

A Review on Medical Coding & Billing Errors and its Management

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Abstract: ***Introduction:** Medical coding is the conversion of procedures, healthcare diagnoses, medical services, and equipment into medical alphanumeric codes. International Classification of Diseases (ICD) codes represents a patient's injury or sickness. Current Procedure Terminology (CPT) codes, which relate to functions and services the healthcare provider performed on or for the patient. HCPCS level II are used to code health care equipment & supplies. Every code has its own set of rules and guidelines. Codes should be placed in a particular order. Medical biller will bill for service provided on the basis of the codes report. Making even a negligible mistake may lead to significant time lost tracking down the source of mistakes, and serious delays in payments. **Objective:** To determine the medical coding & billing errors and management among medical coders and billers. **Methodology:** In this study literature review and qualitative telephonic interview method is used to identify the medical coding & billing errors and to know its management. Relevant article for the review of literature was selected by setting includes, using key words. A telephonic interview of 30 medical coders and billers was done to add on errors and management. Consent was taken before proceeding to the interview. **Results:** This paper found major medical coding errors could be due to insufficient documentation, incorrect coding, appending incorrect modifiers, coding rules and guidelines, medical coders background, physician's attributes, lack of knowledge on medical terminology & anatomy, etc. Regular audit, linking data base to easy data capture, utilizing computer assisted coding, using tools like encoder, ICD 10 data, training of medical coder/physician on- coding and billing, medical terminology, anatomy, proper & complete documentation, checking National Correct Coding Initiative (NCCI) edits for multiple coding, developing clinical documentation improvement team, etc will help to reduce the errors. **Conclusions:** Medical coding and billing errors are avoidable. This can reduce and manage it by knowing the reasons behind the errors. Reducing and managing medical coding and billing errors has great impact on revenue of the organization. Future research could be in the area of computer assisted coding and variability in the productivity among medical coders, automated coding and variability in the productivity due to medical coder related factors, or also could be like automated coding and specific department wise productivity among medical coders.*

Keywords: Medical coding, billing errors, coding errors

1. Introduction

Medical coding is the conversion of procedures, healthcare diagnoses, medical services, and equipment into medical alphanumeric codes. These codes act as the communicating language between doctors, insurance companies, insurance clearinghouses, hospitals, government agencies, and other health-specific organizations. ICD codes (International Classification of Diseases) to a patient's injury or sickness. Few examples of ICD-10 codes are F32.0 - mild depression, E66.0 - obesity due to excess calories, S93.4 - sprained ankle. Current Procedure Terminology (CPT) codes, which relate to functions and services the healthcare provider performed on or for the patient. Few examples of CPT codes are 36415 - collection of venous blood by venipuncture (drawing blood), 99201 - office or other outpatient visit for the evaluation and management of a new patient, 93000 - electrocardiogram. HCPCS level II are used to code health care equipment & supplies. Few examples of Level II HCPCS codes are E0605 - vaporizer, L4386 - walking splint, E0455 - oxygen tent. In the United States, current procedural terminology (CPT) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD.10.CM) codes are more commonly used by physicians to bill for their services. The coder reads the medical record of the patient and then translates the information into a code. Each visit, diagnosis, test, medical device etc has its own code. Every code has its own set of rules and guidelines. Code should be placed in a particular

order. Medical biller will bill for service provided on the basis of the coder's report. Claim submissions can be completed by means of paper forms or electronically. Inaccurate coding and billing will affect the status of a claim. Medical billing errors may mean that a patient's treatment is coded as a procedure that is not covered by insurance, so they are denied. Making even a negligible mistake may lead to significant time lost tracking down the source of mistakes, and serious delays in payments. Focus of many research was on factors influencing physician accuracy in billing errors, coding mistakes in inpatient and palliative care, impact of fee based and capital-based reimbursement on errors, risk management approach to reduce the errors, a survey on influence of demographic background of the coder, computer assisted coding and accuracy, accuracy of principle diagnosis coding based on ICD-10. There was a little focus on medical coding & billing errors and management.

