Failure to Code: Effects of Medical Coding & Characterization on Data in Deployed Settings

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ABSTRACT

Improper medical coding in deployed environments not only compromises data accuracy utilized for critical decision-making, but also directly impacts the quality of care provided to service members in those operational areas. Addressing these deficiencies is a matter of improving processes, operational readiness, and troop welfare. Since billing is not a required function within these operational areas, encounter coding and characterizations in theater level medical treatment facilities (MTFs) is an often-overlooked aspect of medical documentation. As most personnel are not always trained in this task (often relying on certified coders in their home MTFs), they may not realize that coding and characterization has an additional (along with historical) function in ensuring accurate data is being produced providing a solid overview of the workload at their facilities. With the daunting task to "Conserve Fighting Strength" of the force, medical leaders require accurate and actionable information to infer where and what kind of support is needed to ensure that deployed service members are receiving the best care possible. When the importance of coding is under emphasized, the quality of the data being reported cannot be trusted, preventing leaders from understanding what is truly happening on the ground. This review discusses the current state of medical coding and patient encounter characterization within the operational environment and what must be done to improve data quality created by deployed MTFs.

INTRODUCTION

Veda Bawo, the senior vice president and managing director of Enterprise Data Quality and the Enterprise Data Office's program management stated, "You can have all the fancy tools and you can have a million data scientist, but if the quality is not good or not sufficient, then you're nowhere."[1] Her words describe one of the most fundamentally important aspects of data analytics which can be further simplified by the old computer science adage: garbage in, garbage out. This is applicable to all aspects of the Military Health System (MHS) but is critical in today's operational environment, where every piece of data can be the difference between mission success and mission failure, the quality of the information produced by these facilities cannot be overstated nor overlooked. Yet when the mechanisms created for ensuring accurate data collection are knowingly (or unknowingly) bypassed and/or incorrectly utilized, the story being told now becomes a work of fiction. The tool employed by healthcare workers to tell their patients' stories is the electronic health records (EHRs) and data quality of the EHR is ensured by utilizing a unified language understood by medical professionals across the world: medical coding. Failure to accurately code and characterize patient encounters can trigger a butterfly effect of issues that affect data integrity and the health and safety of our service members. This article explores the challenges, root causes, and proposes solutions that will ensure medical coding and characterization of patient encounters in deployed areas of operations supports the highest standards of military healthcare.

Before one can understand those three areas discussed within this article, understanding the origins and purposes of medical coding is essential to appreciating its role within both the civilian and MHS. While coding may have initially been developed for tracking global health trends, its growth and evolution has made it a keystone of data quality and patient care delivery in both civilian and military context.

BACKGROUND AND IMPORTANCE OF MEDICAL CODING, CHARACTERIZATION, AND THE EHR

History

The American Academy of Professional Coders defines medical coding as "the transformation of healthcare diagnosis, procedures, medical services, and equipment into universal medical alphanumeric codes."[2] While medical coding has a significant role to play in revenue cycle management, historically it was created for an entirely different purpose. Medical coding was initially created as a way for the World Health Organization (WHO) to track mortality rates and internation health trends which later evolved to include clinical diagnoses to assist with providing additional statistical data on basic healthcare.[3] This statistical analysis can be accomplished because all universally accepted diagnoses and procedures in use within the healthcare industry have their own unique code whose meaning can be understood by all that have implemented its use. These codes are constantly updated to keep up with new advances and discoveries in medical science. Besides supporting data

analysis and cost recovery programs, medical coding supports the continuity of patient care, MHS enterprise resource allocation, the integrity of MHS information, performance measurement, quality management, provider productivity, and research.[4] Within the United States healthcare system (to include the MHS), three of most important medical coding systems currently utilized are:

• The International Classification of Disease – Version 10 (ICD-10): Serves to record and report health and health-related conditions globally.[5]

• Current Procedural Terminology (CPT): Utilized to communicate procedures performed by healthcare personnel.[6]

• The Healthcare Common Procedure Coding System (HCPCS): Utilized to report procedures and bill for supplies.[1]

For purpose of discussion, the use of the phrase "medical coding" or "coding" applies only to ICD-10 codes as they are the only ones utilized by MTFs operating in deployed environments where billing and reimbursement functions are not expected.

Characterization

With more than 68,000 ICD-10 codes in use, coding alone cannot be the only means of organizing data from patient encounters. In order to truly derive trends, the data must be categorized under common characteristics that allows for statistical test and analysis to be performed. Within the current operational environment, there are currently 18 broader characterizations in use by deployed MTFs that all patient encounters can be sub-divided which provides a macro view of what is happening on the ground. Those characterizations are:

- • All Other, Medical/Surgical
- • Combat/Operational Stress Reaction
- • Dental
- • Dermatological
- • Fever, Unexplained
- • Gastrointestinal, Infectious
- • Gynecological
- • Heat/Cold
- • Injuries, Motor Vehicle Accidents
- • Injury, Other
- • Injury, Recreational/Sports
- • Injury, Work/Training
- • Misc./Admin/Follow-up
- • Neurological
- • Ophthalmological
- • Psychiatric, Mental Disorders
- • Respiratory
- • Sexually Transmitted Diseases

With these characterizations, basic level inferences can be extrapolated about the health of the force. From here, more detailed test can continue to be conducted as inquiries are made. For example, a test can be performed that can provide the total numbers of behavioral health related encounters. From there, further analysis can dig into what sites those encounters are being created, a breakdown of the ranks of the patients being treated (i.e. junior enlisted, Senior Non-Commissioned Officers, Junior Officers, etc.), gender of the patients, etc. It can provide

higher commands with a quantifiable metric to facilitate determining where and who they need to target to provide more resources and assistance.

