

**Addendum to Appendix B: Outcome-based Quality Improvement Reports:  
Technical Documentation of Measures**

**Modification of Selected Case Mix Variables due to V and E Codes in M0230/M0240  
and New Item M0245**

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### **Diagnoses for which Patients are Receiving Home Care**

This is a complex transformation based on the six 'home care diagnosis' data items and their corresponding severity ratings, as well as 19 specific ranges of ICD-9 codes. The data items and ranges of interest are given below. To simplify the explanation, the data items and ranges will be referred to as follows:

<u>Data Item</u>	<u>Reference</u>
M0230_PRIMARY_DIAG_ICD	ICDA
M0230_PRIMARY_DIAG_SEVERITY	SEVERITYA
M0240_OTH_DIAG1_ICD	ICDB
M0240_OTH_DIAG1_SEVERITY	SEVERITYB
M0240_OTH_DIAG2_ICD	ICDC
M0240_OTH_DIAG2_SEVERITY	SEVERITYC
M0240_OTH_DIAG3_ICD	ICDD
M0240_OTH_DIAG3_SEVERITY	SEVERITYD
M0240_OTH_DIAG4_ICD	ICDE
M0240_OTH_DIAG4_SEVERITY	SEVERITYE
M0240_OTH_DIAG5_ICD	ICDF
M0240_OTH_DIAG5_SEVERITY	SEVERITYF
M0245_PMT_ICD1	ICDG
M0245_PMT_ICD2	ICDH

<u>ICD-9 Codes</u>	<u>Reference</u>
001-139	RANGE1
140-239	RANGE2
240-279	RANGE3
280-289	RANGE4
290-319	RANGE5
320-389	RANGE6
390-459	RANGE7
460-519	RANGE8
520-579	RANGE9
580-629	RANGE10
630-676	RANGE11
680-709	RANGE12
710-739	RANGE13
740-759	RANGE14
780-799	RANGE15
800-848	RANGE16
850-854	RANGE17
860-959	RANGE18
960-999	RANGE19

For each pair of data items (the ICD-9 diagnosis code and its corresponding severity rating for M0230/M0240) we compute a set of 19 interim measures as follows:

```

IF SEVERITYYA >= 1 AND ICDA IS IN RANGE1
  THEN INTERIM_A1 = 1
ELSE IF SEVERITYYA >= 1 AND ICDA IS NOT IN RANGE1
  THEN INTERIM_A1 = 0
ELSE INTERIM_A1 = MISSING

IF SEVERITYYA >= 1 AND ICDA IS IN RANGE2
  THEN INTERIM_A2 = 1
ELSE IF SEVERITYYA >= 1 AND ICDA IS NOT IN RANGE2
  THEN INTERIM_A2 = 0
ELSE INTERIM_A2 = MISSING

IF SEVERITYYA >= 1 AND ICDA IS IN RANGE3
  THEN INTERIM_A3 = 1
ELSE IF SEVERITYYA >= 1 AND ICDA IS NOT IN RANGE3
  THEN INTERIM_A3 = 0
ELSE INTERIM_A3 = MISSING

IF SEVERITYYA >= 1 AND ICDA IS IN RANGE4
  THEN INTERIM_A4 = 1
ELSE IF SEVERITYYA >= 1 AND ICDA IS NOT IN RANGE4
  THEN INTERIM_A4 = 0
ELSE INTERIM_A4 = MISSING

IF SEVERITYYA >= 1 AND ICDA IS IN RANGE5
  THEN INTERIM_A5 = 1
ELSE IF SEVERITYYA >= 1 AND ICDA IS NOT IN RANGE5
  THEN INTERIM_A5 = 0
ELSE INTERIM_A5 = MISSING

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IF SEVERITYA >= 1 AND ICDA IS IN RANGE6
  THEN INTERIM_A6 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE6
  THEN INTERIM_A6 = 0
ELSE INTERIM_A6 = MISSING

IF SEVERITYA >= 1 AND ICDA IS IN RANGE7
  THEN INTERIM_A7 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE7
  THEN INTERIM_A7 = 0
ELSE INTERIM_A7 = MISSING

IF SEVERITYA >= 1 AND ICDA IS IN RANGE8
  THEN INTERIM_A8 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE8
  THEN INTERIM_A8 = 0
ELSE INTERIM_A8 = MISSING

IF SEVERITYA >= 1 AND ICDA IS IN RANGE9
  THEN INTERIM_A9 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE9
  THEN INTERIM_A9 = 0
ELSE INTERIM_A9 = MISSING

IF SEVERITYA >= 1 AND ICDA IS IN RANGE10
  THEN INTERIM_A10 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE10
  THEN INTERIM_A10 = 0
ELSE INTERIM_A10 = MISSING

IF SEVERITYA >= 1 AND ICDA IS IN RANGE11
  THEN INTERIM_A11 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE11
  THEN INTERIM_A11 = 0
ELSE INTERIM_A11 = MISSING

IF SEVERITYA >= 1 AND ICDA IS IN RANGE12
  THEN INTERIM_A12 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE12
  THEN INTERIM_A12 = 0
ELSE INTERIM_A12 = MISSING

IF SEVERITYA >= 1 AND ICDA IS IN RANGE13
  THEN INTERIM_A13 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE13
  THEN INTERIM_A13 = 0
ELSE INTERIM_A13 = MISSING

IF SEVERITYA >= 1 AND ICDA IS IN RANGE14
  THEN INTERIM_A14 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE14
  THEN INTERIM_A14 = 0
ELSE INTERIM_A14 = MISSING

