Supplementary Online Content


eAppendix. Online Addendum.

This supplementary material has been provided by the authors to give readers additional information about their work.
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 $b$
   
   $b = \frac{1.6296 \times 27,490,000}{(1.6235 \times 5,418,000) + (1.6296 \times 27,490,000)} = .8359$
   
   a. Definition $b =$ the proportion of $k$ that are in patients $\geq 65$ year of age
   
   b. Source of numbers
      
      i. $1.6296 =$ Rate of NMSC procedures per person $\geq 65$ in 2006. From 2006 5% Sample LDS SAF Physician/Supplier Claims.
      
      ii. $1.6235 =$ Rate of NMSC procedures per person $< 65$ in 2006. From 2006 5% Sample LDS SAF Physician/Supplier Claims
      
      iii. $27,490,000 =$ Number of persons $\geq 65$ enrolled in Medicare B FFS in 2006. From Heath Care Financing Review 2007 Statistical Supplement(HCFR), 2006.

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iv. $5,418,000 = \text{Number of persons } < 65 \text{ 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. $2482801 = \text{weighted frequency of NAMCS visits with a procedure for NMSC for persons } \geq 65 \text{ for 2006.}$
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  
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 x 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 ≥ 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 x b = 1,836,347
   a. Definition c = number of procedures for NMSC in 2006 in Medicare B FFS for persons ≥ 65 years of age

6. Find d  
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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1. 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 = c/d = 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 = 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 = 4,013,890

   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 = 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 x j = 2,191,079
   a. Definition k = the number of procedures for NMSC in 2012 in Medicare B FFS

4. Find b  
   b = (116,083 – 5,213) / 116,083 = 0.9551
   Definition b = the proportion of k that are in patients ≥ 65 year of age
   Total number of procedures in 2012 for NMSC (all ages) = 116,083
   Total number of procedures in 2012 for NMSC for Medicare FFS beneficiaries < 65 years old = 5,213
   a. Source: 2012 5% Sample LDS SAF Physician/Supplier Claims

5. Find c  
   c = a x b = 2,092,670
   a. Definition c = number of procedures for NMSC in 2012 in Medicare B FFS for persons ≥ 65 years of age

6. Find d  
   d = 27,239,770 / 43,145,356 = 0.6313
   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.
http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

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: \( f = 0.62 \)
      \[ p=2482801= \text{weighted frequency of NAMCS visits with a procedure for NMSC for persons} \geq 65 \]
      \[ r=4003887= \text{weighted frequency of NAMCS visits with a procedure for NMSC for all persons} \]

      2007: \( f = 0.66 \)
      \[ p=3997181= \text{weighted frequency of NAMCS visits with a procedure for NMSC for persons} \geq 65 \]
      \[ r=6023271= \text{weighted frequency of NAMCS visits with a procedure for NMSC for all persons} \]

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

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

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

9. Find \( g \)
\( g = e/f = 3,314,858/0.61 = 5,434,193 \)
   a. Definition \( g = \text{total number of skin procedures for NMSC in U.S.} \)

10. Find \( h \)
    a. Definition \( h = \text{number of procedures for NMSC per person in Medicare B FFS in 2012.} \)
    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 \( i = \text{number of persons in the U.S. with NMSC in 2012} \)

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