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 \(b\)
   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.

\[ b = \frac{1.6296 \times 27,490,000}{(1.6235 \times 5,418,000) + (1.6296 \times 27,490,000)} = .8359 \]
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 
\(f = 2,482,801 / 4,003,887 = 0.62\)

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 \( i \) 
    \[ i = \frac{g}{h} = 3,507,069 / 1.6293 = 2,152,500 \]
    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

   c. Definition c = number of procedures for NMSC in 2006 in Medicare B FFS for persons ≥ 65 years of age

6. Find d

   d. Definition d = Among all persons over age 65 in the U.S. population, the proportion enrolled in Medicare B FFS.
   e. 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 = 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 \( a = 2,321,058 \)
   
   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 \( j = 0.944 \)
   
   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 \( k = a \times j = 2,191,079 \)
   
   a. Definition \( k \) = the number of procedures for NMSC in 2012 in Medicare B FFS

4. Find \( b = \frac{(116,083 - 5,213)}{116,083} = 0.9551 \)
   
   Definition \( b \) = the proportion of \( k \) that are in patients \( \geq 65 \) 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 \( c = a \times b = 2,092,670 \)
   
   a. Definition \( c \) = number of procedures for NMSC in 2012 in Medicare B FFS for persons \( \geq 65 \) years of age

6. Find \( d = \frac{27,239,770}{43,145,356} = .6313 \)
   
   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 \( e \) \( e = \frac{c}{d} = \frac{2,092,670}{0.6313} = 3,314,858 \)
   
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: \( f = 0.55 \)
\[\text{p=2612212= weighted frequency of NAMCS visits with a procedure for NMSC for persons } \geq 65\]
\[\text{r=4771044= weighted frequency of NAMCS visits with a procedure for NMSC for all persons}\]

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

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

9. \text{Find } g \quad g = e/f = 3,314,858/0.61\textbf{= 5,434,193}

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

10. \text{Find } h \quad h = 1.645

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. \text{Find } i \quad i = g/h = 5,434,193/ 1.645 \textbf{= 3,303,461}

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

12. \text{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
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