INDEPENDENT AGENCY</del>) (<del>STRIKE INAPPLICABLE TITLE</del>)</p> <p>→ Check if applicable. No Attorney General approval or objection within 30 days after submission.</p>

**Insurance Department**

**Notice of Final Form Rulemaking**

31 PA Code, Chapter 84c, §§84c.1-84c.7

**Valuation of Life Insurance Policies**

## **PREAMBLE**

The Insurance Department (Department) hereby amends Chapter 84c, §§ 84c.1-84c.7, Valuation of Life Insurance Policies, as set forth in Annex A. The Department is publishing the amendment of the regulation as a final form rulemaking.

### **Statutory Authority**

The final form regulation is adopted under the authority of sections 206, 506, 1501 and 1502 of The Administrative Code of 1929 (71 P.S. §§66, 186, 411 and 412) and sections 301(c)(1) and 301(c)(3) of The Insurance Department Act (40 P.S. §§71(c)(1) and 71(c)(2))("act").

### **Comments and Response**

A Notice of Proposed Rulemaking for this Regulation was published at 30 Pa.B. 23 (January 1, 2000) with a 30-day comment period ending January 31, 2000. During the 30-day comment period, comments were received from Insurance Federation of Pennsylvania, Inc. ("IFP") in favor of the regulation and requesting an retroactive effective date of January 1, 2000.

In preparing the final form regulation, the Department did not modify the effective date as suggested, by the IFP, due to concerns about the constitutionality of retroactive application of the regulation. This rulemaking will be effective upon final publication in the *Pennsylvania Bulletin*.

During its regulatory review, the Independent Regulatory Review Commission (IRRC) did not submit comments to the Department.

### **Affected Parties**

The rulemaking applies to all insurers and fraternal benefit societies marketing life insurance policies and who are licensed to do the business of life insurance in this Commonwealth.

### **Fiscal Impact**

#### *State Government*

There will be no increase in cost to the Department due to the adoption of the rulemaking. The Department currently reviews valuation filings submitted by domestic life insurance companies and fraternal benefit societies for compliance with the minimum standards of valuation. The select mortality factors and the interpretation of the minimum reserve standard for plans with nonlevel premiums or benefits and for plans with secondary guarantees will not affect the time required to review a valuation filing.

### *General Public*

Consumers will benefit from the advantages of purchasing life insurance from an insurance industry that is establishing sound and reasonable reserves to fulfill contractual obligations. Insurers may increase premium rates for policies sold after the effective date of this regulation because of an increase in the required reserves.

### *Political Subdivisions*

Adoption of the rulemaking will not impose additional costs on political subdivisions. Because this rulemaking promotes stability and sound reserves in the insurance industry, political subdivisions' tax revenues may benefit as a result of fewer insurance company insolvencies. Fewer insolvencies may also result in less unemployment.

### *Private Sector*

The specific select factors and the rules for using the segmented reserve valuation method in the rulemaking do not apply to policies issued prior to the effective date of this regulation. An insurance company may need to increase reserves on policies issued on and after the effective date of the rulemaking. The rulemaking does permit an insurance company to recognize the company's specific mortality experience in calculating deficiency reserves. This should ensure that the reserves for a company are sound and reasonable.

### **Paperwork**

The adoption of the rulemaking will not impose additional paperwork on the Department or the insurance industry. The select mortality factors and the interpretation of the minimum reserve standard affect an insurance company's reserve calculation but will not result in additional paperwork.

### **Effectiveness/Sunset Date**

This rulemaking becomes effective upon final publication in the *Pennsylvania Bulletin*. No sunset date has been assigned.

### **Contact person**

Any questions regarding this regulation should be directed to Peter J. Salvatore, Regulatory Coordinator, Office of Special Projects, 1326 Strawberry Square, Harrisburg, PA 17120, phone (717) 787-4429. In addition, questions or comments may be e-mailed to [psalvato@ins.state.pa.us](mailto:psalvato@ins.state.pa.us) or faxed to (717) 772-1969.

### **Regulatory review**

Under section 5(a) of the Regulatory Review Act, (71 P.S. §745.5(a)) the agency submitted a copy of this regulation on \_\_\_\_\_ to the Independent Regulatory Review Commission and to the Chairmen of the Senate Banking and Insurance Committee and the House Insurance Committee. In addition to

the submitted regulation, the agency has provided the Commission and the Committees with a copy of a detailed Regulatory Analysis Form prepared by the agency in compliance with Executive Order 1996-1, "Regulatory Review and Promulgation." A copy of that material is available to the public upon request.

In preparing this final form regulation, the Department considered all comments received from IRRC, the Committees and the public. This final form regulation was deemed approved by the Senate and House Committees \_\_\_\_\_. In accordance with section 5a(d) of the Regulatory Review Act (71 P.S. §745.5a(d)), IRRC met on \_\_\_\_\_ and deemed approved the regulation in accordance with section 5a(e) of the Regulatory Review Act (71 P.S. §745.5a(e)).

### **Findings**

The Commissioner finds that:

(1) Public notice of intention to adopt this rulemaking as amended by this order has been given under sections 201 and 202 of the act of July 31, 1968 (P.L. 769, No240) (45 P.S. §§1201 and 1202) and the regulations thereunder, 1 Pa. Code §§7.1 and 7.2.

(2) The adoption of this rulemaking in the manner provided in this order is necessary and appropriate for the administration and enforcement of the authorizing statutes.

### **Order**

The Commissioner, acting under the authorizing statutes, orders that:

(1) The regulations of the Department, 31 Pa. Code, are amended by adopting §§ 84c.1-84c.7, to read as set forth in Annex A.

(2) The Commissioner shall submit this order and Annex A to the Office of General Counsel and Office of Attorney General for approval as to form and legality as required by law.

(3) The Commissioner shall certify this order and Annex A and deposit them with the Legislative Reference Bureau as required by law.

(4) The order shall take effect upon final publication in the *Pennsylvania Bulletin*.

M. Diane Koken  
Insurance Commissioner

CONTINUATION SHEET FOR FILING DOCUMENTS  
WITH THE LEGISLATIVE REFERENCE BUREAU  
Pursuant to Commonwealth Documents Law

ANNEX A

**TITLE 31. INSURANCE. PART IV. LIFE INSURANCE. CHAPTER 84c. VALUATION  
OF LIFE INSURANCE POLICIES.**

Sec.

84c.1. Purpose.

84c.2. Applicability.

84c.3. Definitions.

84c.4. Segmented and unitary reserve methods.

84c.5. General requirements for basic reserves and premium deficiency reserves.

84c.6. Minimum valuation standard for policies with guaranteed nonlevel gross premiums or  
guaranteed nonlevel benefits (other than universal life policies).

84c.7. Minimum valuation standard for universal life insurance policies that contain provisions  
resulting in the ability of a policyowner to keep a policy in force over a secondary guarantee  
period.

**§ 84c.1. Purpose.**

This chapter implements section 301(c)(1) and (3) of the act (40 P. S. § 71(c)(1) and (3)) by  
adopting select mortality factors for use in determining minimum standards of valuation and by  
interpreting the minimum reserve standard for the valuation of life insurance plans with nonlevel  
premiums or benefits and plans with secondary guarantees. The method for calculating basic  
reserves defined in this chapter will constitute the Commissioner's Reserve Valuation Method for  
policies to which this chapter is applicable.

**§ 84c.2. Applicability.**

(a) This chapter applies to all life insurance policies, with or without nonforfeiture values, issued on or after \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.), subject to the following exceptions:

(b) This chapter does not apply to:

(1) An individual life insurance policy issued on or after \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.) if the policy is issued in accordance with and as a result of the exercise of a reentry provision contained in the original life insurance policy of the same or greater face amount, issued before \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.) that guarantees the premium rates of the new policy. This chapter also does not apply to subsequent policies issued as a result of the exercise of the reentry provision, or a derivation of the provision, in the new policy.

(2) A universal life policy that meets all the following requirements:

(i) Secondary guarantee period, if any, is 5 years or less.

(ii) Specified premium for the secondary guarantee period is not less than the net level reserve premium for the secondary guarantee period based on the 1980 CSO valuation tables and the applicable maximum valuation interest rate.

(iii) The initial surrender charge is not less than 100% of the first year annualized specified premium for the secondary guarantee period.

(3) A variable life insurance policy that provides for life insurance, the amount or duration of which varies according to the investment experience of any separate account.

(4) A variable universal life insurance policy that provides for life insurance, the amount or duration of which varies according to the investment experience of any separate account.

(5) A group life insurance certificate unless the certificate provides for a stated or implied schedule of maximum gross premiums required to continue coverage in force for a period in excess of 1 year.

