## HAWAII ADMINISTRATIVE RULES

# TITLE 16

## DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS

## CHAPTER 171

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## SUBCHAPTER 1

#### GENERAL PROVISIONS

§16-171-101 Definitions. As used in this chapter:

"Commissioner" means the insurance commissioner.

"Enrollee" means a person covered for health insurance by the insurer.

"Insured" means a person covered for insurance by the insurer.

"Insurer" means a person defined as an insurer pursuant to section 431:1-202, Hawaii Revised Statutes ("HRS").

"Managed care plan" means a health plan defined as a managed care plan pursuant to section 431:14G-102, HRS. [Eff 1/1/05; am and comp 12/26/06; comp 03/28/08; comp 1/22/10; am and comp 12/13/12; comp 02/02/17] (Auth: HRS 431:2-201) (Imp: HRS 431:1-202, 431:2-102, 431:2-201, 431:14G-102)

§16-171-102 Repealed. [R 12/26/06]

§16-171-103 Written notice to claimants of payment of claims in third-party settlements. (a) Upon payment in settlement of any third-party liability claim, the insurer shall provide written notice to the claimant where:

- (1) The claimant is a natural person; and
- (2) The payment is delivered to the claimant's lawyer by draft, check, or otherwise.

(b) A written notice shall be required when the insurer or the insurer's representative, including the insurer's lawyer, makes payment to a claimant. [Eff and comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS §431:2-201) (Imp: HRS §§431:1-202, 431:10-230)

#### SUBCHAPTER 2

## HEALTH PROVISIONS

§16-171-201 <u>Disclosure to enrollee or authorized representative.</u> (a) Upon written request and payment of fifty dollars to a managed care plan by an enrollee or authorized representative, a managed care plan shall deliver, within ten business days of that request, to that enrollee or authorized representative data that forms the basis for the premium rates that the managed care plan seeks to charge the enrollee in the next enrollment period.

(b) Subject to subsection (c), the enrollee or authorized representative may request all pertinent information as to the rate including, but not limited to, the managed care plan's data for the enrollee relating to:

- (1) Loss trend;
- (2) Loss ratio;
- (3) Annual financial statements of the managed care plan; and
- (4) Its rate filing.

(c) A managed care plan shall not be required to disclose supporting information or supplementary rating information that:

- (1) Consists of proprietary information, including trade secrets, commercial information, and business plans that the commissioner deems may result in competitive harm to the managed care plan if disclosed;
- (2) Is confidential in accordance with federal or Hawaii law; or
- (3) Is exempt from disclosure by federal or Hawaii law. [Eff 1/1/05; comp 12/26/06; am and comp 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §431:2-201) (Imp: HRS §§92F-13, 92F-22, 431:2-209, 431:14G-105, 431:14G-109)

§16-171-202 <u>Accident and health or sickness filing requirement.</u> Notwithstanding the need to have a plan qualified under section 393-7, HRS, a managed care plan shall file accident and health or sickness insurance contract rates with the commissioner that comply with title 24, HRS. [Eff 1/1/05; comp 12/26/06;

# comp 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201, 432:1-102, 432D-2) (Imp: HRS §431:14G-105)

#### SUBCHAPTER 3

#### LICENSING REQUIREMENTS

16-171-301 <u>Term of license</u>. The term of the license granted pursuant to articles 9 and 9A of chapter 431, HRS, and article 2 of chapter 432, HRS, shall be not less than one year and not more than three years. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS §\$431:2-201, 431:9A-118) (Imp: HRS §\$431:9-232, 431:9A-107, 432:2-609)

§16-171-302 License renewal or extension for a natural person. (a) The day for renewal or extension of a license issued to a natural person pursuant to articles 9 and 9A of chapter 431, HRS, and article 2 of chapter 432, HRS, shall be the sixteenth day of the licensee's birth month.

(b) The year for renewal or extension of a license issued pursuant to articles 9 and 9A of chapter 431, HRS, and article 2 of chapter 432, HRS, to a natural person born in even-numbered months shall be the next succeeding even-numbered year. The year for renewal or extension of a license issued pursuant to articles 9 and 9A of chapter 431, HRS, and article 2 of chapter 432, HRS, to a natural person born in odd-numbered months shall be the next succeeding odd-numbered year.

(c) The term of a license issued pursuant to articles 9 and 9A of chapter 431, HRS, and article 2 of chapter 432, HRS, shall be not less than one year and no more than three years, as determined by the commissioner.

(d) This section shall not apply to provider certificates issued for continuing education courses. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:7-101, 431:9-232, 431:9A-107, 432:2-609)

§16-171-303 Term of surplus lines broker; license. The term of the surplus lines broker license issued pursuant to article 8 of chapter 431, HRS, shall be the same as the licensee's producer license issued pursuant to article 9A of chapter 431, HRS. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:7-101, 431:8-310, 431:9A-108)

§16-171-304 <u>License renewal or extension for a business entity.</u> (a) The day for renewal or extension of a license issued to a business entity pursuant to articles 9 and 9A of chapter 431, HRS, shall be the sixteenth day of April for a nonresident licensee and the sixteenth day of July for a resident licensee.

(b) The year for renewal or extension for a nonresident business entity licensee shall be the next succeeding even-numbered year.

(c) The year for renewal or extension for a resident business entity licensee shall be the next succeeding odd-numbered year.

(d) The term of the license issued to a business entity pursuant to articles 9 and 9A of chapter 431, HRS, shall be not less than one year and no more than three years, as determined by the commissioner.

(e) This section shall not apply to provider certificates issued for continuing education courses. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS 431:9A-118) (Imp: HRS 431:7-101, 431:9A-106, 431:9A-107)

§16-171-305 Payment of licensing fees and penalties. Prior to the issuance, renewal, or extension of a license, the licensee shall pay all applicable fees and penalties. A service fee, consisting of annual fees for each full year or partial year included in the term, shall be paid by the licensee. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:7-101, 431:9-232, 431:9A-107, 431:9A-107.5, 432:2-609)

16-171-306 <u>Continuing education course credit.</u> Credits earned for a continuing education course shall be valid for twenty-four months after the course provider determines that the licensee has successfully completed all course requirements. [Eff 1/1/05; comp 12/26/06: comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:9A-124, 431:9A-155)

§16-171-307 <u>Continuing education requirement for licensee that acquires</u> additional line of authority. Except for nonresident licensees subject to the reciprocity provisions of section 431:9A-116(b), HRS, a licensed producer who acquires an additional line of insurance through the examination process within the twenty-three months preceding the producer's renewal or extension date shall complete the continuing education requirement for the additional acquired line by the producer's next succeeding renewal or extension date. [Eff 1/1/05; comp 12/26/06; comp

03/28/08; comp 1/22/10; am and comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:9A-124, 431:9A-142, 431:9A-155, 432:2-609)

§16-171-308 <u>Continuing education requirement for licensee reactivating a</u> <u>line of authority.</u> Except for nonresident licensees subject to the reciprocity provisions of section 431:9A-116(b), HRS, a licensed producer who applies to reactivate a line of authority shall fulfill the continuing education requirement for the line of authority prior to its reactivation. [Eff 1/1/05; comp 12/26/06L; comp 03/28/08; comp 1/22/10; am and comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:9A-124, 431:9A-142, 432:2-609)

§16-171-309 <u>Continuing education prerequisite for business entity license</u> renewal. Failure by the designated representative to complete the continuing education requirement on behalf of the business entity shall result in the business entity's and, if applicable, the designated representative's license being automatically placed on "inactive" status. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; am and comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:9A-106, 431:9A-124, 431:9A-142, 432:2-609)

§16-171-310 <u>Application for approval of a continuing education course</u>. (a) A continuing education course provider seeking approval of a continuing education course shall submit an application to the commissioner at least sixty days prior to the proposed date the course will be offered.

(b) A continuing education course provider shall obtain the commissioner's prior approval for the course before advertising or soliciting for that course. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS 431:2-201, 431:9A-118) (Imp: HRS 431:9A-153)

§16-171-311 Passing examination score. An applicant for licensure under article 9 or article 9A of chapter 431, HRS, or article 2 of chapter 432, HRS, shall obtain a score of seventy or higher to pass the examination. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:9-206, 431:9A-105, 432:2-609)

§16-171-312 Term of managing general agent license. The term of licensure for a managing general agent license issued pursuant to article 9C of chapter 431, HRS, shall be the same as the licensee's producer license issued pursuant to article 9A of chapter 431, HRS. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:7-101, 431:9A-107, 431:9A-108, 431:9C-102)

§16-171-313 Repealed. [R 12/13/12]

§16-171-314 <u>Term of reinsurance intermediary broker and reinsurance</u> <u>intermediary manager licenses.</u> The term of licensure for reinsurance intermediary broker and reinsurance intermediary manager licenses issued pursuant to article 9B of chapter 431, HRS, shall be the same as the licensee's producer license issued pursuant to article 9A of chapter 431, HRS. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 431:9A-118) (Imp: HRS §§431:7-101, 431:9A-107, 431:9A-108, 431:9B-102)

§16-171-315 Repealed. [R 12/13/12]

§16-171-316 Term of vehicle protection product warrantors registrations. The term of vehicle protection product warrantors' registrations issued pursuant to chapter 481R, HRS, shall be for not more than one year and, unless renewed, shall automatically expire on December 31 of each year. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 481R-3) (Imp: HRS §§431:7-101, 481R-4)

16-171-317 Term of service contract provider registrations. The term of service contract providers' registrations issued pursuant to chapter 481X, HRS, shall be for not more than one year and, unless renewed, shall automatically expire on July 15 of each year. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 481X-11) (Imp: HRS §§431:7-101, 481X-3)

§16-171-318 <u>Electronic mail address is required of all licensees, registrants,</u> certificate holders, certificate of authority holders. All licensees, registrants, and

certificate holders shall provide the commissioner with an electronic mail address to receive communications from the commissioner. Communications sent to the electronic mail address shall be construed as actual notice to the licensee, registrant, certificate holder, or certificate of authority holder for all purposes, but not as a service of legal process. [Eff 12/13/12; comp 02/02/17] (Auth: HRS §§431:2-201, 431:19-102, 431K-13, 432:1-102, 432D-2, 481R-3, 481X-11) (Imp: HRS §§431:9-204, 431:9A-106, 431:9A-108, 431:9A-142, 431:9A-151, 431:19-102, 431K-2, 432:1-302, 432:2-609, 432D-2, 481R-4, 481X-3, 488-3)

#### SUBCHAPTER 4

## CSO MORTALITY TABLE FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES AND NONFORFEITURE BENEFITS

16-171-401 <u>Purpose</u>. The purpose of this subchapter is to authorize the use of the 2001 Commissioners' Standard Ordinary ("CSO") Mortality Table for the computation of the minimum reserve standard for nonforfeiture and valuation of life insurance policies and contracts. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201, 431:5-401) (Imp: HRS §§431:5-307(c)(2)(A), 431:10D-104(e)(8)(G)(vii))

§16-171-402 Definitions. As used in this subchapter:

"2001 CSO Mortality Table" means that mortality table, consisting of separate rates of mortality for male and female lives, developed by the American Academy of Actuaries CSO Task Force from the valuation basic mortality table developed by the Society of Actuaries Individual Life Insurance Valuation Mortality Task Force, and adopted by the National Association of Insurance Commissioners in December 2002 (the 2001 CSO Mortality Table is included in the Proceedings of the NAIC (2<sup>nd</sup> Quarter 2002)). Unless the context indicates otherwise, the "2001 CSO Mortality Table" includes both the ultimate form of that table and the select and ultimate form of that table and includes both the smoker and nonsmoker mortality tables and the composite mortality tables. It also includes both the age-nearest-birthday and age-last-birthday bases of the mortality tables.

"2001 CSO Mortality Table (F)" means that portion of the 2001 CSO Mortality Table that consists of the rates of mortality for female lives.

"2001 CSO Mortality Table (M)" means that portion of the 2001 CSO Mortality Table that consists of the rates of mortality for male lives from the 2001 CSO Mortality Table.

"Composite mortality tables" means that portion of the 2001 CSO Mortality Table that consists of rates of mortality that do not distinguish between smokers and nonsmokers.

"Smoker and nonsmoker mortality tables" means that portion of the 2001 CSO Mortality Table that consists of separate rates of mortality for smokers and nonsmokers. [Eff 1/1/05; comp 12/26/06 comp 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201, 431:5-401) (Imp: HRS §§431:5-307(c)(2)(A), 431:10D-104(e)(8)(G)(vii))

§16-171-403 <u>2001 CSO Mortality Table.</u> (a) At the election of the insurer and for any one or more of the insurer's specified plans of insurance and subject to the conditions stated in section 16-171-404, the 2001 CSO Mortality Table may be used as the minimum standard for policies issued on or after January 1, 2005, and in sections 431:5-307 and 431:10D-104, as applicable. If the insurer elects to use the 2001 CSO Mortality Table, it shall do so for both valuation and nonforfeiture purposes.

(b) Subject to the conditions stated in section 16-171-404, insurers shall use the 2001 CSO Mortality Table in determining minimum standards for policies issued on and after January 1, 2009, in sections 431:5-307 and 431:10D-104, HRS. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS 431:2-201, 431:5-401) (Imp: HRS 431:5-307(c)(2)(A), 431:10D-104(e)(8)(G)(vii))

§16-171-404 <u>Conditions.</u> (a) For each plan of insurance with separate rates for smokers and nonsmokers an insurer may use:

- (1) Composite mortality tables to determine minimum reserve liabilities, minimum cash surrender values, and amounts of paid-up nonforfeiture benefits;
- (2) Smoker and nonsmoker mortality tables to determine the valuation net premiums and additional minimum reserves, if any, required by sections 431:5-307 and 431:10D-104, HRS, and use composite mortality tables to determine the basic minimum reserves, minimum cash surrender values and amounts of paid-up nonforfeiture benefits; or
- (3) Smoker and nonsmoker mortality to determine minimum reserve liabilities, minimum cash surrender values, and amounts of paid-up nonforfeiture benefits.

(b) For plans of insurance without separate rates for smokers and nonsmokers, the insurers shall use the composite mortality tables.

(c) For the purpose of determining minimum reserve liabilities, minimum cash surrender values, and amounts of paid-up nonforfeiture benefits, the 2001 CSO Mortality Table may, at the option of the insurer for each plan of insurance, be used in its select and ultimate form.

(d) When the 2001 CSO Mortality Table is the minimum reserve standard for any plan for an insurer, the actuarial opinion in the annual statement filed by the insurer with the commissioner shall be based on an asset adequacy analysis as specified in sections 431:5-307 and 431:10D-104, HRS. Upon application, the commissioner may exempt an insurer from this requirement only if it does business in this State and in no other state. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS \$431:2-201, 431:5-401) (Imp: HRS \$431:5-307(c)(2)(A), 431:10D-104(e)(8)(G)(vii))

§16-171-405 <u>Gender-blended tables.</u> (a) For any ordinary life insurance policy delivered or issued for delivery in this State on and after January 1, 2005, that utilizes the same premium rates and charges for male and female lives or is issued in circumstances where applicable law does not permit distinctions on the basis of gender, a mortality table that is a blend of the 2001 CSO Mortality Table (M) and the 2001 CSO Mortality Table (F) may, at the option of the insurer for each plan of insurance, be substituted for the 2001 CSO Mortality Table for use in determining minimum cash surrender values and amounts of paid-up nonforfeiture benefits. No change in minimum valuation standards is implied by this subsection of the subchapter.

