

CHAPTER 63

Buccal-Pharynx Cancers, Males, 1940-1980

• Box 1, below, shows the familiar pattern revealed in the previous Boxes 1. Therefore, Box 2 evaluates an adjustment factor, in order to match the Census Divisions for the unmatched co-actor.

• Table 63-A deviates from the model of Chapter 49. We have added a second set of entries (Table 63-BB through 63-EE) because the regressions in Tables 63-B through 63-E produce negative Constants, whose magnitude is not trivial relative to the male National MortRate for Buccal-Pharynx Cancers. We regard this as a signal that something is not REALISTIC about the adjustment factor used in those tables for the MidTrio and LowTrio MortRates. This has happened before. Please refer to the text in Chapter 51, preceding Table 51-AA. Here, in Chapter 63, the factor which abolishes the negative sign on Constants is 1.15. and it is used in the same way the factor of 1.4 was used to produce Tables 51-BB through 51-FF.

Year	Col.A Natl MR	Col.B Frac.C	Col.C R-Sq	Col.D X-Coef	Col.E StdErr	Col.F Coef/SE	Col.G Source
1940	5.1	~100%	0.7234	0.0382	0.0089	4.2782	Chap.15
1950	5.0	89%	0.7137	0.0377	0.0090	4.1778	Tab 63-B
1960	4.7	88%	0.7135	0.0389	0.0093	4.1754	Tab 63-C
1970	4.65	86%	0.7101	0.0356	0.0086	4.1405	Tab 63-D
1980	4.6	81%	0.7327	0.0315	0.0072	4.3806	Tab 63-E
1950	5.0	81%	0.6094	0.0303	0.0092	3.3048	Tab 63-BB
1960	4.7	88%	0.6129	0.0316	0.0095	3.3293	Tab 63-CC
1970	4.65	84%	0.6003	0.0286	0.0088	3.2425	Tab 63-DD
1980	4.6	81%	0.6177	0.0252	0.0075	3.3630	Tab 63-EE

Box 1, Chap. 63

Buccal-Pharynx Cancers, Males: Post-1940 Change in MortRates by Census Trios

1960 vs. 1940, by Trios: Col.D expresses change by ratios. Col.F expresses change by subtraction.

1980 vs. 1940, by Trios: Col.I expresses change by ratios. Col.K expresses change by subtraction.

MRs change inversely with PP. High-PP Trio has lowest growth-factor. Low-PP Trio has highest growth-factor.

	Col.A 1940 MortRate Tab 15-A	Col.B 1960 MortRate Tab 15-A	Col.C Ratio Col.B /Col.A	Col.D Input from Col.C	Col.E Diff: Col.B minus A	Col.F Input from Col.E	Col.G 1980 MortRate Tab 15-A	Col.H Ratio Col.G /Col.A	Col.I Input from Col.H	Col.J Diff: Col.G minus A	Col.K Input from Col.J
Pacif	5.3	4.6	0.868	Avg Chg	-0.7	Avg Chg	4.2	0.792	Avg Chg	-1.1	Avg Chg
NewE	6.4	6.6	1.031	TopTrio	0.2	TopTrio	5.7	0.891	TopTrio	-0.7	TopTrio
MidAtl	6.9	5.4	0.783	0.894	-1.5	-0.7	5.1	0.739	0.807	-1.8	-1.2
WNoCen	4.6	4.0	0.870	Avg Chg	-0.6	Avg Chg	3.5	0.761	Avg Chg	-1.1	Avg Chg
ENoCen	4.8	4.9	1.021	MidTrio	0.1	MidTrio	4.6	0.958	MidTrio	-0.2	MidTrio
Mtn	2.8	2.6	0.929	0.940	-0.2	-0.2	2.9	1.036	0.918	0.1	-0.4
WSoCen	4.0	3.9	0.975	Avg Chg	-0.1	Avg Chg	4.2	1.050	Avg Chg	0.2	Avg Chg
ESoCen	3.3	4.2	1.273	LowTrio	0.9	LowTrio	4.4	1.333	LowTrio	1.1	LowTrio
SoAtl	4.3	4.5	1.047	1.098	0.2	0.3	5.0	1.163	1.182	0.7	0.7

Box 2, Chap. 63

Buccal-Pharynx Cancers, Males: Calculation of Adjustment Factor

This adjustment is discussed fully in Chapter 49.