**§ 84c.3. Definitions.**

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Act--The Insurance Department Act of 1921 (40 P. S. §§ 1--321).

Appointed actuary--The actuary as defined in § 84b.4 (relating to definitions).

Basic reserves--Reserves calculated in accordance with section 301 of the act (40 P. S. § 71).

Commissioner--The Insurance Commissioner of the Commonwealth.

Deficiency reserves--The excess, if greater than zero, of minimum reserves calculated in accordance with section 303 of the act (40 P. S. § 73) over basic reserves.

Guaranteed gross premiums--The premiums under a policy of life insurance that are guaranteed and determined at issue.

Maximum valuation interest rates--The interest rates defined in section 301(c)(2) of the act that are to be used in determining the minimum standard for the valuation of life insurance policies.

NAIC--The National Association of Insurance Commissioners.

1980 CSO valuation tables--The Commissioners' 1980 Standard Ordinary Mortality Table without 10-year selection factors, adopted in section 301(c)(1) of the act and the smoker and nonsmoker variations of the table adopted in § 84.6 (relating to 1980 CSO and 1980 CET smoker and nonsmoker mortality tables).

Scheduled gross premium--The smallest illustrated gross premium at issue for other than universal life insurance policies. For universal life insurance policies, the term means the smallest specified premium described in § 84c.7(a)(3) (relating to minimum valuation standard for universal life insurance policies that contain provisions resulting in the ability of a policyowner to keep a policy in force over a secondary guarantee period), if any, or else the minimum premium described in § 84c.7(a)(4).

Tabular cost of insurance--The net single premium at the beginning of a policy year for 1-year term insurance in the amount of the guaranteed death benefit in that policy year.

10-year select mortality factors--The select mortality factors adopted in section 301(c)(1) of the act.

Universal life insurance policy--An individual life insurance policy under the provisions of which separately identified mortality and expense charges and interest credits other than in connection with dividend accumulations, premium deposit funds or other supplementary accounts are made to the policy.

**§ 84c.4. Segmented and unitary reserve methods.**

(a) Segmented reserves. Segmented reserves shall be calculated as follows:

(1) Segmented reserves shall equal the present value of all future guaranteed benefits less the present value of all future net premiums in the current segment and in all subsequent segments.

(2) The length of each segment is determined by the contract segmentation method, as described in subsection (b).

(3) The net premiums within each segment are a uniform percentage of the respective guaranteed gross premiums within the segment. The uniform percentage for each segment is such that, at the beginning of the segment, the present value of the net premiums within the segment equals the present value of the death benefits within the segment, plus the present value of any unusual guaranteed cash value occurring at the end of the segment, less any unusual guaranteed cash value occurring at the start of the segment, plus for the first segment only, the excess of subparagraph (i) over subparagraph (ii), as follows:

(i) A net level annual premium equal to the present value, at the date of issue, of the benefits provided for in the first segment after the first policy year, divided by the present value, at the date of issue, of an annuity of 1 per year payable on the first and each subsequent anniversary within the first segment on which a premium falls due. However, the net level annual premium may not exceed the net level annual premium on the 19-year premium whole life plan of insurance of the same renewal year equivalent level amount at an age 1 year higher than the age at issue of the policy.

(ii) A net 1-year term premium for the benefits provided for in the first policy year.

(4) The interest rates used in the present value calculations for any policy may not exceed the maximum valuation interest rate, determined with a guarantee duration equal to the sum of the lengths of all segments of the policy.

(b) Contract segmentation method. The contract segmentation method is the method of dividing the period from issue to mandatory expiration of a policy into successive segments. The segments shall be calculated as follows:

(1) The length of a particular contract segment shall be set equal to the minimum of the value  $t$  for which  $G_t$  is greater than  $R_t$  (if  $G_t$  never exceeds  $R_t$ , the segment length is deemed to be



the number of years from the beginning of the segment to the mandatory expiration date of the policy), where  $G_t$  and  $R_t$  are as follows:

$$G_t = \frac{GP_{x+k+t}}{GP_{x+k+t-1}} \qquad R_t = \frac{q_{x+k+t}}{q_{x+k+t-1}}$$

(i)  $R_t$  may be increased or decreased by 1 percent in any policy year, at the company's option, but  $R_t$  shall not be less than 1.

(ii) If  $GP_{x+k+t}$  is greater than 0 and  $GP_{x+k+t-1}$  is equal to 0,  $G_t$  shall be deemed to be 1000. If  $GP_{x+k+t}$  and  $GP_{x+k+t-1}$  are both equal to 0,  $G_t$  shall be deemed to be 0.

(2) The symbols used in paragraph 1 have the following meanings:

(i)  $x$  = original issue age.

(ii)  $k$  = the number of years from the date of issue to the beginning of the segment.

(iii)  $t = 1, 2, \dots$ ;  $t$  is reset to 1 at the beginning of each segment.

(iv)  $GP_{x+k+t-1}$  = Guaranteed gross premium per thousand of face amount for year  $t$  of the segment, ignoring policy fees only if level for the premium paying period of the policy.

(v)  $q_{x+k+t-1}$  = valuation mortality rate for deficiency reserves in policy year  $k+t$  but using the mortality of §84c.5(b)(2) (relating to general requirements for basic reserves and premium deficiency reserves) if §84c.5(b)(3) is elected for deficiency reserves.

(c) Unitary reserves. Unitary reserves shall be calculated as follows:

(1) Unitary reserves shall equal the present of all future guaranteed benefits less the present value of all future modified net premiums to the mandatory expiration of the policy.

(2) Modified net premiums are a uniform percentage of the respective guaranteed gross premiums, where the uniform percentage is such that, at issue, the present value of the net premiums equals the present value of all death benefits and pure endowments, plus the excess of subparagraph (i) over subparagraph (ii), as follows:

(i) A net level annual premium equal to the present value, at the date of issue, of the benefits provided for after the first policy year, divided by the present value, at the date of issue, of an annuity of 1 per year payable on the first and each subsequent anniversary of the policy on which a premium falls due. However, the net level annual premium may not

exceed the net level annual premium on the 19-year premium whole life plan of insurance of the same renewal year equivalent level amount at an age 1 year higher than the age at issue of the policy.

(ii) A net 1-year term premium for the benefits provided for in the first policy year.

(3) The interest rates used in the present value calculations for any policy may not exceed the maximum valuation interest rate, determined with a guarantee duration equal to the length from issue to the mandatory expiration of the policy.

**§ 84c.5. General requirements for basic reserves and premium deficiency reserves.**

(a) *Basic reserves minimum standard.* At the election of the company for any one or more specified plans of life insurance, the minimum mortality standard for basic reserves may be calculated using the 1980 CSO valuation tables (or any other valuation mortality table adopted by the NAIC after \_\_\_\_\_ (*Editor's Note: The blank refers to the effective date of adoption of this proposal.*) and promulgated by regulation by the Commissioner for the purpose of calculating basic reserves) with select mortality factors. If select mortality factors are elected, they may be one of the following:

(1) The 10-year select mortality factors.

(2) The select mortality factors in Appendix A (relating to select mortality factors).

(3) Any other table of select mortality factors adopted by the NAIC after \_\_\_\_\_ (*Editor's Note: The blank refers to the effective date of adoption of this proposal.*) and promulgated by regulation by the Commissioner for the purpose of calculating basic reserves.

(b) *Deficiency reserves minimum standard.* Deficiency reserves, if any, are calculated for each policy as the excess, if greater than zero, of the quantity A over the basic reserve. The quantity A is obtained by recalculating the basic reserve for the policy using guaranteed gross premiums instead of net premiums when the guaranteed gross premiums are less than the corresponding net premiums. At the election of the company for any one or more specified plans of insurance, the quantity A and the corresponding net premiums used in the determination of quantity A may be based upon the 1980 CSO valuation tables (or any other valuation mortality table adopted by the NAIC after \_\_\_\_\_ (*Editor's Note: The blank refers to the effective date of adoption of this proposal.*) and promulgated by regulation by the Commissioner for the purpose

of calculating deficiency reserves) with select mortality factors. If select mortality factors are elected, they may be one of the following:

(1) The 10-year select mortality factors.

(2) The select mortality factors in Appendix A.

(3) For durations in the first segment, X% of the select mortality factors in Appendix A, subject to the following:

(i) X may vary by policy year, policy form, underwriting classification, issue age, or any other policy factor expected to affect mortality experience.

(ii) X may not be less than 20%.

(iii) X may not decrease in any successive policy years.

(iv) X is such that, when using the valuation interest rate used for basic reserves, the actuarial present value of future death benefits, calculated using the mortality rates resulting from the application of X, is greater than or equal to the actuarial present value of future death benefits calculated using anticipated mortality experience without recognition of mortality improvement beyond the valuation date.