The EHR

To facilitate patient care documentation, the companion to medical coding and characterization is the use of EHRs as the modern system of record. While use of EHRs within the US civilian healthcare system has been around since the 1960s, mandatory use of EHRs within the Department of Defense (DoD) did not began until after President William Clinton's 1997 directive following recommendations made from the Presidential Advisory Committee on Gulf War Veterans' Illnesses.[7] This requirement for EHR use by the DoD was further extended to use in deployed environments in 2008 with the passing of Assistant Secretary of Defense (ASD) Health Affairs (HA) Policy 08-017.[8] The policy requires only Theater Medical Information Program-Joint (TMIP-J) applications be utilized to document outpatient, inpatient, and ancillary care provided in a deployed environment. For the Army, those EHRs are currently the Health Assessment Lite Operations (HALO) for outpatient care, and the TMIP-J Composite Health Care System Cache (TC2) for inpatient care. While these EHRs are the start of the patient care documentation process, they are only the beginning.

Once a disposition has been reached, all patient records and data are immediately transmitted to the Theater Medical Data Store (TMDS) and from there, to the Joint Longitudinal Viewer (JLV) (See Figure 1). TMDS is a Non-Classified Internet Protocol Router Network (NIPRNet)-based web system that allows providers to view and document a patient's complete operational electronic health record by compiling his/her health history from various electronic military health care systems within the operational environment.[9] The JLV is a clinical application that provides an integrated, read-only display of health data from the Department of Defense (DOD), Department of Veterans Affairs (VA), and provider organizations outside the

federal health care systems in a common data viewer.[10] TMDS is a one-stop shop for only deployment related health records while JLV includes deployment and non-deployment health records from all sources within the MHS along with the Department of Veterans Affairs (VA). It is within these two

Fig 1. Patient information data map.
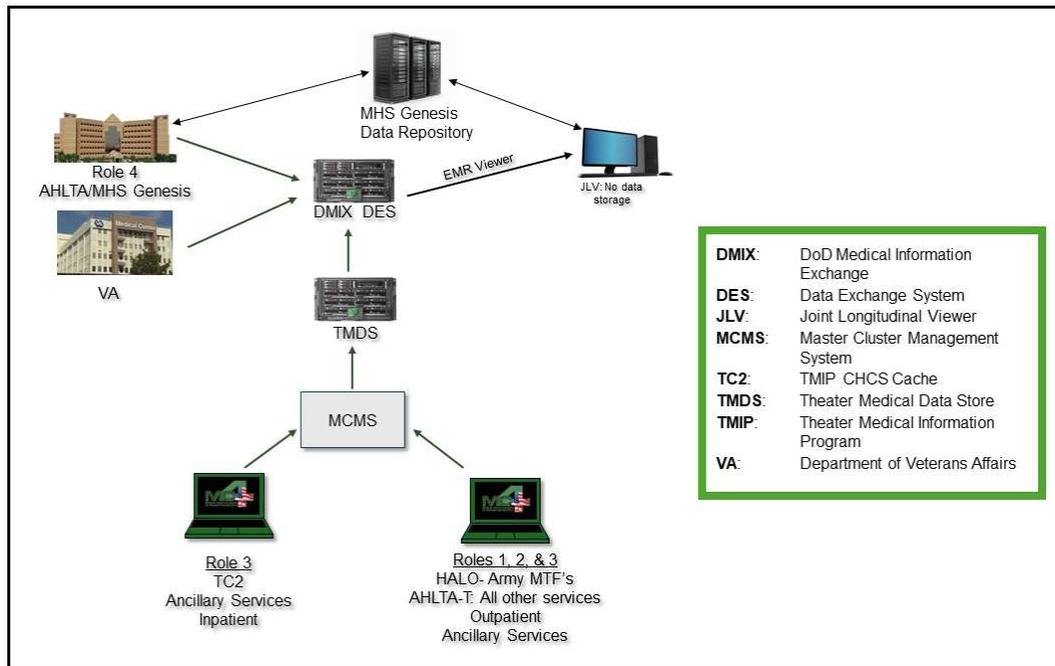
programs where quality of the data being produced comes under scrutiny by analyst and leaders outside of the MTF where the documentation was initially produced.