- Part 1: Calculate average population-weighted MortRate for the combined TopTrio Census Divs.

Census Div.	Col.A 1940 MR Tab 15-A	Col.B 1940 Pop'n Tab 3-B	Col.C 1940 Popn /45,710,039	Col.D Col.A * Col.C	Census Div.	Col.A 1950 MR Tab 15-A	Col.B 1950 Pop'n Tab 3-B	Col.C 1950 Popn /53,964,513	Col.D Col.A * Col.C
Pacific	5.3	9,733,262	0.2129	1.13	Pacific	4.7	14,486,527	0.2684	1.26
NewEng	6.4	8,437,290	0.1846	1.18	NewEng	6.5	9,314,453	0.1726	1.12
Mid-Atl	6.9	27,539,487	0.6025	4.16	Mid-Atl	5.9	30,163,533	0.5590	3.30
1940		Sum TopTrio 45,710,039	Sum 1.0000	TopTrio 6.467	1950		Sum TopTrio 53,964,513	Sum 1.0000	TopTrio 5.681

Census Div.	Col.A 1960 MR Tab 15-A	Col.B 1960 Pop'n Tab 3-B	Col.C 1960 Popn /65,875,863	Col.D Col.A * Col.C	Census Div.	Col.A 1970 MR Tab 15-A	Col.B 1970 Pop'n Tab 3-B	Col.C 1970 Popn /75,017,000	Col.D Col.A * Col.C
Pacific	4.6	21,198,044	0.3218	1.48	Pacific	4.4	26,087,000	0.3477	1.53
NewEng	6.6	10,509,367	0.1595	1.05	NewEng	6.2	11,781,000	0.1570	0.97
Mid-Atl	5.4	34,168,452	0.5187	2.80	Mid-Atl	5.3	37,149,000	0.4952	2.62
1960		Sum TopTrio 65,875,863	Sum 1.0000	TopTrio 5.334	1970		Sum TopTrio 75,017,000	Sum 1.0000	TopTrio 5.128

Census Div.	Col.A 1980 MR Tab 15-A	Col.B 1980 Pop'n Tab 3-B	Col.C 1980 Popn /80,615,000	Col.D Col.A * Col.C	Census Div.	Col.A 1990 MR Tab 15-A	Col.B 1990 Pop'n Tab 3-B	Col.C 1990 Popn /88,495,000	Col.D Col.A * Col.C
Pacific	4.2	31,523,000	0.3910	1.64	Pacific	--	37,837,000	0.4276	0.00
NewEng	5.7	12,322,000	0.1528	0.87	NewEng	--	12,998,000	0.1469	0.00
Mid-Atl	5.1	36,770,000	0.4561	2.33	Mid-Atl	--	37,660,000	0.4256	0.00
1980		Sum TopTrio 80,615,000	Sum 1.0000	TopTrio 4.840	1990		Sum TopTrio 88,495,000	Sum 1.0000	TopTrio 0.000

- Part 2: Take ratios of these TopTrio MortRates, with 1940 as the denominator of each ratio. Col.D modifies Col.C by separate PhysPop adjustments for MidTrio and LowTrio Census Divisions.

	Col.A TopTrio Mean MR	Col.B 1940 TopTrio Mean MR	Col.C = Col.A / Col.B	Col.D ppAdju Tab 47-B MidTrio	Col.E = Col.C * Col.D	BUCCAL-PHARYNX CANCERS. Males.
1950	5.681	6.467	0.879	0.99	0.87	= MidTrio Adjustment Factor, 1950
1960	5.334	6.467	0.825	0.97	0.80	= MidTrio Adjustment Factor, 1960
1970	5.128	6.467	0.793	0.95	0.75	= MidTrio Adjustment Factor, 1970
1980	4.840	6.467	0.748	0.94	0.70	= MidTrio Adjustment Factor, 1980
1990	0.000	6.467	0.000	0.94	0.00	= MidTrio Adjustment Factor, 1990
				LowTrio		
1950	5.681	6.467	0.879	1.00	0.88	= LowTrio Adjustment Factor, 1950
1960	5.334	6.467	0.825	1.01	0.83	= LowTrio Adjustment Factor, 1960
1970	5.128	6.467	0.793	1.02	0.81	= LowTrio Adjustment Factor, 1970
1980	4.840	6.467	0.748	1.04	0.78	= LowTrio Adjustment Factor, 1980
1990	0.000	6.467	0.000	1.07	0.00	= LowTrio Adjustment Factor, 1990

