

# The Future of the Revenue Cycle Management

Varun Ajay Tawde

who is an engineering graduate in the field of computer science and is currently working for a medium scale KPO.

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**Abstract:** The RCM management industry is on the verge of change due to emerging technologies. In the following paper, we will see how and which part of the industry will be affected. The scope of this paper only examines specific aspects of the RCM cycle, and there are several assumptions that we have considered. We will be looking at the current RCM model and the proposed RCM model. The timeline for each of these models is also discussed.

**Keywords:** BPO, RCM, Automation, Artificial Intelligence

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Date of Submission: 17-01-2021

Date of Acceptance: 02-02-2021

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## I. Introduction

[1]Healthcare Revenue Cycle Management Market size surpassed \$51 billion in 2018, and by the year 2025 was expected to be a market capitalization of around \$114 billion.[1] The healthcare revenue cycle consists of many factors such as authorization, insurance eligibility, medical coding, etc. Management of this cycle is usually outsourced to companies whose end goal is to make sure its customer gets paid. These customers could range from the primary care physician to large corporate-owned Ambulatory Surgery Centers(ASC). These customers could either outsource the entire process or some parts of the process while keeping other parts in-house. Outsourcing is usually done as the work is very tedious, and some companies are willing to do it at a very cheap rate. The companies to which such processes are outsourced in the Indian subcontinent are known as Business processing units(BPO). This outsourcing is a substantial employer in developing countries, who have high access to cheap labor. However, this could change rapidly due to emerging technologies such as Artificial intelligence and automation software.

## II. The current RCM model

As of now, emerging technologies such as Automation and Artificial intelligence are still mere buzz-words when we consider the BPO industry, which continues to rely heavily on manual labors. These manual laborer's jobs in the RCM(Revenue cycle management) process can range from medical biller to payment poster, all of whom rely on a fixed methodology to do their jobs. These jobs don't require much knowledge but are skill-oriented, meaning the person is very proficient in bill/post as much claim/EFT/ERA as possible. In contrast, there is a job in the RCM cycle that requires extensive knowledge of the medical field and a license to perform. This, of course, is the medical coder's job, who has to pass the CPC(certified professional coder) exam and condense sizable medical records to mere CPT codes. Other positions are also included in the RCM process, such as client management, denial handling, patient calls, etc. However, for this paper's scope, we will not be considering them or any job for that matter which requires human-to-human contact. For the sake of this paper will be considering three primary careers, i.e., the medical coder, payment poster, and the medical biller. As I feel these eminent jobs are the most likely to get effect due to the emerging technologies. Let us look at all three of these jobs in detail.

1. Medical Coder: A medical coder examines the Doctor's digital medical records and determines the exact procedure performed. Then he/she assigns a specific CPT code for the procedure from the CPT manual.
2. Medical biller: A medical biller is responsible for billing the CPT code received from the medical coder into the PMS software.
3. Payment Poster: A payment poster is responsible for posting the payment received in the PMS software