DATA QUALITY

In September 2013, the MITRE Corporation submitted a report titled "U.S. Army MEDCOM MODS" where they conducted four case studies related to data quality. Within the report, they identified six characteristics that good data typically exhibits:[11]
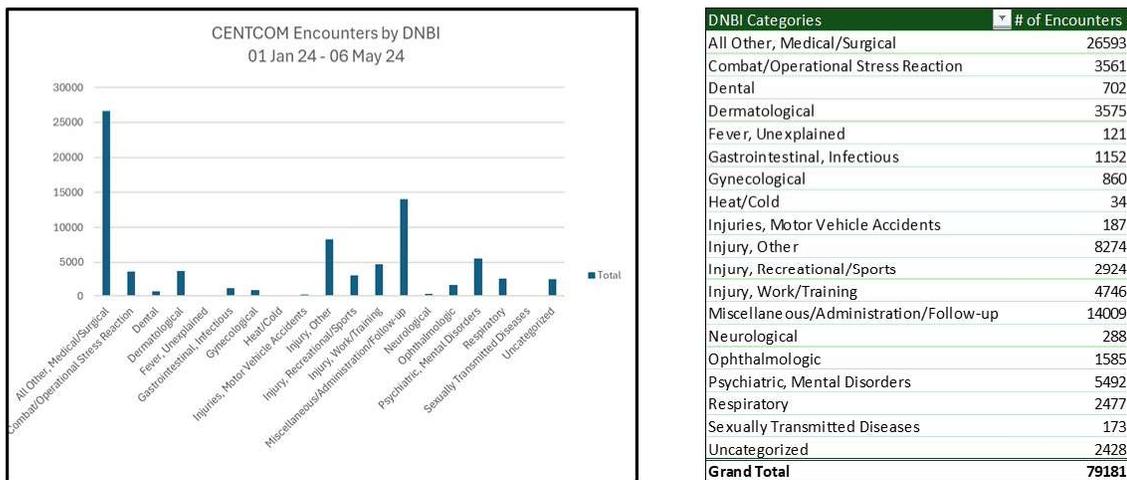
- • Accuracy:
  - ◦ Degree to which data correctly reflects the real world or a surrogate source (Correctness).
  - ◦ Degree to which reported information values conform with the true or accepted values (Fitness).
- Consistency/Validity:
  - ◦ Degree to which data is synchronized across all sources.
  - ◦ Degree of freedom from variation or contradiction (historical/referential/corroborative).
  - ◦ Degree of satisfaction of constraints (including syntax/format/semantics).
- Completeness/Brevity:
  - ◦ Degree to which expected records are present, and data attributes are populated.
  - ◦ o Degree to which duplicate entities are identified and appropriately resolved.
  - ◦ o Degree to which values not needed for decision

making are excluded.
- Timeliness:
  - ◦ Time/Utility; Degree to which currentness of data values renders them useful.
  - ◦ Degree to which specified data values are up to date between data change and processing.
- Pedigree/Lineage/Provenance:
  - ◦ History of data origin and subsequent ownership and transformation for traceability.
- Precision/Certainty:
  - ◦ Level of detail or exactness (significant digits, rounding, truncation, resolution, sampling rate, etc.).
  - ◦ Confidence in value (vs. imprecise, approximate, uncertain, probabilistic, or fuzzy.

For clinicians, documenting patient encounters based on the standards above is one of their most important responsibilities as inaccurate and/or incomplete documentation can have a detrimental effect on the patient's records and can potentially cause a negative patient outcome/patient safety event. Coding plays its part as it provides a clear explanation of what the patient is treated for, and procedures/interventions performed in a universally understood word or phrase. Each code utilized is expected to be supported with findings recorded within the patient's chart by the treating provider. A positive consequence certifies that data inquiries, using the codes as a search filter, displays information that meets all characteristics of good data quality, making it usable for analysis and decision making. Despite the crucial role medical coding and characterization has on data quality, deployed environments present unique

Fig 2. CENTCOM Encounters by DNBI.

DNBI Categories	# of Encounters
All Other, Medical/Surgical	26593
Combat/Operational Stress Reaction	3561
Dental	702
Dermatological	3575
Fever, Unexplained	121
Gastrointestinal, Infectious	1152
Gynecological	860
Heat/Cold	34
Injuries, Motor Vehicle Accidents	187
Injury, Other	8274
Injury, Recreational/Sports	2924
Injury, Work/Training	4746
Miscellaneous/Administration/Follow-up	14009
Neurological	288
Ophthalmologic	1585
Psychiatric, Mental Disorders	5492
Respiratory	2477
Sexually Transmitted Diseases	173
Uncategorized	2428
Grand Total	**79181**

challenges that hamper its effective implementation. Without proper coding practices, the data produced is unreliable and potentially dangerous, undoubtedly leading to misinformed decisions that can have a detrimental effect on the entire mission.

CHALLENGES IN A DEPLOYED SETTING

Trends

Recent audits were conducted on 79,181 patient encounters created within the U.S. Central Command's (CENTCOM's) Area of Responsibility (AOR) from January 1, 2024, to May 6, 2024 (See 2) to gauge the most common types of encounter data produced by medical teams. The data was pulled utilizing a "Task Force Report" option within TMDS. While the breakdown does not appear to show any significant discrepancies, a deeper dive into the encounters shows that this is not the case. Due to inaccurate encounter characterization and medical coding by members of the medical staffs on ground, the component commands are not able to get an accurate picture of the workload being seen within theater as it does not meet the standards necessary for it to be classified as "good quality."