(b) The insurer may choose from among the blended tables within the 2001 CSO Mortality Table by the American Academy of Actuaries CSO Task Force and adopted by the NAIC in December 2002.

(c) It shall not, in and of itself, be a violation of article 13 of chapter 431, HRS, for an insurer to issue the same kind of policy of life insurance on both a sexdistinct and sex-neutral basis. [Eff 1/1/05; comp 12/26/06; comp 03/28/08; comp 1/22/10; comp 12/13/12; comp 02/02/17] (Auth: HRS 431:2-201, 431:5-401) (Imp: HRS 431:5-307(c)(2)(A), 431:10D-104(e)(8)(G)(vii))

#### SUBCHAPTER 5

## PREFERRED MORTALITY TABLES FOR USE IN DETERMINING MINIMUM RESERVE LIABILITIES

§16-171-501 <u>Purpose</u>. The purpose of this subchapter is to recognize, permit, and prescribe the use of mortality tables that reflect differences in mortality between

preferred and standard lives in determining minimum reserve liabilities in accordance with sections 431:5-307 and 431:10D-104, HRS. [Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201, 431:5-401) (Imp: HRS §§431:5-307(c), 431:10D-104(e))

§16-171-502 Definitions. As used in this subchapter:

"2001 CSO Mortality Table" means that mortality table, consisting of separate rates of mortality for male and female lives, developed by the American Academy of Actuaries CSO Task Force from the Valuation Basic Mortality Table developed by the Society of Actuaries Individual Life Insurance Valuation Mortality Task Force and adopted by the NAIC in December 2002. The 2001 CSO Mortality Table is included in the Proceedings of the NAIC (2<sup>nd</sup> Quarter 2002) and supplemented by the 2001 CSO Preferred Class Structure Mortality Table. Unless indicated otherwise, the 2001 CSO Mortality Table includes:

- (1) Both the ultimate form of that table and the select and ultimate form of that table;
- (2) Both the smoker and nonsmoker mortality tables and the composite mortality tables;
- (3) Both the age-nearest-birthday and age-last-birthday bases of the mortality tables;
- (4) The "2001 CSO Mortality Table (F)" that consists of the rates of mortality for female lives from the 2001 CSO Mortality Table;
- (5) The "2001 CSO Mortality Table (M)" that consists of the rates of mortality for male lives from the 2001 CSO Mortality Table;
- (6) The "Composite mortality tables" that consist of tables with rates of mortality that do not distinguish between smokers and nonsmokers; and
- (7) The "Smoker and nonsmoker mortality tables" that consist of mortality tables with separate rates of mortality for smokers and nonsmokers.

"2001 CSO Preferred Class Structure Mortality Table" means mortality tables with separate rates of mortality for Super Preferred Nonsmokers, Preferred Nonsmokers, Residual Standard Nonsmokers, Preferred Smokers, and Residual Standard Smoker splits of the 2001 CSO Nonsmoker and Smoker tables as adopted by the NAIC at the September 2006 national meeting and published in the NAIC Proceedings (3<sup>rd</sup> Quarter 2006). Unless the context indicates otherwise, the 2001 CSO Preferred Class Structure Mortality Table includes:

- (1) Both the ultimate form of that table and the select and ultimate form of that table;
- (2) Both the smoker and nonsmoker mortality tables found in the 2001 CSO Mortality Table;

- (3) Both the male and female mortality tables and the gender composite mortality tables found in the 2001 CSO Mortality Table; and
- (4) Both the age-nearest-birthday and age-last-birthday bases of the mortality table found in the 2001 CSO Mortality Table.

"CSO" means Commissioners' Standard Ordinary.

"NAIC" means the National Association of Insurance Commissioners.

"Statistical agent" means an entity with proven systems for protecting the confidentiality of individual insured and insurer information, demonstrated resources for and history of ongoing electronic communications and data transfer ensuring data integrity with insurers, which are its members or subscribers, and a history of and means for aggregation of data and accurate promulgation of the experience modifications in a timely manner. [Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201, 431:5-401) (Imp: HRS §§431:5-307(c), 431:10D-104(e))

§16-171-503 2001 CSO Preferred Class Structure Table. (a) At the election of insurer, for each calendar year of issue, for any one or more specified plans of insurance and subject to satisfying the conditions stated in this subchapter, the 2001 CSO Preferred Class Structure Mortality Table may be substituted in place of the smoker and nonsmoker mortality tables, found in the 2001 CSO Mortality Table, as the minimum valuation for policies issued.

(b) No such election shall be made until the insurer demonstrates at least twenty per cent of the business to be valued on this table is in one or more of the preferred classes.

(c) A table from the 2001 CSO Preferred Class Structure Mortality Table used in place of a 2001 CSO Mortality Table, pursuant to the requirements of this section, will be treated as part of the 2001 CSO Mortality Table only for purposes of reserve valuation pursuant to the requirements of subchapter 4, title 16, chapter 171, HAR. [Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS \$431:2-201, 431:5-401) (Imp: HRS \$\$431:5-307(c), 431:10D-104(e))

§16-171-504 <u>Conditions.</u> (a) For each plan of insurance with separate rates for preferred and standard nonsmoker lives, an insurer may use the Super Preferred Nonsmoker, Preferred Nonsmoker, and Residual Standard Nonsmoker tables to substitute for the nonsmoker mortality table found in the 2001 CSO Mortality Table to determine minimum reserves. At the time of election and annually thereafter, except for business valued under the Residual Standard Nonsmoker Table, the appointed actuary shall certify that:

- (1) The present value of death benefits over the next ten years after the valuation date, using the anticipated mortality experience without recognition of mortality improvement beyond the valuation date for each class, is less than the present value of death benefits using the valuation basic table corresponding to the valuation table being used for that class; and
- (2) The present value of death benefits over the future life of the contracts, using anticipated mortality experience without recognition of mortality improvement beyond the valuation date for each class, is less than the present value of death benefits using the valuation basic table corresponding to the valuation table being used for that class.

(b) For each plan of insurance with separate rates for preferred and standard smoker lives, an insurer may use the Preferred Smoker and Residual Standard Smoker tables to substitute for the smoker mortality table found in the 2001 CSO Mortality Table to determine minimum reserves. At the time of election and annually thereafter, for business valued under the Preferred Smoker Table, the appointed actuary shall certify that:

- (1) The present value of death benefits over the next ten years after the valuation date, using the anticipated mortality experience without recognition of mortality improvement beyond the valuation date for each class, is less than the present value death benefits using the preferred smoker valuation basic table corresponding to the valuation table being used for that class; and
- (2) The present value of death benefits over the future life of the contracts, using anticipated mortality experience without recognition of mortality improvement beyond the valuation date for each class, is less than the present value of death benefits using the preferred smoker valuation basic table.

(c) Unless exempted by the commissioner, every authorized insurer using the 2001 CSO Preferred Class Structure Mortality Table shall annually file with the commissioner, the NAIC, or a statistical agent designated by the NAIC and acceptable to the commissioner may deem necessary or expedient for the administration of the provisions of this section. The form of the reports shall be established by the NAIC or by a statistical agent designated by the NAIC and acceptable to the commissioner. [Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201, 431:5-401) (Imp: HRS §§431:5-307(c), 431:10D-104(e))

#### SUBCHAPTER 6

#### MILITARY SALES PRACTICES

§16-171-601 <u>Purpose and authority.</u> (a) The purpose of this subchapter is to protect active duty service members of the United States Armed Forces from dishonest and predatory insurance sales practices by declaring certain identified practices to be false, misleading, deceptive, or unfair.

(b) Nothing herein shall be construed to create or imply a private cause of action for a violation of this subchapter.

(c) This subchapter is adopted under the authority of section 431:2-201.8, HRS. [Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §431:2-201, 431:2-201.8) (Imp: HRS §431:1-201.8)

§16-171-602 Definitions. As used in this subchapter:

"Active duty" means full-time duty in the active military service of the United States Armed Forces, National Guard, and reserves while serving under published orders for active service or full-time training. The term does not include members of the National Guard and reserves who are performing active duty or active duty for training under military calls or orders specifying periods of less than thirty-one calendar days.

"Department of Defense, "DD", or "DoD" means all active duty service members and all civilian employees, including nonappropriated fund employees and special government employees of that government agency.

"Door to door" means a solicitation or sales method whereby an insurance producer or insurer proceeds randomly or selectively from household to household without prior specific appointment.

"General advertisement" means an advertisement having as its sole purpose the promotion of the reader's or viewer's interest in the concept of insurance, or the promotion of the insurer or the insurance producer.

"Insurance producer" means a person required to be licensed under the laws of the State of Hawaii to sell, solicit, or negotiate life insurance, including annuities.

"Insurer" means an insurance company required to be licensed under the laws of the State of Hawaii to provide life insurance products, including annuities.

"IRC" means the Internal Revenue Code.

"Known" or "knowingly", depending on its use herein, means the insurance producer or insurer had actual awareness, or in the exercise of ordinary care should have known at the time of the act or practice complained of, that the person solicited:

(1) Is a service member; or

(2) Is a service member with a pay grade of E-4 or below.

"Life insurance" means insurance coverage on human lives, including benefits of endowments and annuities, and may include benefits in the event of death or dismemberment by accident and benefits for disability income and, unless otherwise specifically excluded, includes individually issued annuities.

"Military installation" means any federally owned, leased, or operated base, reservation, post, camp, building, or other facility to which service members are assigned for duty, including barracks, transient housing, and family quarters.

"MyPay" is a Defense Finance and Accounting Service web-based system that enables service members to process certain discretionary pay transactions or provide updates to personal information data elements without using paper forms.

"Service member" means any active duty officer, commissioned and warrant, or enlisted member of the United States Armed Forces.

"SGLI" means a contract offered by Servicemembers' Group Life Insurance, as authorized by 38 U.S.C. section 1965 *et seq.* 

"Side fund" means an account or reserve that is part of or otherwise attached to a life insurance policy, excluding individually issued annuities by rider, endorsement, or other means. The term "side fund" does not include:

- (1) Accumulated value or cash value or secondary guarantees provided by a universal life policy;
- (2) Cash values provided by a whole life policy which are subject to standard nonforfeiture law for life insurance; or
- (3) A premium deposit fund which:
  - (A) Contains only premiums paid in advance which accumulate at interest;
  - (B) Imposes no penalty for withdrawal;
  - (C) Does not permit funding beyond future required premiums;
  - (D) Is not marketed or intended as an investment; and
  - (E) Does not carry a commission, either paid or calculated.

"Solicitation" means the sale or negotiation of any life insurance or annuity product by an insurer of insurance producer in this State.

"Specific appointment" means a prearranged appointment agreed upon by an insurer or a producer and a service member at a definite place and time.

"United States Armed Forces" means all components of the United States army, navy, air force, marine corps, and coast guard.

"VGLI" means a contract offered by Veterans' Group Life Insurance, as authorized by 38 U.S.C. section 1965 *et seq.* (Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS 431:2-201; 431:2-201.8) (Imp: HRS 431:1-201.8)

§16-171-603 <u>Scope and exemptions.</u> (a) This subchapter shall apply only to the solicitation or sale of any life insurance or annuity product by an insurer or insurance producer to an active duty service member of the United States Armed Forces.

- (b) This subchapter shall not apply to solicitations or sales involving:
- (1) Credit insurance;
- (2) Group life insurance or group annuities where there is no in-person, face-to-face solicitation of individuals by an insurance producer or insurer or where the contract or certificate does not include a side fund;
- (3) An application to the existing insurer that issued the existing policy or contract when a contractual change or a conversion privilege is being exercised, when the existing policy or contract is being replaced by the same insurer pursuant to a program filed with and approved by the commissioner or when a term conversion privilege is exercised among corporate affiliates;
- (4) Individual stand-alone health policies, including disability income policies;
- (5) Except as provided herein, contract offered by SGLI or VGLI, as authorized by 38 U.S.C. section 1965 *et seq*.;
- (6) Life insurance contracts offered through or by a non-profit military association, qualifying under section 501(c)(23) of the IRC, and which are not underwritten by an insurer; or
- (7) Contracts used to fund:
  - (A) An employee pension or welfare benefit plan that is covered by the Employee Retirement and Income Security Act ("ERISA");
  - (B) A plan described by sections 401(a), 401(k), 403(b), 408(k), and 408 (p) of the IRC, as amended, if established or maintained by an employer;
  - (C) A government or church plan defined in section 414 of the IRC, a government or church welfare benefit plan, or a deferred compensation plan of a state or local government or tax-exempt organization under section 457 of the IRC;
  - (D) A nonqualified deferred compensation arrangement established or maintained by an employer or a plan sponsor;
  - (E) Settlements or assumptions or liabilities associated with personal injury litigation or any dispute or claim resolution process; or
  - (F) Prearranged funeral contracts.
- (8) Nothing herein shall be construed to abrogate the ability of nonprofit organizations or other organizations to educate members of the United

States Armed Forces in accordance with Department of Defense DoD Instruction 1344.07, Personal Commercial Solicitation on DoD Installations, or successor directive.

(9) For purposes of this regulation, general advertisements, direct mail and internet marketing shall not constitute "solicitation". Telephone marketing shall not constitute "solicitation" provided the caller explicitly and conspicuously discloses that the product concerned involves life insurance or an annuity and makes no statements that preclude a clear and unequivocal understanding that life insurance or any annuity is the only subject matter of the solicitation. Provided, however, that nothing in this subsection shall be construed to relieve an insurer or insurance producer from this regulation in any in-person, face-to-face meeting established as a result of the "solicitation" exemptions identified in this subsection. [Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201, 431:2-201.8) (Imp: HRS §431:1-201.8)

§16-171-604 <u>Practices declared false, misleading, deceptive, or unfair on a</u> <u>military installation.</u> (a) The following acts or practices when committed on a military installation by an insurer or insurance producer with respect to the in-person, face-toface solicitation of life insurance are declared to be false, misleading, deceptive, or unfair:

- (1) Knowingly soliciting the purchase of any life insurance product "door to door" or without first establishing a specific appointment for each meeting with the prospective purchaser;
- (2) Soliciting service members in a group or "mass" audience or in a "captive" audience where attendance is not voluntary;
- (3) Knowingly making appointments with or soliciting service members during their normally scheduled duty hours;
- (4) Making appointments with or soliciting service members in barracks, day rooms, unit areas, transient personnel housing, or other areas where the installation commander has prohibited solicitation;
- (5) Soliciting the sale of life insurance without first obtaining permission from the installation commander or the commander's designee;
- (6) Posting unauthorized bulletins, notices, or advertisements;
- (7) Failing to present DD Form 2885, Personal Commercial Solicitation Evaluation, to service members solicited or encouraging service members solicited not to complete or submit form DD 2885; or
- (8) Knowingly accepting an application for life insurance or issuing a policy of life insurance on the life of an enlisted member of the United

States Armed Forces without first obtaining for the insurer's files a completed copy of any required form which confirms that the applicant has received counseling or fulfilled any other similar requirement for the sale of life insurance established by regulations, directives, or rules of the DoD or any branch of the Armed Forces.

