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# Charge Master and the effects on hospitals

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## CHARGE MASTERS AND THE EFFECTS ON HOSPITALS

### **ABSTRACT**

**Introduction:** The hospital charge master, has been the heart of the healthcare revenue cycle, as it has served as the hospitals' starting point for billing patients and payers. The CDM was made as an extensive breakdown of the cost of the care provided and in order for a hospital to correctly bill a patient for care received as every chargeable item in the hospital must be included in the master.

**Methodology:** The methodology for this study utilized a literature review. It consisted of academic sources, five electronic databases, academic journals, and government websites. Thirty- six sources were referenced for this literature review.

**Results:** The literature review illustrated examples of CDMs in hospitals and how the correct coding of a visit or procedure can mean the difference in payment for a patient. It was found that the transparency of a CDM is a positive asset to the patient and facility as well.

Discussion/Conclusion: Participation with CDM throughout hospitals has shown an increase in billing consistency with hospital facilities. The study reviewed limitations that included the search strategy such as distinguishing differences between keywords, databases used, and publication bias. Practical implications included continual implication of CDM in different hospitals around the US. This literature review suggested that CDMs has increased transparency for prices and a positive increase in quality of care.

**Key Words:** CDM, Effectiveness, ICD-10-CM, Implementation, Price, Transparency

#### INTRODUCTION

Charge Description Masters (CDM) were created as a list of billable items in a hospital for the hospital, patient, or the patient's health insurance provider. The CDM was made as an extensive breakdown of the cost of the care provided and in order for a hospital to correctly bill a patient for care received as every chargeable item in the hospital must be included in the master (Dobson, DaVanzo, Doherty, & Tanamore, 2005). According to LaPointe (2018), the hospital charge master, has been the heart of the healthcare revenue cycle, as it has served as the hospitals' starting point for billing patients and payers. The charge-master has provided "gross charges" for each service and then payers have negotiated discounts with individual providers which results in net charges (Axene, 2017). Charge Masters have been labeled as "hospital specific", meaning that each hospital had its own chargemaster which made patients unable to decipher hospital bills (Stone, 2018). If a CDM has been improperly set up or not maintained correctly, it could cost an organization up to millions of dollars, either in loss of revenue or compliance penalties (Gilbert, 2018). An absent code or error code has lead to missed reimbursement, incorrect bills, and compliance risks (Craneware, 2018).

The purpose of the International Classification of Diseases, Tenth Revision (ICD-10) was to allow for more detailed documentation on the treatment provided to patients but had a wide effect on the healthcare industry, beginning with the quality of care and cost effectiveness for providers (Meyer, 2011). Billing consistency began with the use of Electronic Health Records (EHRs), properly being utilized alongside the ICD-10, has allowed the provider to save time not having to enter every service provided to the patient and focus on needs that still need met (Giannangelo & Fenton, 2008). To

implement ICD-10 has been costly, however the more detailed clinical conditions and services delivered has allowed policy makers and providers to overall enhance the final quality of care provided (Bowman, 2008).

The CDM has been connected to the Electronic Health Record (EHR) in where it has supported key changes in payer requirements (HealthIT, 2018). The CDM has left a financial impact on pharmacy departments as well when it came time to implement (Jarrett, Patel, & Babbitt, 2008). The pharmacy has been like the heart of the hospital and what the majority of the charges were made for. Hospitals do not typically have the full list price in the CDM, but the uninsured and out-of-network patients are most generally charged the full amount (Kacik, 2017). Hospital pricing and quality of care has gained increased attention due to the patients' increased out of pocket exposure and the lack of transparency (AHCCCS, 2014).

