

# A Systematic Literature Review of the Strategies used to Improve Reimbursement Rates for Telemedicine Services During the COVID-19 Pandemic

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**Abstract:** *Coronavirus disease 2019 created unique challenges in the United States healthcare system. Social distancing became an obstacle to treating patients that historically has taken place in person. Clinicians unable to see their patients in person began to either implement telemedicine or expanded already established services to incorporate the larger patient volume that they would potentially encounter. As with any new service or expanded service, ensuring appropriate reimbursement may be a source of stress, especially during a viral pandemic. This systematic literature review aimed to explore successful strategies that healthcare employees use for providing telemedicine services, during the Coronavirus disease 2019 pandemic, to improve reimbursement rates through appropriate billing standards. A search of the literature transpired using the Cumulative Index of Nursing and Allied Health, MEDLINE, and Academic Search Complete databases utilizing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. Data from the 20 relevant articles were meticulously analyzed using screening criteria that revolved around our research question. Five themes emerged from the literature during the data analysis process. The themes included barriers hindering successful implementation being removed, resources provided for healthcare workers to follow up with for greater detail, a need for telemedicine during the Coronavirus disease 2019 pandemic, improving reimbursement rates, and appropriate billing standards. The findings and results indicate that healthcare workers can successfully implement telemedicine services and code and bill for those services to ensure appropriate reimbursement. The results demonstrate that published articles are indeed attempting to assist other healthcare providers with telemedicine implementation and reimbursement. The implications of these findings provide healthcare leaders with further insight into implementing appropriate strategies for providing telemedicine services and improving reimbursement rates.*

**Keywords**—telemedicine, strategies, reimbursement, Coronavirus 2019, pandemic

## 1. INTRODUCTION

The rapid spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is responsible for the 2019 novel coronavirus disease (COVID-19) and the subsequent changes the United States Healthcare system had to undertake as a result of COVID-19 has placed a unique strain on healthcare providers. The need to develop safety guidelines and protocols for dealing with the virus was a priority for almost all healthcare organizations across the country [29]. Unfortunately, circumstances began to demonstrate new issues that healthcare providers would have to find solutions to [21]. The country braced for the first cases of COVID-19, which came on January 21, 2020, and shortly after began discussing social distancing guidelines on how to stop the spread of the virus [21,22]. Many states and local governments would adopt strict social distancing rules that would affect the healthcare providers across the country [23].

The lack of patients being able to go inside their commonly used healthcare facilities meant that many healthcare organizations lost much of their patient volume rather quickly [24]. Social distancing rules resulted in a loss of in-person visits, with reductions ranging from as low as 30% to 75% or more in patient volume [24]. The sudden loss of patients, and therefore income, resulted in many organizations and clinicians needing to implement

telemedicine protocols for their patients, or risk going out of business.

To adapt to the significantly changing healthcare field, clinicians began assessing the processes to implement telehealth and telemedicine strategies, if they were not already providing such services. A need to determine appropriate billing codes and reimbursement standards became apparent [25]. The COVID-19 pandemic may have sped up the implementation of telehealth and telemedicine services, but the proper billing standards associated with COVID-19 reimbursement have been a work in progress [27,28]. Some healthcare leaders are struggling to manage telemedicine services effectively as they try to provide alternative means of treating patients, which results in a decrease in reimbursement rates [30]. Private insurance compared to public health insurance coverage has long demonstrated an unbalanced reimbursement system, and the newer telemedicine strategies taken up by providers may see many of the same reimbursement issues that have occurred in the past [26].

The purpose of this systematic literature review is to explore successful strategies that healthcare employees use for providing telemedicine services, during the COVID-19 Pandemic, to improve reimbursement rates through appropriate billing standards.