```

```
IF SEVERITYA >= 1 AND ICDA IS IN RANGE15
    THEN INTERIM_A15 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE15
    THEN INTERIM_A15 = 0
ELSE INTERIM_A15 = MISSING
```

```
IF SEVERITYA >= 1 AND ICDA IS IN RANGE16
    THEN INTERIM_A16 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE16
    THEN INTERIM_A16 = 0
ELSE INTERIM_A16 = MISSING
```

```
IF SEVERITYA >= 1 AND ICDA IS IN RANGE17
    THEN INTERIM_A17 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE17
    THEN INTERIM_A17 = 0
ELSE INTERIM_A17 = MISSING
```

```
IF SEVERITYA >= 1 AND ICDA IS IN RANGE18
    THEN INTERIM_A18 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE18
    THEN INTERIM_A18 = 0
ELSE INTERIM_A18 = MISSING
```

```
IF SEVERITYA >= 1 AND ICDA IS IN RANGE19
    THEN INTERIM_A19 = 1
ELSE IF SEVERITYA >= 1 AND ICDA IS NOT IN RANGE19
    THEN INTERIM_A19 = 0
ELSE INTERIM_A19 = MISSING
```

At the end of this process, we have 114 interim measures named INTERIM\_A1 to INTERIM\_A19, INTERIM\_B1 to INTERIM\_B19, INTERIM\_C1 to INTERIM\_C19, INTERIM\_D1 to INTERIM\_D19, INTERIM\_E1 to INTERIM\_E19, and INTERIM\_F1 to INTERIM\_F19.

