Supplementary Online Content


eAppendix. Online Addendum.

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Online Addendum

Original Method A 2006

Goal: To calculate the number of non-melanoma skin cancer (NMSC) and the number of persons of any age in the U.S. with NMSC in 2006.

1. Find $a = 2,048,517$
   a. Definition $a$: the number of skin procedures for cancer in 2006 in Medicare B Fee-for-Service (FFS) for all ages.

2. Find $j = 0.937$
   a. Definition $j$: the proportion of procedures for cancer in 2006 specific for NMSC.
   b. Source: 2006 5% Sample LDS SAF Physician/Supplier Claims.

3. Find $k = a \times j = 1,919,460$
   a. Definition $k$: the number of procedures for NMSC in 2006 in Medicare B FFS.

4. Find $b$
   a. Definition $b$: the proportion of $k$ that are in patients $\geq 65$ year of age.
   b. Source of numbers:
      i. $1.6296 = \text{Rate of NMSC procedures per person } \geq 65 \text{ in } 2006$. From 2006 5% Sample LDS SAF Physician/Supplier Claims.
      ii. $1.6235 = \text{Rate of NMSC procedures per person } < 65 \text{ in } 2006$. From 2006 5% Sample LDS SAF Physician/Supplier Claims.
      iii. $27,490,000 = \text{Number of persons } \geq 65 \text{ enrolled in Medicare B FFS in } 2006$. From Health Care Financing Review 2007 Statistical Supplement (HCFR), 2006.

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iv. \( 5,418,000 = \text{Number of persons < 65 enrolled in Medicare B FFS in 2006} \)
Heath Care Financing Review 2007 Statistical Supplement (HCFR), 2006

5. Find \( c \)
   \[ c = 1,604,477 \]
   a. Definition \( c = \text{number of procedures for NMSC in 2006 in Medicare B FFS for persons } \geq 65 \text{ years of age} \)

6. Find \( d \)
   a. Definition \( d = \text{Among all persons over age 65 in the U.S. population, the proportion enrolled in Medicare B FFS.} \)
   b. Source of numbers:
      i. \( 27,490,000 = \text{Number of persons } \geq 65 \text{ enrolled in Medicare B FFS in 2006. From Heath Care Financing Review 2007 Statistical Supplement (HCFR), 2006} \)

7. Find \( e \)
   \[ e = \frac{c}{d} = \frac{1,604,477 \text{ procedures}}{.7379} = 2,174,383 \text{ procedures} \]
   a. Definition \( e = \text{number of skin procedures for NMSC in 2006 in total U.S. in persons } \geq 65 \text{ years of age} \)

8. Find \( f \)
   \[ f = \frac{2,482,801}{4,003,887} = 0.62 \]
   a. Definition \( f = \text{of the visits with a procedure for NMSC, the proportion of visits that were for persons 65 and older.} \)
   b. Source of numbers:
      i. \( 2482801 = \text{weighted frequency of NAMCS visits with a procedure for NMSC for persons } \geq 65 \text{ for 2006.} \)

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ii. $4003887 = \text{weighted frequency of NAMCS visits with a procedure for NMSC for all persons for 2006.}$

9. Find $g$ 
   
   $g = \frac{e}{f} = 3,507,069$

   a. Definition $g = \text{total number of skin procedures for NMSC in U.S.}$

10. Find $h$

    $h = 1.6293$

    a. Definition $h = \text{number of procedures for NMSC per person in Medicare B FFS in 2006.}$

    b. Source: From 2006 5% Sample LDS SAF Physician/Supplier Claims.

11. Find $i$

    $i = \frac{g}{h} = 3,507,069 / 1.6293 = 2,152,500$

    a. Definition $i = \text{number of persons in the U.S. with NMSC in 2006}$
Revised Method A 2006

Goal: To calculate the number of non-melanoma skin cancer (NMSC) and the number of persons of any age in the U.S. with NMSC in 2006

1. Find a
   \[ a = 2,048,517 \]
   a. Definition \( a \) = the number of skin procedures for cancer in 2006 in Medicare B Fee-for-Service (FFS) for all ages.