Table 63-B  
Buccal-Pharynx Cancers, Males: Fractional Causation in 1950

Part 1.

Calculation of the 6 Adjusted MortRates (Col.F) and the National Adjusted MortRate (Col.G).  
The last six entries in Part 1, Col.F, are the products of (Col.D \* Col.E), as discussed in Chap. 49.

	Col.A 1950 PopFrac Tab 3-B	Col.B 1950 Obs MR Tab 15-A	Col.C A * B	Col.D 1940 MR Mid,Low Tab 15-A	Col.E AdjuFact Bx2,Pt2 Col.E	Col.F 1950 Adju MortRates	Col.G A * F
Trio-Sequence							
Pacific	0.0961	4.7	0.452			4.7	0.452
New England	0.0618	6.5	0.402			6.5	0.402
Mid-Atlantic	0.2002	5.9	1.181			5.9	1.181
WestNoCentral	0.0933	4.5	0.420	4.6	0.87	4.002	0.373
EastNoCentral	0.2017	4.9	0.988	4.8	0.87	4.176	0.842
Mountain	0.0337	3.2	0.108	2.8	0.87	2.436	0.082
WestSoCentral	0.0965	4.3	0.415	4.0	0.88	3.520	0.340
EastSoCentral	0.0762	4.2	0.320	3.3	0.88	2.904	0.221
SouthAtlantic	0.1406	4.7	0.661	4.3	0.88	3.784	0.532
		Sum =	4.9			Sum =	4.4253
1950 Observed Natl MR from Table 15-B			5.0	1950 Natl Adjusted MR =			

Part 2.

	Col.A Mean1940 thru1950 PPs from Tab 47-A	Col.B 1950 Adju MRs from Col.F Part 1	Col.C Buccal-Phar. Ca. Males: 1950 Adjusted MortRates regressed on Mean 1940 thru 1950 PPs Regression Output: Constant Std Err of Y Est R Squared No. of Observation Degrees of Freedom X Coefficient(s) Std Err of Coef. XCoef / S.E. =	Col.D 1940 PPs from Table 3-A (TrioSeq) x''	Col.E Buccal-Phar. Ca. Males: 1950 Adjusted MortRates regressed on 1940 PhysPops Regression Output: Constant Std Err of Y Est R Squared No. of Observation Degrees of Freedom X Coefficient(s) Std Err of Coef. XCoef / S.E. =
Trio-Seq.					
Pac	154.16	4.7	-0.5725	159.72	-0.5304
NewEng	162.03	6.5	0.7538	161.55	0.7797
MidAtl	169.24	5.9	0.7137	169.76	0.6937
WNoCen	121.60	4.002	9	123.14	9
ENoCen	128.53	4.176	7	133.36	7
Mtn	119.64	2.436		119.89	
WSoCen	102.64	3.520	0.0377	103.94	0.0369
ESoCen	84.44	2.904	0.0090	85.83	0.0093
SoAtl	99.91	3.784	4.1778	100.74	3.9820

Part 3-A.

Calculation of Fractional Causation  
from Averaged PhysPops

1. Nonradiation rate is Adjusted  
Constant (Part 2, Col.C) = NEGATIVE 0.0
2. Radiation rate is Natl Adjusted  
MortRate (Part 1, Col.G = 4.4253)  
minus Nonradiation rate (0.0) = 4.4253
3. 1950 Fractional Causation is radiation  
rate (4.4253) divided by OBSERVED  
Natl MR Part 1, Col.C = 5.0 = 0.89

Part 3-B.

