**17 December 2018**

Direct Care Dental Encounter Data (DED)

for the

MHS Data Repository (MDR)

(Version 1.03.03)

Current Specification

**Revision History**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Version** | **Date**  | **Originator** | **Para/Tbl/Fig** | **Description of Change** |
| 1.00.00 | 04/27/2011 | C. Kangas | * Whole Document
 | Initial version |
| 1.01.00 | 09/24/2012 | A. Hong | * Table 2
* Table 3
* Added Appendix A - E
 | Added external reference file mergesUpdated and added data elementsAdded Appendix A – E |
| 1.01.01 | 10/11/2012 | A. Hong | * Table 3
 | Updated field names |
| 1.02.00 | 06/06/2016 | A. Hong | * Tables 2 and 3
* Updated Appendix D
 | Updated logic for application of DWVsAdditional HIPAA Provider Specialty Codes were added  |
| 1.03.00 | 04/12/2017 | A. Hong | * Table 3
* Updated Appendix B
 | Updated and added data elements (CDTMOD) |
| 1.03.01 | 10/2/2017 | W. Funk | * Table 2
* Table 3
 | Changed DMIS ID Table Join ruleUpdated table 3 for NDAA 2017 and T2017 |
| 1.03.02 | 10/4/2017 | W. Funk | * Appendix F
 | Corrected a typo on ACV Group |
| 1.03.03 | 12/17/2018 | A.Hong | * Table 3
* Appendix A
 | Added rule for CTS merge to Table 3Added additional wording for CDA DMIS ID crosswalk |

**Direct Care Dental Encounter Data (DED) for the MDR**

1. Background:

The U.S. Army Dental Command (DENCOM) is responsible for the operation of the Corporate Dental Application (CDA) data repository. CDA is used to collect, process, and archive dental workload, readiness, and patient scheduling data for active duty service members (ADSMs) treated at Army and Air Force Dental Treatment Facilities (DTF). CDA data is being sent to the MDR for incorporation into tri-Service MDR DED files. The Navy has historically used a separate dental system (DENCAS) that did not capture data at the level of detail to support inclusion in the MDR DED file. Starting in FY15, the Navy began transitioning all its DTFs to use the CDA to capture workload.

1. Source:

There is one primary feed provided by CDA that contains both workload and readiness data to the MDR. The format of this input file is available in the ICD.

1. Transmission (Format and Frequency):

The data feeds are transmitted monthly according to the rules specified in the MOA between DENCOM and TMA, which specifies the 10th calendar day of each month.

1. Organization and Batching

Source Data: The first step in MDR processing is to store the raw files in

/mdr/raw/dental/ded/d*yymmdd.txt.Z*

where “yymmdd” represents the date of the file. Raw batches must be made available (and remain available) to the staff at TMA that will process the raw data.

Output Products: The MDR DED processor produces the files described in table 1. The preparation of them is described in subsequent sections of this document.

**Table 1: MDR DED Processor Output Products**

|  |  |  |
| --- | --- | --- |
| **MDR File** | **File Naming Convention** | **Member Name** |
| DED SAS Dataset | /mdr/pub/dental/ded/ | fy\*\*.sas7bdat |

Archival of files is also required, so that corresponding “apub” and other files (i.e., log, aprod, etc) are also loaded into the MDR according to routine operating procedures.

1. Receiving Filters

No filters are applied to the source data.

1. Update Process

The MDR DED files will be updated on a monthly basis.

The raw encounter feed from CDA contains treatment level information, meaning that each record represents a single encounter by an ADSM at a DTF. Each month, the feed from CDA will represent only new records for that month. The monthly file will need is appended to the master file and processed.

Minimal additional processing occurs, including applying routine MDR processing utilities to enhance the content of the data.

1. Field Transformations and Deletions for MDR Core Database

There are several merges required to prepare the MDR DED File. An asterisk after the merge file name indicates that existing MDR processing utilities should be used.