(v) X is such that the mortality rates resulting from the application of X are at least as great as the anticipated mortality experience, without recognition of mortality improvement beyond the valuation date, in each of the first 5 years after the valuation date.

(vi) The appointed actuary shall increase X at any valuation date when it is necessary to continue to meet all the requirements of paragraph (3).

(vii) The appointed actuary may decrease X at any valuation date as long as X does not decrease in any successive policy years and as long as it continues to meet all the requirements of paragraph (3).

(viii) The appointed actuary shall specifically take into account the adverse effect on expected mortality and lapsation of any anticipated or actual increase in gross premiums.

(ix) If X is less than 100% at any duration for any policy, the following requirements shall be met:

(A) The appointed actuary shall annually prepare an actuarial opinion and memorandum for the company in conformance with § 84b.8 (relating to statement of actuarial opinion based on an asset adequacy analysis).

(B) The appointed actuary shall annually opine for all policies subject to this chapter as to whether the mortality rates resulting from the application of X meet the requirements of paragraph (3). This opinion shall be supported by an actuarial report, subject to appropriate Actuarial Standards of Practice promulgated by the Actuarial Standards Board of the American Academy of Actuaries. The X factors shall reflect anticipated future mortality, without recognition of mortality improvement beyond the valuation date, taking into account relevant emerging experience.

(4) Any other table of select mortality factors adopted by the NAIC after \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.) and promulgated by regulation by the Commissioner for the purpose of calculating deficiency reserves.

(c) Application of select mortality factors. The select mortality factors may be used in calculating the minimum mortality standard for basic and deficiency reserves only for the first segment. However, if the first segment is less than 10 years, the appropriate 10-year select mortality factors may be used thereafter through the 10th policy year from the date of issue.

(d) Policy fees. In determining basic reserves or deficiency reserves, guaranteed gross premiums without policy fees may be used when the calculation involves the guaranteed gross premium but only if the policy fee is a level dollar amount after the first policy year. In determining deficiency reserves, policy fees may be included in guaranteed gross premiums, even if not included in the actual calculation of basic reserves.

(e) Changes in guarantees. Reserves for policies that have changes to guaranteed gross premiums, guaranteed benefits, guaranteed charges or guaranteed credits that are unilaterally made by the insurer after issue and that are effective for more than 1 year after the date of the change shall be the greatest of the following:

- (1) Reserves calculated ignoring the guarantee.
- (2) Reserves assuming the guarantee was made at issue.
- (3) Reserves assuming that the policy was issued on the date of the guarantee.

(f) Documentation. The Commissioner may require that the company document the extent of the adequacy of reserves for specified blocks, including policies issued prior to \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.). This documentation may include a demonstration of the extent to which aggregation with other nonspecified blocks

of business is relied upon in the formation of the appointed actuary opinion under and consistent with § 84b.8.

**§ 84c.6. Minimum valuation standard for policies with guaranteed nonlevel gross premiums or guaranteed nonlevel benefits (other than universal life policies).**

(a) Basic reserves. Basic reserves shall be calculated as the greater of the segmented reserves and the unitary reserves. Both the segmented reserves and the unitary reserves for any policy shall use the same valuation mortality table and selection factors. At the option of the insurer, in calculating segmented reserves and net premiums, either of the following adjustments may be made:

(1) Treat the unitary reserve, if greater than zero, applicable at the end of each segment as a pure endowment and subtract the unitary reserve, if greater than zero, applicable at the beginning of each segment from the present value of guaranteed life insurance and endowment benefits for each segment.

(2) Treat the guaranteed cash surrender value, if greater than zero, applicable at the end of each segment as a pure endowment and subtract the guaranteed cash surrender value, if greater than zero, applicable at the beginning of each segment from the present value of guaranteed life insurance and endowment benefits for each segment.

(b) Deficiency reserves. The deficiency reserve at any duration shall be calculated as follows:

(1) On a unitary basis if the corresponding basic reserve is unitary.

(2) On a segmented basis if the corresponding basic reserve is segmented. The segment lengths shall equal those determined for segmented basic reserves.

(3) On the segmented basis if the corresponding basic reserve is equal to both the segmented reserve and the unitary reserve. The segment lengths shall equal those determined for segmented basic reserves.

(c) Minimum value. Basic reserves may not be less than the tabular cost of insurance for the balance of the policy year, if mean reserves are used. Basic reserves may not be less than the tabular cost of insurance for the balance of the current modal period or to the paid-to-date, if later, but not beyond the next policy anniversary, if mid-terminal reserves are used. The tabular cost of insurance shall use the same valuation mortality table and interest rates as that used for the calculation of the segmented reserves. However, if select mortality factors are used, they

shall be the 10-year select factors. Total reserves (including basic reserves, deficiency reserves and any reserves held for supplemental benefits that would expire upon contract termination) may not be less than the amount that the policyowner would receive (including the cash surrender value of the supplemental benefits, if any, referred to in this section), exclusive of any deduction for policy loans, upon termination of the policy.

(d) Unusual pattern of guaranteed cash surrender values. The following requirement applies to any policy with an unusual pattern of guaranteed cash surrender values. This calculation is independent of the segmented and unitary reserves.

(1) The reserves actually held prior to the first unusual guaranteed cash surrender value may not be less than the reserves calculated by treating the first unusual guaranteed cash surrender value as a pure endowment and treating the policy as an  $n$  year policy providing term insurance plus a pure endowment equal to the unusual cash surrender value, where  $n$  is the number of years from the date of issue to the date the unusual cash surrender value is scheduled.

(2) The reserves actually held subsequent to any unusual guaranteed cash surrender value may not be less than the reserves calculated by treating the policy as an  $n$  year policy providing term insurance plus a pure endowment equal to the next unusual guaranteed cash surrender value, and treating any unusual guaranteed cash surrender value at the end of the prior segment as a net single premium.  $n$  shall equal the number of years from the date of the last unusual guaranteed cash surrender value prior to the valuation date to the earlier of the date of the next unusual guaranteed cash surrender value, if any, that is scheduled after the valuation date or the mandatory expiration date of the policy. The net premium for a given year during the  $n$  year period shall equal the product of the net to gross ratio and the respective gross premium where the net to gross ratio is subparagraph (i) divided by subparagraph (ii) as follows:

(i) The present value, at the beginning of the  $n$  year period, of death benefits payable during the  $n$  year period plus the present value, at the beginning of the  $n$  year period, of the next unusual guaranteed cash surrender value, if any, minus the amount of the last unusual guaranteed cash surrender value, if any, scheduled at the beginning of the  $n$  year period.

(ii) The present value, at the beginning of the  $n$  year period, of the scheduled gross premiums payable during the  $n$  year period.

(3) A policy is considered to have an unusual pattern of guaranteed cash surrender values if any future guaranteed cash surrender value exceeds the prior year's guaranteed cash surrender value by more than the sum of the following:

(i) 110% of the scheduled gross premium for that year.

(ii) 110% of 1 year's accrued interest on the sum of the prior year's guaranteed cash surrender value and the scheduled gross premium using the nonforfeiture interest rate used for calculating policy guaranteed cash surrender values.

(iii) 5% of the first policy year surrender charge, if any.

(e) Optional exemption for yearly renewable term reinsurance. At the option of the company, the following approach for reserves on yearly renewable term reinsurance may be used:

(1) Calculate the valuation net premium for each future policy year as the tabular cost of insurance for that future year.

(2) Basic reserves shall never be less than the tabular cost of insurance for the appropriate period, as defined in subsection (c).

(3) Deficiency reserves shall never be less than the sum of the present values, at the date of valuation, of the excess in each policy year of the valuation net premium over the respective maximum guaranteed gross premium. The excess for each policy year may not be less than zero.

(4) The calculations use the maximum valuation interest rate and the 1980 CSO valuation tables with or without 10-year select mortality factors, or any other table adopted after \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.) by the NAIC and promulgated by regulation by the Commissioner for the purpose of calculating basic and deficiency reserves.

(5) A reinsurance agreement shall be considered yearly renewable term reinsurance for purposes of subsection (e) if only the mortality risk is reinsured.

(6) If the assuming company chooses this optional exemption, the ceding company's reinsurance reserve credit shall be limited to the amount of reserve held by the assuming company for the affected policies.

(f) Optional exemption for attained-age-based yearly renewable term life insurance policies.

At the option of the company, the following approach for reserves for attained-age-based yearly renewable term life insurance policies may be used:

(1) Calculate the valuation net premium for each future policy year as the tabular cost of insurance for that future year.

(2) Basic reserves shall never be less than the tabular cost of insurance for the appropriate period, as defined in subsection (c).

