**Appendix: Modifiers in US procedural claims data**

This file is online appendix to an abstract describing use of modifiers in claims data.

# Materials and Methods

Medicare and Medicaid non-institutional claims (mostly outpatient)

Year: 2018

Source: Virtual Research Data Center (VRDC) created by Center for Medicare and Medicaid Services (CMS).

Claim form 1500 allows for up to four modifiers to be post-coordinating a procedure.

If multiple modifiers were used for a procedure, we ignored the position (or order) of the modifiers. Besides descriptive study on general level, we considered research use cases of anatomical location, and lab-like modifiers.

# Appendix Results

## Acknowledgment

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**References**

1. Zhang, J, Haynes, K, Mendelsohn, AB, et al. Capture of biologic and biosimilar dispensings in a consortium of U.S.‐based claims databases: Utilization of national drug codes and Healthcare Common Procedure Coding System modifiers in medical claims. *Pharmacoepidemiol Drug Saf*. 2020; 29: 778– 785. <https://doi.org/10.1002/pds.4934>

# Classification

|  |  |
| --- | --- |
| **Values** |  |
| dx | 31 |
| lab like code | 38 |
| other | 6 |
| modify billing | 176 |
| pt | 3 |
| modify procedure | 73 |
| modify provider | 54 |
| anatomy | 32 |

## List of lab like codes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| concept\_code | athena\_HCPCS\_mod |  |  | lab like code |
| CI | At least 1 percent but less than 20 percent impaired, limited or restricted | | | 1 |
| CJ | At least 20 percent but less than 40 percent impaired, limited or restricted | | | 1 |
| CK | At least 40 percent but less than 60 percent impaired, limited or restricted | | | 1 |
| CL | At least 60 percent but less than 80 percent impaired, limited or restricted | | | 1 |
| CM | At least 80 percent but less than 100 percent impaired, limited or restricted | | | 1 |
| CN | 100 percent impaired, limited or restricted | | | 1 |
| ED | Hematocrit level has exceeded 39% (or hemoglobin level has exceeded 13.0 g/dl) for 3 or more consecutive billing cycles immediately prior to and including the current cycle | | | 1 |
| EE | Hematocrit level has not exceeded 39% (or hemoglobin level has not exceeded 13.0 g/dl) for 3 or more consecutive billing cycles immediately prior to and including the current cycle | | | 1 |
| G1 | Most recent urr reading of less than 60 | | | 1 |
| G2 | Most recent urr reading of 60 to 64.9 | | | 1 |
| G3 | Most recent urr reading of 65 to 69.9 | | | 1 |
| G4 | Most recent urr reading of 70 to 74.9 | | | 1 |
| G5 | Most recent urr reading of 75 or greater | | | 1 |
| G6 | Esrd patient for whom less than six dialysis sessions have been provided in a month | | | 1 |
| K0 | Lower extremity prosthesis functional level 0 - does not have the ability or potential to ambulate or transfer safely with or without assistance and a prosthesis does not enhance their quality of life or mobility. | | | 1 |
| K1 | Lower extremity prosthesis functional level 1 - has the ability or potential to use a prosthesis for transfers or ambulation on level surfaces at fixed cadence. typical of the limited and unlimited household ambulator. | | | 1 |
| K2 | Lower extremity prosthesis functional level 2 - has the ability or potential for ambulation with the ability to traverse low level environmental barriers such as curbs, stairs or uneven surfaces. typical of the limited community ambulator. | | | 1 |
| K3 | Lower extremity prosthesis functional level 3 - has the ability or potential for ambulation with variable cadence. typical of the community ambulator who has the ability to transverse most environmental barriers and may have vocational, therapeutic, o... | | | 1 |
| K4 | Lower extremity prosthesis functional level 4 - has the ability or potential for prosthetic ambulation that exceeds the basic ambulation skills, exhibiting high impact, stress, or energy levels, typical of the prosthetic demands of the child, active ad... | | | 1 |
| KD | Drug or biological infused through dme | | | 1 |
| P1 | A normal healthy patient | | | 1 |
| P2 | A patient with mild systemic disease | | | 1 |
| P3 | A patient with severe systemic disease | | | 1 |
| P4 | A patient with severe systemic disease that is a constant threat to life | | | 1 |
| P5 | A moribund patient who is not expected to survive without the operation | | | 1 |
| P6 | A declared brain-dead patient whose organs are being removed for donor purposes | | | 1 |
| Q7 | One class a finding | |  | 1 |
| Q8 | Two class b findings | |  | 1 |
| Q9 | One class b and two class c findings | | | 1 |
| QA | Prescribed amounts of stationary oxygen for daytime use while at rest and nighttime use differ and the average of the two amounts is less than 1 liter per minute (lpm) | | | 1 |
| QB | Prescribed amounts of stationary oxygen for daytime use while at rest and nighttime use differ and the average of the two amounts exceeds 4 liters per minute (lpm) and portable oxygen is prescribed | | | 1 |
| QC | Single channel monitoring | | | 1 |
| QE | Prescribed amount of stationary oxygen while at rest is less than 1 liter per minute (lpm) | | | 1 |
| QF | Prescribed amount of stationary oxygen while at rest exceeds 4 liters per minute (lpm) and portable oxygen is prescribed | | | 1 |
| QG | Prescribed amount of stationary oxygen while at rest is greater than 4 liters per minute (lpm) | | | 1 |
| QR | Prescribed amounts of stationary oxygen for daytime use while at rest and nighttime use differ and the average of the two amounts is greater than 4 liters per minute (lpm) | | | 1 |
| TF | Intermediate level of care | | | 1 |
| TG | Complex/high tech level of care | | | 1 |

# Questions

## Modifier type

Modifiers are always 2 characters long. Americal Academy of Coders describes the types here: [https://www.aapc.com/modifiers](https://www.aapc.com/modifiers/).

This analysis considers each modifier use as row of data. Procedure with 2 modifiers is thus counted twice. Unit of analysis is modifier use.

Table 1 Overview by CMS and AMA type

| **is\_hcpc** | | **ev\_cnt** | | **perc** | |
| --- | --- | --- | --- | --- | --- |
|  |  | |  | |  |
| **1** | TRUE | | 1594034308 | | 71.23021 |
| **2** | FALSE | | 643828547 | | 28.76979 |