(b) The following acts or practices when committed on a military installation by an insurer or insurance producer constitute a corrupt practice, improper influence, or inducement and are declared to be false, misleading, deceptive or unfair:

- (1) Using DoD personnel, directly or indirectly, as a representative or agent in any official or business capacity with or without compensation with respect to the solicitation or sale of life insurance to service members; or
- Using an insurance producer to participate in any United States Armed Forces sponsored education or orientation program. (Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201; 431:2-201.8) (Imp: HRS §431:1-201.8)

§16-171-605 <u>Practices declared false, misleading, deceptive, or unfair</u> regardless of location. (a) The following acts or practices by an insurer or insurance producer constitute a corrupt practice, improper influence, or inducement and are declared to be false, misleading, deceptive, or unfair. They include, but are not limited to:

- (1) Submitting, processing or assisting in the submission or processing of any allotment form or similar device used by the United States Armed Forces to direct a service member's pay to a third party for the purchase of life insurance. The foregoing includes, but is not limited to, using or assisting in using a service member's "MyPay" account or other similar internet or electronic medium for that purpose. This subsection does not prohibit assisting a service member by providing insurer or premium information necessary to complete any allotment form;
- (2) Knowingly receiving funds from a service member for the payment of premium from a depository institution with which the service member has no formal banking relationship. For purposes of this section, a formal banking relationship is established when the depository institution:
  - (A) Provides the service member with a deposit agreement and periodic statements and makes the disclosures required by the Truth in Savings Act, 12 U.S.C. section 4301 *et seq.* and the regulations promulgated thereunder; and

- (B) Permits the service member to make deposits and withdrawals unrelated to the payment of processing of insurance premiums;
- (3) Employing any device or method or entering into any agreement whereby funds received from a service member by allotment for the payment of insurance premiums are identified on the service member's Leave and Earnings Statement or equivalent or successor form as "Savings" or "Checking" and where the service member has no formal banking relationship as defined in paragraph (2);
- (4) Entering into any agreement with a depository institution for the purpose of receiving funds from a service member whereby the depository institution, with or without compensation, agrees to accept direct deposits from a service member with whom it has no formal banking relationship;
- (5) Using DoD personnel, directly or indirectly, as a representative or agent in any official or unofficial capacity with or without compensation with respect to the solicitation or sale of life insurance to service members who are junior in rank or grade, or to the family member of those service members;
- (6) Offering or giving anything of value, directly or indirectly, to DoD personnel to procure their assistance in encouraging, assisting or facilitating the solicitation or sale of life insurance to another service member;
- (7) Knowingly offering or giving anything of value to a service member with a pay grade of E-4 or below for his or her attendance to any event where an application for life insurance is solicited; or
- (8) Advising a service member with a pay grade of E-4 or below to change his or her income tax withholding or state of legal residence for the sole purpose of increasing disposable income to purchase life insurance.

(b) The following acts or practices by an insurer or insurance producer lead to confusion regarding source, sponsorship, approval, or affiliation and are declared to be false, misleading, deceptive, or unfair. They include, but are not limited to:

(1) Making any representation, or using any device, title, descriptive name, or identifier that has the tendency or capacity to confuse or mislead a service member into believing that the insurer, insurance producer, or product offered is affiliated, connected, or associated with, endorsed, sponsored, sanctioned, or recommended by the United States government, the United States Armed Forces, or any state or federal agency or government entity. Examples of prohibited insurance producer titles include, but are not limited to, "Battalion Insurance Counselor", "Unit Insurance Advisor", "Servicemen's Group Life Insurance Conversion Consultant" or "Veteran's Benefits Counselor".

Nothing herein shall be construed to prohibit a person from using a professional designation awarded after the successful completion of a course of instruction in the business of insurance by an accredited institution of higher learning. These designations include, but are not limited to, Chartered Life Underwriter ("CLU"), Chartered Financial Consultant ("ChFC"), Certified Financial Planner ("CFP"), Master of Science in Financial Services ("MSFS"), or Masters of Science Financial Planning ("MS"); or

(2) Soliciting the purchase of any life insurance product through the use of or in conjunction with any third-party organization that promotes the welfare of or assists members of the United States Armed Forces in a manner that has the tendency or capacity to confuse or mislead a service member into believing that either the insurer, insurance producer, or insurance product is affiliated, connected, or associated with, endorsed, sponsored, sanctioned, or recommended by the United States government, or the United States Armed Forces.

(c) The following acts or practices by an insurer or insurance producer lead to confusion regarding premiums, costs, or investment returns and are declared to be false, misleading, deceptive, or unfair. They include, but are not limited to:

- (1) Using or describing the credited interest rate on a life insurance policy in a manner that implies that the credited interest rate is a net return on premium paid; or
- (2) Excluding individually issued annuities, misrepresenting the mortality costs of a life insurance product, including stating or implying that the product "costs nothing" or is "free".

(d) The following acts or practices by an insurer or insurance producer regarding SGLI or VGLI are declared to be false, misleading, deceptive, or unfair. They include, but are not limited to:

- (1) Making any representation regarding the availability, suitability, amount, cost exclusions or limitations to coverage provided to a service member or dependents by SGLI or VGLI, which is false, misleading, deceptive, or unfair;
- (2) Making any representation regarding conversion requirements, including the costs of coverage, or exclusions or limitations to coverage of SGLI or VGLI to private insurers which is false, misleading, deceptive, or unfair; or

(3) Suggesting, recommending<u></u>, or encouraging a service member to cancel or terminate his or her SGLI policy or issuing a life insurance policy which replaces an existing SGLI policy<u></u>, unless the replacement shall take effect upon or after the service member's separation from the United States Armed Forces.

(e) The following acts or practices by an insurer or insurance producer regarding disclosure are declared to be false, misleading, deceptive, or unfair. They include, but are not limited to:

- (1) Deploying, using, or contracting for any lead generating materials designed exclusively for use with service members that do not clearly and conspicuously disclose that the recipient will be contacted by an insurer or insurance producer, if that is the case, for the purpose of soliciting the purchase of life insurance;
- (2) Failing to disclose that a solicitation for the sale of life insurance will be made when establishing a specific appointment for an in-person, face-to-face meeting with a prospective purchaser;
- (3) Excluding individually issued annuities, failing to clearly and conspicuously disclose the fact that the product being sold is life insurance;
- Failing to make, at the time of sale or offer to individual known to be a service member, the written disclosures required by section 10 of the "Military Personnel Financial Services Protection Act", Pub. L. No. 109-290, at 1323-1324; or
- (5) Excluding individually issued annuities, when the sale is conducted in-person, face-to-face with an individual known to be a service member, failing to provide to the applicant at the time the application is taken:
  - (A) An explanation of any free-look period with instructions on how to cancel if a policy is issued; and
  - (B) Either a copy of the application or a written disclosure. The copy of the application or the written disclosure shall clearly and concisely set out the type of life insurance, the death benefit applied for, and its expected first year cost. A basic illustration that meets the requirements of chapter 431, article 10D, part IV, HRS, shall be deemed sufficient to meet this requirement for a written disclosure.

(f) The following acts or practices by an insurer or insurance producer with respect to the sale of certain life insurance products are declared to be false, misleading, deceptive, or unfair. They include, but are not limited to:

(1) Excluding individually issued annuities, recommending the purchase of any life insurance product which includes a side fund to

a service member in pay grades E-4 and below, unless the insurer has reasonable grounds for believing that the life insurance death benefit, standing alone, is suitable;

- (2) Offering for sale or selling a life insurance product which includes a side fund to a service member in pay grades E-4 and below, who is currently enrolled in SGLI, is presumed unsuitable, unless, after the completion of a needs assessment, the insurer demonstrates that the applicant's SGLI death benefit, together with any other military survivor benefits, savings and investments, survivor income, and other life insurance are insufficient to meet the applicant's insurable needs for life insurance. For the purposes of this paragraph:
  - (A) "Insurable needs" are the risks associated with premature death, taking into consideration the financial obligations and immediate and future cash needs of the applicant's estate, survivors or dependents; and
  - (B) "Other military survivor benefits" include, but are not limited to: the death gratuity, funeral reimbursement, transition assistance, survivor and dependents' educational assistance, dependency and indemnity compensation, TRICARE healthcare benefits, survivor housing benefits and allowances, federal income tax forgiveness, and social security survivor benefits;
- (3) Excluding individually issued annuities, offering for sale or selling any life insurance contract which includes a side fund:
  - (A) Unless interest credited accrues from the date of deposit to the date of withdrawal and permits withdrawals without limit or penalty;
  - (B) Unless the applicant has been provided with a schedule of effective rates of return based upon cash flows of the combined product. For this disclosure, the effective rate of return will consider all premiums and cash contributions made by the policyholder and all cash accumulations and cash surrender values available to the policyholder in addition to life insurance coverage. This schedule will be provided for at least each policy year from one to ten and for every fifth policy year thereafter ending at age one hundred, policy maturity, or final expiration; and
  - (C) Which by default diverts or transfers funds accumulated in the side fund to pay, reduce, or offset any premiums due;

- (4) Excluding individually issued annuities, offering for sale or selling any life insurance contract which, after considering all policy benefits, including but not limited to endowment, return of premium, or persistency, does not comply with standard nonforfeiture law for life insurance; or
- (5) Selling any life insurance product to an individual known to be a service member that excludes coverage if the insured's death is related to war, declared or undeclared, or any act related to military service except for an accidental death coverage, for example, double indemnity, which may be excluded. (Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201; 431:2-201.8) (Imp: HRS §431:1-201.8)

§16-171-606 <u>Severability.</u> If any provision of these sections or the application thereof to any person or circumstance is held invalid for any reason, the invalidity shall not affect the other provisions or any other application of these sections, which can be given effect without the invalid provisions or application. To this end, all provisions of these sections are declared to be severable. [Eff 03/28/08; comp 1/22/10; comp 12/13/12; am and comp 02/02/17] (Auth: HRS §§431:2-201; 431:2-201.8) (Imp: HRS §431:1-201.8)

#### SUBCHAPTER 7 (Reserved)

#### SUBCHAPTER 8-REPEALED

§16-171-801 Repealed. [R 12/13/12]

§16-171-802 Repealed. [R 12/13/12]

§16-171-803 Repealed. [R 12/13/12]

§16-171-804 Repealed. [R 12/13/12]

§16-171-805 Repealed. [R 12/13/12]

§16-171-806 Repealed. [R 12/13/12]

§16-171-807 Repealed. [R 12/13/12]

§16-171-808 Repealed. [R 12/13/12]

## SUBCHAPTER 9

## VALUATION OF LIFE INSURANCE POLICIES

§16-171-901 <u>Purpose</u>. (a)The purpose of this subchapter is to provide:

- (1) Tables of select mortality factors and rules for their use;
- (2) Rules concerning a minimum standard for the valuation of plans with nonlevel premiums or benefits; and
- (3) Rules concerning a minimum standard for the valuation of plans with secondary guarantees.
- (b) The method for calculating basic reserves defined in this

subchapter will constitute the commissioner's reserve valuation method for policies to which this subchapter is applicable. [Eff and comp 02/02/17] (Auth: HRS §§431:5-401, 432:2-201) (Imp: HRS §431:5-307)

§16-171-902 <u>Applicability.</u> (a) This subchapter shall apply to all life insurance policies, with or without nonforfeiture values, and subject to the exceptions and conditions set forth in subsections (b) and (c).

- (b) Exceptions:
- (1) This subchapter shall not apply to any individual life insurance policy issued on or after the effective date of this regulation 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 the effective date of this subchapter, that guarantees the premium rates of the new policy. This subchapter also shall not apply to subsequent policies issued as a result of the exercise of such a provision, or a derivation of the provision, in the new policy;
- (2) This subchapter shall not apply to any universal life policy that meets all of the following requirements:

- (A) The universal life policy has a secondary guarantee period, if any, that is five years or less;
- (B) The specified premium for the secondary guarantee period is not less than the net level reserve premium for the secondary guarantee period based on the CSO valuation tables as defined in section 16-171-903, and the applicable valuation interest rate; and
- (C) The initial surrender charge is not less than one hundred per cent of the first year annualized specified premium for the secondary guarantee period.
- (3) This subchapter shall not apply to any variable life insurance policy or universal life insurance policy that provides for life insurance and the amount or duration of which varies according to the investment experience of any separate account or accounts;
- (4) This subchapter shall not apply to a group life insurance certificate unless the certificate provides for a stated or implied schedule of maximum gross premiums required in order to continue coverage in force for a period in excess of one year.
- (c) Conditions:
- (1) Calculation of the minimum valuation standard for policies other than universal life policies with guaranteed nonlevel gross premiums, guaranteed nonlevel benefits, or both, shall be in accordance with the provisions of section 16-171-905.
- (2) Calculation of the minimum valuation standard for flexible premium and fixed premium universal life insurance policies, which contain provisions resulting in the ability of a policyholder to keep a policy in force over a secondary guarantee period, shall be in accordance with the provisions of section 16-171-906. [Eff and comp 02/02/17] (Auth: HRS §§431:5-401, 432:2-201) (Imp: HRS §431:5-307)

§16-171-903 <u>Definitions</u>. For purposes of this subchapter:

"1980 CSO valuation tables" means the Commissioners' 1980 Standard Ordinary Mortality Table ("1980 CSO Table") without ten-year selection factors, incorporated into the 1980 amendments to the NAIC Standard Valuation Law, and variations of the 1980 CSO Table approved by the NAIC, such as the smoker and nonsmoker versions approved in December 1983.

"Basic reserves" means reserves calculated in accordance with subsection 431:5-307(h), HRS.

"Contract segmentation method" means the method of dividing the period from issuance to mandatory expiration of a policy into successive segments, with the length of each segment being defined as the period from the end of the prior segment (from policy inception for the first segment) to the end of the latest policy year as described in this definition. All calculations are made using the 1980 CSO valuation tables, as defined in this section, or any other valuation mortality table adopted by the NAIC for this purpose and, if elected, the optional minimum mortality standard for deficiency reserves stipulated in section 16-171-904(b).

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 defined as follows:

$$\begin{split} G_t &= \begin{array}{c} GP_{x+k+t} \\ \hline \\ GP_{x+k+t-1} \\ where: \\ x &= & \text{original issue age;} \\ k &= & \text{the number of years from the date of issue to the beginning of the segment;} \\ t &= & 1, 2, ...; t \text{ is reset to 1 at the beginning of each segment;} \\ GP_{x+k+t-1} &= & Guaranteed gross premium per thousand of face amount for year t of the segment, ignoring policy fees only if level for the premium paying period of the policy. \\ \hline \\ R_t &= & \frac{q_{x+k+t}}{q_{x+k+t-1}}, \\ \hline \\ \end{array}$$

less than one:

where:

x, k and t are as defined above; and

 $q_{x+k+t-1} =$  valuation mortality rate for deficiency reserves in policy year k+t but using the mortality of paragraph 16-171-904(b)(2), if section 16-171-904(b)(3), is elected for deficiency reserves.

