"Using Computer-Assisted Coding to Improve Coding Quality and Compliance"

April 2011
HCCA

1

revenueCYCLE

KAISER PERMANENTE.

1

Speaker

- **Gloryanne Bryant, RHIA, RHIT, CCS, CCDS**
  - Regional Managing Director HIM
  - Revenue Cycle, Kaiser Permanente
    - Oakland, CA

2

revenueCYCLE

KAISER PERMANENTE.

2

1

Disclaimer

- **This material is designed and provided to communicate information about clinical documentation, coding, and compliance in an educational format and manner. The authors are not providing or offering legal advice, but rather practical and useful information and tools to achieve compliant results in the area of clinical documentation, data quality, and coding.**
- **Every reasonable effort has been taken to ensure that the educational information provided is accurate and useful. Applying best practice solutions and achieving results will vary in each hospital/facility and clinical situation.**

3

revenueCYCLE

KAISER PERMANENTE.

3

Goals/Objectives

- Obtain an Overview of CAC
- Computer Assisted Coding and its Benefits
- Share Retrospective Auditing with CAC - case example
- Understand how using CAC can help achieve compliance
- Learn what to consider with CAC auditing technology
- Q&A

4

revenueCYCLE

KAISER PERMANENTE.

4

Overview: Coding

- **Medical or clinical coding is very labor intensive and time consuming**
  - Paper and electronic – volume of text and content
- **During the coding process or reading of the medical record information can be missed; information that is useful and valuable to collect**
  - 2-3 mins per hospital ancillary encounter/visit (lab/rad)… reduced to 20 secs?
  - 15-20 mins per hospital inpatient discharge … reduced to ….?
- **Impact of poor clinical data collection/coding can be huge and wide-spread**

5

revenueCYCLE

KAISER PERMANENTE.

5

Overview: Documentation

- The Medical Record:
- The collection of information concerning a patient and his or her health care that is created and maintained in the regular course of care.
- Medical Record shall contain sufficient, accurate information to identify the patient, support the diagnosis, justify the treatment, document the course and results, and promote continuity of care among health care providers.
- The information may be from any source and in any format, including, but not limited to print medium, audio/visual recording, and/or electronic display.

6

revenueCYCLE

KAISER PERMANENTE.

6

Overview of the Medical Record – Concise and Accurate Information

- Discharge summary, including Discharge or final diagnosis and disposition.
- Initial diagnostic impression.
- Problem List (outpatient records only).
- Emergency Department record Allergy records.
- Advance Directives (if applicable).
- Medical History including, as appropriate: immunization record, screening tests, allergy record, nutritional evaluation, psychiatric, surgical and past medical history, social and family history, and for pediatric patients a neonatal history.
- Physical examination.
- Consultation reports.
- Physician Orders including those for medication, treatment, prescriptions, diet orders, lab, radiology and other ancillary services.
- Progress notes
- Concise and accurate record of **nursing care** administered.
- iii. Record of pertinent observations including psychosocial and physical manifestations and relevant nursing interpretation of such observations.
- iv. Name, dosage and time of administration of medications and treatment. Route of administration and site of injection shall be recorded if other than by oral administration.
- v. Record of type of restraint and time of application and removal.
- vi. Record of seclusion and time of application and removal. (NPH)

- Graphic and vital sign sheet.
- Results of all laboratory tests performed.
- Results of all X-ray examinations performed.
- Consent forms for care, treatment and research, when applicable.
- Problem List (outpatient records only).
- Emergency Department record.
- Anesthesia record including preoperative diagnosis, if anesthesia has been administered.
- Operative and procedures report including preoperative and postoperative diagnosis, description of findings, technique used, and tissue removed or altered, if surgery was performed.
- Pathology report, if tissue or body fluid was removed.
- Written record of preoperative and postoperative instructions.
- Labor record, if applicable.
- Delivery record, if applicable.
- Physical, Occupational and/or respiratory therapy assessments and treatment records, when applicable.
- Patient/Family Education Plan
- Discharge Instructions

7

revenueCYCLE

KAISER PERMANENTE®

7

Overview: Compliance Risk

- **The medical record must contain sufficient documentation to demonstrate that the beneficiary's signs and/or symptoms were severe enough to warrant the need for inpatient medical care. (More detailed information about this can be found in Chapter 6, Section 6.5.2 of *Medicare's Program Integrity Manual***

- Total of CMS approved issues across all RAC regions is up to 529
  - Recovery Audit Contractor (RAC) complex review result in detailed review of the documentation

8

revenueCYCLE

KAISER PERMANENTE®

8

Overview: What is CAC?