2. Literature Review

Types of errors

Insufficient Documentation: The healthcare provider not adding enough details of the patient it maybe any aspect like overall condition, discharge summary or operative report, diagnosis, extent of service provided^{4,13,18}. Documentation issues can be related to lack of documentation, conflicting or incomplete documentation, and overlooking some documents in the process of code assignment. Therefore, it

is important to identify documentation-related issues that can lead to inappropriate code assignment. In the history section of a comprehensive initial encounter, Medicare requires a 10-point review of systems, documentation of a 4-point history of present illness (HPI), and one item each in social history, past medical history, and family history. Missing any one of these items, even though it is not clinically relevant, Medicare may misinterpret the care provided to the patient⁶. Incomplete, incorrect, or illegible documentation of a patient visit or procedure by the provider could result in improper medical coding and billing⁹. Medical bills, especially for Medicare and Medicaid, services which can't be supported through adequate medical record documentation and selection of appropriate codes may be considered false claims and can be investigated under the False Claims Act.

Wrong principal diagnosis selection: Any condition that is chiefly responsible for the admission of the patient to the hospital is principle diagnosis. Coding a symptom or sign rather than a diagnosis, a condition when a complication code should have been used, coding only from the discharge summary, assuming a diagnosis without definitive documentation of a condition lead to incorrect selection of principal diagnosis. A study on accuracy of principle diagnosis²⁶ shown majority errors were principle diagnosis selection due to abbreviations in the document, memory-based coding, not paying attention to the details.

Incorrectly billed diagnostic related group codes: A Diagnosis-Related Group (DRG) is a statistical system of classifying any inpatient stay into groups for the purposes of payment. Centre for Medicare & Medicaid service has identified diagnosis related group coding issues as an area with a high number of improper payments, generally more than a 20% billing error rate²². Not coding the full record because reimbursement will not change with additional codes in the Medicare Severity diagnosis-related group (MS-DRG)^{4,13} result in incorrect DRG codes.

Appending inappropriate modifier: Modifiers are two-digit codes added to a service that tell the payer of special circumstances¹⁶. Modifier is applied to clear misunderstanding, incorrect information, or a desire to get a claim paid^{9,17}. Failure to properly use the coding modifiers or randomly using modifier may lead to coding and billing errors. Incorrectly billing outpatient services with modifier 59-distinct procedural service code may get denied by the insurance company. It may be necessary to indicate under certain circumstances, that a service or procedure was distinct or independent from other non-evaluation and management (E/M) services performed on the same day. Appending modifier 50-bilateral procedure to a procedure code that already includes bilateral service. Overusing modifier 22-increased procedural services. Appending modifiers 22 for additional time taken for the service, when there is an existing code to describe the service, to indicate a specialist performed the service, for E/M service. Appending 22 must include proper documentation to explanation of the procedure required more work than usual.

Lack of Medical Necessity: Error occurs when coding for the service which is not the medically necessary service^{1,6}. Any service considered to be a medically necessary, it must be necessary and reasonable to diagnosis or treat a patient's medical condition. If the patient came with the complaint of an earache and was diagnosed with Otitis Media, and the provider billed for a chest x ray, insurance would not pay for it. Because it is not necessary to perform a chest x ray on a patient who is not having any breathing or chest related symptoms or problems. As per the Social Security Act, Medicare will not cover services that are not reasonable and necessary for the diagnosis or treatment of illness or injury²⁵.