**Table 2: External Reference File Merges**

| **Merge** | **Date Matching** | **Additional Matching** |
| --- | --- | --- |
| DMIS ID Index | DMIS ID Table | FY |
| CDA DMIS ID Table |  | DMISID\_RAW |
| Master Person Index\* | Most recent MPI is used for fiscal year that matches the end date of care of each record. | See VM-6 Specifications |
| LVM\* | Use LVM file that matches begin date of care on each record. | See VM-6 Specification |
| Relative Value Unit Table | Calendar year of begin date of care with calendar year of RVU Table | CDT  |
| ADDP Service Area File[[1]](#footnote-1)  | FY/FM | Patient zip code |
| Omni-CAD | FY/FM | Zip Code and Sponsor Service (A=Army, F=Air Force, N=Navy and all others = O) |
| Reservist Status Code | Begin date of care | EDIPN |
| CTS | Treatment Date vs. Dates of Deployment (except for “ever deployed flag”) | Person ID  |
| DMHRSi HR Basic File | Most recent DMHRSi HR Basic file is used | Provider SSN |
| NPPES (National Plan and Provider Enumeration System) | Use most recent NPPES table | NPI |
| Dental Weighted Values | FY (before 1/1/2016) or CY (starting 1/1/2016) of end date of service with DWV Tables | CDT |

Business rules for each of the appended fields that result from the merges above, are described in the body of the table in Section VIII, or in an appendix, referenced in that table.

1. Record Layout and Content

The MDR DED file is a SAS Dataset. Table 3 describes the content of the MDR DED File.