- Computer Assisted Coding (CAC) technology automatically generates codes directly from clinical documentation.
- Computer/engine will "read" electronic text or handwritten documentation AND provide the tentative ICD-9-CM code(s) ready for validation.
- Leveraging:
  - Computer-based intelligence (systems)
  - Natural Language Processing (NLP)
  - EHR/EMR

9

revenueCYCLE

🏻 KAISER PERMANENTE.

9

Overview: CAC

- AHIMA has defined Computer-Assisted Coding (CAC) as *use of computer software to "read" clinical documentation and automatically generate medical codes for review and validation by a trained human coder.*

10

revenueCYCLE

🏻 KAISER PERMANENTE.

10

AHIMA – CAC Practice Brief

Delving into Computer-assisted Coding (AHIMA Practice Brief)

This practice brief discusses computerized tools available to automate the assignment of certain medical or surgical codes (ICD-9-CM and CPT/HCPCS) from clinical documentation that are traditionally assigned by coding or HIM professionals as well as clinical providers. It also outlines the driving forces that are shaping the current and future applications of this technology, examines application of the technology, and provides guidance about the steps necessary to position coding professionals for the coming coding revolution. AHIMA chartered the computer-assisted coding e-HIM^TM work group to help healthcare organizations navigate and understand how to prepare for and thrive in a profoundly changing work environment.

Background

The healthcare industry is creating powerful tools to transform clinical data input into useful clinical data output. Clinical coding is approaching a tipping point where an increasing amount of work is done by machine, saving precious time and human resources for more complex coding and much needed data analysis tasks.

Many factors directly influence this change, including advances in natural language processing and informatics, adoption of electronic health records (EHRs), compliance issues, and a mandate for reducing labor-intensive administrative reporting processes. In addition, as epidemiological classification systems such as ICD-9-CM have been utilized increasingly for reimbursement purposes, greater attention has been placed on productivity and compliance. The work process for coding has changed over the past 25 years, with data collection going from manual indices and logs to computerized databases. Use of ICD-9-CM alone for statistical data capture has been replaced by the use of both ICD-9-CM and CPT/HCPCS codes. Manual coding is now facilitated through the use of encoding systems that contain various edits and references.

Automated Coding Workflow and CAC Practice Guidance

Over the past decade, clinical coding has become more complex due to:

- The expansion of prospective payment systems to multiple healthcare settings, each with specific reporting requirements
- Expanded coding rules due to new reporting requirements, such as the Health Information Technology for Economic and Clinical Health Act, Correct Coding Initiative, and payer-specific coverage policies
- The increased need for improved data collection and data maintenance as organizations integrate, use, and rely upon more data from disparate data sources
- Increased scrutiny for erroneous or fraudulent claims, leaving little tolerance for coding or billing errors
- The financial pressure to send (or "drop") a bill or claim to an insurance company as efficiently as possible due to the impact on an organization's accounts receivable
- Advancements in medical care, which require that coding professionals continuously advance their understanding of various clinical subjects such as anatomy, physiology, pathophysiology, and pharmacology

This climate requires coders have a greater clinical understanding and code with greater accuracy and speed than ever before. These factors create a greater impetus to improve the coding and documentation processes.

Clinical coding departments and healthcare organizations now use multiple forms of computer technology to address these issues. A small percentage of organizations have begun employing computer-assisted coding (CAC) applications.

This practice brief explores CAC technology in the current healthcare environment and outlines considerations for automating the coding process.

The CAC Process and Benefits

CAC technology enhances the coding process and will not replace coding professionals. It provides technological assistance in the uniform assignment of valid codes and descriptions.

Under the historical definition, CAC was the use of computer software that automatically generates a set of medical codes for review, validation, and use based upon provider clinical documentation.[1] However, the technology advances depicted in the figure "Evolution of Technology Influencing Coding Workflow" below have expanded the CAC definition.