Calculation of Fractional Causation  
from 1940 PhysPops

1. Nonradiation rate is Adjusted  
Constant (Part 2, Col.E) = NEGATIVE 0.0
2. Radiation rate is Natl Adjusted  
MortRate (Part 1, Col.G = 4.4253)  
minus Nonradiation rate (0.0) = 4.4253
3. 1950 Fractional Causation is radiation  
rate (4.4253) divided by OBSERVED  
Natl MR Part 1, Col.C = 5.0 = 0.89

Table 63-C  
Buccal-Pharynx Cancers, Males: Fractional Causation in 1960

Part 1.

Calculation of the 6 Adjusted MortRates (Col.F) and the National Adjusted MortRate (Col.G).  
The last six entries in Part 1, Col.F, are the products of (Col.D \* Col.E), as discussed in Chap. 49.

Trio-Sequence	Col.A 1960 PopFrac Tab 3-B	Col.B 1960 Obs MR Tab 15-A	Col.C A * B	Col.D 1940 MR Mid,Low Tab 15-A	Col.E AdjuFact Bx2,Pt2 Col.E	Col.F 1960 Adju MortRates	Col.G A * F
Pacific	0.1182	4.6	0.544			4.6	0.544
New England	0.0586	6.6	0.387			6.6	0.387
Mid-Atlantic	0.1905	5.4	1.029			5.4	1.029
WestNoCentral	0.0858	4.0	0.343	4.6	0.80	3.680	0.316
EastNoCentral	0.2020	4.9	0.990	4.8	0.80	3.840	0.776
Mountain	0.0382	2.6	0.099	2.8	0.80	2.240	0.086
WestSoCentral	0.0945	3.9	0.369	4.0	0.83	3.320	0.314
EastSoCentral	0.0672	4.2	0.282	3.3	0.83	2.739	0.184
SouthAtlantic	0.1448	4.5	0.652	4.3	0.83	3.569	0.517
		Sum =	4.7			Sum =	
	1960 Observed Natl MR from Table 15-B		4.7	1960 Natl Adjusted MR =			4.1508

Part 2.

Trio-Seq.	Col.A Mean1940 thru1960 PPs from Tab 47-A	Col.B 1960 Adju MRs from Col.F Part 1	Col.C Buccal-Phar. Ca. Males: 1960 Adjusted MortRates regressed on Mean 1940 thru 1960 PPs Regression Output:	Col.D 1940 PPs from Table 3-A (TrioSeq) x''	Col.E Buccal-Phar. Ca. Males: 1960 Adjusted MortRates regressed on 1940 PhysPops Regression Output:
Pac	x' 155.69	y 4.6	Constant -0.9113	159.72	Constant -0.7373
NewEng	162.81	6.6	Std Err of Y Est 0.7715	161.55	Std Err of Y Est 0.8398
MidAtl	167.04	5.4	R Squared 0.7135	169.76	R Squared 0.6606
WNoCen	118.15	3.680	No. of Observation 9	123.14	No. of Observation 9
ENoCen	123.87	3.840	Degrees of Freedom 7	133.36	Degrees of Freedom 7
Mtn	117.40	2.240		119.89	
WSoCen	102.31	3.320	X Coefficient(s) 0.0389	103.94	X Coefficient(s) 0.0368
ESoCen	85.63	2.739	Std Err of Coef. 0.0093	85.83	Std Err of Coef. 0.0100
SoAtl	101.72	3.569	XCoef / S.E. = 4.1754	100.74	XCoef / S.E. 3.6909

Part 3-A.

Calculation of Fractional Causation from Averaged PhysPops

1. Nonradiation rate is Adjusted Constant (Part 2, Col.C) = NEGATIVE 0.0
2. Radiation rate is Natl Adjusted MortRate (Part 1, Col.G = 4.1508) minus Nonradiation rate (0.0) = 4.1508
3. 1960 Fractional Causation is radiation rate (4.1508) divided by OBSERVED Natl MR Part 1, Col.C= 4.7 = 0.88

Part 3-B.