(3) Deficiency reserves shall never be less than the sum of the present values, at the date of valuation, of the excess in each policy year of the valuation net premium over the respective maximum guaranteed gross premium. The excess for each year may not be less than zero.

(4) The calculations use the maximum valuation interest rate and the 1980 CSO valuation tables with or without 10-year select mortality factors, or any other table adopted after \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.) by the NAIC and promulgated by regulation by the Commissioner for the purpose of calculating basic and deficiency reserves.

(5) A policy shall be considered an attained-age-based yearly renewable term life insurance policy for purposes of subsection (f) if both of the following apply:

(i) The premium rates (on both the initial current premium scale and the guaranteed maximum premium scale) are based upon the attained age of the insured so that the rate for any given policy at a given attained age of the insured is independent of the year the policy was issued.

(ii) The premium rates (on both the initial current premium scale and the guaranteed maximum premium scale) are the same as the premium rates for policies covering all insureds of the same sex, risk class, plan of insurance and attained age.

(6) For policies that become attained-age-based yearly renewable term policies and meet the conditions in paragraph (5) after an initial period of coverage, the approach of subsection (f) may be used after the initial period if the initial period is constant for all insureds of the same sex, risk class and plan of insurance or if the initial period runs to a common attained age for all insureds of the same sex, risk class and plan of insurance.



(7) If the approach in subsection (f) is elected, the approach shall be applied in determining reserves for all attained-age-based yearly renewable term life insurance policies issued on or after \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.).

(g) Exemption from unitary reserves for certain renewable term life insurance policies. Unitary basic reserves and unitary deficiency reserves need not be calculated for a policy if the following conditions are met:

(1) The policy consists of a series of periods where the length of the period is the same for each period, except that for the final renewal period the length may be truncated or extended to reach the expiry age, provided that this final renewal period is less than 10 years and less than twice the length of the earlier periods, and for each period, the premium rates on both the initial current premium scale and the guaranteed maximum premium scale are level.

(2) The guaranteed gross premiums in all periods are not less than the corresponding net premiums based upon the 1980 CSO valuation tables with or without the 10-year select mortality factors.

(3) There are no cash surrender values in any policy year.

(h) Exemption from unitary reserves for certain juvenile policies. Unitary basic reserves and unitary deficiency reserves need not be calculated for a policy if the following conditions are met, based upon the initial current premium scale at issue:

(1) At issue, the insured is age 24 or younger.

(2) Until the insured reaches the end of the juvenile period, which shall occur at or before age 25, the gross premiums and death benefits are level, and there are no cash surrender values.

(3) After the end of the juvenile period, gross premiums are level for the remainder of the premium paying period, and death benefits are level for the remainder of the life of the policy.

**§ 84c.7. Minimum valuation standard for universal life insurance policies that contain provisions resulting in the ability of a policyowner to keep a policy in force over a secondary guarantee period.**

**(a) General requirements.**

**(1) Each of the following shall be considered a policy with a secondary guarantee:**

**(i) A policy with a guarantee that the policy will remain in force at the original schedule of benefits, subject only to the payment of specified premiums.**

**(ii) A policy in which the minimum premium at any duration is less than the corresponding 1-year valuation premium, calculated using the maximum valuation interest rate and the 1980 CSO valuation tables with or without 10-year select mortality factors, or any other table adopted after \_\_\_\_\_ (Editor's Note: The blank refers to the effective date of adoption of this proposal.) by the NAIC and promulgated by regulation by the Commissioner for this purpose.**

**(2) A secondary guarantee period is the period for which the policy is guaranteed to remain in force subject only to a secondary guarantee. When a policy contains more than 1 secondary guarantee, the minimum reserve shall be the greatest of the respective minimum reserves at that valuation date of each unexpired secondary guarantee, ignoring all other secondary guarantees. Secondary guarantees that are unilaterally changed by the insurer after issue shall be considered to have been made at issue. Reserves described in subsections (b) and (c) shall be recalculated from issue to reflect these changes.**

**(3) Specified premiums mean the premiums specified in the policy, the payment of which guarantees that the policy will remain in force at the original schedule of benefits, but which otherwise would be insufficient to keep the policy in force in the absence of the guarantee if maximum mortality and expense charges and minimum interest credits were made and any applicable surrender charges were assessed.**

**(4) The minimum premium for any policy year is the premium that, when paid into a policy with a zero account value at the beginning of the policy year, produces a zero account value at the end of the policy year. The minimum premium calculation shall use the policy cost factors (including mortality charges, loads and expense charges) and the interest crediting rate, which are all guaranteed at issue.**

(5) The 1-year valuation premium means the net 1-year premium based upon the original schedule of benefits for a given policy year. The 1-year valuation premiums for all policy years are calculated at issue. The select mortality factors defined in § 84c.5(b)(2)--(4) (relating to general requirements for basic reserves and premium deficiency reserves) may not be used to calculate the 1-year valuation premiums.

(6) The 1-year valuation premium should reflect the frequency of fund processing, as well as the distribution of deaths assumption employed in the calculation of the monthly mortality charges to the fund.

(b) *Basic reserves for the secondary guarantees.* Basic reserves for the secondary guarantees shall be the segmented reserves for the secondary guarantee period. In calculating the segments and the segmented reserves, the gross premiums shall be set equal to the specified premiums, if any, or otherwise to the minimum premiums, that keep the policy in force and the segments will be determined according to the contract segmentation method as defined in § 84c.4(b)(relating to segmented and unitary reserve methods).

(c) *Deficiency reserves for the secondary guarantees.* Deficiency reserves, if any, for the secondary guarantees shall be calculated for the secondary guarantee period in the same manner as described in § 84c.6(b) (relating to minimum valuation standard for policies with guaranteed nonlevel gross premiums or guaranteed nonlevel benefits (other than universal life policies)) with gross premiums set equal to the specified premiums, if any, or otherwise to the minimum premiums that keep the policy in force.

(d) *Minimum reserves.* The minimum reserves during the secondary guarantee period are the greater of the basic reserves for the secondary guarantee plus the deficiency reserve, if any, for the secondary guarantees or the minimum reserves required by other rules or regulations governing universal life plans.

Appendix A

**SELECT MORTALITY FACTORS**

These tables apply to both age last birthday and age nearest birthday mortality tables. For sex-blended mortality tables, compute select mortality factors in the same proportion as the underlying mortality. For example, for the 1980 CSO-B Table, the calculated select mortality factors are 80% of the appropriate male table in this appendix, plus 20% of the appropriate female table in this appendix.

**Male, Aggregate**

Issue	Duration																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
Age 0-15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	96	98	98	99	99	100	100	90	92	92	92	92	93	93	96	97	98	98	99	100
19	83	84	84	87	87	87	79	79	79	81	81	82	82	82	85	88	91	94	97	100
20	69	71	71	74	74	69	69	67	69	70	71	71	71	71	74	79	84	90	95	100
21	66	68	69	71	66	66	67	66	67	70	70	70	70	71	71	77	83	88	94	100
22	65	66	66	63	63	64	64	64	65	68	68	68	68	69	71	77	83	88	94	100
23	62	63	59	60	62	62	63	63	64	65	65	67	67	69	70	76	82	88	94	100
24	60	56	56	59	59	60	61	61	61	64	64	64	66	67	70	76	82	88	94	100
25	52	53	55	56	58	58	60	60	60	63	62	63	64	67	69	75	81	88	94	100
26	51	52	55	56	58	58	57	61	61	62	63	64	66	69	66	73	80	86	93	100
27	51	52	55	57	58	60	61	61	60	63	63	64	67	66	67	74	80	87	93	100
28	49	51	56	58	60	60	61	62	62	63	64	66	65	66	68	74	81	87	94	100
29	49	51	56	58	60	61	62	62	62	64	64	62	66	67	70	76	82	88	94	100
30	49	50	56	58	60	60	62	63	63	64	62	63	67	68	71	77	83	88	94	100
31	47	50	56	58	60	62	63	64	64	62	63	66	68	70	72	78	83	89	94	100
32	46	49	56	59	60	62	63	66	62	63	66	67	70	72	73	78	84	89	95	100
33	43	49	56	59	62	63	64	62	65	66	67	70	72	3	75	80	85	90	95	100
34	42	47	56	60	62	63	61	63	66	67	70	71	73	75	76	81	86	90	95	100
35	40	47	56	60	63	61	62	65	67	68	71	73	74	76	76	81	86	90	95	100
36	38	42	56	60	59	61	63	65	67	68	70	72	74	76	77	82	86	91	95	100
37	38	45	56	57	61	62	63	65	67	68	70	72	74	76	76	81	86	90	95	100
38	37	44	53	58	61	62	65	66	67	69	69	73	75	76	77	82	86	91	95	100
39	37	41	53	58	62	63	65	65	66	68	69	72	74	76	76	81	86	90	95	100
40	34	40	53	58	62	63	65	65	66	68	68	71	75	76	77	82	86	91	95	100
41	34	41	53	58	62	63	65	64	64	66	68	70	74	76	77	82	86	91	95	100
42	34	43	53	58	61	62	63	63	63	64	66	69	72	75	77	82	86	91	95	100
43	34	43	54	59	60	61	63	62	62	64	66	67	72	74	77	82	86	91	95	100
44	34	44	54	58	59	60	61	60	61	62	64	67	71	74	77	82	86	91	95	100
45	34	45	53	58	59	60	60	60	59	60	63	66	71	74	77	82	86	91	95	100
46	31	43	52	56	57	58	59	59	59	60	63	67	71	74	75	80	85	90	95	100