**Table 3: MDR DED SAS Dataset Structure and Business Rules**

| **Data Element** | **SAS Name** | **Format** | **Input Position in Source Feed** | **Business Rule** |
| --- | --- | --- | --- | --- |
| Sponsor SSN – Raw | rsponssn | $9 | 2 | No transformation |
| Sponsor Service – Raw | rsponsvc | $1 | 3 | No transformation |
| Dental Readiness Classification | drc | $1 | 7 | No transformation |
| Dental Treatment Facility Name | dtf | $30 | 8 | No transformation |
| DMIS ID - Raw | dmisid\_raw | $6 | 9 | No transformation |
| Provider SSN | provssn | $9 | 10 | No transformation |
| **Internally Derived Fields and Secondary Fields (Derived from other merged data)** |
| FY | fy | $4 | N/A | FY is created from encounter date. |
| FM | fm | $2 | N/A | FM is created from encounter date. |
| CY | cy | $4 | N/A | Calendar year of encounter date |
| CM | cm | $2 | N/A | Calendar month of encounter date |
| Initial Processing Date (MDR) | procdate | yyyymmdd | N/A | Set to the initial date that this record was prepared for the MDR |
| Change Date (MDR) | chgdate | yyyymmdd | N/A | Set to the most recent date that any data element on the MDR record was changed. For records that never change, this will be equal to the initial processing date. |
| Age | patage | 3 | N/A |  Patient’s age is calculated from date of birth and encounter date. |
| Age Group | agegrp | $1 | N/A | A: ages 0-4; B: ages 5-14, C: ages 15-17, D: ages 18-24, E: 25-34, F: 35-44, G: 45-64, H: 65+, X: All others |
| Ben Cat Common  | comben | $1 | N/A | If bencat in (‘ACT’ GRD’) then =4, If bencat in (‘DA’ ‘DGR’) then =1;If bencat = ‘RET’ then=2;Otherwise = 3 |
| New Record Flag | new\_rec | $1 | N/A | Set to 1 if this version of the record was received in most recent processing cycle. Otherwise, set to 0. |
| Extract Date | extr\_dt | $7 | N/A | The date the data was extracted, dYYMMDD format. |
| DMIS ID | dmisid | $4 | N/A | See Appendix A |
| Current Dental Terminology Procedure Code | cdt | $5 | N/A | See Appendix B |
| Procedure Modifier | cdtmod | $2 | N/A |
| Number of Procedures | svcs | $8 | N/A |
| Treatment Date | encdate | $8 | N/A | Remove all non-numeric character data from the raw ENCDATE field |
| Last Exam Date | last\_exam | $8 | N/A | Remove all non-numeric character data from the raw Last Exam Date field. |
| Patient First Name | patfname | $30 | N/A | See Appendix C |
| Patient Last Name | patlname | $30 | N/A |
| Patient Middle Name | patmname | $30 | N/A |
| Record ID | record\_id | $14 | N/A | yymmddnnnnnnnn where:yymmdd = last six digits of the Extract Datennnnnnnn = sequential |
| Line Number | linenum | $4 | N/A | Sequential within the same record ID |
| Dental Category | enc\_type | $6 | N/A | Grouping of CDTs into categories |
| Provider Specialty | provspec | $3 | N/A | Grouping of HIPAA Taxonomy based on provider NPI into categories (see Appendix D) |
| Provider Type | prov\_type | $3 | N/A | Grouping of HIPAA Taxonomy based on provider NPI into corresponding Direct Care Specialty Codes (see Appendix D) |
| ACV Group | acvgroup | $2 | N/A | If begin date is >=1/1/2018 then:f enr\_grp is “P” then set to “PR” elseif enr\_grp is “L” then set to “PL” elseif enr\_group=”U” then set to “DP” elseif (bencat common=4 and pcm\_type=N) then “R” elseif pcm\_type=”O” then “R” elseif elg\_grp in (“R” “S”) then “O” else “O”For logic prior to Jan 2018, see appendix F |
| **CDA DMISID Table Merge** |
| DMIS ID | dmisid | $4 | N/A | See Appendix A |
| **DMIS ID Merge** |
| Facility Zip Code | faczip | $5 | N/A | Fill with 5 digit zip code of corresponding DMIS ID |
| HSSC Region | hsscreg | $1 | N/A | Fill with HSSC Region of corresponding DMIS ID |
| Treatment DMIS ID T3 Region | mtf\_t3\_reg | $2 | N/A | T3\_REG of treatment MTF |
| Treatment DMIS ID T2017 Region | mtf\_t17\_reg | $2 | N/A | T17\_REG of treatment MTF |
| Enrollment Site T3 region | enr\_t3\_reg | $2 | N/A | T3\_REG of enrollment MTF |
| Enrollment Site T2017 Region | enr\_t17\_reg | $2 | N/A | T17\_REG of enrollment MTF |
| **Master Person Index Merge** |
| DEERS Person ID – Derived | edipn | $10 | N/A | See Appendix E |
| Sponsor SSN – Derived | sponssn | $9 | N/A |
| Person Association Reason Code | parc | $2 | N/A |
| Date of Birth | patdob | yyyymmdd | N/A |
| Patient Gender | patsex | $1 | N/A |
| **Longitudinal DEERS File Merge** |
| DEERS PCM ID | pcmid | $32  | N/A  | Fill with PCM ID from LVM, if the begin date of care on the claim is between the begin and end date associated with the PCM ID.  |
| DEERS Enrollment DMIS ID | denrsite | $4 | N/A | Fill with enrollment DMISID from LVM, if the begin date of care on the claim is between the begin and end date associated with the enrollment site.  |
| DEERS Beneficiary Category | bencat | $3  | N/A  | Fill with DEERS beneficiary category from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS beneficiary category. If no match for person, set to “Z”. |
| DEERS Medicare Flag | medflag | $1 | N/A | Fill with DEERS medicare flag from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS medicare flag. If no match for person, set to “Z”. |
| DEERS Race Code | race | $1 | N/A | Fill with DEERS race code from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS race code. If no match for the person, set to “Z”. |
| DEERS Ethnicity Code | ethnic | $1 | N/A | Fill with DEERS ethnicity code from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS ethnicity code. If no match for the person, set to “Z”. |
| DEERS Sponsor Service | dsponsvc | $1 | N/A | Fill with DEERS sponsor service from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS sponsor service. If no match for the person, set to “Z”. |
| DEERS Sponsor Service Aggregate | dsvcagg | $1 | N/A | Fill with DEERS sponsor service (aggregate) from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS sponsor service (aggregate). If no match for the person, set to “Z”. |