Calculation of Fractional Causation from 1940 PhysPops

1. Nonradiation rate is Adjusted Constant (Part 2, Col.E) = NEGATIVE 0.0
2. Radiation rate is Natl Adjusted MortRate (Part 1, Col.G = 4.1508) minus Nonradiation rate (0.0) = 4.1508
3. 1960 Fractional Causation is radiation rate (4.1508) divided by OBSERVED Natl MR Part 1, Col.C= 4.7 = 0.88

Table 63-E  
Buccal-Pharynx Cancers, Males: Fractional Causation in 1980

Part 1.

Calculation of the 6 Adjusted MortRates (Col.F) and the National Adjusted MortRate (Col.G).  
The last six entries in Part 1, Col.F, are the products of (Col.D \* Col.E), as discussed in Chap. 49.

	Col.A 1980 PopFrac Tab 3-B	Col.B 1980 Obs MR Tab 15-A	Col.C A * B	Col.D 1940 MR Mid,Low Tab 15-A	Col.E AdjuFact Bx2,Pt2 Col.E	Col.F 1980 Adju MortRates	Col.G 1980 A * F
Trio-Sequence							
Pacific	0.1398	4.2	0.587			4.2	0.587
New England	0.0546	5.7	0.311			5.7	0.311
Mid-Atlantic	0.1630	5.1	0.831			5.1	0.831
WestNoCentral	0.0759	3.5	0.266	4.6	0.70	3.220	0.244
EastNoCentral	0.1846	4.6	0.849	4.8	0.70	3.360	0.620
Mountain	0.0502	2.9	0.146	2.8	0.70	1.960	0.098
WestSoCentral	0.1049	4.2	0.441	4.0	0.78	3.120	0.327
EastSoCentral	0.0646	4.4	0.284	3.3	0.78	2.574	0.166
SouthAtlantic	0.1624	5.0	0.812	4.3	0.78	3.354	0.545
		Sum =	4.5			Sum =	
1980 Observed Natl MR from Table 15-B			4.6	1980 Natl Adjusted MR =			3.7310

Part 2.

	Col.A Mean1940 thru1980 PPs from Tab 47-A	Col.B 1980 Adju MRs from Col.F Part 1	Col.C Buccal-Phar. Ca. Males: 1980 Adjusted MortRates regressed on Mean 1940 thru 1980 PPs Regression Output:	Col.D 1940 PPs from Table 3-A (TrioSeq) x''	Col.E Buccal-Phar. Ca. Males: 1980 Adjusted MortRates regressed on 1940 PhysPops Regression Output:
Trio-Seq.	x'	y			
Pac	177.35	4.2	Constant -0.8783	159.72	Constant -0.5053
NewEng	185.86	5.7	Std Err of Y Est 0.6554	161.55	Std Err of Y Est 0.7520
MidAtl	186.11	5.1	R Squared 0.7327	169.76	R Squared 0.6481
WNoCen	128.82	3.220	No. of Observation 9	123.14	No. of Observation 9
ENoCen	133.71	3.360	Degrees of Freedom 7	133.36	Degrees of Freedom 7
Mtn	133.45	1.960		119.89	
WSoCen	114.66	3.120	X Coefficient(s) 0.0315	103.94	X Coefficient(s) 0.0321
ESoCen	99.46	2.574	Std Err of Coef. 0.0072	85.83	Std Err of Coef. 0.0089
SoAtl	124.62	3.354	XCoef / S.E. = 4.3806	100.74	XCoef / S.E. = 3.5908

Part 3-A.

Calculation of Fractional Causation from Averaged PhysPops

1. Nonradiation rate is Adjusted Constant (Part 2, Col.C) = NEGATIVE 0.0
2. Radiation rate is Natl Adjusted MortRate (Part 1, Col.G = 3.7310) minus Nonradiation rate (0.0) = 3.7310
3. 1980 Fractional Causation is radiation rate (3.7310) divided by OBSERVED Natl MR Part 1, Col.C = 4.6 = 0.81

Part 3-B.