In countries such as Switzerland and Germany that rely on multiple competing health insurers, prices for healthcare products and services have been set by the government or negotiated on a regional basis with accountable organizations; whereas in the U.S., states have negotiated individually with payers and providers (Reinhardt, 2011). In U.S. healthcare overall, prices could be referred to as being opaque and leaving not only providers but patients seeking care unknowing to the prices they were paying (Arora, Moriates, & Shah, 2015). When a hospital has been forced to shut down, no matter their location, the patient welfare for the area has decreased but studies have found that following a closure the cost of competing hospitals is more likely to decrease (Capps, Dranove, & Lindrooth, 2010). Rural hospitals tend to receive more political attention due to the simple fact that people relate those areas to lack of availability of healthcare and

choice of providers (Reschovsky & Staiti, 2005). Breaking down the cost information by geographic location, large urban areas have been more likely to consider the cost information than the hospital that has been a rural counterpart (Dobson, DaVanzo, Doherty, & Tanamor, 2005). According to the CDC, if a hospital was covered by the Health Insurance Portability and Accountability Act (HIPPA), then it has been mandatory for them to transition to the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) code sets (CDC, 2019).

With no common practice or guidelines in place for the update of costs, some hospitals have raised their price by the same percentage once a year (Reinhardt, 2006). Pricing, price transparency, and quality of care have been important to consumers and has continued to be because to be able to set the groundwork for payment that represented preventative care, quality must be included into the price equation (Barry, et al., 2017). Breaking down the cost information by geographic location, large urban areas are more likely to consider the cost information than the hospital that is a rural counterpart (Dobson, DaVanzo, Doherty, & Tanamor, 2005).

In 2006, the American Health Association (AHA) Board of Trustees approved a policy regarding hospital pricing transparency, and also included data across the board of standards. The policy called for information to be presented where it would be easy to access, understand and use; why and how price of patient care could vary, and inform and direct patients about financial assistance with their hospital care (AHA, 2018).

The purpose of this research was to review into the implementation process and the lasting effect the CDM has had on a hospital to determine the price increase and the quality of care.

### **METHODOLOGY**

The hypothesis for this research was that charge masters in hospitals would bill higher prices, even with listed CDM prices due to the inability of patients to understand the CDM. The methodology for this research analysis was a qualitative study with mixed methodologies including a literature review following a systematic approach, academic sources, and a semi-structured interview with an employee in the billing department at Cabell Huntington Hospital. The interview was conducted on March 29, 2019 Furthermore, a semi-structured interview with the employee of the billing department supplemented information to the data collected. The employee of the department was referred to as Expert throughout the research study. The interview was face to face and IRB approval was obtained prior to execution.

The concentration for this research study followed the steps of a systematic approach. The conceptual framework of this research explained the use of CDM in hospitals in an abundance of studies of heterogeneous quality. The research method, illustrated by Table 1, is an adaption of the framework by Yao, et. al. (2010) showing the benefits and barriers to use of CDM with hospitals. The use of this framework was appropriate because it portrayed the importance of CDM in a hospital setting. Similar to any project development, this billing process has been circular as it began with identification and definition of the problems and includes development solutions to possible questions. In this case, the solution has been implementing CDM in the hospital is easier when the information is more accessible and transparent. Through process assessment, the use of CDM in the hospital setting was researched and the payments raise

once it is implemented. Once hospitals have adopted the applications of a more accessible CDM, barriers and benefits can be addressed (see Figure 1).

The literature review was conducted in three individual stages involving: (1) developing a search strategy and gathering data for the case study; (2) determining and analyzing the relevant literature; (3) delegating literature to appropriate categories.

## Step 1: Literature Identification and Collection

The electronic databases used include Elibrary, PubMed, Medline, and Google Scholar. When conducting this research, critical terms included were: "CDM" AND "Price" OR "Transparency" OR "Effectiveness" OR "Charges" AND "ICD-10-CM" OR "Billing" OR "Hospitals" OR "Implementation" OR "Cost" AND "Prices" OR "Quality". Journals cited included but were not limited to: JAMIA, The Journal of the Medical Library Association, Journal of American Health Information Management Association, AMA Journal of Ethics, and other reliable medical and government websites. The search identified 63 relevant citations and articles were excluded (N= 29) if they did not meet inclusion principles. Articles were included (N=32) if they described the effect of CDM pricing within hospitals: articles from other sources (N=4) were also included in this search. These 36 references were subject to full-text review, and these 36 citations were included in the data abstraction and analysis. Only 14 references were used in the results section. (see Figure 2).