Incorrect Coding: Studies have shown provider codes wrongly to the service provided¹. Upcoding is when the patient is billed for services they have not received or services that were more extensive than those that were executed. It can happen when the diagnosis and treatment when codes don't match, and the other way is a provider knowingly misconstrues the procedures that were performed. Under coding is when low level coding is appended to the high-level service. Under coding may be an intentional attempt to under code so that to avoid audits or save a patient money. This type of behaviour is fraudulent and illegal and needs to be avoided^{4,9,11,13,17,28}. Improper reporting of injection codes like coding multiple units of a single injection during the entire session, billing for the patient's underlying disease when seeing a patient on the same day as the referring specialist also an error. Multiple medical providers, regardless of specialty, treat a patient on the same date for the same diagnosis, there is a risk of rejection of one provider's bill for duplication of services⁶. It is imperative that physicians who act primarily as care providers denote themselves with primary caregiver code and the second care provider as assisted caregiver code. Some specialties like otolaryngology encompass a wide range of procedures which are performed in "close anatomical proximity" and that ultimately affect coding accuracy & productivity²⁰. Based on American Hospital Association report on RACs quarter 1st 2016 inpatient coding errors more common²¹. Inpatient coding errors occur due to reluctance to code all co existing conditions, memory-based coding, increased average length of stay, minor digit level codes^{20,26}. Errors in coding are more likely to occur at the minor digit level than at the major digit level. The more specific the case, the more difficult it is to select the appropriate code among different related alternatives. Therefore, as the degree of specificity in the coding assignment process increases, the coding errors increase.

Non-Response Errors: Occurs when the provider is not submitting any documentation to support the services provided. Insurance company seeks reason for coding extra service. Sometimes a payer requires medical records before it reimburse the client. Information may include the patient's medical history, physical reports, physician consultation reports, discharge summaries, radiology reports and/or operative reports.

Split billing error: Occurs when surgery codes are separated from medical supplies. Split billing error may be the result of a mistake or an overall abuse by the provider¹¹.

Confusing ICD-9/ ICD- 10 codes or CPT codes: ICD-9/ICD-10 codes and CPT codes confuse many clinicians, which can lead to ineffective conversations between them and administrators. ICD codes explain medical necessity. CPT codes describe service provided by the clinician to their patient. Combining both CPT and ICD codes gives the complete information of the care received by the patient.⁶

Ignoring the tiny ‘w’ or ‘t’ in front of the RVU Codes: The fee for each service depends on its relative value units (RVUs)⁷. The value of a service or procedure relative to all services and procedures is the relative value unit. The extent of physician work, clinical and nonclinical resources, and expertise required to deliver the healthcare service to patients used to measure the RVUs. RVUs ultimately determine physician compensation when the conversion factor (CF), dollars per RVU, is applied to the total RVU¹. Total relative value units are the sum of work RVUs, a practice expense RVU, and a small malpractice RVU. Total RVU is always greater than work RVU⁶. To determine the Medicare fee, a service's RVUs are multiplied by a dollar conversion factor⁷.

Coding exclusively on time: Many clinicians charge exclusively for face to face time. Coding on time-based service may be appropriate when clinical encounter supports documentation that notes more than 50% of time was spent in counselling and/or care coordination, lists the minutes of total time spent. Billing on intensity for high risk cases with history collection, physical examination, medical decision making would be the best approach rather the billing on time-based care⁶.

Documentation written by a medical Student: medical documentation by the medical student who is unexperienced in medical field & coding guidelines may lead to error in medical coding and billing^{6,27,30}. Student members of the team can contribute only review of systems, past medical, social, and family history and the physician must document his or her review of this information and update any changes before billing.

Physician's attributes: Knowledge, attitudes, experience, task are the causing factors of medical coding and billing^{5,2}. Studies suggest that expert physician's knowledge and experience in assigning relevant codes is limited. Although physicians understood the negative consequences of billing and coding errors, complexity of the system, added stressor and difficulty to code accurately due to time constraints made not to learn coding in depth⁵. The most productive coders are those with the highest average number of claims coded per day with one to five years of experience¹². Confusing government-imposed policies on medical coding and billing, environmental factors, task complexity contribute to errors. Physicians autonomy makes not to be good team player²⁸.

Rules and guidelines coding: Coding and billing complexity is commonly cited as a causal factor in physician's error. Rules of coding are largely subjective and when applied by multiple users, often lead to different results. ICD-10 for less common conditions such as Down

Syndrome, eosinophilic esophagitis, congenital heart disease, genetic blood disorders, and surgery should be used cautiously⁵.

