Supplementary Online Content


eAppendix. Online Addendum.

This supplementary material has been provided by the authors to give readers additional information about their work.
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 \( a = 2,048,517 \)
   - Definition: \( a \) = the number of skin procedures for cancer in 2006 in Medicare B Fee-for-Service (FFS) for all ages.
   - Source: Medicare physician/supplier procedure summary master file.

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

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

4. Find \( b \)
   - Definition: \( b \) = the proportion of \( k \) that are in patients \( \geq 65 \) year of age
   - 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. \( 27,490,000 = \text{Number of persons } \geq 65 \text{ enrolled in Medicare B FFS in 2006.} \)

\[ b = \frac{1.6296 \times 27,490,000}{(1.6235 \times 5,418,000) + (1.6296 \times 27,490,000)} = 0.8359 \]
iv. 5,418,000 = Number of persons < 65 enrolled in Medicare B FFS in 2006


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

6. Find d
   
   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:
      
      i. 27,490,000 = Number of persons \( \geq 65 \) enrolled in Medicare B FFS in 2006. From Health 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 \( e = \) number of skin procedures for NMSC in 2006 in total U.S. in persons \( \geq 65 \) years of age

8. Find f
   
   \[ f = \frac{2,482,801}{4,003,887} = 0.62 \]
   
   a. Definition \( f = \) 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 = weighted frequency of NAMCS visits with a procedure for NMSC for persons \( \geq 65 \) for 2006.
ii. $4003887$ = 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 $g =$ total number of skin procedures for NMSC in U.S.

10. Find $h$  
    \[ h = 1.6293 \]
    a. Definition $h =$ 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 $i$  
    \[ i = \frac{g}{h} = \frac{3,507,069}{1.6293} = 2,152,500 \]
    a. Definition $i =$ 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 \( a = 2,048,517 \)
   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 \( b = (102,437 – 4,436) / 102,437 = 0.9567 \)
   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 \( c = k \times b = 1,836,347 \)
   a. Definition \( c \): number of procedures for NMSC in 2006 in Medicare B FFS for persons \( \geq 65 \) years of age

6. Find \( d = \frac{27,490,000 \text{ persons}}{37,253,065 \text{ persons}} = .7379 \)
   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 Health Care Financing Review 2007 Statistical Supplement (HCFR), 2006


7. Find e  
   \[ e = \frac{c}{d} = \frac{1,836,347}{0.7379} = 2,488,612 \]
   
   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  
   \[ g = \frac{e}{f} = \frac{4,013,890}{0.62} \]
   
   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  
    \[ i = \frac{g}{h} = \frac{4,013,890}{1.6293} = 2,463,567 \]
    
    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. 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:

ii. 43,145,356 = Number of estimated persons ≥ 65 in the United States in 2012.

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

8. Find f
   \[ f = 0.61 \]
   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
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 \( g \)
\[ g = \frac{e}{f} = \frac{3,314,858}{0.61} = 5,434,193 \]
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 \( i \)
\[ i = \frac{g}{h} = \frac{5,434,193}{1.645} = 3,303,461 \]
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