Currently there are software applications that process clinical information from electronic documents and generate codes using either structured text input or natural language processing (NLP) for validation by medical professionals. Structured input applications integrate coding into the clinical documentation process, producing clinical documents with embedded codes, whereas natural language processing employs complex algorithms to recognize dictation, speech, and language patterns, generate codes, and enable querying electronic text.

11

CAC: Natural Language Processing (NLP)

- **Artificial intelligence is used to extract pertinent data and terms from a text-based document and convert them into a set of medical codes**
- **Complex algorithms to recognize dictation, speech, and language patterns, generate codes, and enable querying electronic text**
- **"History of cancer" means the patient does or does not have a personal or family history of cancer: by analyzing the context and semantics of the rest of the sentence the CAC engine will apply artificial intelligence to provide the ICD-9-CM code.**

12

12

CAC

For example, consider the following sentences that would appear in a typical radiology note:

- **1. I see a coin lesion on the patient's left lung.**
- **2. The patient's father has a coin lesion on the left lung.**
- **3. I have confirmed that the coin lesion is now absent in the patient's left lung.**
- **4. I have ruled out the presence of a coin lesion on the patient's left lung.**
- **5. There is a questionable coin lesion on the patient's left lung.**

- **Few coders would have trouble determining that while the coin lesion is codeable in the first example, it would not be codeable in the other examples. Clearly, recognizing the mere presence of the words "coin lesion" is insufficient to code the note correctly.**

13

revenueCYCLE   KAISER PERMANENTE.

13

CAC: Codeable context or Noncodeable context

- **How does the computer know what is codable context or Noncodable context?**
- **Natural language processing**
- **Language patterns and algorithms**
- **Statistically predicts and learns to emulate**

Read, abstract and comprehend electronic text

14

revenueCYCLE   KAISER PERMANENTE.

14

CAC: What about "Content"?

- **In the EHR world or in a situation where the provider (user) creates the narrative this can be ideal.**
- **Improved content can change the code assignment.**
  - Change the reimbursement
  - Enhancement of payment
  - Improved clinical data quality
- **Some CAC products include an application to address poor content and to enhance it.**
  - **CAC content can be delivered to the physician at the point of care with some CAC products**
  - **Eliminates dictation and transcription costs**

15

revenueCYCLE

KAISER PERMANENTE.

15

CAC: Capabilities & Benefits

- Ability to quickly find, review and verify electronic medical record documentation
  - Saving time
- Improve CC/MCC and HCC capture (key documentation)
  - Positive financial impact
- Improve case mix index
- Compliance and decrease risk
- Expedite coding process
  - Improve DNFC (lower days to billing)
  - Improve coding accuracy via edits/flags within CAC

16

revenueCYCLE

KAISER PERMANENTE.

16

CAC: Capabilities & Benefits (con't)

- Potential improvement in coding productivity
    - **Accelerate the coding processes**
- Reduction in coding overtime and contract support
- ICD-10 Educational and Training leverage
- Utilize within CDI (Clinical Documentation Improvement)
- Expedite auditing retrospectively
    - Easy to validate the coding and supporting documentation
- Compliance audit trail
    - RAC defense
    - Reduce risk for regulatory audits

17

revenueCYCLE

KAISER PERMANENTE®

17

CAC: Capabilities & Benefits (con't)

- Leverage EHR technology
    - Push the move to EHR
- Documentation enhancement
- Educational enhancement
- Focus on
    - MS-DRGs
    - APR-DRG (SOI and ROM)
    - CPT for CCI edits
    - Medicare Advantage/HCCs

18

revenueCYCLE

KAISER PERMANENTE®

18

CAC: Benefits Summary

- **Productivity**
- **Accuracy**
- **Consistency**
- **Reimbursement**
- **Traceability/tracking**
- **Compliance/Risk**

19

revenueCYCLE

KAISER PERMANENTE.

Barriers or Disadvantages

- **Electronic text is ideal**
  - Versus written
- **Interface with your EHR**
  - Internet, security
- **Change**
- **Cost**
- **Implementation & resources**
- **ICD-10 looming**

20

revenueCYCLE

KAISER PERMANENTE.