In Figure 2 that the largest types of encounters seen during the date range were classified as "All Other, Medical/Surgical." On closer inspection during spot checks, it

becomes apparent that a significant number of encounters do not meet the criteria to be categorized as such. For example, Figure 3 shows an encounter for a patient presenting with ankle pain that occurred from "stepping awkwardly while in ruck gear." With a clear diagnosis made for an ankle sprain, the injury should have been characterized as an "Injury, Work/Training." In another example, Figure 4 shows an encounter for a body composition test. While the encounter is diagnosed and coded correctly, it is categorized incorrectly as a "Med/Surg" instead of a "Misc/Admin/Follow-up."

Figure 5 is a screen shot of a portion of the report showing a significant number of encounters diagnosed and coded as an "Encounter for Administrative Examinations, Unspecified (Z02.9)". This code is to only be utilized for patient encounters that are being evaluated and seen for administrative or regulatory purposes by health services such as the body composition encounter in Figure 4, Periodic Health Assessments, annual eye exams, etc. It should NEVER be utilized as a primary diagnosis for any other injury or illness. When scanning through Figure 5, two encounters warrant further investigation as their characterizations do not align with a Z02.9 diagnosis. In Figure 6, the chief complaint listed is for abdominal and groin pain that was reported to have presented itself while the patient was training for an ACFT. The encounter was also listed as "Uncategorized" and classified as a "Battle Injury." If a definitive diagnosis cannot be determined, ICD-10 coding guidelines stipulates "it is appropriate to report codes for sign(s) and/ or symptom(s) in lieu of a definitive diagnosis." In this case, the diagnosis (at minimum) should have been coded as "Unspecified Abdominal Pain (R10.9). Also, for an encounter to be classified as a "Battle Injury", the injury must have occurred as a direct result of enemy action/attack. The following shows an example of

Fig 3. Patient example.

(S93.401A) SPRAIN OF UNSPECIFIED LIGAMENT OF RIGHT ANK Initial Visit   Non-Battle Injury (NBI)   All Other, Medical/Surgical

HISTORY OF PRESENT ILLNESS: ████ presents to the clinic with complaints of R ankle pain. This started 3 months ago. Mechanism of injury was: stepping awkwardly while in ruck gear. Pain is better since its onset. Remitting factors are rest. Aggravating factors are "moving foot up and down". Patient denies N/T.

Fig 4. Example Series

Encounter Information

Encounter Date: 03/29/2024 0733   Facility: ███████████

Primary diagnosis: (Z02.9) Encounter for administrative examinations, unspecified

Disposition: RETURN TO DUTY   Disposition Date: 03/29/2024 0738

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Subjective Note:
Subjective
New Encounter
•       Patient presents to TMC for Body Composition test.
████████████████           29Mar2024@1038


       ██████████████        29Mar2024@1038

Disposition: Return to Duty; DNBI; All Other, Medical/Surgical;

Signed By: ██████████        29Mar2024@1038+03:00Z
Facility: ████████
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Fig 5. Category example.

Fig 6. Example Series

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(Z02.9) ENCOUNTER FOR ADMINISTRATIVE EXAMINATIONS, U Initial Visit        Battle Injury        Uncategorized

Encounter Information

Encounter Date: ███████        Facility: ███████████
Primary diagnosis: (Z02.9) Encounter for administrative examinations, unspecified
Disposition: RETURN TO DUTY        Disposition Date: ███████

Subjective Note:
Subjective
New Encounter
CC: Abdominal pain

Allergies: NKA

█████████████ with c/c of lower abdominal pain and groin pain.  started a month ago after training for acft.
Running and exertion makes the pain worse. Rest has made the pain better, but pt denies allowing for adequate
rest.  Pt describes the pain as blunt and tight.  No radiation.  Pain is a 1/10 at rest and 6/10 when
aggravated. Patient has NKA and is currently taking ibuprofen.
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what constitutes a "Battle Injury" from a hypothetical indirect fire (IDF) attack:

- Battle Injury: Private "J" suffers a Traumatic Brain Injury (TBI) after being thrown into a wall from the concussion blast 10 ft from him.

- Non-Battle Injury: Private "A" suffers a TBI after tripping and falling while running to a bunker during the strike.

Both examples show two Soldiers receiving the same injury from the same strike. However, because Private "A's" injury could not be traced directly to the actual IDF strike (whether the concussion blast or shrapnel), the injury is not characterized as a "Battle Injury." Figure 7 shows another example of the misuse of the "Battle Injury" categorization where the patient was being seen to extend a shaving profile but was listed as a BI. The next highlighted encounter (Figure 8) shows a patient being seen after injuring the middle and ring finger on the right hand. Soldier states that the mechanism of injury resulted from the closing of a truck's door on the Soldier's hand. However, like Figure 6, this encounter was coded and characterized incorrectly. This encounter should have been minimally coded as an unspecified superficial injury of right middle finger (S60.942A) and right ring finger (S60.944A) if a more specific definitive diagnosis could not be made due to no further testing or imaging. Also, the encounter should have been characterized as an "Injury, Other" as this was not a result of a motor vehicle accident. While these were only two of more than 4,316 encounters coded as Z02.9, continued spot checks yielded hundreds of improperly diagnosed and characterized patient encounters. While reviewing the misdiagnosed encounters, a noticeable pattern emerged.