U.S. system of reimbursement: Many researchers argue the fee-for-service reimbursement system invites the submission of false claims. This system of reimbursing a physician's work creates a perverse incentive to bill for work not actually performed. The more work produced, regardless of its quality, the more a provider is paid.

Unbundling services: Unbundling a multiple component service and billing each component as a single service^{9,11 17}. All services can't always be billed as separate services. Sometimes a series of services will all fall under one billing code. Billing these services as separate services rather than charging them as a single service is known as unbundling. For example, CPT code 01830 describes anaesthesia for open or surgical arthroscopic/endoscopic procedures on the wrist as well as other sites contiguous to the wrist, and CPT code 01829 describes anaesthesia for diagnostic arthroscopic procedures on the wrist. Reporting CPT code 01829 with CPT code 01830 is not appropriate because CPT code 01829 is bundled into CPT code 01830.

Duplicate billing: Duplicate billing is when a patient is billed for the same service or item, procedure, treatment, or testing on more than one occasion, wrong patient service, patient services that were never performed in the first place, attempts to bill Medicare, Medicaid, either another private insurance company or the patient right away, charges more than once for the same service^{9,24}. Exact duplicate claims will contain HIC number, provider number, from date of service, through date of service, type of service, procedure code, place of service, billed amount^{24,25}. If centres for Medicare & Medicaid Services (CMS) system finds an exact match, then claim gets denied.

Selecting the wrong procedure code. The source of selecting wrong procedure code is usually not confusion about the procedure performed. Inaccurate code details on chart sheets, encounter forms, and electronic charge systems are a significant source of error. Failing to read the editorial comments at the start of the section in the CPT book or the notes near the code is another source for this type of error¹⁶.

Not linking diagnosis codes: ICD codes represents a patient's injury or sickness, , CPT codes which relate to functions and services the healthcare provider performed on or for the patient , HCPCS level II are used to code health care equipment & supplies. Few patients present for more than one condition and may require unrelated services. Other patients may receive a service that is only covered for a particular indication. A patient presents to a physician for hypertension, but has a wart destroyed at the same visit. The code for the office visit must be linked to hypertension, and the code for the wart destruction must be linked to the diagnosis code for warts¹⁶.

Using a nurse visit in place of another service: Some practices still bill nurse visit with injection / venipuncture codes because nurses take vital signs or bill a nurse visit with a flu shot. Code of nurse visit is bundled into injection

codes and not be paid separately by a payer. Assessing the patient pre- and post-shot is part of the payment for the administration¹⁶.

Outdated knowledge: Medical practices and hospitals are cautious about budget but failing to keep up to date on new coding rules. Every year coding guidelines will have addition or deletion of some codes. If coders are not updated on changed codes or guidelines, then errors will occur by coding old codes for the service for which the code has changed.

Entering Incorrect Information: Misspellings and/or typos in the address, account number, birth date or other identifying information can lead to problems. Errors like typos in the insurance ID, date of service, clinicians name etc will result in the claim denial. These errors can prevent by double-checking patient information before sending it^{8,15}.

Lack of medical necessity: Lack of medical necessity is when a physician fails to give the coder accurate information on a patient's diagnosis. This may prompt a wrong code to be used when billing and in turn, the patient's insurance company may deny the claim, specifying "lack of medical necessity." Submitting claims for equipment, medical supplies, and services that are not reasonable and necessary⁹.

Medical coders' background: American Association of professional coders (AAPC) survey concluded coders educational background, relationship with physicians, medical coders involvement in billing & compliance, demography has the impact on accuracy in coding and billing¹. Coders credentials, education, years of experience are important determinants of coding productivity. Professional coders who were familiar with anatomy and medical terminology are the most efficient when it comes to code assignment²⁰. Coders are usually involved in non-coding related tasks include appealing denials, release of information, incomplete record management, chart assembly, Recovery Audit Contractors (RAC) related tasks, data set completion and others lead to time constraint for coding related task.