Healthcare Settings for CAC

- EHR is ideal
  - EHRs with an embedded clinical terminology
- All settings:
  - **Inpatient**
  - **Physician office**
  - **Hospital Outpatient Surgery – Facility and Professional**
  - **Hospital Emergency – Facility and Professional**
  - **Hospital Radiology & Pathology CAC specifically (simple Dx coding)**
  - **Rehab**
  - **SNF**
  - **Any settings which requires coding**

21

revenueCYCLE   KAISER PERMANENTE.

CAC Technology

- **Usually there is an HL7 feed to send data between systems**
- **Another option is use existing interfaces offered by vendors to allow integration with their products.**
  - The transfer process is completely transparent and controlled by your facility.

22

revenueCYCLE   KAISER PERMANENTE.

Simple CAC Technical Overview

End User — **Firewall**

User reviews, validates, accepts/denies Coding and documentation

EHR System — Other Clinical Systems

Firewall

NLP Engine

STORAGE

Free Text Processor — Structured Text Processor

Coder/ Evaluator — Knowledge Base

Vendor Data Center
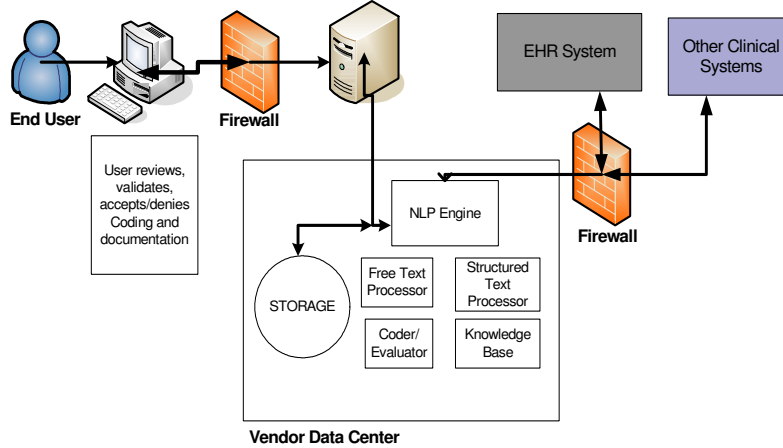
revenueCYCLE — KAISER PERMANENTE.

23

23

Sample CAC view: Reads the electronic text

Patient MRN:		Patient Name:	
Note ID:		Age:	
HAR:		Sex:	
Date of Service:		Date of Birth:	
Patient Location:		Order Exam:	
Attending Physician:		Patient Class:	
Signing Physician:		Note Handle:	TRIALS-56396
Referring Physician:		Payer:	MEDICARE
Dictating Physician:		Coded_by:	S-TRIALS-KAISEREM
Site:		File Name:	TRIALS_KAISEREM.spl
Comments:	- Simulating approve note: Status 4		
PROCEDURE:			

CPT	Mod Units	Description		ICD#1	ICD#2	ICD#3	ICD#4
99283	1	Emergency department visit for the evaluation and management of a patient, which requires these 3 key components: An expanded problem focused history; An expanded problem focused examination; and Medical decision making of moderate complexity. Counseling		250.00	278.00	280.9	285.9
E&M Scoring		History: EPF, Exam: COM, Medical Decision Making: M					
Full ICD List		250.00, 278.00, 280.9, 285.9, 428.0, 429.3, 430, 435.9, 437.1, 437.3, 486, 518.0, 518.89, 573.8, 574.20, 577.8, 584.9, 585.9, 620.2, 784.2, 784.99, 785.6, 786.09, 786.50, 787.03, 787.3, 789.00, 789.09, 789.30, 789.59, 793.1, 793.6, v45.89, v70.0					

HPI Comments: [   ] 76 Y male who complains of progressive shortness of breath, leg edema, weight gain over several days. He has been unable to walk across more than about 25-30 feet due to shortness of breath. Weight gain approximately 15 lbs in three weeks.
He was supposed to start Lasix and continue on metolazone, but the medications haven't arrived at home where he was expecting them. No recently increased dietary salt intake.
Discharged from UCSF 2-1/2 weeks ago for pneumonia, acute on chronic renal failure, iron deficiency anemia.

revenueCYCLE — KAISER PERMANENTE.