Further auditing and investigating identified that of more than 82% of the Z02.9 coded encounters have non-Independent Duty Corpsman (or their equivalents) listed as the provider for that note. While not every Z02.9 code was coded incorrectly, all incorrectly coded encounters had a non-provider identified as the author and signature on the documentation (See Figure 9 for example). By definition, providers are diagnosticians "who are educated and licensed to provide patients with diagnoses."[12] While non-independent duty medics/corpsman are approved to practice medicine in accordance with the Algorithm Directed Troop Medical Care (ADTMC) (or equivalent document), that does not crossover into the responsibilities entrusted to licensed providers to provide a diagnosis. While each of these errors have occurred in an outpatient status, inpatient documentation in theater suffers from similar errors. For example, Figure 10 shows

Fig 7. Example Series

⊞ **Encounter Information**

Encounter Date: 03/21/2024 0908   Facility: ▮▮▮▮▮▮▮▮▮▮▮▮▮▮

Primary diagnosis: (L73.1) Pseudofolliculitis barbae

Disposition: **PROFILE**   Disposition Date: **03/24/2024 0711**

Subjective Note:
Followup
CC: Shaving Prifile

Allergies: NKA

33 y/o patient presents to the clinic to extend his shaving profile. PT states that his skin is doing a lot better and has not had breakouts since he stopped shaving. Current profile expires 03/27/2024.
▮▮▮▮▮▮▮▮▮▮▮▮▮▮   03-21-2024@1124hrs

Plan Note:
Continue Shaving Profile
▮▮▮▮▮▮▮▮▮▮▮▮▮

Continue to maintain beard growth to < 1/4" per profile.
RTC prn.
▮▮▮▮▮▮▮▮▮▮   03-24-2024@0911hrs

Disposition: Profile; (BI;) Shaving Profile

Fig 8. Example Series

(702.9) ENCOUNTER FOR ADMINISTRATIVE EXAMINATIONS, U Initial Visit   Non-Battle Injury (NBI)   Injuries, Motor Vehicle Accidents

⊞ **Encounter Information**

Encounter Date: ▮▮▮▮▮▮▮▮   Facility: ▮▮▮▮▮▮▮▮▮▮

Primary diagnosis: (Z02.9) Encounter for administrative examinations, unspecified

Disposition: **RETURN TO DUTY**   Disposition Date: ▮▮▮▮▮▮▮▮

Subjective Note:
Subjective
New Encounter
CC: R Hand Inj

Allergies: NKA
Current Medications: None
Pt is ▮▮▮▮▮ who presents w cc of acute injury to middle and ring finger of R hand that occurred the night prior to presentation.

Pt stated that the previous night (approx 14 hours before presentation), she closed a pickup truck door on her middle and ring finger of her R hand, primarily affecting the third knuckle of these two fingers. The fingers were caught in the truck door on the side with the door handle, not the side with the hinges. At the time of injury there was moderate bleeding and the patient washed the wound with soap and water. Pt states the pain at the time of injury and currently is a two out of ten. Pt denies radiating pains, significant swelling, loss of sensory function or ability to move the fingers.

Fig 9. Example Series

several inpatient encounters transmitted by Role 3 MTFs in the CENTCOM AOR where the encounters were closed out without a diagnosis made and/or coded. Data from the reporting period shows 119 of the 169 inpatient encounters created (70%) have no official diagnosis listed. These trends within operational environments are having a significant negative effect on the data quality being produced by the MTFs in theater. The real question is why is this happening? To address these trends, it's important that the root causes contributing to the poor data quality are identified. After careful analysis and investigation, the root causes can be broadly categorized into three main areas: absence of trained coders in theater, limitations of the current EHR systems in use, and lack of experience among clinical personnel in utilizing these systems effectively.

Root Cause – Coders

Analysis of the negative trends can be contributed to several causes, the first of which involves the coding process itself. For fixed MTFs (such as Madigan Army Medical Center, Walter Reed National Military Medical Center, or Landstuhl Regional Medical Center), proper coding based on the six characteristics of good data quality is strictly enforced as it has a direct bearing on the facilities reimbursement process in conjunction with its effect on patient records. There are policy letters published that provide specific instructions on how to ensure coding meets good data characteristics such as The Defense Health Agency (DHA) Procedural Instruction Number 6040.07. To guarantee that every encounter submitted fits within established guidelines, numerous safeguards to the process were put in place to certify them. For example, most MTFs have certified coders who review the information within each provider's notes to capture every diagnosis, procedure, and piece of equipment/supply utilized, followed by a charge audit analyst (or equivalent), and a final