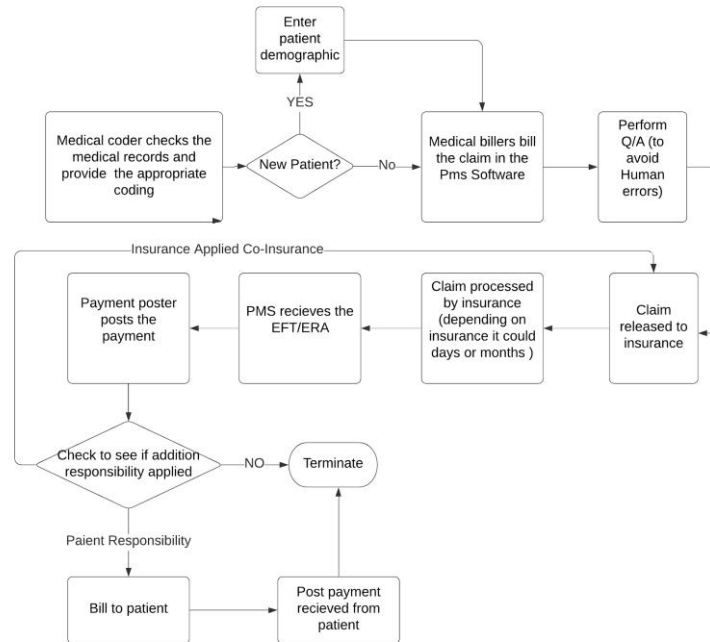
### A. Timeline

This part is subjective, and there is no accurate way to measure the exact time taken from when the patient visit is performed to when the customer receives payment. This is due to many factors for which we can't calculate the exact time needed. These factors include the time required by insurance to process a claim or the patient's time to pay his/her dues. So, setting all these factors and assuming that we are considering billing at least 100 shares as a rough estimate for the time taken will be around two days. These two include the time

required for coding, billing the claim, and posting the payment. (Please note: The assumption we are having is that QA is not performed, and all the claims are billed correctly. )

**B. Structural outline**

The diagrammatic representation of the current RCM process(only the parts which we are considering) is given below.



**Fig.1.1: The current RCM model**

Few key Assumptions in the model are as follows:

1. Patients had active insurances, and authorization was taken to perform the procedure.
2. Doctor is documenting the Medical records in the EHR software, and the records are complete.
3. Doctor's office will not be providing medical coding.
4. The claim which is submitted to the insurance company is correct, and the insurance company will process the claim
5. Insurance will be making payment via ERA/EFT.

**III. The new model with the use of AI and Automation**

In the near future, it is expected that artificial intelligence and automation will be making more strides in every industry, which will lead to a massive change. The BPO industry will be affected, to say the very least. Most manual labor will be replaced by automation, but that's not all; we could lose even more jobs requiring ample knowledge(Medical coder) to AI(Artificial intelligence). Let us consider each step in the RCM cycle and see how it will be affected.

*Step 1: Medical Coding:*

- Even though this job requires knowledge of the Medical coding guidelines and a license, it still could be lost to an AI. In a simplified form, a Medical coder reviews the Doctor's medical records and matches the procedure performed to the specific CPT in the Medical CPT manual. An established branch of artificial intelligence can achieve this same task(Natural Language Processing). The cutting-edge NLP(Natural Language Processing) tool can be used to process Medical language shortly. In essence, we could train an AI to read digital medical records and provide a CPT. Also, since medical terminology is clearly defined, such an AI's accuracy can be higher than the average Medical coder. Which will lead to a massive job loss in the Medical coding field. (Please note: The consideration here is the medical records document correctly )

*Step 2. Patient Demographic:*

- This is a little trick, and this step will require human intervention since patient demographics are still mostly recorded using the old fashioned pen and paper method. As analyzing handwriting and deciphering accurate text from it is very difficult for the AI, this step will continue to be performed by a human. However, there is a catch as this step is only required if it's a new patient visiting the practice, which will not be the case in all situations.

*Step 3: Billing the claim in PMS(practice management software)*

- An IT automation software can quickly do this step as it only requires entering the CPT, dos(date of services), Pos(place of service), etc., in the PMS software in their respective fields. Given that AI is used to provide the CPT, it can easily be trained to extract a little more of the medical records such as dos, pos, etc. Which then given to the automation software can then easily be inputted into the PMS. Also, it can be much faster and make fewer errors as compared to its human counterpart.

*Step4:Q/A*

- This is one of the most crucial steps and can still require human intervention. The error will most likely not occur in step 3: Bill the claim, but rather at step 1: Medical coding could be prone to errors. As most AI does not guarantee that the information is processed correctly, this step may still require human intervention. However, another way of proceeding will be to bill the claim, and if it's denied, then have someone work on the denial. Thus we could eliminate this step entirely if the accuracy is found to be high enough.

*Step 5: Claim released to insurance:*

- The PMS's clearinghouse generally does this, and so it doesn't require any efforts on the BPO side to proceed. So this step will remain as it is.