We now compute 38 more measures named INTERIM\_G1 to INTERIM\_G19, as well as INTERIM\_H1 to INTERIM\_H19. These are similar to the INTERIM A thru F variables except that there is no check on a severity rating. The computation for INTERIM\_H1 to INTERIM\_H19 is done in the exact same manner as INTERIM\_G1 to INTERIM\_G19, except that it is based on M0245\_PMT\_ICD2 (ICDH) instead of M0245\_PMT\_ICD1.

```
IF ICDG IS IN RANGE1
    THEN INTERIM_G1 = 1
ELSE IF ICDG IS NOT IN RANGE1
    THEN INTERIM_G1 = 0
ELSE INTERIM_G1 = MISSING
```

```
IF ICDG IS IN RANGE2
    THEN INTERIM_G2 = 1
ELSE IF ICDG IS NOT IN RANGE2
    THEN INTERIM_G2 = 0
ELSE INTERIM_G2 = MISSING
```

```

IF ICDG IS IN RANGE3
  THEN INTERIM_G3 = 1
ELSE IF ICDG IS NOT IN RANGE3
  THEN INTERIM_G3 = 0
ELSE INTERIM_G3 = MISSING

IF ICDG IS IN RANGE4
  THEN INTERIM_G4 = 1
ELSE IF ICDG IS NOT IN RANGE4
  THEN INTERIM_G4 = 0
ELSE INTERIM_G4 = MISSING

IF ICDG IS IN RANGE5
  THEN INTERIM_G5 = 1
ELSE IF ICDG IS NOT IN RANGE5
  THEN INTERIM_G5 = 0
ELSE INTERIM_G5 = MISSING

IF ICDG IS IN RANGE6
  THEN INTERIM_G6 = 1
ELSE IF ICDG IS NOT IN RANGE6
  THEN INTERIM_G6 = 0
ELSE INTERIM_G6 = MISSING

IF ICDG IS IN RANGE7
  THEN INTERIM_G7 = 1
ELSE IF ICDG IS NOT IN RANGE7
  THEN INTERIM_G7 = 0
ELSE INTERIM_G7 = MISSING

IF ICDG IS IN RANGE8
  THEN INTERIM_G8 = 1
ELSE IF ICDG IS NOT IN RANGE8
  THEN INTERIM_G8 = 0
ELSE INTERIM_G8 = MISSING

IF ICDG IS IN RANGE9
  THEN INTERIM_G9 = 1
ELSE IF ICDG IS NOT IN RANGE9
  THEN INTERIM_G9 = 0
ELSE INTERIM_G9 = MISSING

IF ICDG IS IN RANGE10
  THEN INTERIM_G10 = 1
ELSE IF ICDG IS NOT IN RANGE10
  THEN INTERIM_G10 = 0
ELSE INTERIM_G10 = MISSING

IF ICDG IS IN RANGE11
  THEN INTERIM_G11 = 1
ELSE IF ICDG IS NOT IN RANGE11
  THEN INTERIM_G11 = 0
ELSE INTERIM_G11 = MISSING

```

```
IF ICDG IS IN RANGE12
    THEN INTERIM_G12 = 1
ELSE IF ICDG IS NOT IN RANGE12
    THEN INTERIM_G12 = 0
ELSE INTERIM_G12 = MISSING
```

```
IF ICDG IS IN RANGE13
    THEN INTERIM_G13 = 1
ELSE IF ICDG IS NOT IN RANGE13
    THEN INTERIM_G13 = 0
ELSE INTERIM_G13 = MISSING
```

```
IF ICDG IS IN RANGE14
    THEN INTERIM_G14 = 1
ELSE IF ICDG IS NOT IN RANGE14
    THEN INTERIM_G14 = 0
ELSE INTERIM_G14 = MISSING
```

```
IF ICDG IS IN RANGE15
    THEN INTERIM_G15 = 1
ELSE IF ICDG IS NOT IN RANGE15
    THEN INTERIM_G15 = 0
ELSE INTERIM_G15 = MISSING
```

```
IF ICDG IS IN RANGE16
    THEN INTERIM_G16 = 1
ELSE IF ICDG IS NOT IN RANGE16
    THEN INTERIM_G16 = 0
ELSE INTERIM_G16 = MISSING
```

```
IF ICDG IS IN RANGE17
    THEN INTERIM_G17 = 1
ELSE IF ICDG IS NOT IN RANGE17
    THEN INTERIM_G17 = 0
ELSE INTERIM_G17 = MISSING
```

```
IF ICDG IS IN RANGE18
    THEN INTERIM_G18 = 1
ELSE IF ICDG IS NOT IN RANGE18
    THEN INTERIM_G18 = 0
ELSE INTERIM_G18 = MISSING
```

```
IF ICDG IS IN RANGE19
    THEN INTERIM_G19 = 1
ELSE IF ICDG IS NOT IN RANGE19
    THEN INTERIM_G19 = 0
ELSE INTERIM_G19 = MISSING
```