47	32	42	50	53	55	56	57	58	59	60	65	68	71	74	75	80	85	90	95	100
48	32	41	47	52	54	56	57	57	57	61	65	68	72	73	74	79	84	90	95	100
49	30	40	46	49	52	54	55	56	57	61	66	69	72	73	74	79	84	90	95	100
50	30	38	44	47	51	53	54	56	57	61	66	71	72	73	75	80	85	90	95	100
51	28	37	42	46	49	53	54	56	57	61	66	71	72	73	75	80	85	90	95	100
52	28	35	41	45	49	51	54	56	57	61	66	71	72	74	75	80	85	90	100	100
53	27	35	39	44	48	51	53	55	57	61	67	71	74	75	76	81	86	100	100	100
54	27	33	38	44	48	50	53	55	57	61	67	72	74	75	76	81	100	100	100	100
55	25	32	37	43	47	50	53	55	57	61	68	72	74	75	78	100	100	100	100	100
56	25	32	37	43	47	49	51	54	56	61	67	70	73	74	100	100	100	100	100	100
57	24	31	38	43	47	49	51	54	56	59	66	69	72	100	100	100	100	100	100	100
58	24	31	38	43	48	48	50	53	56	59	64	67	100	100	100	100	100	100	100	100
59	23	30	39	43	48	48	51	53	55	58	63	100	100	100	100	100	100	100	100	100
60	23	30	39	43	48	47	50	52	53	57	100	100	100	100	100	100	100	100	100	100
61	23	30	39	43	49	49	50	52	53	75	100	100	100	100	100	100	100	100	100	100
62	23	30	39	44	49	49	51	52	75	75	100	100	100	100	100	100	100	100	100	100
63	22	30	39	45	50	50	52	75	75	75	100	100	100	100	100	100	100	100	100	100
64	22	30	39	45	50	51	75	75	75	75	100	100	100	100	100	100	100	100	100	100
65	22	30	39	45	50	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
66	22	30	39	45	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
67	22	30	39	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
68	23	32	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
69	23	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
70	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
71	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
72	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
73	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
74	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
75	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
76	48	52	55	60	60	65	70	70	70	100	100	100	100	100	100	100	100	100	100	100
77	48	52	55	60	60	65	70	70	100	100	100	100	100	100	100	100	100	100	100	100
78	48	52	55	60	60	65	70	100	100	100	100	100	100	100	100	100	100	100	100	100
79	48	52	55	60	60	65	100	100	100	100	100	100	100	100	100	100	100	100	100	100
80	48	52	55	60	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
81	48	52	55	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
82	48	52	55	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
83	48	52	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
84	48	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
85+	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

**Male, Nonsmoker**

Age	Issue			Duration																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+

0-15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	93	95	96	98	99	100	100	90	92	92	92	92	95	95	96	97	98	98	99	100	100
19	80	81	83	86	87	87	79	79	79	81	81	82	83	83	86	89	92	94	97	100	100
20	65	68	69	72	74	69	69	67	69	70	71	71	72	72	75	80	85	90	95	100	100
21	63	66	68	71	66	66	67	66	67	70	70	70	71	71	73	78	84	89	95	100	100
22	62	65	66	62	63	64	64	64	67	68	68	68	70	70	73	78	84	89	95	100	100
23	60	62	58	60	62	62	63	63	64	67	68	68	67	69	71	77	83	88	94	100	100
24	59	55	56	58	59	60	61	61	63	65	67	66	66	69	71	77	83	88	94	100	100
25	52	53	55	56	58	58	60	60	61	64	64	64	64	67	70	76	82	88	94	100	100
26	51	53	55	56	58	60	61	61	61	63	64	64	66	69	67	74	80	87	93	100	100
27	51	52	55	58	60	60	61	61	62	63	64	66	67	66	67	74	80	87	93	100	100
28	49	52	57	58	60	61	63	62	62	64	66	66	63	66	68	74	81	87	94	100	100
29	49	51	57	60	61	61	62	62	63	64	66	63	65	67	68	74	81	87	94	100	100
30	49	51	57	60	61	62	63	63	63	64	62	63	66	68	70	76	82	88	94	100	100
31	47	50	57	60	60	62	63	64	64	62	63	65	67	70	71	77	83	88	94	100	100
32	46	50	57	60	62	63	64	64	62	63	65	66	68	71	72	78	83	89	94	100	100
33	45	49	56	60	62	63	64	62	63	65	66	68	71	73	74	79	84	90	95	100	100
34	43	48	56	62	63	64	62	62	65	66	67	70	72	74	74	79	84	90	95	100	100
35	41	47	56	62	63	61	62	63	66	67	68	70	72	74	75	80	85	90	95	100	100
36	40	47	56	62	59	61	62	63	66	67	68	70	72	74	75	80	85	90	95	100	100
37	38	45	56	58	59	61	62	63	66	67	67	69	71	73	74	79	84	90	95	100	100
38	38	45	53	58	61	62	63	65	65	67	68	70	72	74	73	78	84	89	95	100	100
39	37	41	53	58	61	62	63	64	65	67	68	70	71	73	73	78	84	89	95	100	100
40	34	41	53	58	61	62	63	64	64	66	67	69	71	73	72	78	83	89	94	100	100
41	34	41	53	58	61	61	62	62	63	65	65	67	69	71	71	77	83	88	94	100	100
42	34	43	53	58	60	61	62	61	61	63	64	66	67	69	71	77	83	88	94	100	100
43	32	43	53	58	60	61	60	60	60	60	62	64	66	68	69	75	81	88	94	100	100
44	32	44	52	57	59	60	60	59	59	58	60	62	65	67	69	75	81	88	94	100	100
45	32	44	52	57	59	60	59	57	57	57	59	61	63	66	68	74	81	87	94	100	100
46	32	42	50	54	56	57	57	56	55	56	59	61	63	65	67	74	80	87	93	100	100
47	30	40	48	52	54	55	55	54	54	55	59	61	62	63	66	73	80	86	93	100	100
48	30	40	46	49	51	52	53	53	54	55	57	61	62	63	63	70	78	85	93	100	100
49	29	39	43	48	50	51	50	51	53	54	57	61	61	62	62	70	77	85	92	100	100
50	29	37	42	45	47	48	49	50	51	54	57	61	61	61	61	69	77	84	92	100	100
51	27	35	40	43	45	47	48	50	51	53	57	60	61	61	62	70	77	85	92	100	100
52	27	34	39	42	44	45	48	49	50	53	56	60	60	62	62	70	77	85	100	100	100
53	25	31	37	41	44	45	47	49	50	51	56	59	61	61	62	70	77	100	100	100	100
54	25	30	36	39	43	44	47	48	49	51	55	59	59	61	62	70	100	100	100	100	100
55	24	29	35	38	42	43	45	48	49	50	56	58	59	61	62	100	100	100	100	100	100
56	23	29	35	38	42	42	44	47	48	50	55	57	58	59	100	100	100	100	100	100	100
57	23	28	35	38	42	42	43	45	47	49	53	55	56	100	100	100	100	100	100	100	100
58	22	28	33	37	41	41	43	45	45	47	51	53	100	100	100	100	100	100	100	100	100
59	22	26	33	37	41	41	42	44	44	46	50	100	100	100	100	100	100	100	100	100	100
60	20	26	33	37	41	40	41	42	42	45	100	100	100	100	100	100	100	100	100	100	100