However, 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.

"Deficiency reserves" means the excess, if greater than zero, of minimum reserves over basic reserves.

"Guaranteed gross premiums" means the premiums under a policy of life insurance that are guaranteed and determined at issue.

"Maximum valuation interest rates" means the interest rates defined in subsection 431:5-307(g), HRS, that are to be used in determining the minimum standard for the valuation of life insurance policies.

"Minimum reserves" means reserves calculated in accordance with subsection 431:5-307(e), HRS.

"Scheduled gross premium" means the smallest illustrated gross premium at issue for other than universal life insurance policies. For universal life insurance policies, scheduled gross premium means the smallest specified premium described in paragraph 16-171-906(a)(3), if any, or else the minimum premium described in paragraph 16-171-906(a)(4).

"Segmented reserves" means reserves calculated using segments produced by the contract segmentation method equal to the present value of all future guaranteed benefits less the present value of all future net premiums to the mandatory expiration of a policy, where 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:

- (1) The present value of the death benefits within the segment, plus;
- (2) The present value of any unusual guaranteed cash value (see subsection 16-171-905(d)) occurring at the end of the segment, less;
- (3) Any unusual guaranteed cash value occurring at the start of the segment, plus;
- (4) For the first segment only, the excess of (A) over (B), as follows:
  - (A) 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 one 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 shall not exceed the net level annual premium on the nineteen-year premium whole life plan of insurance of the same

renewal year equivalent level amount at an age one year higher than the age at issue of the policy;

(B) A net one year term premium for the benefits provided for in the first policy year.

The length of each segment is determined by the "contract segmentation method," as defined in this section. 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. For both basic reserves and deficiency reserves computed by the segmented method, present values shall include future benefits and net premiums in the current segment and in all subsequent segments.

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

"Ten-year select factors" means the select factors adopted with the 1980 amendments to the NAIC Standard Valuation Law.

"Unitary reserves" means the present value of all future guaranteed benefits less the present value of all future modified net premiums, where:

- (1) Guaranteed benefits and modified net premiums are considered to the mandatory expiration of the policy; and
- (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 (A) over (B), as follows:
  - (A) 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 one per year payable on the first and each subsequent anniversary of the policy on which a premium falls due. The net level annual premium, however, shall not exceed the net level annual premium on the nineteen-year premium whole life plan of insurance of the same renewal year equivalent level amount at an age one year higher than the age at issue of the policy; and
  - (B) A net one year term premium for the benefits provided for in the first policy year.

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.

"Universal life insurance policy" means any individual life insurance policy under the provisions of which separately identified interest credits (other than in connection with dividend accumulations, premium deposit funds, or other supplementary accounts) and mortality or expense charges are made to the policy. [Eff and comp 02/02/17] (Auth: HRS §§431:5-401, 432:2-201) (Imp: HRS §431:5-307)

§16-171-904 <u>General calculation requirements for basic reserves and</u> <u>premium deficiency reserves.</u> (a) 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 with select mortality factors, or any other valuation mortality table adopted by the NAIC. If select mortality factors are elected, they may be:

- (1) The ten-year select mortality factors incorporated into the 1980 amendments to the NAIC Standard Valuation Law;
- (2) The select mortality factors in the Appendix A entitled "Select Mortality Factors" dated October 2009, located at the end of this chapter; or
- (3) Any other table of select mortality factors adopted by the NAIC for the purpose of calculating basic reserves.

(b) 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 with select mortality factors, or any other valuation mortality table adopted by the NAIC. If select mortality factors are elected, they may be:

- (1) The ten-year select mortality factors incorporated into the 1980 amendments to the NAIC Standard Valuation Law;
- (2) The select mortality factors in the Appendix A of this regulation;
- (3) For durations in the first segment, X per cent of the select mortality factors in the Appendix A, subject to the following:
  - (A) X may vary by policy year, policy form, underwriting classification, issue age, or any other policy factor expected to affect mortality experience;

- (B) X is such that, when using the valuation interest rate used for basic reserves, (i) is greater than or equal to (ii) below:
  - (i) The actuarial present value of future death benefits, calculated using the mortality rates resulting from the application of X; and
  - (ii) The actuarial present value of future death benefits calculated using anticipated mortality experience without recognition of mortality improvement beyond the valuation date;
- (C) 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 five years after the valuation date;
- (D) The appointed actuary shall increase X at any valuation date where it is necessary to continue to meet all the requirements of this paragraph;
- (E) The appointed actuary may decrease X at any valuation date as long as X continues to meet all the requirements of this paragraph;
- (F) The appointed actuary shall specifically take into account the adverse effect on expected mortality and lapse of any anticipated or actual increase in gross premiums;
- (G) If X is less than one hundred per cent at any duration for any policy, the following requirements shall be met:
  - The appointed actuary shall annually prepare an actuarial opinion and a memorandum for the company in accordance with the requirements of section 16-169-2;
  - (ii) The appointed actuary shall disclose in the Regulatory Asset Adequacy Issues Summary the impact of the insufficiency of assets to support the payment of benefits and expenses and the establishment of statutory reserves during one or more interim periods; and
  - (iii) The appointed actuary shall annually opine for all policies subject to this subchapter as to whether the mortality rates resulting from the application of X meet the requirements of this paragraph. 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, and take into account relevant emerging experience; or

(4) Any other table of select mortality factors adopted by the NAIC for the purpose of calculating deficiency reserves.

(c) This subsection applies to both basic reserves and deficiency reserves. Any set of select mortality factors may be used only for the first segment. If the first segment is less than ten years, however, the appropriate ten-year select mortality factors incorporated into the 1980 amendments to the NAIC Standard Valuation Law may be used thereafter through the tenth policy year from the date of issue. In addition, for policies that have reentry provisions, select mortality factors shall not be used in segments beginning after reentry unless a new policy is actually issued.

(d) In determining basic reserves or deficiency reserves, guaranteed gross premiums without policy fees may be used where 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) 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 one 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; or
- (3) Reserves assuming that the policy was issued on the date of the guarantee.

(f) The commissioner may require that the company document the extent of the adequacy of reserves for specified blocks, including, but not limited to, policies issued prior to the effective date of this subchapter. This documentation may include a demonstration of the extent to which aggregation with other non-specified blocks of business is relied upon in the formation of the appointed actuary opinion pursuant to and consistent with the requirements of section 16-169-2. [Eff and comp 02/02/17] (Auth: HRS §§431:5-401, 432:2-201) (Imp: HRS §431:5-

307)

§16-171-905 <u>Calculation of minimum valuation standard for policies, other</u> than universal life policies, with guaranteed nonlevel gross premiums or guaranteed <u>nonlevel benefits.</u> (a) 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, 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; or
- (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.
- (1) The deficiency reserve at any duration shall be calculated:
  - (A) On a unitary basis if the corresponding basic reserve determined by subsection (a) is unitary;
  - (B) On a segmented basis if the corresponding basic reserve determined by subsection (a) is segmented; or
  - (C) On a segmented basis if the corresponding basic reserve determined by subsection (a) is equal to both the segmented reserve and the unitary reserve.
- (2) This subsection shall apply to any policy for which the guaranteed gross premium at any duration is less than the corresponding modified net premium calculated by the method used in determining the basic reserves, but using the minimum valuation standards of mortality as specified in section 16-171-904(b), and rate of interest.
- (3) For the current and all remaining periods, deficiency reserves, if any, shall be calculated for each policy as the excess, if greater than zero, of the quantity A over the basic reserve, where A is obtained as indicated in section 16-171-904(b).
- (4) For deficiency reserves determined on a segmented basis, the quantity A is determined using segment lengths equal to those determined for segmented basic reserves.

(c) If mean reserves are used, the minimum value of basic reserves may not be less than the tabular cost of insurance for the balance of the policy year. If

mid-terminal 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. 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. If select mortality factors are used, however, they shall be the ten-year select factors incorporated into the 1980 amendments of the NAIC Standard Valuation Law. In no case may total reserves, including basic reserves, deficiency reserves, and any reserves held for supplemental benefits that would expire upon contract termination, exclusive of any deduction for policy loans upon termination of the policy, be less than the amount that the policyowner would receive, including the cash surrender value of the supplemental benefits, if any, referred to in subsection (a)(2).

(d) Unusual pattern of guaranteed cash surrender values. The requirements of this subsection are independent of both the segmentation and the unitary process.

- (1) For any policy with an unusual pattern of guaranteed cash surrender values, the reserves actually held prior to the first unusual guaranteed cash surrender value shall 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 shall 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, where:
  - (A) *n* is the number of years from the date of the last unusual guaranteed cash surrender value prior to the valuation date to the earlier of:
    - (i) The date of the next unusual guaranteed cash surrender value, if any, that is scheduled after the valuation date; or
    - (ii) The mandatory expiration date of the policy;
  - (B) The net premium for a given year during the n year period is equal to the product of the net to gross ratio and the respective gross premium; and
  - (C) The net to gross ratio is equal to (i) divided by (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) For purposes of this subsection, 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:
  - (A) One hundred ten per cent of the scheduled gross premium for that year;
  - (B) One hundred ten per cent of one 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; and
  - (C) Five per cent of the first policy year surrender charge, if any.

(e) Optional exemption for yearly renewable term ("YRT") reinsurance. At the option of the company, the following approach for reserves on YRT 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); or
- (3) Deficiency reserves.
  - (A) For each policy year, calculate the excess, if greater than zero, of the valuation net premium over the respective maximum guaranteed gross premium.
  - (B) Deficiency reserves shall never be less than the sum of the present values, at the date of valuation, of the excesses determined in accordance with subparagraph (A).
- (4) For purposes of this subsection, the calculations use the maximum valuation interest rate and the 1980 CSO mortality tables with or without ten-year select mortality factors, or any other table adopted.
- (5) A reinsurance agreement shall be considered YRT reinsurance for purposes of this subsection 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 YRT life insurance policies. At the option of the company, the following approach for reserves for attained-age-based YRT 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); or
- (3) Deficiency reserves.
  - (A) For each policy year, calculate the excess, if greater than zero, of the valuation net premium over the respective maximum guaranteed gross premium.
  - (B) Deficiency reserves shall never be less than the sum of the present values, at the date of valuation, of the excesses determined in accordance with subparagraph (A).
- (4) For purposes of this subsection, the calculations use the maximum valuation interest rate and the 1980 CSO valuation tables with or without ten-year select mortality factors, or any other table adopted.
- (5) A policy shall be considered an attained-age-based YRT life insurance policy for purposes of this subsection if:
  - (A) 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, such that the rate for any given policy at a given attained age of the insured is independent of the year the policy was issued; and
  - (B) 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 YRT policies after an initial period of coverage, the approach of this subsection may be used after the initial period if:
  - (A) The initial period is constant for all insureds of the same sex, risk class, and plan of insurance; or
  - (B) The initial period runs to a common attained age for all insureds of the same sex, risk class, and plan of insurance; and

- (C) After the initial period of coverage, the policy meets the conditions of paragraph (5).
- (7) If this election is made, this approach shall be applied in determining reserves for all attained-age-based YRT life insurance policies issued on or after the effective date of this regulation.

(g) Exemption from unitary reserves for certain *n*-year renewable term life insurance polices. 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 *n*-year periods, including the first period and all renewal periods, where *n* is the same for each period, except that for the final renewal period, *n* may be truncated or extended to reach the expiry age, provided that this final renewal period is less than ten years and less than twice the size of the earlier *n*-year 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 *n*-year periods are not less than the corresponding net premiums based upon the 1980 CSO Table, with or without the ten-year select mortality factors; and
- (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) The insured at issue is age twenty-four or younger;
- (2) Until the insured reaches the end of the juvenile period, which shall occur at or before age twenty-five, the gross premiums and death benefits are level and there are no cash surrender values; and
- (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. [Eff and comp 02/02/17] (Auth: HRS §§431:5-401, 432:2-201) (Imp: HRS §431:5-307)

§16-171-906 <u>Calculation of minimum valuation standard for flexible</u> premium and fixed premium universal life insurance policies that contain provisions resulting in the ability of a policyowner to keep a policy in force over a <u>secondary guarantee period.</u> (a) General.

(1) Policies with a secondary guarantee include:

- (A) 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;
- (B) A policy in which the minimum premium at any duration is less than the corresponding one-year valuation premium, calculated using the maximum valuation interest rate and the 1980 CSO valuation tables, with or without ten-year select mortality factors, or any other table adopted; or
- (C) A policy with any combination of subparagraphs (A) and (B).
- (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 one 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) For purposes of this section, 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 one-year valuation premium means the net one-year premium based upon the original schedule of benefits for a given policy year. The one-year valuation premiums for all policy years are calculated at issue. The select mortality factors defined in section 16-171-904(b)(2), (3), and (4), HAR, may not be used to calculate the one-year valuation premiums.

(6) The one-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. The segments will be determined according to the contract segmentation method as defined in section 16-171-903(b).

(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 section 16-171-905(b), 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:

- (1) The basic reserves for the secondary guarantee plus the deficiency reserve, if any, for the secondary guarantees; or
- (2) The minimum reserves required by other rules or regulations governing universal life plans. [Eff and comp 02/02/17] (Auth: HRS §§431:5-401, 432:2-201) (Imp: HRS §431:5-307)

Amendments to and compilation of chapter 16-171, Hawaii Administrative Rules, on the Summary page dated December 9, 2016, were adopted on November 29, 2016, following a public hearing held on November 29, 2016, after public notices were given in the Honolulu Star-Advertiser, West Hawaii Today, Hawaii Tribune-Herald, The Maui News, and The Garden Island on October 24, 2016.

These rules shall take effect ten days after filing with the Office of the Lieutenant Governor.

/s/ Kathleen Nakasone for GORDON I. ITO Insurance Commissioner

APPROVED AS TO FORM:

Date <u>12/16/16</u>

/s/ Daniel Jacob Deputy Attorney General

APPROVED:

Date <u>12/16/16</u>

/s/ Catherine P. Awakuni Colón CATHERINE P. AWAKUNI COLÓN, Director Commerce and Consumer Affairs

APPROVED:

Date 01/20/17

/s/ David Y. Ige DAVID Y. IGE, Governor State of Hawaii

> January 23, 2017 FILED

#### APPENDIX A: SELECT MORTALITY FACTORS

This appendix contains tables of select mortality factors that are the bases to which the respective percentage of paragraphs 16-171-904(a)(2), (b)(2) and (b)(3) are applied.

The six tables of select mortality factors contained herein include: Table 1 - male aggregate; Table 2 - male nonsmoker; Table 3 - male smoker; Table 4 - female aggregate; Table 5 - female nonsmoker; and Table 6 - female smoker.

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 eighty per cent of the appropriate male table in this appendix, plus twenty per cent of the appropriate female table in this appendix.