Now that all intermediate variables have been computed we can finally compute the DIAG\_x variables as desired.

```
IF INTERIM_A1 = 1 OR INTERIM_B1 = 1 OR INTERIM_C1 = 1 OR INTERIM_D1 = 1 OR
INTERIM_E1 = 1 OR INTERIM_F1 = 1 OR INTERIM_G1 = 1 OR INTERIM_H1 = 1
    THEN DIAG_1 = 1
ELSE DIAG_1 = 0
```

**IF** INTERIM\_A2 = 1 OR INTERIM\_B2 = 1 OR INTERIM\_C2 = 1 OR INTERIM\_D2 = 1 OR  
INTERIM\_E2 = 1 OR INTERIM\_F2 = 1 OR INTERIM\_G2 = 1 OR INTERIM\_H2 = 1  
    **THEN** DIAG\_2 = 1  
**ELSE** DIAG\_2 = 0

**IF** INTERIM\_A3 = 1 OR INTERIM\_B3 = 1 OR INTERIM\_C3 = 1 OR INTERIM\_D3 = 1 OR  
INTERIM\_E3 = 1 OR INTERIM\_F3 = 1 OR INTERIM\_G3 = 1 OR INTERIM\_H3 = 1  
    **THEN** DIAG\_3 = 1  
**ELSE** DIAG\_3 = 0

**IF** INTERIM\_A4 = 1 OR INTERIM\_B4 = 1 OR INTERIM\_C4 = 1 OR INTERIM\_D4 = 1 OR  
INTERIM\_E4 = 1 OR INTERIM\_F4 = 1 OR INTERIM\_G4 = 1 OR INTERIM\_H4 = 1  
    **THEN** DIAG\_4 = 1  
**ELSE** DIAG\_4 = 0

**IF** INTERIM\_A5 = 1 OR INTERIM\_B5 = 1 OR INTERIM\_C5 = 1 OR INTERIM\_D5 = 1 OR  
INTERIM\_E5 = 1 OR INTERIM\_F5 = 1 OR INTERIM\_G5 = 1 OR INTERIM\_H5 = 1  
    **THEN** DIAG\_5 = 1  
**ELSE** DIAG\_5 = 0

**IF** INTERIM\_A6 = 1 OR INTERIM\_B6 = 1 OR INTERIM\_C6 = 1 OR INTERIM\_D6 = 1 OR  
INTERIM\_E6 = 1 OR INTERIM\_F6 = 1 OR INTERIM\_G6 = 1 OR INTERIM\_H6 = 1  
    **THEN** DIAG\_6 = 1  
**ELSE** DIAG\_6 = 0

**IF** INTERIM\_A7 = 1 OR INTERIM\_B7 = 1 OR INTERIM\_C7 = 1 OR INTERIM\_D7 = 1 OR  
INTERIM\_E7 = 1 OR INTERIM\_F7 = 1 OR INTERIM\_G7 = 1 OR INTERIM\_H7 = 1  
    **THEN** DIAG\_7 = 1  
**ELSE** DIAG\_7 = 0

**IF** INTERIM\_A8 = 1 OR INTERIM\_B8 = 1 OR INTERIM\_C8 = 1 OR INTERIM\_D8 = 1 OR  
INTERIM\_E8 = 1 OR INTERIM\_F8 = 1 OR INTERIM\_G8 = 1 OR INTERIM\_H8 = 1  
    **THEN** DIAG\_8 = 1  
**ELSE** DIAG\_8 = 0