| DEERS Alternative Care Value | acv | $1 | N/A | Fill with DEERS ACV from LVM, if the begin date of care on the claim is between the begin and end date associated with the ACV. Blank fill after 1/1/2018 |
| DEERS Medical Privilege Code | privcode | $1 | N/A | Fill with DEERS medical privilege code from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS medical privilege code. If no match for the person, set to “Z”. |
| DEERS HCDP | hcdp | $3 | N/A  | Fill with DEERS HCDP code from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS HCDP code. |
| DEERS Zip Code | deerszip | $5 | N/A | Fill with DEERS zip code from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS zip code. |
| DEERS Relationship to Sponsor | relcode | $1 | N/A | Fill with DEERS relationship to sponsor code from LVM, if the begin date of care on the claim is between the begin and end date associated with the DEERS relationship to sponsor code. If no match for the person, set to “4”. |
| Dental HCDP Flag | dhcdp\_fl | $1 | N/A | IF the HCDP code from LVM is dental and the encounter date is within the Dental HCDP begin and end date, the patient is eligible (Y) if not the patient is not eligible (N). |
| Enrollment Group | enr\_grp | $2 |  | Fill with enrollment group from LVM, if the begin date of care is between the segment begin and end dates. See DEERS VM-6 Beneficiary specification, Sections G18 and G19 for segment and field numbers. |
| Enrollment PCM Type | pcm\_type | $1 |  | Fill with pcm type from LVM, if the begin date of care is between the segment begin and end dates. See DEERS VM-6 Beneficiary specification, Sections G18 and G19 for segment and field numbers |
| Eligibility Group | elg\_grp | $2 |  | Fill with eligibility group from LVM, if the begin date of care is between the segment begin and end dates. See DEERS VM-6 Beneficiary specification, Sections G18 and G19 for segment and field numbers |
| **MDR Omni CAD Merge** |
| Residence Catchment Area | catch | $4 | N/A | Based on matching FY, FM and deerszip; if sponsvc=A then set equal to ACATCH, if sponsvc = F then set equal to FCATCH; if sponsvc in (M, N, V) then set equal to NCATCH, otherwise set equal to OCATCH. If zip code not found in MDR Omni-CAD, set equal to ‘0999’ |
| Residence Prism Area | prism | $4 | N/A | Based on matching FY, FM and deerszip; if sponsvc=A then set equal to APRISM, if sponsvc = F then set equal to FPRISM; if sponsvc in (M, N, V) then set equal to NPRISM, otherwise set equal to OPRISM. If zip code not found in MDR Omni-CAD, set equal to ‘0999’ |
| Residence Region | resreg | $2 | N/A | MOD\_REG, based on matching FY, FM and deerszip |
| Residence TNEX Region  | restnex | $1 | N/A | HSSCREG, based on matching FY, FM and deerszip |
| Patient MTF Service Area | mtfsvcarea | $4 | N/A | Based on matching FY, FM, zip and sponsor service (A=Army, F=Air Force, N, M and V =Navy. All others = Other |
| Provider Catchment Area | pvcatch | $4 | N/A | Based on matching FY, FM and facvzip; set = OCATCH. If provzip not found in MDR Omni-CAD, set equal to ‘0999’ |
| Provider Prism Area | pvprism | $4 | N/A | Based on matching FY, FM and faczip; set = OPRISM. If provzip not found in MDR Omni-CAD, set equal to ‘0999’ |
| Provider TNEX Region | pvtnex | $1 | N/A | HSSCREG, based on matching FY, FM and deerszip |
| Provider MTF Service Area | pmtfsvcarea | $4 | N/A | Based on matching FY, FM, faczip.  |
| Beneficiary T3 Region | ben\_t3\_reg | $2 | N/A | Based on matching FY, FM, patzip |
| Beneficiary T2017 Region | ben\_t17\_reg | $2 | N/A | Based on matching FY, FM, patzip |
| Provider T3 Region | prov\_t3\_reg | $2 | N/A | Based on matching FY, FM, faczip |
| Provider T17 Region | prov\_t17\_reg | $2 | N/A | Based on matching FY, FM, faczip |
| **Reservist Attributes Merge** |
| Reservist Status | res\_stat | $1 | N/A | Populate with reservist status from MDR Reservist format file, if the begin date of care is between the begin and end dates of the reservist status code. |
| Special Operations Code | soc | $2 | N/A | Populate with special operations code from MDR Reservist format file, if the begin date of care is between the begin and end dates of the reservist status code. |
| **Dental Weighted Values Table Merge** |
| Dental Weighted Value | dwv | 7.2 | N/A | Match to DWV tables based on CDT and either FY or CY to retrieve DWV. For date matching, use FY tables before 1/1/2016 and CY table DWVs starting 1/1/2016. Use FY15 DWV table for the 10/2015-12/2015 period.  |
| **Relative Value Unit Table Merge** |
| Work RVU | rvu | 7.2 | N/A | Match to RVU table based on CDT and CY and retrieve purchased care work RVU. |
| Facility Practice Expense RVU | facpervu | 7.2 | N/A | Match to RVU table based on CDT and CY and retrieve practice expense RVU (Facility) |
| Non-facility Practice Expense RVU | nfpervu | 7.2 | N/A | Match to RVU table based on CDT and CY and retrieve practice expense RVU (Non-facility) |
| **ADDP Service Area Merge** |
| ADDP Service Area | raddpfl | $1 |  | Based on matching patient zip code to the zip code to the monthly Service Area File (SAF). If the Remote Active Duty Field on the SAF file is coded as ‘1’ then the patient is eligible for Remote Active Duty Dental Program (1=eligible) and ‘0’ if not (0=not eligible).  |
| **DMHRSi HR Basic File** |
| National Provider ID | NPI | $10 |  | Based on matching Provider SSN |
| **NPPES File** |
| Provider Specialty, HIPAA | HIPAASPEC | $10 | N/A | Fill with the first HIPAA Taxonomy field based on matching Provider SSN |
| **CTS Merge** |
| Ever Deployed Flag | ever\_dep | $1 |  | Based on Treatment Date and Person ID |
| Days Since Most Recent Deployment | days\_since | 7 |  | Based on Treatment Date and Person ID |
| Cumulative Deployed Days | dep\_days | 4 |  | Based on Treatment Date and Person ID |
| Deployed Flag | deploy | $1 |  | Based on Treatment Date and Person ID |