Issue Age 0-15	<b>1</b> 100	<b>2</b>	<b>3</b>	4	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>		Male, Du 100	Male, Aggrey Duration 9 10 100 100	Image: Image and the second		0 100 100	12 13 14 00 100 100 1	<b>12 13 14 1</b>	<b>12 13 14 15 1</b>	<b>12 13 14 15 16 1</b> 00 100 100 100 100 100 1	<b>12 13 14 15 16 17 1</b> 00 100 100 100 100 100 100	<b>12 13 14 15 16 17 18 1</b> 00 100 100 100 100 100 100 100
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23	62	63	59	60	62	62	63	63	64	65	65		67		67	67 69	67 69 70	67 69 70 76	67 69 70 76 82	67 69 70 76 82 88
24	60	56	56	59	59	60	61	61	61	64	64		64		66	66 67	66 67 70	66 67 70 76	66 67 70 76 82	66 67 70 76 82 88
25	52	53	55	56	58	58	60	60	60	63	62		63		64	64 67	64 67 69	64 67 69 75	64 67 69 75 81	64 67 69 75 81 88
26	51	52	55	56	58	58	57	61	61	62	63		64		66	66 69	99 69 99	66 69 66 73	66 69 66 73 80	66 69 66 73 80 86
27	51	52	55	57	58	60	61	61	60	63	63		64		67	67 66	67 66 67	67 66 67 74	67 66 67 74 80	67 66 67 74 80 87
28	49	51	56	58	60	60	61	62	62	63	64		66		65	65 66	65 66 68	65 66 68 74	65 66 68 74 81	65 66 68 74 81 87
29	49	51	56	58	60	61	62	62	62	64	64	~	52		66	66 67	66 67 70	66 67 70 76	66 67 70 76 82	66 67 70 76 82 88
30	49	50	56	58	60	60	62	63	63	64	62		3	53 67	67	67	67 68 71	67 68 71	67 68 71 77 83	67 68 71 77 83
31	47	50	56	58	60	62	63	64	64	62	63		9		89	68 70	68 70 72	68 70 72 78	68 70 72 78 83	68 70 72 78 83 89
32	46	49	56	59	60	62	63	66	62	63	66	~	57		70	70 72	70 72 73	70 72 73 78	70 72 73 78 84	70 72 73 78 84 89
33	43	49	56	59	62	63	64	62	65	66	67		70		72	72 73	72 73 75	72 73 75 80	72 73 75 80 85	72 73 75 80 85 90
34	42	47	56	60	62	63	61	63	66	67	70	~ 1	71		73	73 75	73 75 76	73 75 76 81	73 75 76 81 86	73 75 76 81 86 90
35	40	47	56	60	63	61	62	65	67	68	71		73		74	74 76	74 76 76	74 76 76 81	74 76 76 81 86	74 76 76 81 86 90
36	38	42	56	60	59	61	63	65	67	89	70		72		74	74 76	74 76 77	74 76 77 82	74 76 77 82 86	74 76 77 82 86 91
37	38	45	56	57	61	62	63	65	67	89	70		72		74	74 76	74 76 76	74 76 76 81	74 76 76 81 86	74 76 76 81 86 90
38	37	44	53	58	61	62	65	66	67	69	69		73		75	75 76	75 76 77	75 76 77 82	75 76 77 82 86	75 76 77 82 86 91
39	37	41	53	58	62	63	65	65	66	89	69		72		74	74 76	74 76 76	74 76 76 81	74 76 76 81 86	74 76 76 81 86 90
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70	70	70	70	70	70	75	75	52	52	52	53	53	54	54	55	55	55	56	56	56	56	57	58	59	60	60	62	63	64	8		
70	70	70	70	70	70	75	75	75	53	53	55	56	56	56	57	57	57	57	57	57	57	57	59	59	59	61	62	63	64	9	Du	
70	70	70	70	70	70	75	75	75	75	57	58	59	59	61	61	61	61	61	61	61	61	61	60	60	60	62	64	64	96	10	Duration	1991 CBuic
100	100	100	100	100	100	100	100	100	100	100	63	64	66	67	89	67	67	66	66	66	66	65	65	63	63	64	66	66	89	11		, and
100	100	100	100	100	100	100	100	100	100	100	100	67	69	70	72	72	71	71	71	71	69	89	68	67	66	67	67	69	70	12		
100	100	100	100	100	100	100	100	100	100	100	100	100	72	73	74	74	74	72	72	72	72	72	71	71	71	71	72	72	74	13		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	74	75	75	75	74	73	73	73	73	74	74	74	74	74	75	76	14		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	78	76	76	75	75	75	74	74	75	75	77	77	TT	TT	77	15		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	81	81	80	80	80	79	79	80	08	82	82	82	82	82	16		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	98	85	85	85	84	84	85	85	98	98	98	98	98	17		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90	91	91	91	91	91	18		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	95	95	95	95	95	95	95	95	95	95	95	19		
10	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	20+		

Male, Aggregate

Issue									Male, Du	Male, Aggregate Duration	gate									
Age	-	2	ω	4	υ	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
71	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	10
72	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	10
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	1(
75	48	52	55	60	60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	1(
76	48	52	55	60	60	65	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	10
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	1(
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	10
85+	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	10

a	1	2	ω	4	σ	6	7	8	9 10	10	1	12	13	14	5		5 16	$\square$	16	16 17
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	10	쒸		100	100 100	100 100 100
17	100	100	100	100	100	100	100	100	100	100	100	100	100	100	10	ŏ		100	100 100	100 100 100
18	93	95	96	86	99	100	100	90	92	92	92	92	95	95	<u>``</u>	6	96 97		97	97 98
19	80	81	83	98	87	87	79	79	79	81	81	82	83	83	$\sim$	86		89	89 92	89 92 94
20	65	89	69	72	74	69	69	67	69	70	71	71	72	72		75		80	80 85	80 85 90
21	63	66	68	71	66	66	67	66	67	70	70	70	71	71		73		78	78 84	78 84 89
22	62	65	66	62	63	64	64	64	67	89	89	89	70	70		73		78	78 84	78 84 89
23	60	62	58	60	62	62	63	63	64	67	89	89	67	69		71		77	77 83	77 83 88
24	59	55	56	58	59	60	61	61	63	65	67	66	66	69		71		TT	77 83	77 83 88
25	52	53	55	56	58	58	60	60	61	64	64	64	64	67		70		76	76 82	76 82 88
26	51	53	55	56	58	60	61	61	61	63	64	64	66	69		67		74	74 80	74 80 87
27	51	52	55	58	60	60	61	61	62	63	64	66	67	66		67		74	74 80	74 80 87
28	49	52	57	58	60	61	63	62	62	64	66	66	63	66		89		74	74 81	74 81 87
29	49	51	57	60	61	61	62	62	63	64	66	63	65	67		89		74	74 81	74 81 87
30	49	51	57	60	61	62	63	63	63	64	62	63	66	68		70		76	76 82	76 82 88
31	47	50	57	60	60	62	63	64	64	62	63	65	67	70		71		TT	77 83	77 83 88
32	46	50	57	60	62	63	64	64	62	63	65	66	89	71		72		78	78 83	78 83 89
33	45	49	56	60	62	63	64	62	63	65	66	89	71	73		74		79	79 84	79 84 90
34	43	48	56	62	63	64	62	62	65	66	67	70	72	74		74		79	79 84	79 84 90
35	41	47	56	62	63	61	62	63	66	67	68	70	72	74		75		80	80 85	80 85 90
36	40	47	56	62	59	61	62	63	66	67	89	70	72	74		75		80	80 85	06 58 08
37	38	45	56	58	59	61	62	63	66	67	67	69	71	73		74		79	79 84	79 84 90
38	38	45	53	58	61	62	63	65	65	67	89	70	72	74		73		78	78 84	78 84 89
39	37	41	53	58	61	62	63	64	65	67	89	70	71	73		73		78	78 84	78 84 89
40	34	41	53	58	61	62	63	64	64	66	67	69	71	73		72		78	78 83	78 83 89