## 2. METHODS

The research and article selection process transpired in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines [31]. The Google Scholar search was initially used to narrow down the research topic, and formulate an appropriate research question. We then used the research question for the screening of academic databases. The academic databases chosen were CINAHL, MEDLINE, and Academic Search Complete. Search terms for each database were identical and included telehealth OR telemedicine OR telemonitoring OR telepractice OR telenursing OR telecare AND covid-19 OR coronavirus OR 2019-ncov AND reimbursement. After performing the initial search in each database, articles had to meet specific criteria for inclusion. The initial search based on the key search terms resulted in a combined 69 articles.

### 2.1 EXCLUSION CRITERIA

Articles published between 2019 and 2020 was the first criterion. The timeframe was kept narrow to avoid articles published before COVID-19 began to spread to ascertain the relevance of the reimbursement strategies with the outbreak of the pandemic. Articles also must be full text, written in English, peer-reviewed, and from academic journals. After performing the initial search and the articles compared to the exclusion criteria, 30 articles remained. The remaining 30 articles were thoroughly reviewed manually by one reviewer for their relevance to the study. Most of the articles excluded were due to the lack of information regarding reimbursement for telemedicine services, such as being too vague or not including information regarding reimbursement at all. The final sample of articles germane to the study was 11. Conducting a separate search outside of the three academic databases used yielded 9 additional articles that met the inclusion criteria and were germane to the topic, bringing the final total to 20 articles. All articles were excluded from this review if not germane to the topic or did not meet the inclusion criteria.

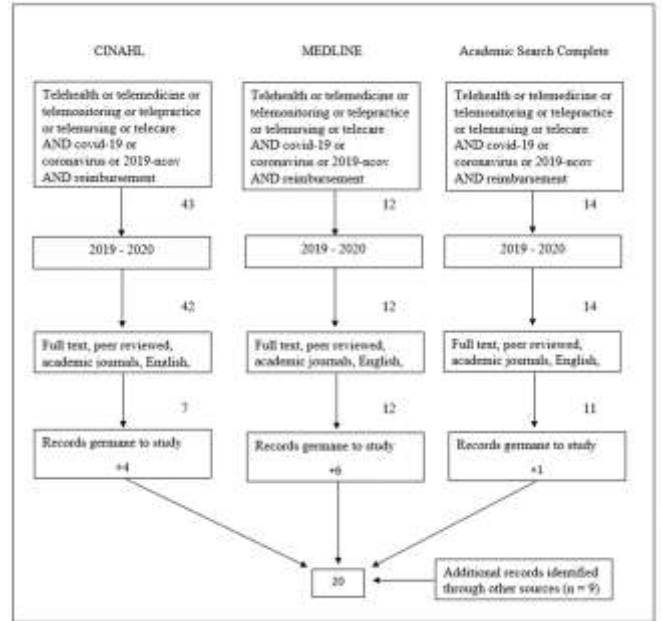


Fig. 1. Literature Review Process

## 3. RESULTS

The primary research question was, what successful strategies do healthcare employees use for providing telemedicine services, during the COVID-19 Pandemic, to improve reimbursement rates through appropriate billing standards. An intense literature search and review transpired using an established literature search, selection and data analysis process [31]. We used three academic electronic databases CINAHL, MEDLINE, and Academic Search Complete. Eleven articles were found through academic databases. To supplement the eleven articles, additional articles identified through other sources transpired that met the inclusion criteria and were germane to the topic, bringing the final total to 20 articles. Based on the data from 30 studies chosen, 11 of the articles were chosen that originated from the three academic databases, with nine additional studies found outside of academic databases. A final decision transpired by comparing and finalizing the summary findings from each article (see Figure 1). Table 1 lists the title of the articles and key summation findings from these 20 articles.