**IF** INTERIM\_A9 = 1 OR INTERIM\_B9 = 1 OR INTERIM\_C9 = 1 OR INTERIM\_D9 = 1 OR  
INTERIM\_E9 = 1 OR INTERIM\_F9 = 1 OR INTERIM\_G9 = 1 OR INTERIM\_H9 = 1  
    **THEN** DIAG\_9 = 1  
**ELSE** DIAG\_9 = 0

**IF** INTERIM\_A10 = 1 OR INTERIM\_B10 = 1 OR INTERIM\_C10 = 1 OR INTERIM\_D10 = 1 OR  
INTERIM\_E10 = 1 OR INTERIM\_F10 = 1 OR INTERIM\_G10 = 1 OR INTERIM\_H10 = 1  
    **THEN** DIAG\_10 = 1  
**ELSE** DIAG\_10 = 0

**IF** INTERIM\_A11 = 1 OR INTERIM\_B11 = 1 OR INTERIM\_C11 = 1 OR INTERIM\_D11 = 1 OR  
INTERIM\_E11 = 1 OR INTERIM\_F11 = 1 OR INTERIM\_G11 = 1 OR INTERIM\_H11 = 1  
    **THEN** DIAG\_11 = 1  
**ELSE** DIAG\_11 = 0

**IF** INTERIM\_A12 = 1 OR INTERIM\_B12 = 1 OR INTERIM\_C12 = 1 OR INTERIM\_D12 = 1 OR  
INTERIM\_E12 = 1 OR INTERIM\_F12 = 1 OR INTERIM\_G12 = 1 OR INTERIM\_H12 = 1  
    **THEN** DIAG\_12 = 1  
**ELSE** DIAG\_12 = 0



**IF** INTERIM\_A13 = 1 OR INTERIM\_B13 = 1 OR INTERIM\_C13 = 1 OR INTERIM\_D13 = 1 OR  
INTERIM\_E13 = 1 OR INTERIM\_F13 = 1 OR INTERIM\_G13 = 1 OR INTERIM\_H13 = 1  
    **THEN** DIAG\_13 = 1  
**ELSE** DIAG\_13 = 0

**IF** INTERIM\_A14 = 1 OR INTERIM\_B14 = 1 OR INTERIM\_C14 = 1 OR INTERIM\_D14 = 1 OR  
INTERIM\_E14 = 1 OR INTERIM\_F14 = 1 OR INTERIM\_G14 = 1 OR INTERIM\_H14 = 1  
    **THEN** DIAG\_14 = 1  
**ELSE** DIAG\_14 = 0

**IF** INTERIM\_A15 = 1 OR INTERIM\_B15 = 1 OR INTERIM\_C15 = 1 OR INTERIM\_D15 = 1 OR  
INTERIM\_E15 = 1 OR INTERIM\_F15 = 1 OR INTERIM\_G15 = 1 OR INTERIM\_H15 = 1  
    **THEN** DIAG\_15 = 1  
**ELSE** DIAG\_15 = 0

**IF** INTERIM\_A16 = 1 OR INTERIM\_B16 = 1 OR INTERIM\_C16 = 1 OR INTERIM\_D16 = 1 OR  
INTERIM\_E16 = 1 OR INTERIM\_F16 = 1 OR INTERIM\_G16 = 1 OR INTERIM\_H16 = 1  
    **THEN** DIAG\_16 = 1  
**ELSE** DIAG\_16 = 0

**IF** INTERIM\_A17 = 1 OR INTERIM\_B17 = 1 OR INTERIM\_C17 = 1 OR INTERIM\_D17 = 1 OR  
INTERIM\_E17 = 1 OR INTERIM\_F17 = 1 OR INTERIM\_G17 = 1 OR INTERIM\_H17 = 1  
    **THEN** DIAG\_17 = 1  
**ELSE** DIAG\_17 = 0