24

Sample CAC View: Text is hi-lighted for auditor/Validator to confirm codeable

Inpatient CAC: Diagnosis and Procedures can be identified in the EHR text

Outpatient CAC: Diagnosis & CPT

CAC Workflow

Computer Assisted Coding (CAC) Workflow

NCAL KP Background with CAC – Auditing Project

- **2009 began looking at CAC technology**
  - AHIMA
- **3M™ Demo Computer Assisted Coding March 2010**
- **A-Life demo in May 2010**
  - Using NPL engine to read text
  - Prior HCC work with KP Colorado on physician side
- **Decision made to provide A-Life 1000 MA IP Charts as a test**
- **EHR text sent (protected/secure) to A-Life**

29

revenueCYCLE

KAISER PERMANENTE.

29

NCAL KP Background with CAC – Auditing Project (con't)

- **Results were positive with many false/positive**
  - A-Life IP is not programmed to be "free-standing" so IP is not specific
  - "history of", "prophylaxis Dx", abbreviations
- **Retooling recommendations made to A-Life to decrease the false positives**
  - Audited results
  - + findings and ROI
- **Began MA 2009 inpatient HCC Recapture with A-Life**
  - Using external auditors for validation and then % of QA

30

revenueCYCLE

KAISER PERMANENTE.

30

15

NCAL CAC – (con't)

- HCCs impact the "whole year" of care in any setting/encounter, and you only need the HCC once in that whole year to result in the payment impact for the year.
- Systemic diseases (e.g., diabetes mellitus, hypertension, Parkinson's disease – see List A) are always coded, even in the absence of documented active intervention since these types of conditions meet one or more of the elements of the definition given above. (Coding Clinic, Second Quarter, 1990, page 14.)

31

revenueCYCLE

KAISER PERMANENTE®

Secondary Diagnosis Reporting

- **clinical evaluation; or**
- **therapeutic treatment; or**
- **diagnostic procedures: or**
- **extended length of hospital stay; or**
- **increased nursing care and/or monitoring**

Documentation to support the code(s)

32

revenueCYCLE

KAISER PERMANENTE®

32

Location of Documentation
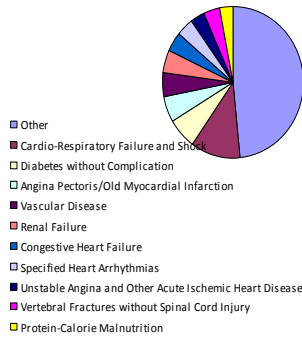
Count of Documentation Location
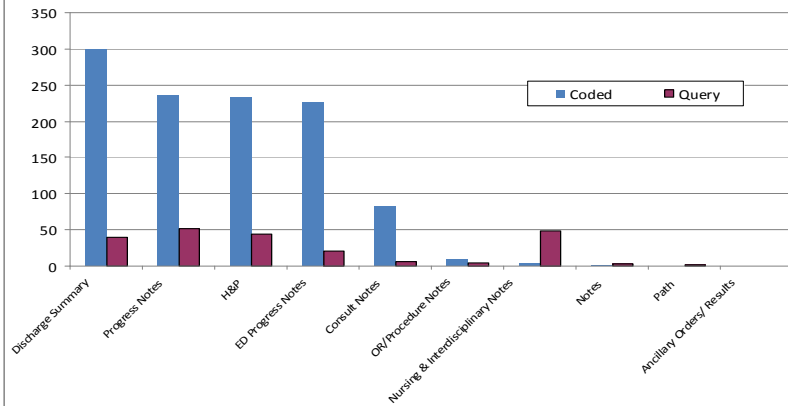
*** Based on Intrinsic values – does *not* take into consideration benefit %, patient dates of expiration, nor HCC hierarchy.

revenueCYCLE

KAISER PERMANENTE.

33

33

Top 10 HCC Findings

Frequency of HCCs (Coded Only)

- Other
- Cardio-Respiratory Failure and Shock
- Diabetes without Complication
- Angina Pectoris/Old Myocardial Infarction
- Vascular Disease
- Renal Failure
- Congestive Heart Failure
- Specified Heart Arrhythmias
- Unstable Angina and Other Acute Ischemic Heart Disease
- Vertebral Fractures without Spinal Cord Injury
- Protein-Calorie Malnutrition

34

revenu R PERMANENTE.