Calculation of Fractional Causation from 1940 PhysPops

1. Nonradiation rate is Adjusted Constant (Part 2, Col.E) = NEGATIVE 0.0
2. Radiation rate is Natl Adjusted MortRate (Part 1, Col.G = 3.7310) minus Nonradiation rate (0.0) = 3.7310
3. 1980 Fractional Causation is radiation rate (3.7310) divided by OBSERVED Natl MR Part 1, Col.C = 4.6 = 0.81

Table 63-BB  
Buccal-Pharynx Cancers, Males: Fractional Causation in 1950

Part 1.

Calculation of the 6 Adjusted MortRates (Col.F) and the National Adjusted MortRate (Col.G).

The last six entries in Part 1, Col.F, are the products of (Col.D \* Col.E), as discussed in Chap. 49.

Trio-Sequence	Col.A 1950 PopFrac Tab 3-B	Col.B 1950 Obs MR Tab 15-A	Col.C A * B	Col.D 1940 MR Mid,Low Tab 15-A	Col.E AdjuFact Bx2,Pt2 Col.E	Col.F 1950 Adju MortRates	Col.G A * F
Pacific	0.0961	4.7	0.452			4.7	0.452
New England	0.0618	6.5	0.402			6.5	0.402
Mid-Atlantic	0.2002	5.9	1.181			5.9	1.181
WestNoCentral	0.0933	4.5	0.420	4.6	1.00	4.602	0.429
EastNoCentral	0.2017	4.9	0.988	4.8	1.00	4.802	0.969
Mountain	0.0337	3.2	0.108	2.8	1.00	2.801	0.094
WestSoCentral	0.0965	4.3	0.415	4.0	1.01	4.048	0.391
EastSoCentral	0.0762	4.2	0.320	3.3	1.01	3.340	0.254
SouthAtlantic	0.1406	4.7	0.661	4.3	1.01	4.352	0.612
		Sum =	4.9			Sum =	
	1950 Observed Natl MR from Table 15-B		5.0	1950 Natl Adjusted MR =		4.7839	

Part 2.

Trio-Seq.	Col.A Mean1940 thru1950 PPs from Tab 47-A	Col.B 1950 Adju MRs Part 1	Col.C Buccal-Phar. Ca. Males: 1950 Adjusted MortRates regressed on Mean 1940 thru 1950 PPs Regression Output:	Col.D 1940 PPs from Table 3-A (TrioSeq) x''	Col.E Buccal-Phar. Ca. Males: 1950 Adjusted MortRates regressed on 1940 PhysPops Regression Output:
Pac	x' 154.16	y 4.7	Constant 0.7112	159.72	Constant 0.7444
NewEng	162.03	6.5	Std Err of Y Est 0.7664	161.55	Std Err of Y Est 0.7828
MidAtl	169.24	5.9	R Squared 0.6094	169.76	R Squared 0.5926
WNoCen	121.60	4.602	No. of Observation 9	123.14	No. of Observation 9
ENoCen	128.53	4.802	Degrees of Freedom 7	133.36	Degrees of Freedom 7
Mtn	119.64	2.801		119.89	
WSoCen	102.64	4.048	X Coefficient(s) 0.0303	103.94	X Coefficient(s) 0.0297
ESoCen	84.44	3.340	Std Err of Coef. 0.0092	85.83	Std Err of Coef. 0.0093
SoAtl	99.91	4.352	XCoef / S.E. = 3.3048	100.74	XCoef / S.E. 3.1907

Part 3-A.

Calculation of Fractional Causation from Averaged PhysPops

1. Nonradiation rate is Adjusted Constant (Part 2, Col.C) = 0.7112
2. Radiation rate is Natl Adjusted MortRate (Part 1, Col.G = 4.7839) minus Nonradiation rate (0.7112) = 4.0727
3. 1950 Fractional Causation is radiation rate (4.0727) divided by OBSERVED Natl MR Part 1, Col.C= 5.0 = 0.81

Part 3-B.