3. Management

Coding audits: Incorporating coding audits as an integral part of coding workflow helps in reducing errors. Audit should be established as an ongoing process that requires collaboration between clinicians, coders, and auditors on a regular rather than ad-hoc basis^{20,31}.

Coding should be linked to databases to enable easier data capture and retrospective audit. It is important to constantly monitor the following clinical document improvement (CDI) metrics and assess their impact on coding productivity: query rate, response time, and revenue impact.

Computer Assisted Coding (CAC) has been shown to increase productivity, improve accuracy, and promote consistency of coding in addition to ultimately reducing overall cost²⁰. To avoid billing errors, Parker recommended payors utilize an automated auditing platform that can sort

through bills and identify questionable billing for a detailed nurse review¹¹. CACHas the ability to assign codes based on the documentation which saves coders ample of time and coders can verify the validity of the codes as an auditor would¹⁴.

Accurate and appropriate medical record documentation: Documentation of each patient encounter should include the reason for the encounter with any relevant history, physical examination findings, prior diagnostic test results, clinical diagnosis, plan of care, abbreviation, date of service. Clear documentation of coexisting morbidities and complications using specific medical terminology rather than general terms. Educational initiatives for clinical documentation specialists and coders¹³. The OIG has advised physicians to fully document their services and implement compliance plans in order to reduce coding errors and bill only for medical necessity services⁹.

Medical coder / physician training: Providers, clinical documentation specialists, and coders training is essential to respond to changing expectations for accurate coding of clinical conditions and quality measures. Training also helps to promote mutual understanding of clinical and coding terminology^{9,13,31}. Continuous, ongoing practice in utilizing ICD-10-CM/PCS codes on actual patient health records will be effective training. Although more time consuming, coders should check twice for a couple of charts per day¹⁴. It is important to remain updated with current guidelines and revise medical record documentation and coding procedures accordingly. It is prudent for providers to pay attention to changes in coding criteria, documentation standards and reimbursement requirements in order to reduce risk associated with improper coding and billing^{9,26}. Periodically review of diagnosis, procedure, service codes. Physicians should not fully delegate the coding responsibility to the staffs because several different codes can be used to describe the same procedure. Objective structured clinical assessment of the medical students to improve the competencies on documentation. Including coding & billing in the curriculum of medical residents may improve the competency^{29,30,32}. Faculty development programs on coding and billing compliance like teamwork, group discussions, structured problem solving helps to reduce the errors²⁸.

Code with highest level of specificity: The alphabetical index of the ICD-10 contains diagnosis and procedural terminology and the tabular list of disease arranges codes and their descriptors in numerical order. To select the highest level and most appropriate code possible, refer tabular list. Alphabetical book should be used for reference purpose only. Don't code from alphabetical book. Code only for confirmed diagnosis, not for signs and symptoms. Referring official manuals for coding gives better productivity than the online tools, reference books, payer website¹². Accuracy requires thorough knowledge on medical terminology, surgical techniques, and complex coding systems. More experienced coders who are familiar with medical terminology and surgical techniques were more efficient in coding complex cases compared to their less experienced counterparts²⁰. A tool Encoders decreases variability in the code assignment process and increases

accuracy of clinical coding. The temptation to up code must be overcome by the realization of potential penalties⁹. Establishing statutory time frames for medical claim submission, payment and denial may help in reduction of errors.

Revenue integrity focuses on better coding and charge capture, in particular, to reduce the risk of noncompliance, optimize payment and minimize the expense of fixing problems downstream with claim edits¹⁰.

Clinical documentation improvement: Hospitals may choose to form a clinical documentation improvement (CDI) team consisting of trained nurses and other specialists that concurrently reviews charts and queries providers to clarify documentation prior to discharge. It is important to have a well-defined query process to ensure that your clinical documentation specialists and coders can effectively obtain needed information without leading the provider and upcoding the information¹³. Objective based assessment of the medical student not only improves competence but also the clinical documentation.

National Correct Coding Initiative edits: check national correct coding initiative when reporting multiple codes. The CMS developed the NCCI to ensure correct coding methods were followed and avoid inappropriate payments for Medicare Part B claims.