**Table 1: Summarized findings of the literature**

Title	Findings
Migraine Care in the Era of COVID-19: Clinical Pearls and Plea to Insurers [1]	There have been many challenges that telemedicine has gone through in the years before COVID-19. Efforts have taken place at the state and federal levels to help remedy some issues, such as reimbursement for services. This article also provides resources for the reader that are not included in the article itself to continue researching more specific implementation, coding, and billing solutions.
CMS prioritizes dialysis access procedures, offers regulatory relief for nephrologists amid COVID-19 [2]	The Centers for Medicare and Medicaid Services have released guidance on the implementation and utilization of telemedicine services for clinicians. This article details some of the guidance released and clarifies some questions regarding the coding and billing for services offered remotely.
Incorporating Telemedicine as Part of COVID-19 Outbreak Response Systems [3]	The need for telemedicine across the United States as a response to the outbreak of COVID-19 is considerable. Implementation and usage of telemedicine services would create benefits for providers and patients adapting to social distancing guidelines. State and federal legislation have helped in providing needed changes for telemedicine services both for implementation and reimbursement.
Telemedicine in Liver Disease and Beyond: Can the COVID-19 Crisis Lead to Action? [4]	The authors observed the challenges a community-based gastroenterology practice went through and how to overcome the obstacles associated with telemedicine implementation. Issues addressed included state and federal legislative barriers that prevented reimbursement. Addressed were shortcomings of the reimbursement process for private payer and public payer insurance and the necessary changes needed to ensure smooth documentation submission for reimbursement.
Neurologists Scramble to Respond to COVID-19 with Telemedicine The Challenges and Opportunities [5]	Discussed were concerns for implementing telemedicine and the difficulties that arise as a result of COVID-19 and the need for social distancing. The issue with reimbursement for telemedicine services has been prevalent for years before the outbreak of the virus. Not being adequately reimbursed is a concern many clinicians have; however, the changes made through legislation have helped ease the difficulties associated with telemedicine services before the virus.
Rapid implementation of virtual neurology in response to the COVID-19 pandemic [6]	The authors examine the process of rapid implementation of telemedicine and the barriers encountered. State and federal laws governing the services that telemedicine offers, upon being loosened and less restrictive, have allowed clinicians to move forward with telemedicine integration. A source of confusion that still exists relates to the billing and coding standards. However, the release of billing and coding guidelines has improved the process.
Telemedicine in the Era of Coronavirus Disease 2019 (COVID-19): A Neurosurgical Perspective [7]	Many barriers are described for the historical context of telemedicine, focusing on the hindrance of implementation and utilization. The lack of guidelines and policies prevented some aspects of telemedicine to be billed for and reimbursed, causing continued stigma that telemedicine, if not necessary, was not worth incorporating into clinical practice yet. The need for medical services during social distancing at the onset of COVID-19 has helped increase telemedicine's viability and spurred on the federal and state governments to act with legislation aimed at reducing or eliminating some of the previously existing barriers.
Telemedicine: Patient-Provider Clinical Engagement During the COVID-19 Pandemic and Beyond [8]	The COVID-19 pandemic demonstrated a need to improve clinicians' telemedicine services as social distancing became the norm across the country. Telemedicine has seen slow growth into the clinical environment leading up to the pandemic, but the necessity of finding alternate means of providing care has helped telemedicine move forward. The authors describe many of the issues plaguing telemedicine before the pandemic and details the many changes made through legislation to assist clinicians in utilizing telemedicine services and ensure appropriate reimbursement necessary to keep many practices from closing their doors.
Triaging Telehealth in Wound Care: Embracing the Regulations within Your Workflows [9]	The existing telemedicine guidelines and laws have been changing considerably as a result of the COVID-19 pandemic. Newer rules alleviated many of the barriers that providers faced with telemedicine in their practices. CMS releasing the guidelines for reimbursement can help ensure that proper coding and billing takes place for the Medicare beneficiaries seen by clinicians. The financial means for providing telemedicine will continue.