**IF** INTERIM\_A18 = 1 OR INTERIM\_B18 = 1 OR INTERIM\_C18 = 1 OR INTERIM\_D18 = 1 OR  
INTERIM\_E18 = 1 OR INTERIM\_F18 = 1 OR INTERIM\_G18 = 1 OR INTERIM\_H18 = 1  
    **THEN** DIAG\_18 = 1  
**ELSE** DIAG\_18 = 0

**IF** INTERIM\_A19 = 1 OR INTERIM\_B19 = 1 OR INTERIM\_C19 = 1 OR INTERIM\_D19 = 1 OR  
INTERIM\_E19 = 1 OR INTERIM\_F19 = 1 OR INTERIM\_G19 = 1 OR INTERIM\_H19 = 1  
    **THEN** DIAG\_19 = 1  
**ELSE** DIAG\_19 = 0

**NOTE:** For diagnoses, INVALID means that the format of the diagnosis code does not meet the following criteria

For M0230, the pattern must be:

- Character 1 must be a space.
- Character 2 must be a 0 (zero) thru 9 or a "V".
- Characters 3 thru 4 must be 0 thru 9.
- Character 5 must be a decimal point.
- Characters 6 and 7 must be 0 (zero) thru 9 or space.
- If character 6 is a space, then character 7 must be a space.

For M0240, the pattern must be one of the following two forms (Pattern A or Pattern B):

Pattern A:

- Character 1 must be a space or "E".
- Character 2 must be a 0 (zero) thru 9.
- Characters 3 thru 4 must be 0 thru 9.
- Character 5 must be a decimal point.

- Characters 6 and 7 must be 0 (zero) thru 9 or space.
- If character 6 is a space, then character 7 must be a space.

Pattern B:

- Character 1 must be a space.
- Character 2 must be "V".
- Characters 3 thru 4 must be 0 thru 9.
- Character 5 must be a decimal point.
- Characters 6 and 7 must be 0 (zero) thru 9 or space.
- If character 6 is a space, then character 7 must be a space.

For M0245, the pattern must be:

- Character 1 must be a space.
- Character 2 must be a 0 (zero) thru 9.
- Characters 3 thru 4 must be 0 thru 9.
- Character 5 must be a decimal point.
- Characters 6 and 7 must be 0 (zero) thru 9 or space.
- If character 6 is a space, then character 7 must be a space.

**IF** M0230\_PRIMARY\_DIAG\_ICD = BLANK, INVALID **OR** M0230\_PRIMARY\_DIAG\_SEVERITY NOT = 00,01,02,03,04 **OR** M0240\_OTH\_DIAG1\_ICD = INVALID **OR** M0240\_OTH\_DIAG2\_ICD = INVALID **OR** M0240\_OTH\_DIAG3\_ICD = INVALID **OR** M0240\_OTH\_DIAG4\_ICD = INVALID **OR** M0240\_OTH\_DIAG5\_ICD = INVALID **OR** M0245\_PMT\_ICD1 = INVALID **OR** M0245\_PMT\_ICD2 = INVALID

**THEN**

- DIAG\_1 = MISSING
- DIAG\_2 = MISSING
- DIAG\_3 = MISSING
- DIAG\_4 = MISSING
- DIAG\_5 = MISSING
- DIAG\_6 = MISSING
- DIAG\_7 = MISSING
- DIAG\_8 = MISSING
- DIAG\_9 = MISSING
- DIAG\_10 = MISSING
- DIAG\_11 = MISSING
- DIAG\_12 = MISSING
- DIAG\_13 = MISSING
- DIAG\_14 = MISSING
- DIAG\_15 = MISSING
- DIAG\_16 = MISSING
- DIAG\_17 = MISSING
- DIAG\_18 = MISSING
- DIAG\_19 = MISSING

**{[SHOULD NEVER OCCUR]}**