Calculation of Fractional Causation from 1940 PhysPops

1. Nonradiation rate is Adjusted Constant (Part 2, Col.E) = 0.7444
2. Radiation rate is Natl Adjusted MortRate (Part 1, Col.G = 4.7839) minus Nonradiation rate (0.7444) = 4.0395
3. 1950 Fractional Causation is radiation rate (4.0395) divided by OBSERVED Natl MR Part 1, Col.C= 5.0 = 0.81

Table 63-CC  
Buccal-Pharynx Cancers, Males: Fractional Causation in 1960

Part 1.

Calculation of the 6 Adjusted MortRates (Col.F) and the National Adjusted MortRate (Col.G).  
The last six entries in Part 1, Col.F, are the products of (Col.D \* Col.E), as discussed in Chap. 49.

Trio-Sequence	Col.A 1960 PopFrac Tab 3-B	Col.B 1960 Obs MR Tab 15-A	Col.C A * B	Col.D 1940 MR Mid,Low Tab 15-A	Col.E AdjuFact Bx2,Pt2 Col.E	Col.F 1960 Adju MortRates	Col.G A * F
Pacific	0.1182	4.6	0.544			4.6	0.544
New England	0.0586	6.6	0.387			6.6	0.387
Mid-Atlantic	0.1905	5.4	1.029			5.4	1.029
WestNoCentral	0.0858	4.0	0.343	4.6	0.92	4.232	0.363
EastNoCentral	0.2020	4.9	0.990	4.8	0.92	4.416	0.892
Mountain	0.0382	2.6	0.099	2.8	0.92	2.576	0.098
WestSoCentral	0.0945	3.9	0.369	4.0	0.95	3.818	0.361
EastSoCentral	0.0672	4.2	0.282	3.3	0.95	3.150	0.212
SouthAtlantic	0.1448	4.5	0.652	4.3	0.95	4.104	0.594
		Sum =	4.7			Sum =	
1960 Observed Natl MR from Table 15-B			4.7	1960 Natl Adjusted MR =			4.4795

Part 2.

Trio-Seq.	Col.A Mean1940 thru1960 PPs Tab 47-A	Col.B 1960 Adju MRs from from Col.F Part 1	Col.C Buccal-Phar. Ca. Males: 1960 Adjusted MortRates regressed on Mean 1940 thru 1960 PPs Regression Output:	Col.D 1940 PPs from Table 3-A (TrioSeq) x''	Col.E Buccal-Phar. Ca. Males: 1960 Adjusted MortRates regressed on 1940 PhysPops Regression Output:
Pac	155.69	4.6	Constant 0.3338	159.72	Constant 0.4593
NewEng	162.81	6.6	Std Err of Y Est 0.7859	161.55	Std Err of Y Est 0.8263
MidAtl	167.04	5.4	R Squared 0.6129	169.76	R Squared 0.5721
WNoCen	118.15	4.232	No. of Observation 9	123.14	No. of Observation 9
ENoCen	123.87	4.416	Degrees of Freedom 7	133.36	Degrees of Freedom 7
Mtn	117.40	2.576		119.89	
WSoCen	102.31	3.818	X Coefficient(s) 0.0316	103.94	X Coefficient(s) 0.0300
ESoCen	85.63	3.150	Std Err of Coef. 0.0095	85.83	Std Err of Coef. 0.0098
SoAtl	101.72	4.104	XCoef / S.E. = 3.3293	100.74	XCoef / S.E. 3.0593

Part 3-A.

Calculation of Fractional Causation  
from Averaged PhysPops

1. Nonradiation rate is Adjusted  
Constant (Part 2, Col.C) = 0.3338
2. Radiation rate is Natl Adjusted  
MortRate (Part 1, Col.G = 4.4795)  
minus Nonradiation rate (0.3338) = 4.1457
3. 1960 Fractional Causation is radiation  
rate (4.1457) divided by OBSERVED  
Natl MR Part 1, Col.C= 4.7 = 0.88

Part 3-B.

Calculation of Fractional Causation  
from 1940 PhysPops

1. Nonradiation rate is Adjusted  
Constant (Part 2, Col.E) = 0.4593
2. Radiation rate is Natl Adjusted  
MortRate (Part 1, Col.G = 4.4795)  
minus Nonradiation rate (0.4593) = 4.1508
3. 1960 Fractional Causation is radiation  
rate (4.1508) divided by OBSERVED  
Natl MR Part 1, Col.C= 4.7 = 0.86

Table 63-EE  
Buccal-Pharynx Cancers, Males: Fractional Causation in 1980

Part 1.