61	20	26	33	37	41	40	41	42	42	75	100	100	100	100	100	100	100	100	100	100
62	19	25	32	38	40	40	41	42	75	75	100	100	100	100	100	100	100	100	100	100
63	19	25	33	36	40	40	41	75	75	75	100	100	100	100	100	100	100	100	100	100
64	18	24	32	36	39	40	75	75	75	75	100	100	100	100	100	100	100	100	100	100
65	18	24	32	36	39	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
66	18	24	32	36	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
67	18	24	32	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
68	18	24	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
69	18	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
70	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
71	48	52	55	60	60	65	70	70	0	70	100	100	100	100	100	100	100	100	100	100
72	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
73	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
74	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
75	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
76	48	52	55	60	60	65	70	70	70	100	100	100	100	100	100	100	100	100	100	100
77	48	52	55	60	60	65	70	70	100	100	100	100	100	100	100	100	100	100	100	100
78	48	52	55	60	60	65	70	100	100	100	100	100	100	100	100	100	100	100	100	100
79	48	52	55	60	60	65	100	100	100	100	100	100	100	100	100	100	100	100	100	100
80	48	52	55	60	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
81	48	52	55	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
82	48	52	55	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
83	48	52	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
84	48	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
85+	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

**Male, Smoker**

Age	Issue																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
0-15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20	98	100	100	100	100	100	100	99	99	99	100	99	99	99	100	100	100	100	100	100
21	95	98	99	100	95	96	96	95	96	97	97	96	96	96	96	97	98	98	99	100
22	92	95	96	90	90	93	93	92	93	95	95	93	93	92	93	94	96	97	99	100
23	90	92	85	88	88	89	89	89	90	90	90	90	89	90	92	94	95	97	98	100
24	87	81	82	85	84	86	88	86	86	88	88	86	86	88	89	91	93	96	98	100
25	77	78	79	82	81	83	83	82	83	85	84	84	84	85	86	89	92	94	97	100
26	75	77	79	82	82	83	83	82	83	84	84	84	84	85	81	85	89	92	96	100
27	73	75	78	82	82	83	83	82	82	82	82	84	84	80	81	85	89	92	96	100
28	71	73	79	82	81	82	83	81	81	82	82	82	80	80	81	85	89	92	96	100

29	69	72	78	81	81	82	82	81	81	81	81	77	80	80	81	85	89	92	96	100	
30	68	71	78	81	81	81	82	81	81	81	76	77	80	80	81	85	89	92	96	100	
31	65	70	77	81	79	81	82	81	81	76	77	79	81	81	83	86	90	93	97	100	
32	63	67	77	78	79	81	81	81	81	76	77	77	80	83	83	85	88	91	94	97	100
33	60	65	74	78	79	79	81	76	77	77	79	80	83	85	85	88	91	94	97	100	
34	57	62	74	77	79	79	75	76	77	79	79	81	83	85	87	90	92	95	97	100	
35	53	60	73	77	79	75	75	76	77	79	80	82	84	86	88	90	93	95	98	100	
36	52	59	71	75	74	75	75	76	77	79	79	81	83	85	87	90	92	95	97	100	
37	49	58	70	71	74	74	75	76	77	78	79	81	84	86	86	89	92	94	97	100	
38	48	55	66	70	72	74	74	75	76	78	79	81	83	85	87	90	92	95	97	100	
39	45	50	65	70	72	72	74	74	75	77	79	81	84	86	86	89	92	94	97	100	
40	41	49	63	68	71	72	73	74	74	76	78	80	83	85	86	89	92	94	97	100	
41	40	49	63	68	71	72	72	72	73	75	76	78	81	84	85	88	91	94	97	100	
42	40	49	62	68	70	71	71	71	71	73	75	76	81	83	85	88	91	94	97	100	
43	39	50	62	67	69	69	70	70	70	71	73	76	79	83	85	88	91	94	97	100	
44	39	50	60	66	68	69	68	69	69	69	71	74	79	81	85	88	91	94	97	100	
45	37	50	60	66	68	68	68	67	67	67	69	73	78	81	85	88	91	94	97	100	
46	37	48	58	63	65	67	66	66	66	67	71	74	78	81	84	87	90	94	97	100	
47	36	47	55	61	63	64	64	64	65	67	71	75	79	81	84	87	90	94	97	100	
48	35	46	53	58	60	62	63	63	65	67	72	75	79	81	83	86	90	93	97	100	
49	34	45	51	56	58	59	61	62	63	67	72	77	80	81	83	86	90	93	97	100	
50	34	43	49	53	55	57	60	61	63	67	73	78	80	81	81	85	89	92	96	100	
51	32	42	47	52	55	57	60	61	63	67	73	78	80	83	84	87	90	94	97	100	
52	32	40	46	50	54	56	60	61	63	67	73	78	81	84	85	88	91	94	100	100	
53	30	37	44	49	54	56	59	61	65	67	74	79	83	85	87	90	92	100	100	100	
54	30	36	43	48	53	55	59	61	65	67	74	80	84	85	89	91	100	100	100	100	
55	29	35	42	47	53	55	59	61	65	67	75	80	84	86	90	100	100	100	100	100	
56	28	35	42	47	53	55	57	60	63	68	74	79	83	85	100	100	100	100	100	100	
57	28	35	42	47	53	54	57	60	64	67	74	78	81	100	100	100	100	100	100	100	
58	26	33	43	48	54	54	56	59	63	67	73	78	100	100	100	100	100	100	100	100	
59	26	33	43	48	54	53	57	59	63	66	73	100	100	100	100	100	100	100	100	100	
60	25	33	43	48	54	53	56	58	62	66	100	100	100	100	100	100	100	100	100	100	
61	25	33	43	49	55	55	57	59	63	75	100	100	100	100	100	100	100	100	100	100	
62	25	33	43	50	56	56	58	61	75	75	100	100	100	100	100	100	100	100	100	100	
63	24	33	45	51	56	56	59	75	75	75	100	100	100	100	100	100	100	100	100	100	
64	24	34	45	51	57	57	75	75	75	75	100	100	100	100	100	100	100	100	100	100	
65	24	34	45	52	57	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100	
66	24	35	45	53	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100	
67	25	35	45	60	60	65	70	70	0	70	100	100	100	100	100	100	100	100	100	100	
68	25	36	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100	
69	27	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100	
70	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100	
71	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100	
72	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100	
73	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100	
74	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100	



75	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
76	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
77	48	52	55	60	60	65	70	70	100	100	100	100	100	100	100	100	100	100	100	100
78	48	52	55	60	60	65	70	100	100	100	100	100	100	100	100	100	100	100	100	100
79	48	52	55	60	60	65	100	100	100	100	100	100	100	100	100	100	100	100	100	100
80	48	52	55	60	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
81	48	52	55	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
82	48	52	55	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
83	48	52	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
84	48	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
85+	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

**Female, Aggregate**

Issue	Duration																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
Age 0-15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17	99	100	100	100	100	100	100	100	93	95	96	97	97	100	100	100	100	100	100	100
18	83	83	84	84	84	84	86	78	78	79	82	84	85	88	88	90	93	95	98	100
19	65	66	68	68	68	68	63	63	64	66	69	71	72	74	75	80	85	90	95	100
20	48	50	51	51	51	47	48	48	49	51	56	57	58	61	63	70	78	85	93	100
21	47	48	50	51	47	47	48	49	51	53	57	60	61	64	64	71	78	86	93	100
22	44	47	48	45	47	47	48	49	53	54	60	61	63	64	66	73	80	86	93	100
23	42	45	44	45	47	47	49	51	53	54	61	64	64	67	69	75	81	88	94	100
24	39	40	42	44	47	47	50	51	54	56	64	64	66	69	70	76	82	88	94	100
25	34	38	41	44	47	47	50	53	56	57	64	67	69	71	73	78	84	89	95	100
26	34	38	41	45	49	49	51	56	58	59	66	69	70	73	70	76	82	88	94	100
27	34	38	41	47	50	51	54	57	59	60	69	70	73	70	71	77	83	88	94	100
28	34	37	43	47	53	53	56	59	62	63	70	73	70	72	74	79	84	90	95	100
29	34	38	43	49	54	56	58	60	63	64	73	70	72	74	75	80	85	90	95	100
30	35	38	43	50	56	56	59	63	66	67	70	71	74	75	76	81	86	90	95	100
31	35	38	43	51	56	58	60	64	67	65	71	72	74	75	76	81	86	90	95	100
32	35	39	45	51	56	59	63	66	65	66	72	72	75	76	76	81	86	90	95	100
33	36	39	44	52	58	62	64	65	66	67	72	74	75	76	76	81	86	90	95	100
34	36	40	45	52	58	63	63	66	67	68	74	74	76	76	76	81	86	90	95	100
35	36	40	45	53	59	61	65	67	68	70	75	74	75	76	75	80	85	90	95	100
36	36	40	45	53	55	62	65	67	68	70	74	74	74	75	75	80	85	90	95	100
37	36	41	47	52	57	62	65	67	68	69	72	72	73	75	74	79	84	90	95	100
38	34	41	44	52	57	63	66	68	69	70	72	71	72	74	75	80	85	90	95	100
39	34	40	45	53	58	63	66	68	69	69	70	70	70	73	74	79	84	90	95	100
40	32	40	45	53	58	65	65	67	68	69	70	69	70	73	73	78	84	89	95	100
41	32	40	45	53	57	63	64	67	68	68	69	69	69	73	74	79	84	90	95	100
42	32	40	45	52	56	61	63	65	66	68	69	68	70	74	75	80	85	90	95	100