## Step 2: Literature Analysis

The Charge Master in a hospital facility has become important to know because of its impact on hospital's quality of care and how patients are billed for services. Therefore, the literature analyzed focused on the following key areas: Hospital

chargemasters, inpatients and outpatients, billing, providers, charges, ICD-10 and chargemaster codes. In attempt to collect the most recent data, only sources from 2005-2019 that were written in English were used. Primary and secondary data from articles, literature reviews, research studies, and reports written in the US were included in this research.

The literature search was conducted by WL, KL, and validated by AC, who acted as second reader and also double checked if references met the research study inclusion criteria.

Step 3: Literature Categorization

The following subheadings were included in the research: Overall Price Effect from CDMs, Billing Consistency of Hospitals, and Price Transparency with CDM in Hospitals.

## **RESULTS**

Overall Price Effect from Charge Description Masters on Hospitals and Patients:

A hospitals charge description master (CDMs) has been something that required updating on a quarterly basis and annually at the minimum, which has meant the price effect was regularly changing (Schaum, 2007).

A study conducted in California in 2008 found that patients were paying more than Medicare or Medicaid patients; 20% more in 2004-2005 (Melnick & Fonkych, 2008). Because hospitals were diverse in their mix of payers, the portions of total services that were reimbursed according to fixed prices versus charge-based amounts have widely varied and have placed pressure on hospitals as to how much they increased their prices

(Tompkins, Altman, & Eilat 2006). In 2004, if hospitals actually collected the amount of their charge-to-cost ratio the profit margin per hospital would have exceeded more than 200%; however, according to AHA data the U.S. had a 5.2% profit margin that year (Anderson, 2007).

The charge-to-cost ratio was calculated by using a hospitals total gross charges and dividing them by its total Medicare-allowable cost (ratio can vary based on inpatient and outpatient) and allowed a breakdown of the CDM markup (Bai & Anderson, 2015). The balance of market power between hospitals and health care insurers have also had an influence on the increase of rates found in CDMs which significantly have affected the private prices (Frakt, 2011).

One hospital reported in 2007, an estimated \$50 million net revenue change in one year because of lost charges due to a reimbursement change; while another hospital discovered duplicative and inappropriate charges and refunded \$500,000 to CMS (Enrado, 2007).

Billing Consistency of Hospitals with Charge Description Masters:

The CDMs has allowed healthcare providers to replace paper documentation and charge sheets with technology, giving revenue cycle elements to pass directly from clinical to patient billing (Bieker & Bailey, 2012). With the implementation of ICD-10-CM on October 1, 2015, providers billing was able to become more precise with what they were billing for meaning there was less room for error (Pilato, 2013).

It was critical that a hospital or provider have a team in place that could operate ICD-10 and knew how to make the CDM, EHR, and ICD-10 coexist, one of the highest expenses of the implementation was the installation and upkeep (Winters, 2012). Many

physicians cited the high startup fee as their reason for not implementing a CDM, even though once implemented could have kept the physicians practice from submitting incorrect billing statements or not receiving the potential full payment amount (Fleming, Culler, Mccorkle, Becker, & Ballard, 2011). The Expert from Cabell Huntington Hospital's Billing Department stated that the hospital employed a full-time employee to work with the departments within the hospital to review and manage the chargemaster. It was considered an integral component of the hospital billing process to maintain an accurate chargemaster because it was the key to revenue integrity, compliance, and charge capture.