1. Refresh Frequency

Monthly

1. Quality Review Requirements

In order to ensure processing is done correctly, several basic quality review requirements are presented in this section.

1. Basic Data Flow Process Check: A spreadsheet should be maintained that tracks record counts associated with each data step used in processing. Record counts from the raw monthly feeds should be recorded and checked. Significant variations in DED data should be noted and explored with BEA.
2. File Size: Record counts should increase as the files are updated.
3. Proc contents should be reviewed and compared against specifications to ensure conformance.
4. Frequency tabulations should be compared from cycle to cycle for the following variables: enrollment group, age group, beneficiary category, cdt, cy, cm, fy, fm, deers enrollment site, dmisid,ethnic code, patient’s sex, privilege code, race, residence region, residence TNEX region, service, common beneficiary.
5. Each month the values observed in certain fields should be checked to see if new or modified values are introduced. Fields that should be checked include raw fields used by the processor to derive other fields, and raw fields used to control the flow of processing.
6. Routine feed and file management procedures should be followed for the MDR DED processor.
7. Data Marts

The M2 receives an extract of the DED file whenever the MDR DED file is updated. The layout for this file is described in the M2 specification posted on the DHCAPE website (http://www.tricare.mil/ocfo/bea/functional\_specs.cfm).

1. Special Outputs

N/A

**APPENDIX A: Business Rule for DMIS ID Processing**

The DMIS ID that comes in on the raw data is the CDA DMIS ID which is 6 characters and includes alphanumeric characters along with non-alphanumeric characters. In order to merge to the MDR DMIS ID table, the CDA DMIS ID needs to be cross-walked to its 4 digit DMIS ID counterpart.

During the processing cycle, the DMISID logic below may not correctly assign new DMIS IDs to the raw CDA DMIS ID. In this case, an updated CDA DMIS ID to DMIS ID crosswalk will be provided the following month.