43	31	39	45	51	55	59	61	65	65	66	68	69	69	74	77	82	86	91	95	100
44	31	39	45	50	54	58	61	63	64	66	67	68	71	75	78	82	87	91	96	100
45	31	38	44	49	53	56	59	62	63	65	67	68	71	77	79	83	87	92	96	100
46	29	37	43	48	51	54	59	62	63	65	67	69	71	77	78	82	87	91	96	100
47	28	35	41	46	49	54	57	61	62	66	68	69	71	77	77	82	86	91	95	100
48	28	35	41	44	49	52	57	61	63	66	68	71	72	75	77	82	86	91	95	100
49	26	34	39	43	47	52	55	61	63	67	69	71	72	75	75	80	85	90	95	100
50	25	32	38	41	46	50	55	61	63	67	69	72	72	75	74	79	84	90	95	100
51	25	32	38	41	45	50	55	61	63	66	68	69	71	74	74	79	84	90	95	100
52	23	30	36	41	45	51	56	61	62	65	66	68	68	73	73	78	84	89	100	100
53	23	30	36	41	47	51	56	61	62	63	65	66	68	72	72	78	83	100	100	100
54	22	29	35	41	47	53	57	61	61	62	62	66	66	69	70	76	100	100	100	100
55	22	29	35	41	47	53	57	61	61	61	62	63	64	68	69	100	100	100	100	100
56	22	29	35	41	45	51	56	59	60	61	62	63	64	67	100	100	100	100	100	100
57	22	29	35	41	45	50	54	56	58	59	61	62	63	100	100	100	100	100	100	100
58	22	30	36	41	44	49	53	56	57	57	61	62	100	100	100	100	100	100	100	100
59	22	30	36	41	44	48	51	53	55	56	59	100	100	100	100	100	100	100	100	100
60	22	30	36	41	43	47	50	51	53	55	100	100	100	100	100	100	100	100	100	100
61	22	29	35	39	42	46	49	50	52	80	100	100	100	100	100	100	100	100	100	100
62	20	28	33	39	41	45	47	49	80	80	100	100	100	100	100	100	100	100	100	100
63	20	28	33	38	41	44	46	80	80	80	100	100	100	100	100	100	100	100	100	100
64	19	27	32	36	40	42	80	80	80	80	100	100	100	100	100	100	100	100	100	100
65	19	25	30	35	39	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
66	19	25	30	35	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
67	19	25	30	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
68	19	25	68	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
69	19	64	68	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
70	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
71	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
72	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
73	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
74	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
75	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
76	60	60	64	68	68	72	75	75	80	100	100	100	100	100	100	100	100	100	100	100
77	60	60	64	68	68	72	75	75	100	100	100	100	100	100	100	100	100	100	100	100
78	60	60	64	68	68	72	75	100	100	100	100	100	100	100	100	100	100	100	100	100
79	60	60	64	68	68	72	100	100	100	100	100	100	100	100	100	100	100	100	100	100
80	60	60	64	68	68	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
81	60	60	64	68	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
82	60	60	64	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
83	60	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
84	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
85+	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

**Female, Nonsmoker**

Issue	Duration																			
	Age 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
0-15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17	96	98	98	98	98	99	99	99	92	92	93	95	95	97	99	99	99	100	100	100
18	78	80	80	80	80	81	81	74	75	75	78	79	82	83	85	88	91	94	97	100
19	60	62	63	63	63	65	59	59	60	60	64	67	67	70	72	78	83	89	94	100
20	42	44	45	45	45	42	42	42	45	45	50	51	53	56	58	66	75	83	92	100
21	41	42	44	45	41	42	42	44	47	47	51	53	54	57	59	67	75	84	92	100
22	39	41	44	41	41	42	44	45	49	49	54	56	57	58	60	68	76	84	92	100
23	38	41	38	40	41	42	44	46	49	50	56	57	58	60	62	70	77	85	92	100
24	36	36	38	40	41	42	46	47	50	51	58	59	60	62	63	70	78	85	93	100
25	32	34	37	40	41	43	46	49	51	53	59	60	62	63	64	71	78	86	93	100
26	32	34	37	41	43	45	47	50	53	53	60	62	63	64	62	70	77	85	92	100
27	32	34	38	43	46	47	49	51	53	55	62	63	64	62	62	70	77	85	92	100
28	30	34	39	43	47	49	51	53	56	58	63	63	61	62	63	70	78	85	93	100
29	30	35	40	45	50	51	52	55	58	59	64	61	62	63	63	70	78	85	93	100
30	31	35	40	46	51	52	53	56	59	60	62	62	63	65	65	72	79	86	93	100
31	31	35	40	46	51	53	55	58	60	58	62	62	63	65	65	72	79	86	93	100
32	32	35	40	45	51	53	56	59	57	58	62	63	63	65	64	71	78	86	93	100
33	32	36	41	47	52	55	58	55	58	59	63	63	65	65	65	72	79	86	93	100
34	33	36	41	47	52	55	55	57	58	59	63	65	64	65	64	71	78	86	93	100
35	33	36	41	47	52	53	57	58	59	61	63	64	64	64	64	71	78	86	93	100
36	33	36	41	47	49	53	57	58	59	61	63	64	63	64	63	70	78	85	93	100
37	32	36	41	44	49	53	57	58	59	60	62	62	61	62	63	70	78	85	93	100
38	32	37	39	45	50	54	57	58	60	60	61	61	61	62	61	69	77	84	92	100
39	30	35	39	45	50	54	57	58	60	59	60	60	59	60	61	69	77	84	92	100
40	28	35	39	45	50	54	56	57	59	59	60	59	59	59	60	68	76	84	92	100
41	28	35	39	45	49	52	55	55	58	57	58	59	58	59	60	68	76	84	92	100
42	27	35	39	44	49	52	54	55	56	57	57	57	58	60	61	69	77	84	92	100
43	27	34	39	44	47	50	53	53	55	55	56	57	56	60	61	69	77	84	92	100
44	26	34	38	42	47	50	52	53	54	55	55	55	56	61	62	70	77	85	92	100
45	26	33	38	42	45	48	51	51	52	53	54	55	56	61	62	70	77	85	92	100
46	24	32	37	40	43	47	49	51	52	53	54	55	56	60	61	69	77	84	92	100
47	24	30	35	39	42	45	47	49	51	53	54	55	56	59	60	68	76	84	92	100
48	23	30	35	37	40	44	47	49	50	53	54	55	55	59	57	66	74	83	91	100
49	23	29	33	35	39	42	45	48	50	53	54	55	55	57	56	65	74	82	91	100
50	21	27	32	34	37	41	44	48	50	53	54	55	55	56	55	64	73	82	91	100
51	21	26	30	34	37	41	44	48	49	51	53	53	54	55	55	64	73	82	91	100
52	20	25	30	33	37	41	44	47	48	50	50	51	51	55	53	62	72	81	100	100
53	19	24	29	32	37	41	43	47	48	48	49	49	51	52	52	62	71	100	100	100
54	18	24	29	32	37	41	43	45	47	47	47	49	49	51	51	61	100	100	100	100
55	18	23	28	32	37	41	43	45	45	45	46	46	47	50	50	100	100	100	100	100
56	18	23	28	32	36	39	42	44	44	45	46	46	46	49	100	100	100	100	100	100

57	18	23	28	31	35	38	41	42	44	44	45	45	46	100	100	100	100	100	100	100	100
58	17	23	26	31	35	36	38	41	41	42	45	45	100	100	100	100	100	100	100	100	100
59	17	23	26	30	33	35	38	39	40	41	44	100	100	100	100	100	100	100	100	100	100
60	17	23	26	30	32	34	36	38	39	40	100	100	100	100	100	100	100	100	100	100	100
61	17	22	25	29	32	33	35	36	38	80	100	100	100	100	100	100	100	100	100	100	100
62	16	22	25	28	30	32	34	35	80	80	100	100	100	100	100	100	100	100	100	100	100
63	16	20	24	28	30	32	34	80	80	80	100	100	100	100	100	100	100	100	100	100	100
64	14	21	24	27	29	30	80	80	80	80	100	100	100	100	100	100	100	100	100	100	100
65	15	19	23	25	28	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
66	15	19	23	25	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
67	15	19	22	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
68	13	18	68	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
69	13	64	68	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
70	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
71	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
72	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
73	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
74	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
75	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100	100
76	60	60	64	68	68	72	75	75	80	100	100	100	100	100	100	100	100	100	100	100	100
77	60	60	64	68	68	72	75	75	100	100	100	100	100	100	100	100	100	100	100	100	100
78	60	60	64	68	68	72	75	100	100	100	100	100	100	100	100	100	100	100	100	100	100
79	60	60	64	68	68	72	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
80	60	60	64	68	68	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
81	60	60	64	68	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
82	60	60	64	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
83	60	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
84	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
85+	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