Table 2 Male, Non-Smo

	Male, Non-SmokerDuration $7$ $8$ $9$ $10$ $11$ $12$ $13$ $1$ $62$ $62$ $63$ $65$ $67$ $69$ $62$ $61$ $61$ $63$ $64$ $66$ $67$ $60$ $60$ $60$ $60$ $62$ $64$ $66$ $59$ $57$ $57$ $57$ $59$ $61$ $63$ $57$ $56$ $55$ $56$ $59$ $61$ $63$ $53$ $53$ $54$ $55$ $57$ $61$ $62$ $50$ $51$ $53$ $54$ $57$ $61$ $62$ $49$ $50$ $51$ $53$ $57$ $61$ $61$ $48$ $49$ $50$ $51$ $53$ $57$ $60$ $61$	Male, Non-Smoker Duration $4$ $5$ $6$ $7$ $8$ $9$ $10$ $11$ $12$ $13$ $14$ $1$ $58$ $61$ $61$ $62$ $62$ $63$ $65$ $67$ $69$ $71$ $58$ $60$ $61$ $62$ $61$ $61$ $62$ $61$ $63$ $65$ $67$ $69$ $71$ $58$ $60$ $61$ $60$ $60$ $60$ $60$ $62$ $64$ $66$ $67$ $69$ $57$ $59$ $60$ $59$ $57$ $57$ $57$ $57$ $59$ $61$ $63$ $66$ $52$ $54$ $55$ $55$ $54$ $55$ $59$ $61$ $63$ $65$ $49$ $51$ $52$ $53$ $53$ $54$ $55$ $57$ $61$ $62$ $63$ $48$ $50$ $51$ $53$ $54$ $55$ $57$ $61$ $61$ $62$ $63$ $42$ $44$ $45$ $48$ $49$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $42$ $44$ $45$ $48$ $49$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $61$	Male, Non-Smoker Duration $4$ 5678910111213141515861616262636567697171586061626161636567697171586061626161636567697171586061626161636667697171586061626163646667697171586061595757575759616366575950575757575961636649515253535455576161626345474849505153576161616262434547485051535760616162624345474850515357606161626243454748505153576061616162624345474850515353	Male, Non-Smoker Duration $4$ 5678910111213141516158616162626365676971717758606162616163656769717177586061606060606062646667697171586061605957575757616263646668697177586061605957575757566769717759606059575757575761636668745254555455555657616162636774485051535457616162636673704244454849505153545760616162627042444548495051535556606061616270424445484950515355566060 <th>Male, Non-SmokerDurationTo tration<math>4</math><math>5</math><math>6</math><math>7</math><math>8</math><math>9</math><math>10</math><math>11</math><math>12</math><math>13</math><math>14</math><math>15</math><math>16</math><math>17</math><math>1</math><math>58</math><math>60</math><math>61</math><math>62</math><math>62</math><math>63</math><math>65</math><math>67</math><math>69</math><math>71</math><math>71</math><math>77</math><math>83</math><math>58</math><math>60</math><math>61</math><math>62</math><math>61</math><math>63</math><math>65</math><math>67</math><math>69</math><math>71</math><math>71</math><math>77</math><math>83</math><math>58</math><math>60</math><math>61</math><math>60</math><math>59</math><math>59</math><math>58</math><math>60</math><math>62</math><math>64</math><math>66</math><math>67</math><math>69</math><math>71</math><math>71</math><math>83</math><math>57</math><math>59</math><math>60</math><math>62</math><math>57</math><math>57</math><math>57</math><math>57</math><math>57</math><math>61</math><math>63</math><math>66</math><math>68</math><math>69</math><math>75</math><math>81</math><math>52</math><math>54</math><math>55</math><math>55</math><math>55</math><math>55</math><math>55</math><math>57</math><math>61</math><math>63</math><math>66</math><math>68</math><math>74</math><math>81</math><math>49</math><math>51</math><math>52</math><math>53</math><math>54</math><math>55</math><math>57</math><math>61</math><math>61</math><math>62</math><math>63</math><math>66</math><math>73</math><math>80</math><math>42</math><math>47</math><math>48</math><math>49</math><math>50</math><math>51</math><math>53</math><math>54</math><math>57</math><math>61</math><math>61</math><math>62</math><math>62</math><math>70</math><math>71</math><math>73</math><math>80</math><math>42</math><math>47</math><math>48</math><math>49</math><math>50</math><math>51</math><math>53</math><math>57</math><math>61</math><math>61</math><math>61</math><math>61</math><math>61</math><math>61</math><math>61</math><math>61</math><math>61</math><math>62</math><math>62</math><math>70</math><math>71</math><math>73</math><math>42</math><th>Male, Non-Smoker DurationDurationDuration<math>4</math>567891011121314151617181<math>58</math>616162626365676971718388<math>58</math>60616060606060626466676971718388<math>57</math>5960605957575759616366686971778388<math>57</math>5960595757575961636668748188<math>52</math>5455545455555961636567748087<math>52</math>5455555455576161626366738086<math>45</math>47484950515354576161616162707785<math>42</math>444547485051535457606161616162707785<math>43</math>4547485051535457606161616162707785<tr< th=""></tr<></th></th>	Male, Non-SmokerDurationTo tration $4$ $5$ $6$ $7$ $8$ $9$ $10$ $11$ $12$ $13$ $14$ $15$ $16$ $17$ $1$ $58$ $60$ $61$ $62$ $62$ $63$ $65$ $67$ $69$ $71$ $71$ $77$ $83$ $58$ $60$ $61$ $62$ $61$ $63$ $65$ $67$ $69$ $71$ $71$ $77$ $83$ $58$ $60$ $61$ $60$ $59$ $59$ $58$ $60$ $62$ $64$ $66$ $67$ $69$ $71$ $71$ $83$ $57$ $59$ $60$ $62$ $57$ $57$ $57$ $57$ $57$ $61$ $63$ $66$ $68$ $69$ $75$ $81$ $52$ $54$ $55$ $55$ $55$ $55$ $55$ $57$ $61$ $63$ $66$ $68$ $74$ $81$ $49$ $51$ $52$ $53$ $54$ $55$ $57$ $61$ $61$ $62$ $63$ $66$ $73$ $80$ $42$ $47$ $48$ $49$ $50$ $51$ $53$ $54$ $57$ $61$ $61$ $62$ $62$ $70$ $71$ $73$ $80$ $42$ $47$ $48$ $49$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $61$ $61$ $61$ $61$ $61$ $62$ $62$ $70$ $71$ $73$ $42$ <th>Male, Non-Smoker DurationDurationDuration<math>4</math>567891011121314151617181<math>58</math>616162626365676971718388<math>58</math>60616060606060626466676971718388<math>57</math>5960605957575759616366686971778388<math>57</math>5960595757575961636668748188<math>52</math>5455545455555961636567748087<math>52</math>5455555455576161626366738086<math>45</math>47484950515354576161616162707785<math>42</math>444547485051535457606161616162707785<math>43</math>4547485051535457606161616162707785<tr< th=""></tr<></th>	Male, Non-Smoker DurationDurationDuration $4$ 567891011121314151617181 $58$ 616162626365676971718388 $58$ 60616060606060626466676971718388 $57$ 5960605957575759616366686971778388 $57$ 5960595757575961636668748188 $52$ 5455545455555961636567748087 $52$ 5455555455576161626366738086 $45$ 47484950515354576161616162707785 $42$ 444547485051535457606161616162707785 $43$ 4547485051535457606161616162707785 <tr< th=""></tr<>
	Male, Non-SmokerDuration $7$ $8$ $9$ $10$ $11$ $12$ $13$ $1$ $62$ $62$ $63$ $65$ $67$ $69$ $62$ $61$ $61$ $63$ $64$ $66$ $67$ $60$ $60$ $60$ $60$ $62$ $64$ $66$ $60$ $59$ $57$ $57$ $57$ $59$ $61$ $57$ $56$ $55$ $56$ $59$ $61$ $63$ $57$ $56$ $55$ $57$ $61$ $63$ $53$ $53$ $54$ $55$ $57$ $61$ $61$ $49$ $50$ $51$ $53$ $57$ $61$ $61$ $48$ $50$ $51$ $53$ $57$ $61$ $61$ $48$ $49$ $50$ $51$ $53$ $56$ $60$ $60$	Male, Non-SmokerDuration $7$ $8$ $9$ $10$ $11$ $12$ $13$ $14$ $1$ $62$ $61$ $61$ $65$ $67$ $69$ $71$ $62$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $60$ $59$ $57$ $57$ $57$ $56$ $65$ $67$ $59$ $57$ $57$ $57$ $57$ $59$ $61$ $63$ $66$ $55$ $54$ $55$ $56$ $57$ $61$ $62$ $63$ $50$ $51$ $53$ $54$ $57$ $61$ $61$ $62$ $63$ $49$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $48$ $49$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $61$	Male, Non-SmokerDuration $7$ $8$ $9$ $10$ $11$ $12$ $13$ $14$ $15$ $1$ $62$ $62$ $63$ $65$ $67$ $69$ $71$ $71$ $62$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $60$ $59$ $57$ $57$ $57$ $57$ $66$ $67$ $69$ $71$ $50$ $57$ $57$ $57$ $57$ $57$ $61$ $63$ $66$ $68$ $57$ $56$ $55$ $56$ $59$ $61$ $63$ $66$ $68$ $50$ $51$ $53$ $54$ $57$ $61$ $62$ $63$ $67$ $48$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $62$ $48$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $61$ $62$	Male, Non-Smoker Duration789101112131415161 $62$ $62$ $63$ $65$ $67$ $69$ $71$ $71$ $77$ $62$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $62$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $60$ $59$ $57$ $57$ $57$ $56$ $67$ $69$ $71$ $77$ $50$ $51$ $53$ $54$ $55$ $57$ $61$ $63$ $66$ $68$ $74$ $50$ $51$ $53$ $57$ $61$ $62$ $63$ $66$ $73$ $74$ $48$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $62$ $70$ $48$ $49$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $62$ $70$	Male, Non-Smoker Duration78910111213141516171 $62$ $62$ $63$ $65$ $67$ $69$ $71$ $71$ $77$ $83$ $62$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $77$ $83$ $62$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $83$ $60$ $60$ $62$ $64$ $66$ $67$ $69$ $71$ $77$ $83$ $60$ $57$ $57$ $57$ $57$ $57$ $61$ $63$ $66$ $68$ $74$ $81$ $57$ $56$ $55$ $56$ $57$ $61$ $61$ $62$ $63$ $67$ $74$ $80$ $53$ $53$ $54$ $55$ $57$ $61$ $61$ $62$ $62$ $70$ $77$ $48$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $62$ $70$ $77$ $48$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $61$ $62$ $70$ $77$ $48$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $62$ $70$ $77$ $48$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $62$ $70$ $77$ $48$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $62$ $70$ <	Male, Non-SmokerDuration $9$ 101112131415161718191 $62$ $63$ $65$ $67$ $69$ $71$ $71$ $77$ $83$ $88$ $94$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $77$ $83$ $88$ $94$ $50$ $59$ $58$ $60$ $62$ $65$ $67$ $69$ $75$ $81$ $88$ $94$ $57$ $57$ $57$ $59$ $61$ $63$ $66$ $68$ $74$ $81$ $88$ $94$ $56$ $55$ $56$ $59$ $61$ $63$ $65$ $67$ $74$ $80$ $87$ $93$ $54$ $55$ $57$ $61$ $61$ $62$ $63$ $66$ $73$ $80$ $86$ $93$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $61$ $61$ $62$ $70$ $77$ $85$ $92$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $62$ $70$ $77$ $85$ $92$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $62$ $70$ $77$ $85$ $92$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $62$ $70$ $77$ $85$ $92$ $50$ $53$ $57$ $60$ $61$ $61$ $62$ $70$ $77$ $85$ $92$ </td
U1	Male, Non-SmokerDuration $8$ 9101112131 $62$ $63$ $65$ $67$ $69$ $61$ $61$ $63$ $64$ $66$ $67$ $59$ $59$ $59$ $61$ $62$ $64$ $57$ $57$ $57$ $59$ $61$ $63$ $56$ $55$ $56$ $59$ $61$ $63$ $51$ $53$ $54$ $55$ $57$ $61$ $62$ $50$ $51$ $53$ $54$ $57$ $61$ $61$ $50$ $51$ $53$ $57$ $61$ $61$ $50$ $51$ $53$ $57$ $61$ $61$ $50$ $51$ $53$ $57$ $61$ $61$ $49$ $50$ $53$ $56$ $60$ $60$	Male, Non-SmokerDuration $8$ 910111213141 $62$ $63$ $65$ $67$ $69$ $71$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $50$ $57$ $57$ $57$ $59$ $61$ $63$ $57$ $57$ $57$ $59$ $61$ $63$ $66$ $56$ $55$ $56$ $59$ $61$ $63$ $65$ $51$ $53$ $54$ $57$ $61$ $62$ $63$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $49$ $50$ $51$ $53$ $57$ $60$ $61$ $61$	Male, Non-SmokerDuration $8$ 91011121314151 $61$ $61$ $65$ $67$ $69$ $71$ $71$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $50$ $57$ $57$ $57$ $59$ $61$ $63$ $66$ $68$ $54$ $54$ $55$ $56$ $57$ $61$ $63$ $66$ $68$ $51$ $53$ $54$ $57$ $61$ $61$ $62$ $63$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $61$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $62$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $62$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $62$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $62$	Male, Non-SmokerDuration $8$ 9101112131415161 $61$ $61$ $65$ $67$ $69$ $71$ $71$ $77$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $77$ $50$ $57$ $57$ $57$ $59$ $61$ $63$ $66$ $68$ $69$ $56$ $55$ $56$ $59$ $61$ $63$ $66$ $68$ $74$ $51$ $53$ $54$ $57$ $61$ $61$ $62$ $63$ $66$ $73$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $62$ $70$ $49$ $50$ $53$ $57$ $60$ $61$ $61$ $62$ $70$	Male, Non-SmokerDuration $8$ 910111213141516171 $62$ $63$ $65$ $67$ $69$ $71$ $71$ $71$ $83$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $83$ $60$ $60$ $62$ $64$ $66$ $68$ $69$ $71$ $77$ $83$ $57$ $57$ $57$ $57$ $59$ $61$ $63$ $66$ $68$ $74$ $81$ $56$ $55$ $56$ $59$ $61$ $63$ $65$ $67$ $74$ $80$ $51$ $53$ $54$ $55$ $57$ $61$ $61$ $62$ $62$ $70$ $77$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $62$ $70$ $77$ $49$ $50$ $53$ $57$ $60$ $61$ $61$ $62$ $70$ $77$ $49$ $50$ $53$ $57$ $60$ $61$ $61$ $62$ $70$ $77$	Male, Non-SmokerDuration $8$ 9101112131415161718192 $62$ $63$ $65$ $67$ $69$ $71$ $71$ $71$ $83$ $88$ $94$ $61$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $83$ $88$ $94$ $50$ $57$ $57$ $57$ $59$ $61$ $63$ $66$ $68$ $69$ $75$ $81$ $88$ $94$ $57$ $57$ $57$ $59$ $61$ $63$ $66$ $68$ $74$ $81$ $87$ $93$ $54$ $55$ $57$ $61$ $61$ $62$ $63$ $66$ $73$ $80$ $87$ $93$ $51$ $53$ $54$ $57$ $61$ $61$ $62$ $62$ $70$ $77$ $85$ $92$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $62$ $70$ $77$ $85$ $92$ $50$ $51$ $53$ $57$ $61$ $61$ $61$ $62$ $70$ $77$ $85$ $92$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $61$ $62$ $70$ $77$ $85$ $92$ $50$ $51$ $53$ $57$ $60$ $61$ $61$ $61$ $62$ $70$ $77$ $85$ $92$ $50$ $53$ $56$ $60$ $61$ $61$ $62$ <td< td=""></td<>
<b>5 6 6 6 6 6 6 6 6 6 6</b>	Male, Non-SmokerDuration910111213163656769616364666760606264665958606265575759616354555761625354576162515457616150535761615053566060	Male, Non-SmokerDuration910111213141 $63$ $65$ $67$ $69$ $71$ $61$ $63$ $64$ $66$ $67$ $69$ $60$ $62$ $64$ $66$ $67$ $69$ $59$ $58$ $60$ $62$ $65$ $67$ $57$ $57$ $59$ $61$ $63$ $66$ $55$ $56$ $59$ $61$ $63$ $65$ $54$ $55$ $57$ $61$ $62$ $63$ $51$ $54$ $57$ $61$ $61$ $61$ $51$ $53$ $57$ $60$ $61$ $61$ $50$ $53$ $57$ $60$ $61$ $61$	Male, Non-SmokerDuration91011121314151 $63$ $65$ $67$ $69$ $71$ $71$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $60$ $60$ $62$ $64$ $66$ $68$ $69$ $59$ $58$ $60$ $62$ $65$ $67$ $69$ $57$ $57$ $59$ $61$ $63$ $66$ $68$ $54$ $55$ $57$ $61$ $62$ $63$ $67$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $51$ $53$ $57$ $60$ $61$ $61$ $61$ $51$ $53$ $57$ $60$ $61$ $61$ $62$	Male, Non-SmokerDuration9101112131415161 $63$ $65$ $67$ $69$ $71$ $71$ $77$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $77$ $60$ $60$ $62$ $64$ $66$ $68$ $69$ $71$ $77$ $59$ $58$ $60$ $62$ $65$ $67$ $69$ $71$ $77$ $57$ $57$ $59$ $61$ $63$ $66$ $68$ $74$ $54$ $55$ $57$ $61$ $62$ $63$ $66$ $73$ $54$ $57$ $61$ $62$ $63$ $66$ $73$ $51$ $53$ $57$ $61$ $61$ $61$ $61$ $62$ $50$ $53$ $56$ $60$ $61$ $61$ $62$ $70$	Male, Non-SmokerDuration910111213141516171 $63$ $65$ $67$ $69$ $71$ $71$ $71$ $83$ $61$ $63$ $64$ $66$ $67$ $69$ $71$ $71$ $83$ $60$ $62$ $64$ $66$ $68$ $69$ $71$ $77$ $83$ $59$ $57$ $61$ $62$ $65$ $67$ $69$ $71$ $77$ $83$ $57$ $57$ $59$ $61$ $63$ $66$ $68$ $74$ $81$ $53$ $57$ $61$ $62$ $63$ $66$ $73$ $80$ $51$ $53$ $57$ $61$ $61$ $62$ $62$ $70$ $77$ $50$ $53$ $57$ $61$ $61$ $61$ $61$ $62$ $70$ $77$ $50$ $53$ $57$ $60$ $61$ $61$ $62$ $70$ $77$ $50$ $53$ $57$ $60$ $61$ $61$ $62$ $70$ $77$	Male, Non-Smoker       9     10     11     12     13     14     15     16     17     18     9 $::::::::::::::::::::::::::::::::::::$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
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$\begin{tabular}{ c c c c } \hline & & & & & & & & & & & & & & & & & & $	61 61 62 63 63 65 66 67 69 <b>1</b>	14     1       69     71       67     69       67     69       65     67       63     66       63     65       63     65       63     65       61     61       61     61	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	14     15     16     17     18     19        69     71     71     77     83     88     94       67     69     71     71     77     83     88     94       66     68     69     75     81     88     94       65     67     69     75     81     88     94       63     66     68     74     81     88     94       63     65     67     74     81     87     93       62     63     66     73     80     87     93       62     63     63     70     77     85     92       61     62     63     70     77     84     92       61     61     62     70     77     85     92
$\begin{tabular}{ c c c c c } \hline S & 6 & 7 & 8 & 9 & 10 & 11 & 1 \\ \hline & 61 & 61 & 62 & 62 & 63 & 65 & 65 \\ \hline & 60 & 61 & 62 & 61 & 61 & 63 & 64 \\ \hline & 61 & 60 & 60 & 60 & 60 & 62 \\ \hline & 59 & 60 & 60 & 59 & 58 & 60 & 62 \\ \hline & 59 & 60 & 59 & 57 & 57 & 57 & 59 & 59 \\ \hline & 50 & 57 & 57 & 56 & 55 & 56 & 59 & 59 \\ \hline & 51 & 52 & 53 & 54 & 55 & 57 & 57 & 57 & 59 & 51 & 53 & 54 & 57 & 57 & 57 & 59 & 51 & 53 & 54 & 57 & 57 & 54 & 57 & 57 & 55 & 55$			15 1   71 71   69 69   69 69   67 68   68 66   61 61	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	

85+	84	83	82	81	80	79	78	77	76	75	74	73	72	71	Age	Issue	
100	48	48	48	48	48	48	48	48	48	48	48	48	48	48	1		
100	100	52	52	52	52	52	52	52	52	52	52	52	52	52	2		
100	100	100	55	55	55	55	55	55	55	55	55	55	55	55	3		
100	100	100	100	60	60	60	60	60	60	60	60	60	60	60	4		
100	100	100	100	100	60	60	60	60	60	60	60	60	60	60	5		
100	100	100	100	100	100	65	65	65	65	65	65	65	65	65	6		
100	100	100	100	100	100	100	70	70	70	70	70	70	70	70	7		
100	100	100	100	100	100	100	100	70	70	70	70	70	70	70	8		
100	100	100	100	100	100	100	100	100	70	70	70	70	70	70	9	Dur	Male, Non-Smoker
100	100	100	100	100	100	100	100	100	100	70	70	70	70	70	10	Duration	on-Sm
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	11		oker
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	12		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	13		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	14		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	15		
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	17		
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	19		
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	20+		