### Insert Table 1

*Price Transparency with CDM in Hospitals:* 

At the University of California-San Francisco's hospital, there were two chargemaster line items for vaginal childbirth: one was \$5,497 and the other was \$12,632. But there was no indication how these were different. Consumers might have turned to the "bundled" cost based on those DRGs, where the ancillary costs were included. That lists the total charge for an uncomplicated childbirth at an amazing \$53,184 (Appleby & Feder, 2019).

Another study showed that only 21% of hospitals have had the ability to provide a complete hospital price estimated for a common procedure, and that percentage dropped from 48% of hospitals in a 2012 study (LaPointe, 2018a).

The Expert from Cabell Huntington Hospital's Billing Department stated that the charge master was easily accessible on the hospital's website as mandated by CMS.

#### DISCUSSION

Charge Masters were found to be something that has been needed updated annually which included a changing of prices (Schaum, 2007). The changes of prices affected hospitals due to the mix of payers, the portions of total services that were reimbursed, and pressure put on the hospitals as to how to increase their prices (Tompkins & Altman, 2006). Anderson (2007) noted that if hospitals would have collected the amount of their charge-to-cost ratio per hospital would have been more than 200%. Charge-to-cost ratio has been calculated by using a hospitals total gross charge and dividing it by its total Medicare-allowable cost; this also allowed a breakdown of the CDM markup (Bai & Anderson, 2007). Frakt (2011) discovered that the balance of market power between hospitals and health care insurers have also had an influence on the increase of rates found in CDMs which significantly affected the private prices.

Bieker & Bailey (2012) discussed the improvements made by allowing the providers to replace paper documentation and charge sheets with technology, allowing revenue cycle elements to pass directly from clinical to patient billing. With the implementation of ICD-10-CM on October 1, 2015, providers billing was able to have less room for error (Pilato, 2013). Less room for error has meant a less amount of funds lost for the facility.

It has been considered critical that a hospital or provider have a team in place that could operate ICD-10 and know how to make the CDM, EHR, and ICD-10 (Winters, 2012).

Many physicians have cited the high startup fee as their reason for not implementing, even though once implemented could have kept the physicians practice from submitting incorrect billing statements or not receiving the potential full payment amount (Fleming, et al., 2011).

Chargemasters' next issue became the transparency with customers. At the University of California-San Francisco's hospital, there were two chargemaster line items for vaginal childbirth: One was \$5,497 and the other was \$12,632. But there was no indication how these were different (Appleby & Feder, 2019). By confusing codes in the CDM, patients are unable to find their correct billable amount which has created more confusion the the customer. On the other hand, it was found that some customers did not care about the price listed under the CDM due to the fact they were going to the hospital for the procedure regardless and the list of charges were not going to make the difference. *Limitations* 

This research study was conducted with limitations. The research of the study conducted CDM had a decrease in accessibility and clarity with patients, but throughout the interview with the expert, they reported that the CDM with CHH has saved more money with correct billing and documenting than ever before. This literature review was restricted due to search strategy such as distinguishing differences between keywords, number of databases accessed, or the sources used. In addition, research and publication bias was a limitation during this study.

### **Practical Implications**

Continual implication of CDM in different hospitals around the US will provide more data for the future. The increase in payment for physician office visits has given

providers the incentive to see Medicare patients. Further research is needed for CDM billable codes and also for accessibility of the codes.

## CONCLUSION

Participation with CDM throughout hospitals has shown an increase in billing consistency with hospital facilities. This literature review suggested that CDMs has increased transparency for prices and a positive increase in quality of care.

## SEMI- STRUCTURED INTERVIEW

Alyssa Stark. Cabell Huntington Hospital Billing Department. Date: April 5, 2019.

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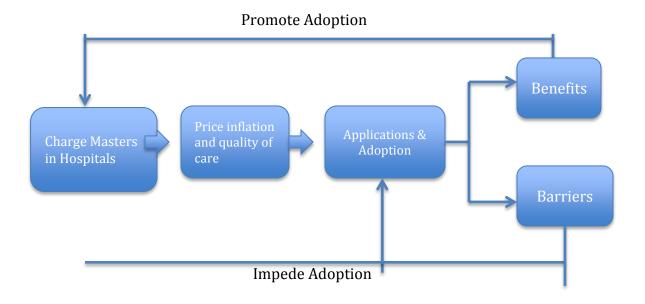
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Benefits and barriers



Source: (Yao et al., 2010).