*** Based on Intrinsic values – does *not* take into consideration benefit %, patient dates of expiration, nor HCC hierarchy.

34

Top ICD-9 Codes

Top ICD-9 Codes
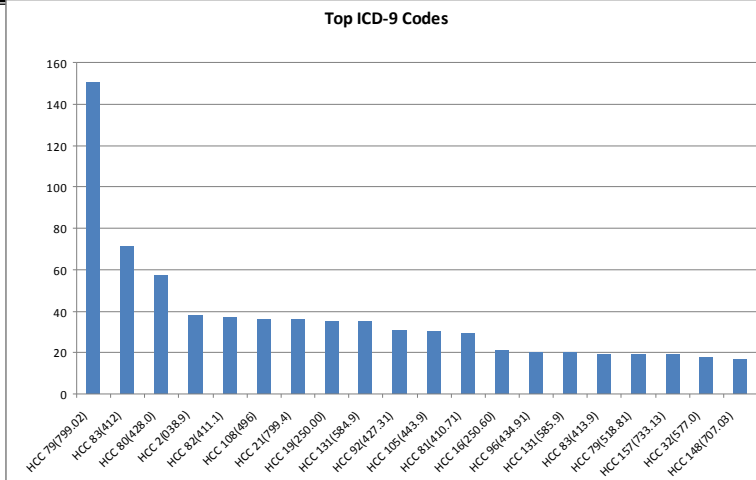
NCAL Use of CAC – Auditing Project (con't)

- A total of 21,380 MRNs were CAC reviewed
  - Medicare Advantage
  - Inpatient (with an ER encounter)
- Focus to capture Dx not coded but documentation
  - 1450 identified
  - Potential $6.2
- Identify physician query opportunities
  - 537 identified
  - Potential $2.2
- Audited and QA on CAC
- Cost: $880,000 approx. (CAC, Auditors, & QA)

Note: prior year all manual auditing, with CAC 15-20% productivity improvement

Assumptions

- Need an assessment of current coding workflow
- Greatest impact is with a greater proportion of electronic documentation
- Need to start with the simplest setting?
- Secure Funding and Budget
- Develop implementation roll out plan
- Engage key stakeholders in vendor selection
- IT and EHR team availability to meet timeline
- Develop implementation plan and roll-out – Pilot
- Track return on investment

37

revenueCYCLE

KAISER PERMANENTE

37

Key Stakeholders

- **Coding professionals**
- **Coding managers and HIM directors**
- **Physician liaisons**
- **IT professionals**
- **Revenue Cycle**
- **Patient accounts and billing professionals**
- **Compliance professionals**
- **Informatics and data reporting teams**
- **Various clinical staff as determined by the project**

38

revenueCYCLE

KAISER PERMANENTE

38

Audit Trail and Support Compliance

- **Increased scrutiny for erroneous or fraudulent claims, leaving little tolerance for coding or billing errors**
- **RAC, CERT, OIG, etc.**

39

revenueCYCLE

KAISER PERMANENTE.

Future role of the "Coding Professional"

- Auditor/Validator:
- Coding "validation" is the new job role
  - 75% of time validation
  - 10% of time abstracting and research
  - 15% coding
- Competent coding professional is needed
- Limited time to read/review the medical record
- Use of encoder… limited
- Audit trail where the key documentation to support the code was located for RAC, etc.

40

revenueCYCLE

KAISER PERMANENTE.

Variety of Vendors now Offering CAC

- **ProVation Medical**
- **3M™**
- **A-Life Medical (Ingenix)**
- **CodeRyte**
- **Plato**
- **QuadraMed**
- **Precyse Solutions**
- **Cobuis**
- **MedQuist**

41

revenueCYCLE

KAISER PERMANENTE®

CAC Vendors

- Ask the CAC vendor for case studies using their software
- Ask for a reference list
- Request ROI for a specific # of records (type)
- Ask about technology aspects
- Request the "data workflow"

42

revenueCYCLE

KAISER PERMANENTE®

3M™ CAC Projections….