Duration	Male, Smoker	Table 3

40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	0-15	Age	Issue
41	45	48	49	52	53	57	60	63	65	68	69	71	73	75	77	87	90	92	95	86	100	100	100	100	100	1	
49	50	55	58	59	60	62	65	67	70	71	72	73	75	TΤ	78	81	92	95	86	100	100	100	100	100	100	2	
63	65	66	70	71	73	74	74	TT	TΓ	78	78	79	78	79	79	82	85	96	66	100	100	100	100	100	100	3	
68	70	70	71	75	77	TT	78	78	81	81	81	82	82	82	82	85	88	90	100	100	100	100	100	100	100	4	
71	72	72	74	74	79	79	79	79	79	81	81	81	82	82	81	84	88	90	95	100	100	100	100	100	100	S	
72	72	74	74	75	75	79	79	81	81	81	82	82	83	83	83	98	68	93	96	100	100	100	100	100	100	9	
73	74	74	75	75	75	75	81	81	82	82	82	83	83	83	83	88	68	93	96	100	100	100	100	100	100	7	
74	74	75	76	76	76	76	76	81	81	81	81	81	82	82	82	98	68	92	95	66	100	100	100	100	100	8	
74	75	76	77	TT	77	TT	TT	76	81	81	81	81	82	83	83	98	90	93	96	66	100	100	100	100	100	6	н
76	TT	78	78	79	79	79	TT	77	76	81	81	82	82	84	85	88	90	95	97	66	100	100	100	100	100	10	Duration
																				100					100	11	n
80	81	81	81	81	82	81	80	80	79	77	TT	82	84	84	84	86	90	93	96	66	100	100	100	100	100	12	
83	84	83	84	83	84	83	83	83	81	80	80	80	84	84	84	86	89	93	96	66	100	100	100	100	100	13	
85	98	85	98	85	98	85	85	83	81	80	80	80	80	85	85	88	90	92	96	66	100	100	100	100	100	14	
86	98	87	98	87	88	87	85	85	83	81	81	81	81	81	98	68	92	93	96	100	100	100	100	100	100	15	
68	89	90	68	90	90	90	88	88	98	85	85	85	85	85	68	91	94	94	97	100	100	100	100	100	100	16	
92	92	92	92	92	93	92	91	91	90	68	89	68	68	68	92	93	95	96	86	100	100	100	100	100	100	17	
94	94	95	94	95	95	95	94	94	93	92	92	92	92	92	94	96	97	97	86	100	100	100	100	100	100	18	
97	97	97	97	97	86	97	97	97	97	96	96	96	96	96	97	86	86	99	66	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	100	100	100	100	100	100	20+	

70	69	68	67	<u> 66</u>	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	4	43	42	41	Age	Issue
48	27	25	25	24	24	24	24	25	25	25	26	26	28	28	29	30	30	32	32	34	34	35	36	37	37	39	39	40	40	1	
52	52	36	35	35	34	34	33	33	33	33	33	33	35	35	35	36	37	40	42	43	45	46	47	48	50	50	50	49	49	2	
55	55	55	45	45	45	45	45	43	43	43	43	43	42	42	42	43	44	46	47	49	51	53	55	58	60	60	62	62	63	3	
60	60	60	60	53	52	51	51	50	49	48	48	48	47	47	47	48	49	50	52	53	56	85	61	63	66	66	67	89	89	4	
60	60	60	60	60	57	57	56	56	55	54	54	54	53	53	53	53	54	54	55	55	58	60	63	65	89	89	69	70	71	J	
65	65	65	65	65	65	57	56	56	55	53	53	54	54	55	55	55	56	56	57	57	59	62	64	67	89	69	69	71	72	9	
70	70	70	70	70	70	75	59	58	57	56	57	56	57	57	59	59	59	60	60	60	61	63	64	66	89	89	70	71	72	7	
70	70	70	70	70	70	75	75	61	59	58	59	59	60	60	61	61	61	61	61	61	62	63	64	66	67	69	70	71	72	8	
70	70	70	70	70	70	75	75	75	63	62	63	63	64	63	65	65	65	63	63	63	63	65	65	66	67	69	70	71	73	9	Male D
70	70	70	70	70	70	75	75	75	75	66	66	67	67	89	67	67	67	67	67	67	67	67	67	67	67	69	71	73	75	10	Male, Smoker Duration
100	100	100	100	100	100	100	100	100	100	100	73	73	74	74	75	74	74	73	73	73	72	72	71	71	69	71	73	75	76	11	_ er
100	100	100	100	100	100	100	100	100	100	100	100	78	78	79	80	80	79	78	78	78	TT	75	75	74	73	74	76	76	78	12	
100	100	100	100	100	100	100	100	100	100	100	100	100	81	83	84	84	83	81	80	80	80	79	79	78	78	79	79	81	81	13	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	85	98	85	85	84	83	81	81	81	81	81	81	81	83	83	84	14	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	90	68	87	85	84	81	83	83	84	84	85	85	85	85	85	15	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	91	90	88	87	85	98	98	87	87	88	88	88	88	88	16	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	92	91	90	68	90	90	90	90	91	91	91	91	91	17	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	94	94	92	93	93	94	94	94	94	94	94	94	18	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	96	97	97	97	97	97	97	97	97	97	19	
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	20+	

	84	83	82	81	80	79	78	77	76	75	74	73	72	71	Age	Issue
100	48	48	48	48	48	48	48	48	48	48	48	48	48	48	1	
100	100	52	52	52	52	52	52	52	52	52	52	52	52	52	2	
100	100	100	55	55	55	55	55	55	55	55	55	55	55	55	3	
100	100	100	100	60	60	60	60	60	60	60	60	60	60	60	4	
100	100	100	100	100	60	60	60	60	60	60	60	60	60	60	σ	
100	100	100	100	100	100	65	65	65	65	65	65	65	65	65	6	
100	100	100	100	100	100	100	70	70	70	70	70	70	70	70	7	
100	100	100	100	100	100	100	100	70	70	70	70	70	70	70	8	
100	100	100	100	100	100	100	100	100	70	70	70	70	70	70	9	Male D
100	100	100	100	100	100	100	100	100	100	70	70	70	70	70	10	Male, Smoker Duration
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	11	ier
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	12	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	13	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	14	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	15	
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	17	
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	19	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	20+	

Table
4

## Female, Aggregate Duration

40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	0-15	Age	Issue
32	34	34	36	36	36	36	36	35	35	35	34	34	34	34	34	39	42	44	47	48	65	83	99	100	100	1	
40	40	41	41	40	40	40	39	39	38	38	38	37	38	38	38	40	45	47	48	50	66	83	100	100	100	2	
45	45	44	47	45	45	45	44	45	43	43	43	43	41	41	41	42	4	48	50	51	89	84	100	100	100	3	
53	53	52	52	53	53	52	52	51	51	50	49	47	47	45	44	44	45	45	51	51	89	84	100	100	100	4	
58	58	57	57	55	59	58	58	56	56	56	54	53	50	49	47	47	47	47	47	51	89	84	100	100	100	J	
65	63	63	62	62	61	63	62	59	58	56	56	53	51	49	47	47	47	47	47	47	89	84	100	100	100	6	
65	66	66	65	65	65	63	64	63	60	59	58	56	54	51	50	50	49	48	48	48	63	86	100	100	100	7	
67	89	89	67	67	67	66	65	66	64	63	60	59	57	56	53	51	51	49	49	48	63	78	100	100	100	8	
68	69	69	89	89	89	67	66	65	67	66	63	62	59	58	56	54	53	53	51	49	64	78	93	100	100	9	Duration
69	69	70	69	70	70	89	67	66	65	67	64	63	60	59	57	56	54	54	53	51	66	79	95	100	100	10	ation
70	70	72	72	74	75	74	72	72	71	70	73	70	69	66	64	64	61	60	57	56	69	82	96	100	100	11	
69	70	71	72	74	74	74	74	72	72	71	70	73	70	69	67	64	64	61	60	57	71	84	97	100	100	12	
70	70	72	73	74	75	76	75	75	74	74	72	70	73	70	69	66	64	63	61	58	72	85	97	100	100	13	
73	73	74	75	75	76	76	76	76	75	75	74	72	70	73	71	69	67	64	64	61	74	88	100	100	100	14	
73	74	75	74	75	75	76	76	76	76	76	75	74	71	70	73	70	69	66	64	63	75	88	100	100	100	15	
78	79	80	79	80	80	81	81	81	81	81	80	79	77	76	78	76	75	73	71	70	80	90	100	100	100	16	
84	84	85	84	85	85	86	98	98	98	86	85	84	83	82	84	82	81	80	78	78	85	93	100	100	100	17	
68	90	90	90	06	90	90	90	90	90	90	90	90	88	88	68	88	88	98	98	85	90	95	100	100	100	18	
95	95	95	95	95	95	95	95	95	95	95	95	95	94	94	95	94	94	93	93	93	95	86	100	100	100	19	
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	20+	

70	69	89	67	99	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	Age	Issue
60	19	19	19	19	19	19	20	20	22	22	22	22	22	22	22	22	23	23	25	25	26	28	28	29	31	31	31	32	32	1	
60	64	25	25	25	25	27	28	28	29	30	30	30	29	29	29	29	30	30	32	32	34	35	35	37	38	39	39	40	40	2	
64	68	89	30	30	30	32	33	33	35	36	36	36	35	35	35	35	36	36	38	38	39	41	41	43	44	45	45	45	45	3	
68	72	72	72	35	35	36	38	39	39	41	41	41	41	41	41	41	41	41	41	41	43	44	46	48	49	50	51	52	53	4	
68	72	72	72	72	39	40	41	41	42	43	44	44	45	45	47	47	47	45	45	46	47	49	49	51	53	54	55	56	57	л	
72	72	72	72	72	72	42	44	45	46	47	48	49	50	51	53	53	51	51	50	50	52	52	54	54	56	85	59	61	63	6	
75	75	75	75	75	75	80	46	47	49	50	51	53	54	56	57	57	56	56	55	55	55	57	57	59	59	61	61	63	64	۲	
75	75	75	75	75	75	80	80	49	50	51	53	56	56	59	61	61	61	61	61	61	61	61	61	62	62	63	65	65	67	8	
80	80	80	80	80	80	80	80	80	52	53	55	57	85	60	61	61	62	62	63	63	63	63	62	63	63	64	65	66	89	9	Duration
80	08	08	08	08	08	08	08	08	08	55	56	57	59	61	61	62	63	65	66	67	67	66	66	65	65	66	66	89	89	10	tion
100	100	100	100	100	100	100	100	100	100	100	59	61	61	62	62	62	65	66	89	69	69	89	89	67	67	67	89	69	69	11	
100	100	100	100	100	100	100	100	100	100	100	100	62	62	63	63	66	66	89	69	72	71	71	69	69	89	89	69	89	69	12	
100	100	100	100	100	100	100	100	100	100	100	100	100	63	64	64	66	89	89	71	72	72	72	71	71	71	71	69	70	69	13	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	67	89	69	72	73	74	75	75	75	TT	TT	77	75	74	74	73	14	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	69	70	72	73	74	74	75	77	77	78	79	78	77	75	74	15	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	76	78	78	79	79	80	82	82	82	83	82	82	80	79	16	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	83	84	84	84	85	98	98	87	87	87	98	85	84	17	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	68	90	90	90	91	91	91	92	91	91	90	90	18	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	95	95	95	95	95	96	96	96	95	95	95	19	
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	20+	

Female, Aggregate

Issue									Dur	Duration										
Age	1	2	ω	4	υ	6	L	8	9	10	11	12	13	14	15	16	17	18	19	20+
71	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
72	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
73	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
74	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
75	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	10
76	60	60	64	89	89	72	75	75	80	100	100	100	100	100	100	100	100	100	100	100
77	60	60	64	89	89	72	75	75	100	100	100	100	100	100	100	100	100	100	100	100
78	60	60	64	89	89	72	75	100	100	100	100	100	100	100	100	100	100	100	100	100
79	60	60	64	89	89	72	100	100	100	100	100	100	100	100	100	100	100	100	100	100
80	60	60	64	89	89	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
81	09	60	64	89	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	10
85+	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	10

Female, Aggregate

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Female, Non-Smoker Duration

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

69 68	68	<i>,</i>	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	Age	Issue
50	13	13	15	15	15	14	16	16	17	17	17	17	18	18	18	18	19	20	21	21	23	23	24	24	26	26	27	27	28	1	
60	64	18	19	19	19	21	20	22	22	23	23	23	23	23	23	24	24	25	26	27	29	30	30	32	33	34	34	35	35	2	
64	89	89	22	23	23	24	24	25	25	26	26	26	28	28	28	29	29	30	30	32	33	35	35	37	38	38	39	39	39	3	
89	72	72	72	25	25	27	28	28	29	30	30	31	31	32	32	32	32	33	34	34	35	37	39	40	42	42	44	44	45	4	
89	72	72	72	72	28	29	30	30	32	32	33	35	35	36	37	37	37	37	37	37	39	40	42	43	45	47	47	49	49	J	
72	72	72	72	72	72	30	32	32	33	34	35	36	38	39	41	41	41	41	41	41	42	44	45	47	48	50	50	52	52	6	
75	75	75	75	75	75	80	34	34	35	36	38	38	41	42	43	43	43	44	44	44	45	47	47	49	51	52	53	54	55	7	
75	75	75	75	75	75	80	08	35	36	38	39	41	42	44	45	45	47	47	48	48	48	49	49	51	51	53	53	55	55	8	
08	80	80	80	80	80	80	08	80	38	39	40	41	44	44	45	47	48	48	49	50	50	50	51	52	52	54	55	56	58	9	Female, Non-Smoker Duration
80	80	80	80	80	08	80	08	80	80	40	41	42	44	45	45	47	48	50	51	53	53	53	53	53	53	55	55	57	57	10	Non-S
100	100	100	100	100	100	100	100	100	100	100	44	45	45	46	46	47	49	50	53	54	54	54	54	54	54	55	56	57	58	11	moker
100	100	100	100	100	100	100	100	100	100	100	100	45	45	46	46	49	49	51	53	55	55	55	55	55	55	55	57	57	59	12	
100	100	100	100	100	100	100	100	100	100	100	100	100	46	46	47	49	51	51	54	55	55	55	56	56	56	56	56	58	58	13	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	49	50	51	52	55	55	56	57	59	59	60	61	61	60	60	59	14	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	50	51	52	53	55	55	56	57	60	61	62	62	61	61	60	15	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	61	62	62	64	64	65	66	89	69	70	70	69	69	89	16	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	71	72	73	73	74	74	76	77	77	77	TT	77	76	17	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	81	82	82	82	83	84	84	85	85	84	84	84	18	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	91	91	91	91	92	92	92	92	92	92	92	19	
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	20+	

Issue									Duration	tion										
Age	-	2	ω	4	ν	6	7	∞	و	10	=	12	13	14	15	16	17	18	19	20+
71	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
72	60	60	64	89	89	72	75	75	80	08	100	100	100	100	100	100	100	100	100	100
73	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
74	60	60	64	89	89	72	75	75	80	08	100	100	100	100	100	100	100	100	100	100
75	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
76	60	60	64	89	68	72	75	75	80	100	100	100	100	100	100	100	100	100	100	100
77	60	60	64	89	89	72	75	75	100	100	100	100	100	100	100	100	100	100	100	100
78	60	60	64	89	89	72	75	100	100	100	100	100	100	100	100	100	100	100	100	100
79	60	60	64	89	89	72	100	100	100	100	100	100	100	100	100	100	100	100	100	100
80	60	60	64	89	89	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
81	60	60	64	89	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, Non-Smoker