2. Find j
   \[ j = 0.937 \]
   a. Definition \( j \): the proportion of procedures for cancer in 2006 specific for NMSC
   b. Source: 2006 5% Sample LDS SAF Physician/Supplier Claims

3. Find k
   \[ k = a \times j = 1,919,460 \]
   a. Definition \( k \) = the number of procedures for NMSC in 2006 in Medicare B FFS

4. Find b
   \[ b = (102,437 – 4,436) / 102,437 = 0.9567 \]
   a. Definition \( b \) = the proportion of \( k \) that are in patients \( \geq 65 \) year of age
   Total number of procedures in 2006 for NMSC (all ages) = 102,437
   Total number of procedures in 2006 for NMSC for Medicare FFS beneficiaries < 65 years old = 4,436
   b. Source: 2006 5% Sample LDS SAF Physician/Supplier Claims

5. Find c
   \[ c = k \times b = 1,836,347 \]
   a. Definition \( c \) = number of procedures for NMSC in 2006 in Medicare B FFS for persons \( \geq 65 \) years of age

6. Find d
   \[ d = \frac{27,490,000 \text{ persons}}{37,253,065 \text{ persons}} = 0.7379 \]
   a. Definition \( d \) = Among all persons over age 65 in the U.S. population, the proportion enrolled in Medicare B FFS.
   b. Source of numbers:

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i. 27,490,000 = Number of persons ≥ 65 enrolled in Medicare B FFS in 2006. From Heath Care Financing Review 2007 Statistical Supplement (HCFR), 2006


7.Find e  
\[ e = c/d = \frac{1,836,347}{0.7379} = 2,488,612 \]

f. Definition e = number of skin procedures for NMSC in 2006 in total U.S. in persons ≥ 65 years of age

8.Find f  
\[ f = \frac{2,482,801}{4,003,887} = 0.62 \]

g. Definition f = of the visits with a procedure for NMSC, the proportion of visits that were for persons 65 and older.

h. Source of numbers:

i. 2482801 = weighted frequency of NAMCS visits with a procedure for NMSC for persons ≥ 65 for 2006.

ii. 4003887 = weighted frequency of NAMCS visits with a procedure for NMSC for all persons for 2006.

9.Find g  
\[ g = e/f = \frac{4,013,890}{0.62} \]

i. Definition g = total number of skin procedures for NMSC in U.S.

10.Find h  
\[ h = 1.6293 \]

j. Definition h = number of procedures for NMSC per person in Medicare B FFS in 2006.

k. Source: From 2006 5% Sample LDS SAF Physician/Supplier Claims.

11.Find i  
\[ i = g/h = \frac{4,013,890}{1.6293} = 2,463,567 \]

l. Definition i = number of persons in the U.S. with NMSC in 2006

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Revised Method A 2012

Goal: To calculate the number of non-melanoma skin cancer (NMSC) and the number of persons of any age in the U.S. with NMSC in 2012

1. Find \(a\) \(a = 2,321,058\)

   a. Definition \(a\) = the number of skin procedures for cancer in 2012 in Medicare B Fee-for-Service (FFS) for all ages.

   b. Source: Medicare physician/supplier procedure summary master file. Time Series Data Col. AL Row 51

2. Find \(j\) \(j = 0.944\)

   a. Definition \(j\): the proportion of procedures for skin cancer in 2012 specific for NMSC

   b. Source: 2012 5% Sample LDS SAF Physician/Supplier Claims Overview Col G Row 12

3. Find \(k\) \(k = a \times j = 2,191,079\)

   a. Definition \(k\) = the number of procedures for NMSC in 2012 in Medicare B FFS

4. Find \(b\)

   \[ b = \frac{(116,083 - 5,213)}{116,083} = 0.9551 \]

   a. Definition \(b\) = the proportion of \(k\) that are in patients \(\geq 65\) year of age

   b. Source: 2012 5% Sample LDS SAF Physician/Supplier Claims

5. Find \(c\)

   \[ c = a \times b = 2,092,670 \]

   a. Definition \(c\) = number of procedures for NMSC in 2012 in Medicare B FFS for persons \(\geq 65\) years of age