(Table Continues)

Title	Findings
Virtual Dermatology: A COVID-19 Update [10]	Legislation and rules governing telemedicine have changed since the COVID-19 pandemic hit the United States. The authors explain how dermatology can benefit from telemedicine and some of the changes made to assist those providing telemedicine services. The article also provides resources on steps to take for coding and billing for reimbursement.
Virtual Ophthalmology: Telemedicine in a COVID-19 Era [11]	Telemedicine services have seen an increase in utilization with COVID-19, thus limiting clinicians' ability to see patients. Implementation of telemedicine services has changed compared to the pre-COVID-19 outbreak, with specific requirements no longer necessary, such as HIPAA compliant device requirements. In this article, the authors explain some of the steps necessary to implement telemedicine and the methods utilized to help ensure reimbursement for services.
Implications for Telehealth in a Postpandemic Future Regulatory and Privacy Issues [12]	Understanding the changes made to the regulations that govern telemedicine is essential for healthcare providers to ensure reimbursement for services. Low reimbursement has historically been an issue that clinicians have had to deal with when utilizing telemedicine services for patients. The authors observed the issues for telemedicine identified before the pandemic, the present time during the pandemic, and issues needing resolving after the pandemic.
Departmental Experience and Lessons Learned with Accelerated Introduction of Telemedicine During the COVID-19 Crisis [13]	The COVID-19 pandemic caused an unforeseen strain on healthcare providers when the order to social distance and remain isolated put practices in jeopardy of going out of business. The authors provide examples of the process that an orthopedic surgery department went through to implement telemedicine as quickly as possible and proper coding and billing to receive reimbursement for services provided.
Telehealth: Helping your patients and practice survive and thrive during the COVID-19 crisis with rapid quality implementation [14]	Realizing the need for telemedicine during the COVID-19 pandemic spurred clinicians to attempt implementation. However, clinicians could realistically utilize such services for their patients only after barriers for implementation loosened. The CMS issuance of the 1135 waiver expanded the coverage of Medicare patients to allow them telemedicine coverage.
Telemedicine in the Era of COVID-19 [15]	The COVID-19 outbreak presented a unique challenge to allergists treating patients with conditions that had symptoms similar to that of one infected with the virus. Understanding that a social distancing methodology would be beneficial to the patient and the provider, telemedicine has shown to be an appropriate resource to utilize.
Telemedicine and eConsults for Hospitalized Patients During COVID-19 [16]	Patients presenting to the emergency department with urological issues experience newer restrictions regarding safety as the COVID-19 pandemic spreads across the country. Clinicians are utilizing telemedicine to assess patients in the ED and inpatients admitted to the hospital to save on valuable resources that became increasingly difficult to get as the virus spread, and businesses shut down. Clinicians had little for guidance before the outbreak in the coding and billing standards that would ensure reimbursement, but CMS changes have helped alleviate many of those issues.
Implementation Guide for Rapid Integration of an Outpatient Telemedicine Program During the COVID-19 Pandemic [17]	The implementation of telemedicine can be a considerable undertaking for those practices that may have no experience providing such services. In this article, the authors discuss a toolkit to understand the complexities and necessary steps to implement and utilize telemedicine and how to accurately document, code, and bill for telemedicine services.
Embracing telemedicine into your otolaryngology practice amid the COVID-19 crisis: An invited commentary [18]	Telemedicine and telehealth differences can be confusing to clinicians attempting to implement such services. Reimbursement requires an understanding of the intricacies of billable services, coding, and documentation that changed after COVID-19 spread. The authors provide a detailed explanation of some of the billing and coding requirements for Medicare patients.
Implementing Telemedicine in Response to the COVID-19 Pandemic [19]	Urologists who have patients who require more urgent care have had to adapt to social distancing guidelines due to the COVID-19 pandemic. In this article, the authors discuss conditions that telemedicine services were in before the viral outbreak and the changes made to provide a seamless transition to telemedicine. CMS has released many forms of guidance on treating patients during the public health emergency, one of which being the 1135 waiver, and the coding and billing for services updated to make telemedicine services more natural to provide and bill for as opposed to before the pandemic.
Letter: Neurosurgical Management of Spinal Pathology Via Telemedicine During the COVID-19 Pandemic: Early Experience and Unique Challenges [20]	Before the COVID-19 outbreak in the United States, there were limited publications detailing telemedicine usage for neurosurgical patients. In this article, the authors provide some of the federal and state changes that pertain to telemedicine and how it relates to neurosurgeons, their practices, and the processes needed to implement telemedicine into other clinics or practices successfully.