Figure 1: Conceptual Research Framework

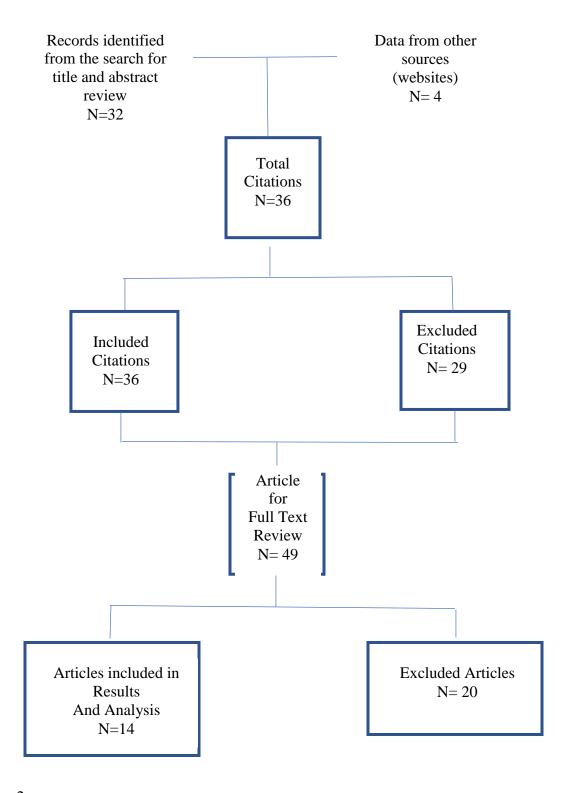


Figure 2

Overview of Literature Evaluation

# Charge Description Master Example :

Code	Description	Price
00002-0351-02	Darvocet- 50 Tablet Ta 50-325	\$0.59
00002-0363-02	Darvocet- 100 Tablet Ta 100-650	\$1.11
00002-0604-40	Seromycin (Cycloserine) Capsule Ca 250 mg	\$3.54
00002-0803-33	Darvon Capsule Ca 65 mg	\$0.71
00002-1052-02	Diethylstillbestrol Tablet Ta 1 mg	\$0.10
00002-1054-02	Diethylstillbestrol Tablet Ta 5 mg	\$0.26
00002-1094-02	Tapazole 5 mg (Methimazole)	\$0.25
00002-1444-01	Vancocin Hcl (Vancomycin) Vial 500 mg	\$7.80
00002-1450-01	Glucagon Vial 1 mg	\$48.00
00002-1452-01	Velban 10 mg Vial (Vinblasine Sulfate)	\$40.54

Table 1.

Source: (Pilato, 2013)

## Appendix A

Questions Asked in Semi-Structured Interview of a Billing Employee

- 1. Are you aware of how many codes are submitted in your facility's Charge Master?
  Why or why not?
- 2. Do you know if your facility hires a consulting firm to assist in working with the Charge Master? Why or why not
  - 3. Do you have a full time employee working on it? Why or why not?
- 4. Do you think that the charge masters in hospitals are positively correlated to the quality of care? Why or why not?
  - 5. Has the Charge Master in your facility increased throughout the years in numbers (prices) or decreased? Why or why not?
    - 6. Is the charge master easily accessible in your facility? Why or why not?
      - 7. How often is your Charge Master updated? Why or why not?
- 8. Do you believe certain Charge Master Codes should be negotiable? Why or why not?
  - 9. Are charge master codes increased depending on area? Why or why not
- 10. Do you personally believe in the coding charges that are in place now? Why or why

not?

11. What is your viewpoint of the Charge Master in your facility? Why?