4. Methodology

In this study literature review and qualitative telephonic interview method is used to identify the medical coding & billing errors and to know its management. To understand and define the problem initial investigation done by discussing with the experts, data collection on medical coding & billing researches done. Experts opinions and resulted data shown medical coding and billing errors is the main identified area to be studied.

To understand the current researches on medical coding & billing errors, articles were searched in ProQuest, Ebscohost, Pubmed, Science direct, Library Genesis with the key words- medical coding and billing errors, medical coding & billing error and management. The initial search in science direct with key word medical coding 7 billing errors resulted in 11,492 articles. To reduce resulted articles to most relevant articles, key word "medical coding and billing" errors, inclusion of research article, International journal of health informatics criteria was used. Resulted in 6 articles. 2 most relevant article selected for the literature review. In PubMed keyword medical coding & billing error was used and resulted in 43 articles. To reduce to most relevant article inclusion criteria full text, key word medical coding and billing error management was used resulted in 8 articles. In ProQuest key word medical coding and billing errors key word resulted in 73 articles. To reduce to relevant articles, inclusion criteria last 5 years & full text was set. Resulted in 62 articles. Then again inclusion dissertation and thesis criteria were used. Resulted in 1 article. In Library Genesis and Ebscohost key words were used but resulted in 0 article. This methodology resulted final 11 articles.

A qualitative telephonic interview was done to widen the results of the study. Objective was to identify the medical coding & billing errors and management done among medical coders & billers in real working situation. A random sampling technique was used, and sample size was 30. Sample was selected on the basis of medical coding and billing job profile, who was working in medical coding and billing field. Each sample had work experience more than 3 years. Education was minimum of bachelor's degree with medical background and had coding and billing certification from licenced organisation. Consent was taken from the sample before proceeding to the telephonic interview. A telephonic interview was conducted to the medical coders and billers as per their time convenience. Obtained answers were documented.

5. Results

A qualitative telephonic interview (N= 30) on medical coding and billing errors among medical coders and its management shown errors were mainly due to lack of knowledge on coding guidelines, client guidelines, unexperienced/uncertified coders, negligence, lack of understanding of medical documentation may be due to lack of awareness of medical terminology, anatomy and physiology, abbreviations, symbols used in the clinical fields, illegible documentation. Revising-coding guidelines, medical terminology, anatomy & physiology, practicing live charts, updating the guidelines helps to know if any new codes are added or deleted, solving lot of summaries helps not only to reduce the errors but also to increase the knowledge about the subject, understanding of keywords like evaluation statements active, stable, on drug etc, reviewing meeting reports on repeated errors, conducting weekly meeting, appreciation of errorless performer, monitoring the coders by quality percentage on daily basis, time management, utilizing coding tools - encoder, ICD 10 data, super coder, ICD books, CPT books, seeking suggestions from- seniors, team lead, coach, experienced person, quality manager, querying on doubtful documentation, having peaceful mind while working, referring alphabetical section to find the correct code, and then confirm it in the tabular section, reading supporting radiological reports /laboratory reports to have clear information on patient data, ongoing training were suggested management by the medical coders and billers.

6. Discussion

Medical coding is the conversion of procedures, healthcare diagnoses, medical services, and equipment into medical alphanumeric codes. Clinical terminology and classification systems have been developed to meet the increasing demand for data-driven decision making in health care, especially with rapid adoption of health information technology. These codes act as the communicating language between insurance clearinghouses, hospitals, insurance companies, government agencies, doctors, and other health-specific organizations. International Classification of Diseases (ICD) codes, which correspond to a patient's injury or sickness, Current Procedure Terminology (CPT) codes, which relate to functions and services the healthcare provider performed on

or for the patient. HCPCS level II are used to code health care equipment & supplies.