6. Find \(d\)

   \[ d = \frac{27,239,770}{43,145,356} = .6313 \]

   a. Definition \(d\) = Among all persons over age 65 in the U.S. population, the proportion enrolled in Medicare B FFS.

   b. Source of numbers:

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7. Find \( e = \frac{c}{d} = \frac{2,092,670}{0.6313} = 3,314,858 \)
   a. Definition \( e \) = number of skin procedures for NMSC in 2012 in total U.S. in persons ≥ 65 years of age

8. Find \( f = 0.61 \)
   a. Definition \( f \) = of the visits with a procedure for NMSC, the proportion of visits that were for persons 65 and older. This is an average of 2008-2010 because 2010 is the most recent year available. There is no trend up or down during this time period.
   
   b. Source of numbers:
      i. \( p \) = weighted frequency of NAMCS visits with a procedure for NMSC for persons ≥ 65 for the indicated year.
      ii. \( r \) = weighted frequency of NAMCS visits with a procedure for NMSC for all persons for the indicated year.

2006: \( f = 0.62 \)
   \( p=2482801\) = weighted frequency of NAMCS visits with a procedure for NMSC for persons ≥ 65
   \( r=4003887\) = weighted frequency of NAMCS visits with a procedure for NMSC for all persons

2007: \( f = 0.66 \)
   \( p=3997181\) = weighted frequency of NAMCS visits with a procedure for NMSC for persons ≥ 65
   \( r=6023271\) = weighted frequency of NAMCS visits with a procedure for NMSC for all persons

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2008: \( f = 0.55 \)
\( p = 2612212 \) = weighted frequency of NAMCS visits with a procedure for NMSC for persons \( \geq 65 \)
\( r = 4771044 \) = weighted frequency of NAMCS visits with a procedure for NMSC for all persons

2009: \( f = 0.61 \)
\( p = 2829166 \) = weighted frequency of NAMCS visits with a procedure for NMSC for persons \( \geq 65 \)
\( r = 4616820 \) = weighted frequency of NAMCS visits with a procedure for NMSC for all persons

2010: \( f = 0.67 \)
\( p = 3773975 \) = weighted frequency of NAMCS visits with a procedure for NMSC for persons \( \geq 65 \)
\( r = 5618310 \) = weighted frequency of NAMCS visits with a procedure for NMSC for all persons

9. Find \( g \)
\[ g = e/f = 3,314,858/0.61 = 5,434,193 \]

a. Definition \( g \) = total number of skin procedures for NMSC in U.S.

10. Find \( h \)
\[ h = 1.645 \]

a. Definition \( h \) = number of procedures for NMSC per person in Medicare B FFS in 2012.

b. Source: From 2012 5% Sample LDS SAF Physician/Supplier Claims.

11. Find \( i \)
\[ i = g/h = 5,434,193/1.645 = 3,303,461 \]

a. Definition \( i \) = number of persons in the U.S. with NMSC in 2012

12. Find the percentage of BCC’s and SCC’s treated in the Medicare population in 2012 Source: From 2012 5% Sample LDS SAF Physician/Supplier Claims

a. Number of unspecified malignant neoplasms of the skin (icd-9 173.X0) = 104,700

b. Number of basal cell carcinomas of the skin (icd-9 173.X1) = 1,029,660

c. Number of invasive squamous cell carcinomas of the skin (icd-9 173.X2) = 837,940

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d. Number of other specified malignant neoplasms of the skin (icd-9 173.X9) = 29,040

e. Number of squamous cell carcinomas in situ of the skin (icd-9 232.X) = 189,760

Total number of procedure codes for NMSC from 2012 = 2,191,100

f. BCC = 47.0% of total procedures. Invasive SCC = 38.24%. SCC in situ = 8.66%. Other specified and unspecified malignant cutaneous neoplasms = 6.1%

13. Ratio of BCC to invasive SCC = 51,483/41,897 = 1.23

14. Ratio of BCC to invasive and in situ SCC = 1,029,660/1,027,700 = 1.00