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An affinity matrix shown below illustrates the frequency of mention or the discussion of a particular topic. For this review, the construction of an affinity matrix transpired to identify the occurrences of common themes in the literature relative to successful strategies for telemedicine reimbursement during the COVID-19 Pandemic. See *Table 2* matrix below. Overall there were five themes included (a) barriers hindering successful implementation being removed

(b) resources provided for healthcare workers to follow up with for greater detail (c) need for telemedicine during the COVID-19 Pandemic (d) improving reimbursement rates (e) appropriate billing standards. In total, there were 72 mentions of information in the articles related to successful strategies for telemedicine reimbursement during the COVID-19 Pandemic.

**Table 2:** *Frequency of occurrence in the literature.*

Themes	Occurrences	Instances of Attributes (n)	Percentage (%)
Barriers hindering successful implementation being removed	1, 3, 4, 5, 6, 7, 8, 9, 11,12, 14, 15, 17, 18, 20	15	75%
Resources provided for healthcare workers to follow up with for greater detail	1, 2, 4, 6, 9, 10, 11, 14, 15, 17, 18, 19	12	60%
Need for telemedicine during the COVID-19 Pandemic	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20	19	95%
Improving reimbursement rates	3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 15, 17	12	60%
Appropriate billing standards	1, 2, 4, 5, 6, 8, 10, 12, 14, 16, 17, 18, 19, 20	14	70%

#### 4. DISCUSSION

The aim of this systematic literature review was to explore successful strategies that healthcare employees use for providing telemedicine services, during the COVID-19 Pandemic, to improve reimbursement rates through appropriate billing standards. A total of 20 peer-reviewed articles published from 2019 and 2020 allowed a current analysis of telemedicine implementation and reimbursement, specifically during the COVID-19 pandemic. The spread of COVID-19 created challenges forcing the healthcare system to adapt. Telemedicine has been a tool that clinicians can utilize to overcome the social distancing that has become the norm since the virus began to spread in the United States [13]. The response to the virus, and the subsequent outcome of measures taken to help quell the spread, can be quite

different from one area of the country to another. A common desire that has seen a rise in popularity has been implementing or expanding telemedicine services [13]. The research revealed in Table 2 exhibits the primary themes that manifested from the investigation of the literature, and the corresponding articles are corroborating the existence of strategies for healthcare workers to utilize for telemedicine reimbursement during the pandemic.

The first theme identified, barriers hindering successful implementation being removed, was reinforced by 75% of the articles in this review [1, 3, 4, 5, 6, 7, 8, 9, 11,12, 14, 15, 17, 18, 20]. Szperka et al. conclude that acknowledging the importance of telehealth in the time of COVID-19 will help to further its implementation. The rules and regulations removed to facilitate the use of telehealth to assist in

facilitating the use of telehealth have been essential [1]. The second theme identified, resources provided for healthcare workers to follow up with for greater detail, was supported by 60% of the articles reviewed [1, 2, 4, 6, 9, 10, 11, 14, 15, 17, 18, 19]. Several authors, such as Gadzinski et al., deduced the importance of shared successful telemedicine reimbursement strategies and included resources that directed the reader to follow up with for further clarity [19]. The third theme identified, the need for telemedicine during the COVID-19 Pandemic, was corroborated by a significant percentage (95%) of the articles in the review [1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20]. Many authors, including Blue et al., explained the acute need for options such as telemedicine to assist clinicians in treating patients that were no longer able to come to appointments in person as a result of the virus [7]. The fourth theme, improving reimbursement rates, was substantiated by 60% of the articles in this review [3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 15, 17]. As Loeb et al. described, legislation needed to be passed at the federal and state level to alter the previous lack of reimbursement for telemedicine and increase the total reimbursement amount to clinicians [13]. The fifth theme identified, appropriate billing standards, was reinforced by 70% of the articles reviewed [1, 2, 4, 5, 6, 8, 10, 12, 14, 16, 17, 18, 19, 20]. Many of the studies indicated that coding and billing standards were confusing and changing regularly but included examples of appropriate coding and billing standards at the time of their research to assist the reader. Many authors, such as Smith et al., included specific patient telemedicine encounters and the corresponding codes to accompany them [17].