Fig 10. Example Series

Encounter Date	Diagnosis	Provider Selected DNBI	D&I from Diagnosis	Status	Data Source
05/06/2024 16:34 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
05/06/2024 11:20 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
05/05/2024 10:35 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
05/05/2024 09:24 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
05/05/2024 09:14 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
05/04/2024 17:10 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
05/04/2024 09:34 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
05/02/2024 12:50 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/30/2024 19:30 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/30/2024 16:42 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/29/2024 15:02 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/28/2024 17:30 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/26/2024 16:46 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/26/2024 02:45 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/24/2024 10:19 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/22/2024 16:17 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/20/2024 15:16 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/19/2024 11:05 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/18/2024 05:47 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/17/2024 15:45 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/16/2024 21:46 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/14/2024 10:59 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/13/2024 22:45 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/11/2024 17:12 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/11/2024 09:23 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/10/2024 18:41 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/06/2024 17:54 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/05/2024 18:01 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/04/2024 19:03 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/04/2024 17:09 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/03/2024 18:13 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/03/2024 08:34 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
04/01/2024 17:39 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
03/31/2024 13:45 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
03/31/2024 13:44 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2
03/30/2024 00:05 hrs	(4XX.XX) NO DIAGNOSIS CODE IN MEDICAL RECORD	Uncategorized	Uncategorized	Inpatient	CHCSTC2

TC2 allow patient encounters without a provider's approved diagnosis to be completed and transmitted to TMDS. This is done a couple different ways depending on the EHR. TC2 can register, admit, chart, and discharge a patient without requiring a diagnosis to be added to the encounter itself (Figure 10). This is because there are no prompts that mandate a clerk or clinician to add a diagnosis because it is not considered a required field.

As for HALO, the program has two built-in fail safes to prevent transmission of encounters without a provider's diagnosis that unfortunately can be bypassed. The first fail safe is a prompt designed to require a diagnosis to be added to complete the encounter as a required field. From this point, the encounter will automatically require a signature from a privileged provider for the encounter to be officially closed and transmitted into TMDS. This means that if the clinician completing the encounter does not have provider roles/privileges within HALO (such as a medic), the program will notify the user that a provider is required to cosign for it to close and transmit, making this the second fail safe. However, the loophole is if the documenting clinician fails to add a diagnosis in the "Assessment" portion of the encounter, HALO will automatically default the diagnosis to the Z02.9 code listed in Figures 7 and 8. Because this code is an administrative code, HALO does not view this as requiring a provider cosigner allowing it to close and transmit as a completed and valid patient encounter. This means that a medical encounter can be transmitted and added to a patient's official medical record without a provider ever reviewing what is transcribed. With over 2,891 encounters signed by non-providers during the reporting period, a data analyst would have to open every encounter to validate if they were administrative examinations or not. These loopholes have created an environment that allows providers to take shortcuts in their patient care documentation process. This would be much more difficult to circumvent back at their home facilities as hospital procedures would prevent these encounters from being closed out without someone validating it, even if the EHR somehow allowed it.

review by the payer (typically 3rd Party Insurance Carrier) before any payment for services are made. However, this is not the case for deployed MTFs.

As stated earlier, revenue cycle management is not a core responsibility of deployed MTF operations required by any mandate or regulations. Because of this, the need for experienced certified professional coders does not exist, so none are assigned to any location in theater. With a critical piece of the quality control process eliminated, the responsibilities traditionally assigned to them are passed on to the facilities Patient Administration Division (PAD) personnel or equivalent. Unfortunately, training to certify PAD personnel as licensed coders is not a required part of their basic military occupational specialty (MOS)/area of concentration (AOC) training with most receiving only a rudimentary understanding of medical coding. This leaves a significant knowledge gap within the deployed MTFs. Still, the basic instructions in coding that they do receive (specifically an introduction to ICD-10) is enough to be able to audit what is produced within their facilities. They are fully capable of reviewing a patient encounter and identifying if the diagnosis matches an ICD-10 code through research utilizing numerous tools at their disposal. These tools include (but are not limited to) use of the NIPRnet and other clinicians within their facilities. With these resources, PADs can confidently ensure that the chief complaint, at minimum, is properly selected and coded within the encounters, such as the examples shown in Figures 6, 7, and 8.

Root Cause – EHRs
Along with a lack of coding expertise, the limitations of the EHRs in use have affected the data created within the deployed environment. Design flaws in HALO and

Root Cause – Inexperience
Prior to arrival in a deployed theater of operations, units are required to complete a Certifying Training Exercise (CTE) or equivalent to validate that all personnel know what is needed to complete their assigned tasks and missions. For clinical personnel, this means familiarization with equipment they are expected to utilize within their facilities, including HALO and/or TC2. Unfortunately, this is not always the case for deploying personnel. For example, several individuals assigned to Role 3 MTFs in the CENTCOM AOR admitted during interviews, conducted by the U.S. Army Central (USARCENT) PAD Officer, that the first time they have seen HALO was after their arrival in theater. These