*Step 6: Claim processed by insurance*

- This step is out of the scope of the paper and so will not be discussed further.

*Step 7: EFT/ERA received:*

- This step is essential, as the payment has to be received as an EFT or ERA. This ensures the payment confirmation is obtained directly by the PMS software. If the payment is made by check deposit by chance, then the practice will need to scan to check over for the payment poster to post it in PMS. However, it's safe to assume for ease of use, more and more insurances will start process payment via ERA/EFT. (Please note another critical assumption is the clearinghouse is credentialed with the insurance for the practice, so the EFT/ERA is directly reflected in the PMS)

*Step 8: Posting the Payment:*

- As long as the payment is received in the system as an EFT/ERA, we can automate the process. The EFT/ERA will not only be posted but since the patient's information is already in the system, such as the secondary insurance info or billing address, we can even take further action on this claim. Thus this will also not require any human intervention and can be done with high accuracy,

*Step 9: Patient payment posting*

- There is currently no method by which we can receive patient payment directly in the PMS. So the only way the BPO will know that the patient has made the payment is when we receive the info from Doctor's practice. This will likely be emailed or scanned to the BPO, so it cannot be automated and needs to be posted by the payment poster.

*A.New Timeline*

We will be considering the same critical assumptions as before; I feel that the entire process can take from a few hours to one day.

*B.Proposed structural outline*

So the new RCM model will be as follows, (we will be considering the same assumptions as before ).

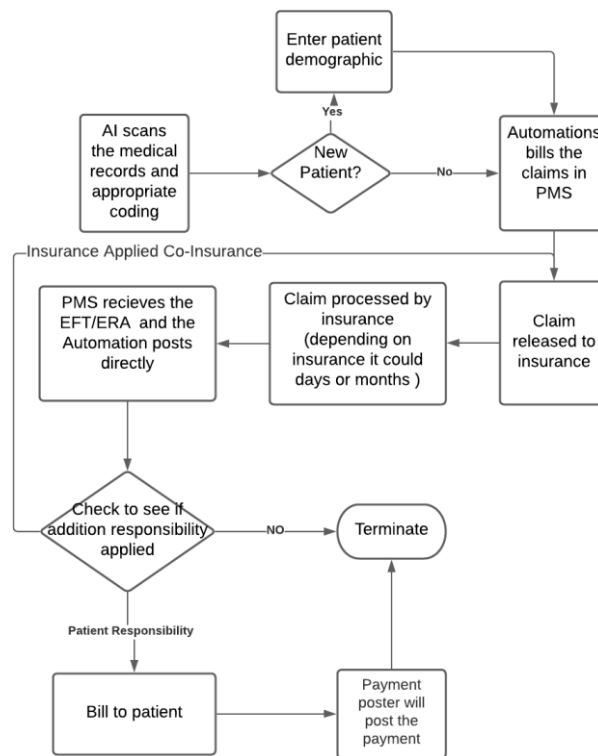


Fig 1.2 The proposed RCM model

#### IV. Conclusion:

The process described above granted is based on a few key assumptions and doesn't cover the entire RCM process as a whole. However, the AI and Automation revolution will affect the BPO markets, and it might lead to many jobs lost for lack of a better word to computers. These job losses are not limited to only the rote manual skilled laborer but also include knowledge-based jobs(Medical coder). Now, jobs that require human-to-human Jobs such as insurance calling to find why a particular claim was denied as the denial reason was too generic might be saved. But the industry as a whole will change.

#### Abbreviations

1. EFT: Electronic fund Transfer
2. ERA: electronic remittance advice
3. PMS: Practice management software

#### References

- [1]. "Healthcare Revenue Cycle Management Market Forecasts 2025" Authors: Sumant Ugalmugle, Rupali Swain

Varun Ajay Tawde. "The Future of the Revenue Cycle Management." *IOSR Journal of Business and Management (IOSR-JBM)*, 23(02), 2021, pp. 01-04.