This review had some limitations. The sudden onset of COVID-19 and subsequent spread across the globe to the United States created a constrained time frame for researchers. The desire to investigate, validate, and distribute knowledge about the virus can be difficult without prior evidence to substantiate results. The virus becoming known in the latter part of 2019 essentially meant investigating a specific subject area related to COVID-19 that may lack published articles. Excluding non-English language, articles removed publications that may have qualified for this review. The nature of the research topic is that it pertains to telemedicine reimbursement within the United States, eliminated published articles outside of the U.S. healthcare system since coding and billing will be different depending on the country. This review was conducted in a 12-week period with the data collection process occurring over a two-week period. Time constraints dictated choosing three major databases, and bias may exist in choosing the databases or around the article selection process. Other databases may have had additional qualifying articles at the time of selection. The literature review involved conducting searches using a preliminary search strategy involving Google Scholar initially. The secondary search strategy incorporated CINAHL, MEDLINE, and Academic Search Complete to review peer-reviewed journal articles. Keywords guided the database searches, and as such, it is possible that articles were missed that different search terms would have located. The last limitation is the subjective nature of the reviewer of the

articles and may have led to the articles being interpreted differently compared to how another reviewer might interpret them.

Minimizing the limitations previously stated occurred by adhering to the PRISMA based systematic review guidelines and protocol [31]. We scrutinized and exuded the information collected, starting at 69 articles from CINAHL, MEDLINE, and Academic Search Complete until data saturation occurred, and no additional information was found for developing themes. The author reviewed each article and ensured the relevancy of the article to the research question. Despite the limitations to the study, several successful strategies that healthcare employees use for providing telemedicine services, during the COVID-19 Pandemic, to improve reimbursement rates through appropriate billing standards exist.

Researchers can use the results of this literature review to assist future studies attempting to understand how the COVID-19 Pandemic has changed the healthcare system in the United States regarding telemedicine services. The outbreak of the virus has resulted in a unique challenge for administrators, clinicians, and healthcare workers across many modalities to adapt to provide care to their patients and keep their respective organizations from having to close their doors permanently. These findings can be used to evaluate the changes that telemedicine services may go through as time progresses in the era of COVID-19. The urgent need to develop telemedicine services was felt by many across the country, but the confusion and clarification were challenging to remedy at the beginning of the outbreak, lacking published work regarding this issue. However, this review will hopefully help all readers understand that there are indeed successful strategies being used by healthcare employees to improve reimbursement rates for telemedicine services during the COVID-19 Pandemic.

## **5. CONCLUSION**

The spread of COVID-19 in the United States created unique challenges for the healthcare system that led to the desire for telemedicine services to be implemented or expanded. The purpose of this systematic literature review is to help healthcare employees explore successful strategies that can be used for providing telemedicine services, during the COVID-19 pandemic, to improve reimbursement rates through appropriate billing standards. Our review identified five themes from the articles which included barriers hindering successful implementation being removed, resources provided for healthcare workers to follow up with for greater detail, a need for telemedicine during the COVID-19 pandemic, improving reimbursement rates, and appropriate billing standards. Results indicate that telemedicine implementation and expansion has occurred successfully with proven strategies. Further research and publication can help others as changes are made to telemedicine coding and billing after the viral pandemic has ended.

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