Calculation of the 6 Adjusted MortRates (Col.F) and the National Adjusted MortRate (Col.G).

The last six entries in Part 1, Col.F, are the products of (Col.D \* Col.E), as discussed in Chap. 49.

	Col.A 1980 PopFrac Tab 3-B	Col.B 1980 Obs MR Tab 15-A	Col.C A * B	Col.D 1940 MR Mid,Low Tab 15-A	Col.E AdjuFact Bx2,Pt2 Col.E	Col.F 1980 Adju MortRates	Col.G A * F
Trio-Sequence							
Pacific	0.1398	4.2	0.587			4.2	0.587
New England	0.0546	5.7	0.311			5.7	0.311
Mid-Atlantic	0.1630	5.1	0.831			5.1	0.831
WestNoCentral	0.0759	3.5	0.266	4.6	0.80	3.703	0.281
EastNoCentral	0.1846	4.6	0.849	4.8	0.80	3.864	0.713
Mountain	0.0502	2.9	0.146	2.8	0.80	2.254	0.113
WestSoCentral	0.1049	4.2	0.441	4.0	0.90	3.588	0.376
EastSoCentral	0.0646	4.4	0.284	3.3	0.90	2.960	0.191
SouthAtlantic	0.1624	5.0	0.812	4.3	0.90	3.857	0.626
		Sum =	4.5				Sum =
1980 Observed Natl MR from Table 15-B			4.6	1980 Natl Adjusted MR =			4.0312

Part 2.

	Col.A Mean1940 thru1980 Trio-Seq. Tab 47-A	Col.B 1980 Adju MRs from Col.F Part 1 x'	Col.C Buccal-Phar. Ca. Males: 1980 Adjusted MortRates regressed on Mean 1940 thru 1980 PPs Regression Output: Constant Std Err of Y Est R Squared No. of Observation Degrees of Freedom X Coefficient(s) Std Err of Coef. XCoef / S.E. =	Col.D 1940 PPs from Table 3-A (TrioSeq) x''	Col.E Buccal-Phar. Ca. Males: 1980 Adjusted MortRates regressed on 1940 PhysPops Regression Output: Constant Std Err of Y Est R Squared No. of Observation Degrees of Freedom X Coefficient(s) Std Err of Coef. XCoef / S.E. =
Pac	177.35	4.2	0.3234	159.72	0.6049
NewEng	185.86	5.7	0.6814	161.55	0.7377
MidAtl	186.11	5.1	0.6177	169.76	0.5518
WNoCen	128.82	3.703	9	123.14	9
ENoCen	133.71	3.864	7	133.36	7
Mtn	133.45	2.254		119.89	
WSoCen	114.66	3.588	0.0252	103.94	0.0257
ESoCen	99.46	2.960	0.0075	85.83	0.0088
SoAtl	124.62	3.857	3.3630	100.74	2.9356

Part 3-A.

Calculation of Fractional Causation from Averaged PhysPops

1. Nonradiation rate is Adjusted Constant (Part 2, Col.C) = 0.3234
2. Radiation rate is Natl Adjusted MortRate (Part 1, Col.G = 4.0312) minus Nonradiation rate (0.3234) = 3.7078
3. 1980 Fractional Causation is radiation rate (3.7078) divided by OBSERVED Natl MR Part 1, Col.C= 4.6 = 0.81

Part 3-B.

Calculation of Fractional Causation from 1940 PhysPops

1. Nonradiation rate is Adjusted Constant (Part 2, Col.E) = 0.6049
2. Radiation rate is Natl Adjusted MortRate (Part 1, Col.G = 4.0312) minus Nonradiation rate (0.6049) = 3.4263
3. 1980 Fractional Causation is radiation rate (3.4263) divided by OBSERVED Natl MR Part 1, Col.C= 4.6 = 0.74