personnel didn't physically train on the EHR during their field exercises, nor did they complete mandatory distance learning training prior to being granted access upon arrival to their MTFs in accordance with CENTCOM training guidance. Instead, they were provided on-the-job (OTJ) training by their predecessors who continued to pass on bad practices. In the past, Medical Communications for Combat Casualty Care (MC4) would assign numerous Field Service Representatives (FSRs) to many of the locations and facilities (including the Role 3s) within the AORs to provide subject matter expertise to those who required it. They were also certified (and equipped) to provide in theater training to healthcare personnel lacking the experience or comfort with the EHRs. With the MC4 contract, now called Operational Medicine Information Systems – Army (OMIS-A), significantly diminished due to DoD budget cuts, these FSRs have been removed from theater leaving a significant knowledge gap in its wake. With the trends and root causes identified, the next question then becomes a "so what" for medical leaders. If no clinical outcome during this time has ended in a serious injury or death from improper coding and characterization, why then should it be of concern to them? In truth, allocation and distribution of resources is a chief concern to medical leaders. With limited resources available (to include personnel), commanders at all levels demand the best information available to drive their decision making on how these resources are best utilized along with where they will be most effective.

EFFECTS ON DECISION MAKING

Within the Army Medical Department (AMEDD) its greatest concerns for supporting tactical commanders in theater is the current shortage of healthcare workers across numerous specialties, concerns of what should be order and where to distribute its valuable supply of Class VIII (medical supplies), and ultimately how bad data can affect patient outcomes. To combat this, medical leaders must be precise in where to send its limited inventory of clinicians and supplies within the AOR, which is where the importance of the data collections comes into play. Leaders must know what and where the work is if they are to ensure accurate placement of their assets. For example, with over 70% of CENTCOM's inpatient encounter missing an official diagnosis (as discussed earlier), what if each of those were patients were admitted for cases of pneumonia, rabies, hantavirus, mpox, or even malaria. With so many new diseases discovered around the world every year, how are medical leaders (especially in Force Health Protection) expected to identify trends happening in theater when the data created cannot be trusted? What if each of those patients were admitted for sports related injuries requiring significant orthopedic surgical interventions? Wouldn't senior medical leaders who determine budgets for ordering supplies want to know this? More importantly, lack of proper diagnosing can affect service members once

they separate from the service as official diagnoses must be included in their records to justify future claims made with the Department of Veterans Affairs (VA). AMEDD continuously speaks of the importance of taking care of troops. Yet when a fundamental responsibility of its clinical teams is left unfinished, how is this supporting the force? Troops operating in hazardous location across the world can effectively execute their assigned duties (no matter how dangerous) because they trust the AMEDD to have the right people in the right places providing them with the highest quality care possible, increases their chances for a positive outcome. Given the root causes identified, and its effect on decision making, the path to improving medical coding and data quality in deployed environments is clear. It requires a multifaceted approach which includes enhanced training, rigorous reviews, and updated policies. By implementing the following recommendations, military healthcare leaders can ensure that their teams are not only equipped to deliver the best care possible, but also generate reliable data that supports mission-critical decisions.

RECOMMENDATIONS

Training

One phrase familiar to most service members regarding unit training is to "train as you fight." This means rehearsing and practicing as if executing in a live mission/operation. Units are provided with training manuals, doctrine, training and evaluations outlines (T&EOs), to aid in understanding and expectations. Using the deployed EHR is required training for medical units. Furthermore, they are expected to validate their understanding of these references in numerous exercises that increase in levels of complexities and culminating in a CTE prior to deployment. Despite being provided with all the necessary tools, medical units have not been training on the proper use of deployed EHRs.

An EHR to a clinician and PAD specialist is as important as a rifle is to an infantryman; it's their weapon system. When medical units choose to not fully integrate EHR utilization into their daily operations during training exercises, they are essentially deploying into battle untrained and unarmed. Units may skip training on the EHR because they don't have a dedicated EHR training server, but the live systems can be utilized and placed into operations within the facility instead. The catch is to disengage the EHRs ability to transmit data to the live TMDS sites which keeps all data stored locally within the database. Once back in the cantonment area at the conclusion of the exercise, wiping the servers of training data should be incorporated as a part of their recovery checklist. This ensures that no training data exists within the database in the event that the live systems are placed into operational use. For personnel assigned as Observer, Controller/Trainers (OC/Ts) during the CTE, they must ensure that all sections of the MTF are utilizing

the EHRs to document all treatment and services rendered during patient care. The OC/Ts accomplish this by following the patient (within the system) from registration/admissions to disposition/discharge and observing all documentation created. This includes provider/nurse summaries, lab orders and reports, pharmacy orders,radiology orders and reports, etc. Additionally, performance steps and measures within the TE&Os should be updated to show EHR use as a critical step where failure to utilize (except in power outage scenarios) will be evaluated as an automatic "No-Go" for the entire task. This harsh evaluation will push the importance of EHR use for patient care during the exercise.