DMIS ID merging process:

1. First merge to the CDA DMIS ID to DMIS ID crosswalk table – this is provided by CDA. CDA will provide a new crosswalk table if there are any changes.
2. For any DMISID\_RAW that do not have a match from the CDA crosswalk table, then they must be manually matched. Logic is below:
	1. All non-numeric and non-alphanumeric characters must be removed first
	2. Any DMISID\_RAW whose corresponding Dental Treatment Facility Name (DTF) has “EUCOM” or “CENTCOM” or whose first 2 characters of DMISID\_RAW is “15” is automatically given a DMIS ID of “LINE”
	3. If the DMISID\_RAW is 6 characters, then take the last four characters.
	4. If the DMISID\_RAW is 5 characters, then take the first four characters.
	5. If the DMISID\_RAW is 4 characters, then use all four characters

**APPENDIX B: Business Rule for CDT Processing**

While the raw DED is pipe delimited, the length of the CDT field can vary as each

record contains a minimum of 1 CDT and procedure code separated by commas.

Beginning CY17, modifiers were added the dental procedure codes in the raw data (XXXXX.XX). The dental procedure code must be sent through the DWV format as 8 character (XXXXX.XX) to pick up the associated DWVs. However, for the RVU format, the first five characters of the dental procedure code is sent through the RVU format. In the final DED dataset, the 8 character dental procedure code should be split out to the five character procedure code for the CDT field (first five characters) and then the two character modifier code for the CDT modifier field (last two characters).



Example:

CDT(Number of procedures)



Each CDT and Number of procedures must be separated so that each has its own field.



**APPENDIX C: Business Rule for Patient name Processing**

The raw DED data has one field that contains the patient’s name (first, last and middle).

These must be separated so that each has its own field (patfname, patmname, and

patlname). In addition, “AF2322” and “BULK LAB XRAY” records must be separated before

name processing and all non-numeric characters and name prefix (e.g. 1LT, KA, LT, CPL…)

must be removed.

“AF2322” and “BULK LAB XRAY” are manually assigned an EDIPN of “9999999999” to allow

for separation and identification in M2

**APPENDIX D: Business Rule for Provider Specialty and Provider Type Processing**

Provider information on the raw DED data is limited to provider SSN. In order to populate

NPI, data must be merged to the DMHRSi HR Basic file based on provider SSN. Using the

NPI from the DMHRSi merge, the data must then be merged to the National Plan and

Provider Enumeration System (NPPES) to derive the provider specialty code. From the

NPPES, use the first listed provider specialty code (HIPAA Taxonomy 1) which is then

mapped to a three digit provider specialty code and the corresponding 3 digit Direct Care

Provider Specialty Code.

HIPPA Taxonomy to 3-digit provider specialty and provider type code mapping:



**APPENDIX E: Business Rule for MPI Merge**

The raw DED data contains sponsor SSN and a field called “ISCDSSSPON”.

Rules for ISCDSSSPON:

Family member workload is captured under the sponsor’s SSN but with the family member’s

name (in Patient Name). If “ISCDSSSPON” is 1 then the sponsor SSN is the actual patient’s

SSN (therefore the Patient Name is the sponsor’s name”. If “ISCDSSSPON” is 0 then the

sponsor SSN is for the sponsor not the actual patient (therefore the Patient Name is not the

sponsor’s name). The “ISCDSSSPON” is based on the “Raw Sponsor Service” field

(RSPONSVC).



Rules for MPI merge to pull in EDIPN, SPONSSN, PATDOB, and PARC

Because the data contains sponsor SSN and the patient name (which can be the name of

the sponsor or the family member) a number of merges must be made to the MPI data to

pull in the required MPI fields.

1. The data is first broken out by sponsor records (ISCDSSSPON = ‘1’) and those of the family members (ISCDSSSPON = ‘0’).
2. The first MPI merge is for sponsor records based on SPONSSN only
3. The second MPI merge is for family members based on SPONSSN, first and last name.

APPENDIX F: ACV GROUP:

For FY03 and before:

If ACV = A, D, or E then “PR”

Else if ACV = G or L then “PL”

Else if ACV = U then “DP”

Else if Ben Cat Common = 4 then “R”

Else “O”

For FY04 to 1/1/2018:

If ACV = A, E, H, or J then “PR”

Else if ACV = B or F then “OP”

Else if ACV = G or L then “PL”

Else if ACV = U then “DP”

Else if ACV = R or V then “O”

Else if ACV = M or Q then “R”

Else if Ben Cat Common = 4 then “R”

Else “O”

1. This step is only required until the ADDP service area is incorporated into the Omni-CAD [↑](#footnote-ref-1)