Coded clinical data is utilized for statistics, education, research, health care service utilization, as quality of care indicator, patient's safety, evaluate clinical outcomes, compare performance of health care organizations. Accuracy plays a major role in medical coding and billing to avoid denials, get adequate payment from the health insurance company for the bill submitted. The Centers for Medicare and Medicaid Services (CMS) reports that during the 2018 fiscal year, medical and billing errors resulted in a \$31.6 billion loss to Medicare. Each year, tens of billions of Medicare dollars are wasted due to rampant billing errors like simple coding errors, double billing, upcoding and insufficient documentation.

A literature review on medical coding and billing found that major medical coding errors could be due to insufficient documentation, incorrect coding, appending incorrect modifiers, unbundling of services, coding rules and guidelines. Other errors could also be due to medical coders background, split billing, documentation written by medical student, confusing ICD and CPT codes, physicians attributes, wrong data entry, nonresponse errors, coding exclusively on time, coding for lack of medical necessity, wrongly selecting principal diagnosis etc. Clinical documentation is believed to have a significant impact on accuracy, productivity of the coders. Provision of subsequent healthcare can ultimately be very costly if data required for clinical decision making was not reliable or available.

Regular audit of medical coding and billing with cooperation of clinicians, coders and auditors. Medicare prepayment audits not only prevent the loss of billions of Medicare dollars each year, but also reduce provider burden from the exclusive use of "pay and chase" methods of billing. Linking data base to easy data capture, utilizing computer assisted coding for accuracy, using tools like encoder, training of medical coder/physician, proper & complete documentation of medical records by the treating clinician, checking National Correct Coding Initiative (NCCI) edits for multiple coding, developing clinical documentation improvement team, were the management approach suggested by various authors.

As qualitative telephonic interview suggests not only documentation; medical coders and billers have equal responsibility in the errors. These errors are due to lack of knowledge on-medical terminology, anatomy and coding guidelines, negligence, non-experienced coders, uncertified coders working as coders. As real working coders suggested errors could be reduced by gaining knowledge on- coding guidelines, updating knowledge, revising several times a chart, rechecking the codes, seeking advices from seniors, team lead, managing time, rewards for the best performer. Motivation, support, guidance, training is necessary to coders and billers who are new to the field. Motivation - errorless coder will have incentive additional to the salary, flexible working hours, support - readily available answers to the live queries, updating knowledge, guidance- answers by the experienced person to the new coders queries.

7. Conclusions

Medical coding is the conversion of procedures, healthcare diagnoses, medical services, and equipment into medical alphanumeric codes. Reducing and managing medical coding and billing errors has great impact on accuracy, revenue of the organization. Majority errors were insufficient documentation, incorrect coding & modifiers, unbundling of services, lack of knowledge on-coding guidelines, anatomy, medical terminology. Proper training on coding guidelines, auditing & monitoring, imparting knowledge on - medical terminology, anatomy & physiology, medical abbreviations, diagnosis are some of the ways to reduce the errors among medical coders. Coding and billing errors are avoidable but can reduce and manage errors by knowing the reason behind the error.

8. Recommendations

These errors could be preventable by having thorough knowledge on coding guidelines, medical terminology, anatomy & physiology, rechecking the entered codes, seeking guidance from expert, ongoing training & education on coding & billing guidelines while working, incorporating medical coding and billing education in the curriculum, routine audits to monitor coders precision & competence, attending free/ cheap/ paid - local chapter meetings, virtual meetings, webinars, workshops, checking knowledge by quizzes organised by licenced organizations (E.g.: AAPC), professional training on coding & billing, coding & billing certification, speciality certification to have in-depth knowledge.

9. Future Research

Future research could be in the area of computer assisted coding and variability in coding productivity among medical coders. Incorporating automated technology helps to remove the manual coding errors. Time taken for manual coding is different for different sections of the healthcare organization like inpatient department, radiology, anaesthesia, outpatient, surgery. Productivity is varying from coder to coder. By knowing the reasons of variability of productivity among the automated coders helps to manage the resource efficiently and improve revenue.

Another research area could be automated coding and variability in the productivity due to medical coder related factors, or also could be like automated coding and specific department wise productivity among medical coders.

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