Reviews

All aspects of patient care within non-deployed MTFs are heavily regulated as they are required to maintain a Joint Commission (JC) accreditation. JC defines their accreditation process as an "objective evaluation process that can help health care organizations measure, assess, and improve performance in order to provide safe, high-quality care for their patients."[13] One aspect of this accreditation includes a review of the facility's Ongoing Professional Practice Evaluation (OPPE) which "allows the organization to identify professional practice trends that impact on quality of care and patient safety."[14] One key component of the OPPE is the "review of operative and other clinical procedure(s) performed and their outcomes" where a periodic chart review is an easy way they acquire that information. If the facilities were conducting this review on a regular basis, they would identify many of the errors described earlier. Between the OPPE process, and the numerous coding quality control checks, the data produced by these MTFs would typically fulfill the characteristics of good data quality. Unfortunately, JC does not accredit deployed, operational MTFs. These MTFs are expected to know what good standards of practice are and operate within those boundaries. However, there is an old saying, "doers do what checkers check" that seems to be the mantra of daily operations in a combat environment. In other words, if no one determines a particular task is important enough to inspect, why worry about it. This is where a cultural change must happen, and this starts with conducting chart reviews and PAD quality control checks to standards seen outside of a deployed environment.

Recent inspections of the standard operating procedures (SOPs) at MTFs in Kuwait and Jordan have shown that some version of the OPPE process is listed as a required action. However, when queried regarding how often they conduct reviews (weekly, monthly, quarterly), how many encounters they reviewed (5%, 10%, 50%, etc.), and who is conducting them, the consensus is that none of this is being done on a regular basis, if at all. This cannot be tolerated. MTF Commanders, Command Surgeons, or their representatives need to validate that these actions are being completed just as if they were validating that the healthcare teams are operating within all other established clinical practical guidelines (CPGs). This could be accomplished during internal Staff Assisted Visits (SAVs) or Organizational Inspection Programs (OIPs) for example. When MTF clinicians realize that chart reviews are now an inspectable item within the operational environment, they will begin to treat it with the same level importance as if they were still back at their home station facilities. SOPs are just pieces of paper if the words and actions described within them are not being implemented. While providers are conducting their own checks, PAD representatives should be doing something similar.

Without professional coders in theater, there is an expectation for MTF PADs to assume some of the responsibilities associated with those positions. While they may not be as knowledgeable as the certified coders at more traditional MTFs, they do have enough basic knowledge to know that an encounter is being signed and transmitted without a diagnosis or an administrative diagnosis when there is an actual medical condition being treated. PAD representatives must validate that every encounter created is properly documented and completed before transmission. The best way to accomplish this is to conduct weekly audits of encounters completed via the use of the numerous reporting options/tools pre-loaded within the EHRs. If they notice a missing diagnosis, characterizations that appears to be questionable, or any other discrepancies, they need to bring it to the attention of clinical leadership who can direct the treating provider to make the necessary adjustments/corrections. The key is that the MTF's PAD personnel must recognize that they are the last line of defense in ensuring that only correctly documented encounters are uploaded to a patient's records and that the data produced is of the highest quality.

Policy Change/Update

As stated earlier, one of the greatest hinderances faced by deployed MTFs is there are no official regulations, directives, or policy letters providing specific instructions and/or orders to properly diagnose, code, and/or characterize patient encounters. Without these, there is no baseline standard that can be enforced uniformly throughout all operational locations. Each theater of operations is ultimately left to devise their own standards for how encounters are diagnosed and coded which creates numerous variances from site to site. With so many variances in existence, the validity of the data produced can and will be questioned. If the DoD believed this was a justifiable way to operate an MTF, why is JC accreditation pushed within the non-operational environment? While there is a consensus that every theater is different/unique, there are certain aspects of field care and patient documentation that is the same no matter where one is assigned. If DoD guidance requires use of the EHR for documentation, then they must also provide a standard on what an acceptable encounter looks like just as the JC does for DHA operated facilities. Providers in the field need to understand that a

deployment does not provide them with an excuse to take short cuts that would traditionally not be accepted if they were at home station. Updated official guidance will remind them of that along with their other responsibilities dealing with patient documentation. Ultimately, the success of any military operation depends on the quality of the information leaders utilize to make decisions. In the context of deployed medical facilities, this means ensuring that every patient encounter is accurately documented, characterized, and coded reflecting the patient true condition. The stakes are too high to allow for anything less as healthcare documentation is just as important now as it has always been in ensuring that military patients are receiving the best care possible.

CONCLUSION

Healthcare documentation within a combat AOR is just as important now as it has always been in ensuring that service members are receiving the high-quality care they have come to expect from Army Medicine. But to know if an MTF is providing that high level of service, there needs to be data to corroborate it. Good data is the name of the game and having workable systems in place for its production should always be of concern. With critical and timely decisions needed to be made in relation to where and how AMEDD assets are distributed, the data created needs to match that same sense of importance and urgency. Potential viral outbreaks, noticeable upticks in behavioral health encounters, increases in vehicular accidents, and more must all be identifiable and trackable within the approved systems of records. Healthcare teams in theater must understand that correct coding and characterization are not optional, while leaders must not assume that those below them are always doing the right thing. While EHRs may not always be the most user-friendly devices to utilize, they are still a necessary tool and part of the care documentation process and must not be ignored or bypassed. Deployed MTFs continue to operate and evolve with each rotation and are becoming more like the standard MTFs operated by the DHA throughout the world. With this evolution in operational healthcare delivery, comes a change in the culture that is not only necessary but is long past overdue. It is time for AMEDD to hold their deployed MTFs to the high standards expected of them that they are fully capable of living up to.

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