**Female, Smoker**

Age	Issue																			Duration																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
0-15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
17	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
18	99	100	100	100	100	100	100	95	96	97	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
19	87	89	92	92	92	92	84	84	86	86	92	93	95	96	99	99	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
20	74	77	80	80	80	73	73	73	75	77	83	83	86	88	90	92	94	96	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
21	71	74	78	78	71	71	73	74	77	79	85	86	88	89	90	92	94	96	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
22	68	71	75	70	71	71	73	74	78	79	88	90	89	89	92	94	95	97	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
23	65	69	67	70	70	70	73	77	79	81	89	90	90	92	92	94	95	97	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
24	62	60	64	69	70	70	74	77	79	81	92	90	92	93	93	94	96	97	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	

25	53	58	63	67	69	70	74	78	81	82	92	93	93	95	95	96	97	98	99	100
26	53	58	63	69	71	72	75	79	82	82	93	93	95	96	90	92	94	96	98	100
27	52	56	63	70	74	74	78	81	82	84	93	95	95	90	90	92	94	96	98	100
28	52	56	64	71	75	77	79	82	85	86	95	95	90	92	92	94	95	97	98	100
29	51	56	64	71	78	78	81	84	86	88	95	90	90	92	92	94	95	97	98	100
30	51	56	64	72	79	79	82	85	88	89	90	90	92	93	93	94	96	97	99	100
31	51	56	64	72	78	81	84	84	88	84	90	90	92	93	93	94	96	97	99	100
32	51	56	64	71	78	81	85	86	84	85	90	90	92	94	93	94	96	97	99	100
33	51	57	62	71	78	82	85	83	84	85	90	92	93	93	93	94	96	97	99	100
34	51	56	62	71	78	82	81	83	85	86	90	92	92	94	93	94	96	97	99	100
35	51	56	62	71	78	79	83	84	85	86	90	91	91	93	93	94	96	97	99	100
36	49	56	62	71	74	79	83	84	85	86	90	90	91	93	92	94	95	97	98	100
37	48	55	62	67	74	79	83	84	85	86	89	90	89	92	91	93	95	96	98	100
38	47	55	57	66	72	77	81	84	86	86	87	88	88	90	91	93	95	96	98	100
39	45	50	57	66	72	77	81	83	85	86	86	87	86	89	90	92	94	96	98	100
40	41	50	57	66	72	77	81	83	84	85	86	86	86	89	89	91	93	96	98	100
41	40	50	57	65	71	76	79	81	83	84	85	86	85	89	90	92	94	96	98	100
42	40	49	57	65	69	74	77	80	82	83	84	85	86	90	92	94	95	97	98	100
43	39	49	55	63	69	73	76	78	80	82	83	84	85	92	93	94	96	97	99	100
44	39	48	55	62	67	71	75	78	80	80	82	84	86	93	96	97	98	98	99	100
45	37	47	55	61	65	70	73	76	78	80	81	84	86	94	97	98	98	99	99	100
46	36	46	53	59	63	68	71	75	77	79	83	85	86	93	96	97	98	98	99	100
47	34	44	51	57	62	66	70	75	77	80	83	85	86	93	94	95	96	98	99	100
48	34	44	50	54	60	64	69	74	77	80	84	86	87	92	92	94	95	97	98	100
49	33	42	48	53	58	63	68	74	77	81	84	86	87	92	91	93	95	96	98	100
50	31	41	46	51	57	61	67	74	77	81	85	87	87	91	90	92	94	96	98	100
51	30	39	45	51	56	61	67	74	75	80	83	85	85	90	90	92	94	96	98	100
52	29	38	45	50	56	62	68	74	75	79	81	83	84	90	90	92	94	96	100	100
53	28	37	43	49	57	62	68	73	74	77	79	81	83	89	89	91	93	100	100	100
54	28	36	43	49	57	63	69	73	74	75	78	80	81	87	89	91	100	100	100	100
55	26	35	42	49	57	63	69	73	73	74	76	78	79	86	87	100	100	100	100	100
56	26	35	42	49	56	62	67	71	72	74	76	78	79	85	100	100	100	100	100	100
57	26	35	42	49	55	61	66	69	72	73	76	78	79	100	100	100	100	100	100	100
58	28	36	43	49	55	59	63	68	69	72	76	78	100	100	100	100	100	100	100	100
59	28	36	43	49	54	57	63	67	68	70	76	100	100	100	100	100	100	100	100	100
60	28	36	43	49	53	57	61	64	67	69	100	100	100	100	100	100	100	100	100	100
61	26	35	42	48	52	56	59	63	66	80	100	100	100	100	100	100	100	100	100	100
62	26	33	41	47	51	55	58	62	80	80	100	100	100	100	100	100	100	100	100	100
63	25	33	41	46	51	55	57	80	80	80	100	100	100	100	100	100	100	100	100	100
64	25	33	40	45	50	53	80	80	80	80	100	100	100	100	100	100	100	100	100	100
65	24	32	39	44	49	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
66	24	32	39	44	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
67	24	32	39	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
68	24	32	68	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
69	24	64	68	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
70	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100

71	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
72	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
73	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
74	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
75	60	60	64	68	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
76	60	60	64	68	68	72	75	75	80	100	100	100	100	100	100	100	100	100	100	100
77	60	60	64	68	68	72	75	75	100	100	100	100	100	100	100	100	100	100	100	100
78	60	60	64	68	68	72	75	100	100	100	100	100	100	100	100	100	100	100	100	100
79	60	60	64	68	68	72	100	100	100	100	100	100	100	100	100	100	100	100	100	100
80	60	60	64	68	68	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
81	60	60	64	68	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
82	60	60	64	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
83	60	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
84	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
85+	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100



**COMMONWEALTH OF PENNSYLVANIA  
INSURANCE DEPARTMENT**

OFFICE OF SPECIAL PROJECTS  
1326 Strawberry Square  
Harrisburg, PA 17120

Phone: (717) 787-4429  
Fax: (717) 772-1969  
E-mail: psalvato@ins.state.pa.us

March 16, 2000

Mr. Robert Nyce  
Executive Director  
Independent Regulatory Review Comm.  
333 Market Street  
Harrisburg, PA 17101

RECEIVED  
2000 MAR 16 AM 10:53  
INDEPENDENT REGULATORY  
REVIEW COMMISSION

Re: Insurance Department Final  
Form Regulation No. 11-196,  
Valuation of Life Insurance  
Policies

Dear Mr. Nyce:

The Insurance Department is hereby withdrawing regulation number 11-196, Valuation of Life Insurance Policies, from consideration at this time. This rulemaking was delivered on March 15, 2000.

The Department is hereby resubmitting for your consideration regulation number 11-196, Valuation of Life Insurance Policies.

If you have any questions regarding this matter, please contact me at (717) 787-4429.

Sincerely yours,

Peter J. Salvatore  
Regulatory Coordinator

**TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE  
REGULATORY REVIEW ACT**

I.D. NUMBER: 11-196  
 SUBJECT: Valuation of Life Insurance Policies  
 AGENCY: DEPARTMENT OF INSURANCE

RECEIVED  
 2000 MAR 16 AM 10: 54  
 INDEPENDENT REGULATORY  
 REVIEW COMMISSION

**TYPE OF REGULATION**

- Proposed Regulation
- Final Regulation
- Final Regulation with Notice of Proposed Rulemaking Omitted
- 120-day Emergency Certification of the Attorney General
- 120-day Emergency Certification of the Governor
- Delivery of Tolled Regulation
  - a. With Revisions
  - b. Without Revisions

**FILING OF REGULATION**

DATE	SIGNATURE	DESIGNATION
3-16-00	<i>Sheila Eckhart</i>	HOUSE COMMITTEE ON INSURANCE
3-16-00	<i>Bruce Nuttall</i>	SENATE COMMITTEE ON BANKING & INSURANCE
3/16/00	<i>St. Belnett</i>	INDEPENDENT REGULATORY REVIEW COMMISSION
_____	_____	ATTORNEY GENERAL
_____	_____	LEGISLATIVE REFERENCE BUREAU

March 13, 2000