- Productivity Improvement
  - Inpatient 30% plus
  - Outpatient 50% to 100%
- Outpatient and Physician
- Coding Quality Improvement > 10%
- Reduce Coding Related Denials Up to 20%
- A/R Day Improvement – 5 to 60 Days
- Reduce Total Cost to Collect – Up to 40%
- Appropriate Revenue Increase – 3% to 5%

43

revenueCYCLE   KAISER PERMANENTE.

43

Some Next Steps

- Provide awareness
  - Read literature on CAC
- Engage key stakeholders
  - Include Compliance and Revenue Cycle
- Invite CAC vendors for conduct demo's
- Establish committee
  - Engage key stakeholders
  - IT, HIM and Revenue Cycle
- Determine if RFP is needed
- Business case and Funding
- Implementation planning and timeline

44

revenueCYCLE   KAISER PERMANENTE.

44

Summary

- **Harness this technology**
- **Productivity improvements**
- **Capture greater Accuracy and Efficiency**
- **Compliance Risk diminished**
- **Revenue improvements**
- **Create a bridge to ICD-10**
- **AND….. CAC does not eliminate the need for medical-coding professionals to be involved in the coding process, but it can make them more productive and accurate**

45

revenueCYCLE

KAISER PERMANENTE.

45

The Golden Rule…

- ## If it's not documented we can't code it and that's Compliance!

46

revenueCYCLE

KAISER PERMANENTE.

46

Questions

revenueCYCLE

KAISER PERMANENTE®

AHIMA – Practice Brief

Delving into Computer-assisted Coding (AHIMA Practice Brief)

This practice brief discusses computerized tools available to automate the assignment of certain medical or surgical codes (ICD-9-CM and CPT/HCPCS) from clinical documentation that are traditionally assigned by coding or HIM professionals as well as clinical providers. It also outlines the driving forces that are shaping the current and future applications of this technology, examines application of the technology, and provides guidance about the steps necessary to position coding professionals for the coming coding revolution. AHIMA chartered the computer-assisted coding e-HIM™ work group to help healthcare organizations navigate and understand how to prepare for and thrive in a profoundly changing work environment.

Background

The healthcare industry is creating powerful tools to transform clinical data input into useful clinical data output. Clinical coding is approaching a tipping point where an increasing amount of work is done by machine, saving precious time and human resources for more complex coding and much needed data analysis tasks.

Many factors directly influence this change, including advances in natural language processing and informatics, adoption of electronic health records (EHRs), compliance issues, and a mandate for reducing labor-intensive administrative reporting processes. In addition, as epidemiological classification systems such as ICD-9-CM have been utilized increasingly for reimbursement purposes, greater attention has been placed on productivity and compliance. The work process for coding has changed over the past 25 years, with data collection going from manual indices and logs to computerized databases. Use of ICD-9-CM alone for statistical data capture has been replaced by the use of both ICD-9-CM and CPT/HCPCS codes. Manual coding is now facilitated through the use of encoding systems that contain various edits and references.

revenueCYCLE

KAISER PERMANENTE®

References/Resources

- Computer-assisted coding: the secret weapon; **Mark Morsch Health Management Technology**
- **ProVation Medical**
- **3M™ CAE**
- **Dolbey.com**
- **A-Life.com**
- **AHIMA. "Delving into Computer-assisted Coding." *Journal of AHIMA* 75, no. 10 (Nov.–Dec. 2004): 48A–H**
- **AHIMA. "Automated Coding Workflow and CAC Practice Guidance." *Journal of AHIMA* 81, no. 7 (July 2010): 51–56**
- **Morsch, Mark. "Computer Assisted Coding with Standard Documents Types—Advancing Best Practice in Health Information Management." 2009 AHIMA Convention Proceedings, October 2009**
- **AHIMA. "Transitioning to CAC: The Skills and Tools Required to Work with Computer-assisted Coding" - Gail Smith, MA, RHIA, CCS-P, and June Bronnert, RHIA, CCS, CCS-P; July 2010**

50

50

Thank you

Gloryanne.h.bryant@kp.org

51

revenueCYCLE   KAISER PERMANENTE.

51