## Table 6

### Female, Smoker Duration

40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	0-15	Age	Issue
41	45	47	48	49	51	51	51	51	51	51	51	52	52	53	53	62	65	89	71	74	87	99	100	100	100	1	
50	50	55	55	56	56	56	57	56	56	56	56	56	56	85	58	60	69	71	74	77	89	100	100	100	100	2	
57	57	57	62	62	62	62	62	64	64	64	64	64	63	63	63	64	67	75	78	80	92	100	100	100	100	3	
66	66	66	67	71	71	71	71	71	72	72	71	71	70	69	67	69	70	70	78	80	92	100	100	100	100	4	
72	72	72	74	74	78	78	78	78	78	79	78	75	74	71	69	70	70	71	71	80	92	100	100	100	100	υ	
																				73					100	6	
81	81	81	83	83	83	81	85	85	84	82	81	79	78	75	74	74	73	73	73	73	84	100	100	100	100	7	
83	83	84	84	84	84	83	83	98	84	85	84	82	81	79	78	TT	TT	74	74	73	84	95	100	100	100	8	
84	85	98	85	85	85	85	84	84	88	88	98	85	82	82	81	79	79	78	ТТ	75	98	96	100	100	100	9	Du
85	98	98	98	98	86	98	85	85	84	68	88	98	84	82	82	81	81	79	79	77	98	97	100	100	100	10	Duration
98	98	87	68	06	90	06	06	90	06	90	95	95	93	93	92	92	68	88	85	83	92	100	100	100	100	11	
98	87	88	06	90	91	92	92	90	06	90	90	95	95	93	93	06	06	90	98	83	93	100	100	100	100	12	
98	98	88	68	91	91	92	93	92	92	92	06	90	95	95	93	92	90	68	88	98	95	100	100	100	100	13	
68	68	06	92	93	93	94	93	94	93	93	92	92	90	96	95	93	92	68	68	88	96	100	100	100	100	14	
89	06	91	91	92	93	93	93	93	93	93	92	92	06	06	95	93	92	92	06	90	99	100	100	100	100	15	
91	92	93	93	94	94	94	94	94	94	94	94	94	92	92	96	94	94	94	92	92	99	100	100	100	100	16	
93	94	95	95	95	96	96	96	96	96	96	95	95	94	94	97	96	95	95	94	94	99	100	100	100	100	17	
96	96	96	96	97	97	97	97	97	97	97	97	97	96	96	86	97	97	97	96	96	100	100	100	100	100	18	
86	86	86	86	86	66	66	66	66	66	66	86	86	86	86	66	66	86	86	86	86	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	100	100	100	100	100	100	20+	

,	Female,
•	-
•	Smoker

70	69	89	67	99	65	64	63	62	61	60	59	58	57	56	55	ъ 4	53	52	51	50	49	48	47	46	<b>4</b> 5	44	43	42	41	Age	Issue
60	24	24	24	24	24	25	25	26	26	28	28	28	26	26	26	28	28	29	30	31	33	34	34	36	37	39	39	40	40	1	
60	64	32	32	32	32	33	33	33	35	36	36	36	35	35	35	36	37	38	39	41	42	44	44	46	47	48	49	49	50	2	
64	89	89	39	39	39	40	41	41	42	43	43	43	42	42	42	43	43	45	45	46	48	50	51	53	55	55	55	57	57	ω	
68	72	72	72	44	44	45	46	47	48	49	49	49	49	49	49	49	49	50	51	51	53	54	57	59	61	62	63	65	65	4	
68	72	72	72	72	49	50	51	51	52	53	54	55	55	56	57	57	57	56	56	57	85	60	62	63	65	67	69	69	71	υ	
72	72	72	72	72	72	53	55	55	56	57	57	59	61	62	63	63	62	62	61	61	63	64	66	89	70	71	73	74	76	6	
75	75	75	75	75	75	80	57	58	59	61	63	63	66	67	69	69	89	89	67	67	89	69	70	71	73	75	76	TT	79	7	
75	75	75	75	75	75	80	80	62	63	64	67	89	69	71	73	73	73	74	74	74	74	74	75	75	76	78	78	80	81	8	
08	80	80	80	80	80	08	80	80	66	67	89	69	72	72	73	74	74	75	75	77	TT	TT	TT	TT	78	80	80	82	83	9	Dur
80	80	80	80	80	80	80	80	80	80	69	70	72	73	74	74	75	TT	79	80	81	81	80	08	79	80	80	82	83	84	10	Duration
100	100	100	100	100	100	100	100	100	100	100	76	76	76	76	76	78	79	81	83	85	84	84	83	83	81	82	83	84	85	11	
100	100	100	100	100	100	100	100	100	100	100	100	78	78	78	78	80	81	83	85	87	98	98	85	85	84	84	84	85	98	12	
100	100	100	100	100	100	100	100	100	100	100	100	100	79	79	79	81	83	84	85	87	87	87	98	98	98	98	85	98	85	13	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	85	86	87	68	90	06	91	92	92	93	93	94	93	92	90	68	14	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	87	68	68	90	06	90	91	92	94	96	97	96	93	92	90	15	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	91	91	92	92	92	93	94	95	97	86	97	94	94	92	16	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	93	94	94	94	95	95	96	86	86	86	96	95	94	17	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	96	96	96	96	97	86	86	66	86	97	97	96	18	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	86	86	86	86	99	66	66	99	99	86	86	19	
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	20+	

Issue									Du	Duration										
Age	-	2	ω	4	υ	6	4	~	9	10	Ξ	12	13	14	15	16	17	18	19	20+
71	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
72	60	60	64	68	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
73	60	60	64	89	68	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
74	60	60	64	89	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
75	60	60	64	68	89	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
76	60	60	64	89	89	72	75	75	80	100	100	100	100	100	100	100	100	100	100	100
77	60	60	64	68	89	72	75	75	100	100	100	100	100	100	100	100	100	100	100	_
78	60	60	64	89	68	72	75	100	100	100	100	100	100	100	100	100	100	100	100	100
79	60	60	64	89	68	72	100	100	100	100	100	100	100	100	100	100	100	100	100	1
80	60	60	64	68	89	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
81	60	60	64	89	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	<u> </u>
84	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	<u> </u>
85+	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	<u> </u>

Female, Smoker

#### Appendix

#### SELECT MORTALITY FACTORS

									Male,	Aggre	egate									
Issue											Dur	ation								
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	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	73	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

T								I	Male, J	Aggre										
Issue Age		2	3	4	5	6	7	8	9	10	<u>Dura</u> 11	$\frac{tion}{12}$	13	14	15	16	17	18	19	20+
41	34	41	53	<del>*</del> 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

									Male,	Aggre	egate									
Issue											Dura	tion								
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
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

Issue								N	Iale, N	Non-Si	moker Durat	ion								
	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	93	95	96	98	99	100	100	90	92	92	92	92	95	95	96	97	98	98	99	100
19 20	80	81	83	86	87	87	79	79	79	81 70	81 71	82	83	83	86 75	89	92	94	97	100
	65	68	69	72	74	69	69	67	69			71	72	72		80	85	90	95	100
21 22	63 62	66 65	68 66	71 62	66 63	66 64	67 64	66 64	67 67	70 68	70 68	70 68	71 70	71 70	73 73	78 78	84 84	89 89	95 95	100 100
22	60	62	58	60	62	62	63	63	64	67	68	68	67	69	73	77	83	88	95 94	100
23	59	02 55	56		59	60	61	61	63	65	67	66	66	69	71	77	83	00 88	94 94	100
24	52	53	50 55	58 56	59 58	58	60	60	61	64	64	64	64	67	70	76	82	88	94 94	100
25	51	53	55	56	58	60	61	61	61	63	64	64	66	69	67	74	80	87	94	100
20	51	52		58		60 60		61	62	63		66	67	66	67	74 74	80	87	93	100
21	49	52 52	55 57	58	60	61	61 63	62	62	64	64 66	66	63	66	68	74	81	87	95 94	100
20	49	52 51	57	60	61	61	62	62	63	64	66	63	65	67	68	74	81	87	94 94	100
30	49	51	57	60	61	62	63	63	63	64	62	63	66	68	70	76	82	88	94 94	100
31	49	50	57	60	60	62	63	64	64	62	63	65	67	70	71	77	83	88	94	100
32	46	50	57	60	62	63	64	64	62	63	65	66	68	70	72	78	83	89	94 94	100
33	40	49	56	60	62	63	64	62	63	65	66	68	71	73	74	79	84	90	94 95	100
34	43	48	56	62	63	64	62	62	65	66	67	70	72	74	74	79	84	90	95	100
35	41	47	56	62	63	61	62	63	66	67	68	70	72	74	75	80	85	90	95	100
36	40	47	56	62	59	61	62	63	66	67	68	70	72	74	75	80	85	90	95	100
37	38	45	56	58	59	61	62	63	66	67	67	69	71	73	74	79	84	90	95	100
38	38	45	53	58	61	62	63	65	65	67	68	70	72	74	73	78	84	89	95	100
39	37	41	53	58	61	62	63	64	65	67	68	70	71	73	73	78	84	89	95	100
40	34	41	53	58	61	62	63	64	64	66	67	69	71	73	72	78	83	89	94	100

								N	Iale, N	Non-Si	moker									
Issue											Durat	ion								
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
41	34	41	53	58	61	61	62	62	63	65	65	67	69	71	71	77	83	88	94	100
42	34	43	53	58	60	61	62	61	61	63	64	66	67	69	71	77	83	88	94	100
43	32	43	53	58	60	61	60	60	60	60	62	64	66	68	69	75	81	88	94	100
44	32	44	52	57	59	60	60	59	59	58	60	62	65	67	69	75	81	88	94	100
45	32	44	52	57	59	60	59	57	57	57	59	61	63	66	68	74	81	87	94	100
46	32	42	50	54	56	57	57	56	55	56	59	61	63	65	67	74	80	87	93	100
47	30	40	48	52	54	55	55	54	54	55	59	61	62	63	66	73	80	86	93	100
48	30	40	46	49	51	52	53	53	54	55	57	61	62	63	63	70	78	85	93	100
49	29	39	43	48	50	51	50	51	53	54	57	61	61	62	62	70	77	85	92	100
50	29	37	42	45	47	48	49	50	51	54	57	61	61	61	61	69	77	84	92	100
51	27	35	40	43	45	47	48	50	51	53	57	60	61	61	62	70	77	85	92	100
52	27	34	39	42	44	45	48	49	50	53	56	60	60	62	62	70	77	85	100	100
53	25	31	37	41	44	45	47	49	50	51	56	59	61	61	62	70	77	100	100	100
54	25	30	36	39	43	44	47	48	49	51	55	59	59	61	62	70	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
56	23	29	35	38	42	42	44	47	48	50	55	57	58	59	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
58	22	28	33	37	41	41	43	45	45	47	51	53	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
60	20	26	33	37	41	40	41	42	42	45	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 67	18 18	24 24	32 32	36 60	60 60	65 65	70 70	70 70	70 70	70 70	100 100									
68	18	24 24	32 55	60 60	60 60	65	70	70	70	70	100	100	100	100	100	100	100	100	100	100
69	18	24 52	оо 55	60 60	60 60	65	70 70	70	70	70	100	100	100	100	100	100	100	100	100	100
70	18 48	52 52	ээ 55	60 60	60 60	65	70 70	70 70	70	70 70	100	100	100	100	100	100	100	100	100	100
10	48	52	99	00	60	60	10	10	10	70	100	100	100	100	100	100	100	100	100	100

								N	Iale, N	Non-Si	moker									
Issue											Durat	ion								
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
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	, Smo										
Issue										,		ation								
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	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	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

									Male	, Smo										
Issue												ration								
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
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	70	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

									Male	, Smo	ker									
Issue											Dui	ation								
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
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

Issue								F	emale		regate Durati	ion								
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	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

								F	emale	, Agg	regate	1								
Issue										]	Durati	on								
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
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 60	19	25	68 60	72	72	72	75	75	80	80	100	100	100	100	100	100	100	100	100	100
69 70	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

								F	emale	e, Agg	regate									
Issue											Durati	ion								
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
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

								Fe	male,	Non-S	Smoke	r								
Issue										D	uratio	n								
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	30	35	40	45	50	51	52	55	58	59	64 69	61	62	63	63	70	78	85	93	100
	31	35	40	46	51	52	53	56	59	60	62	62	63	65	65	72	79	86	93	100
31 32	31 32	35 35	40 40	46 45	51 51	53 53	55 56	58 59	60 57	58 58	62 62	62 63	63 63	65 65	65 64	72 71	79 78	86 86	93 93	100 100
33	32 32	36	40 41	45 47	52	55	50 58	55	58	50 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

Issue								1.6	mare,		5moke uratio									
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
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
58 59	17 17	23	26	31	35	36	38	41	41	42	45	45	100	100	100	100	100	100	100	100
60	17	23 23	26 26	30 30	33 32	35 34	38 36	39 38	40 39	41 40	44 100	100 100	100	100	100	100 100	100	100 100	100	100
	17				32								100	100	100		100		100	100
61 62	16	22 22	25 25	29 28	32	33 32	35 34	36 35	38 80	80 80	100 100	100 100	100 100	100 100	100 100	100 100	100 100	100 100	100 100	100
63	16	22	25 24	28 28	30	32 32	34	- 30 - 80	80	80	100	100	100	100	100	100	100	100	100	100
64	10	20	24	28	29	30	80	80	80	80	100	100	100	100	100	100	100	100	100	100
65	14	19	24	25	28	72	75	75	80	80	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
67	15	19	23	72	72	72	75	75	80	80	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
69	13	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
	00	50	54	50	00	12	10	10		00	100	100	100	100	100	100	100	100	100	100

#### Female, Non-Smoker

									Fe	male,	Non-	Smoke	r								
1	ssue										Γ	Ouratio	n								
	Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
Γ	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
Γ	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, Smoker

Issue									rema	ie, on	Dura	tion								
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	12	100	14	100	100	100	100	100	100
					100				100											
16 17	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 95	100 96	100 97	100	100 100	100 100	100	100	100	100	100 100	100 100	100 100
	99 87					100					100			100	100	100 99	100			
19		89	92	92	92	92 79	84 79	84	86 75	86	92	93	95	96	99		99	100	100	100
20	74	77	80	80	80	73	73	73	75	77	83	83	86	88	90	92	94	96	98	100
21	71	74	78	78	71	71	73	74	77	79	85	86	88	89	90	92	94	96	98	100
22	68	71	75	70	71	71	73	74	78	79	88	90	89	89	92	94	95	97	98	100
23	65	69	67	70	70	70	73	77	79	81	89	90	90	92	92	94	95	97	98	100
24	62	60	64	69	70	70	74	77	79	81	92	90	92	93	93	94	96	97	99	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

									Fema	le, Sn										
Issue											Dura									
Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
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

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

#### DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS AMENDMENT AND COMPILATION OF CHAPTER 16-171, HAWAII ADMINISTRATIVE RULES

December 9, 2016

#### SUMMARY

- 1. §16-171-201 through §16-171-202 are amended.
- 2. §16-171-302 is amended.
- 3. §16-171-304 is amended.
- 4. §16-171-311 is amended.
- 5. §16-171-401 through §16-171-403 are amended.
- 6. §16-171-501 through §16-171-606 are amended.
- 7. §16-171-901 through \$16-171-906 are new.
- 8. Chapter 16-171 is compiled.