

Research Article

# Understanding the Insurance Landscape of Dupuytren's Contracture Management

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## Abstract

**Background:** Dupuytren's contracture is a fibroproliferative disorder that often results in contractions of the fourth and fifth digits of the hand. While there is no definitive cure, symptomatic relief can be achieved via open fasciotomy, percutaneous aponeurotomy, or through collagenase *Clostridium Histolyticum* injections (CCH). Despite these therapeutic options, the insurance coverage of these modalities is not clearly defined. **Methods:** The authors evaluated American insurance companies' coverage for the treatment of Dupuytren's and compared the coverage of open fasciotomy, percutaneous aponeurotomy, or CCH. A cross-sectional analysis of US insurance policies for coverage of Dupuytren's treatment was performed. Companies were selected based on those with the largest enrollment and their market share. **Results:** Of the 100 companies examined, only 5% of companies had an established policy that covered an open fasciotomy treatment, 6% had a policy that covered a percutaneous fasciotomy, whereas 37% had a policy for CCH. There were significantly more policies for CCH compared to open fasciotomy and percutaneous fasciotomy (CCH vs open fasciotomy:  $p < 0.001$ ; CCH vs percutaneous fasciotomy:  $p < 0.001$ ). The most common criterion for treatment options was the involvement of the MP joint or PIP (Open fasciotomy  $n = 5$  (100%); percutaneous fasciotomy  $n = 5$  (83.3%); CCH  $n = 30$  (81.1%)). **Conclusion:** There are noted coverage discrepancies between companies for the coverage of Dupuytren's management. This variability is overall lacking in surgical, minimally invasive, and injection options.

## Keywords

Insurance, Dupuytren's, Collagenase

## 1. Introduction

Dupuytren's contracture is a fibroproliferative disorder that causes the replacement of collagen type I fibers with collagen type III fibers; this can cause normal hand ligaments to form

cords, causing a fixed flexion deformity most commonly involving the fourth and fifth digits [1, 2]. Clinically, this change can cause difficulty gripping objects and difficulty

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with fine motor control, which can sometimes be painful and often interferes with activities of daily living and work [2-4]. In the United States, Dupuytren's contracture has a prevalence of 2.3%, with an estimated annual incidence of three cases per 10,000 adults [5-8]. While there is no definitive cure for the pathologic process of Dupuytren's [1, 2, 6], the American Association for Hand Surgery (AAHS) outlines multiple treatment modalities to relieve contractures including open surgery, such as an open fasciotomy, or minimally invasive procedures, such as collagenase *Clostridium Histolyticum* injections (CCH) and percutaneous needle aponeurotomy (PNA) [9, 10]. While considered more morbid, fasciotomies have been found to have a lower 5-year reintervention rate when compared to PNA and CCH [11, 12]. However, open fasciotomy has the highest cost to provider (\$11,240), followed by PNA (\$4,657) and subsequently CCH injections (\$2,068) [13, 14]. Patients often rely on insurance providers to mitigate these costs [15]; however, coverage of surgical procedures often varies between insurance providers.

This paper aims to report on the gap in the literature on the insurance coverage of Dupuytren's contracture treatment in the United States. Insurance policies from third-party payers were assessed for their coverage of open fasciotomy, PNA, and CCH.

## 2. Methods

A cross-sectional analysis of U.S. insurance policies on Dupuytren's contracture was collected between April 2021 to June 2021. The National Association of Insurance Commissioners and Henry Kaiser Foundation was used to select the top 100 third-party payers with the largest enrolment and market

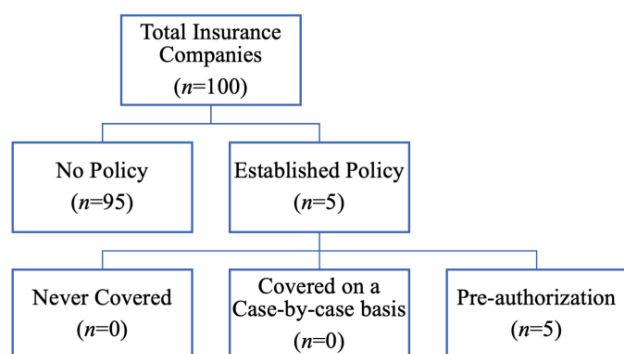
share. If a policy was not available online, a telephone call or email with a company associate was performed to confirm the absence policy for the management of Dupuytren's. For large companies with different policies per state, such as *Blue Cross Blue Shield*, the state company was considered as an individual third-party payer for the purposes of this study. Policies were categorized into three groups, pre-authorized, case-by-case basis, and not covered. necessity and coverage determined only with specific patient details. The absence of a policy does not mean the company denied coverage.

Data was compiled and analyzed in Microsoft Excel (Microsoft Corp., Redmond, WA). Qualitative variables were compared using Fischer's exact test. Statistical significance was defined as  $p$  less than or equal to 0.05.

## 3. Results

### 3.1. Open Fasciotomy Coverage

One hundred insurance companies were assessed for the open treatment of Dupuytren's contracture (Figure 1). Five companies (5%) provided preauthorized coverage for an open palmar fasciotomy (Current Procedural Terminology (CPT) code: 26045); medically necessary criteria included joint involvement, degree of flexion contracture, and a palpable cord with limited function (Table 1). All five companies required a minimum contracture of 20 degrees of flexion contracture of either the metacarpophalangeal joint (MCPJ), proximal interphalangeal joint (PIPJ), or distal interphalangeal joint (DIPJ). The remaining 95 companies did not have an established policy.



Company Coverage for Open Fasciotomy				
No Policy				Established Policy
Aetna	BCBS TN	HealthFirst	Network Health	Amerigroup Anthem Blue Cross BCBS GA Empire BCBS Unicare
Amerihealth (NJ)	BCBS TX	Healthnet	New Mexico Health Connections	
Arkansas BCBS	BCBS VT	HealthPartners	Oscar Health Insurance	
Aspirus Arise	Bluecross of Michigan	Highmark BCBS PA	Pacific Source Health Plan	
Auris Northwest Health	Boston Medical Center Healthnet Plan	Horizon BCBS NJ	Premiera	
Avera	BridgeSpan	Humana	Presbyterian Health	
Avmed	Capital Blue Cross	Independence BC	Priority Health	
BCBS AL	Caresource	Inland Empire Health Plan	Providence Health Group	
BCBS AZ	Carle Health System in Illinois	John Hopkins Healthcare	Sanford Health Group	
BCBS CA	Cigna	Kaiser Permanente	Tricare	
BCBS Carefirst	Common Ground Healthcare Group	Keystone First	Tufts	
BCBS Idaho	Dean Health Group	Lifetime Healthcare group	Ucare	
BCBS Illinois	Emblem	Lifewise	Uniform Medical Plan ("Medica")	
BCBS KC	Excelus	Louisiana Health Service Group	United	
BCBS KS	Fallon Health	Maine Comm Health group	Univera	
BCBS MA	BCBS WV	Medica	University Health Alliance	
BCBS MN	Fidels	Medicaid	UPMC	
BCBS NC	Forward Health	Medical Mutual of Ohio	Vantage	
BCBS ND	Gateway	Medicare	Wellcare	
BCBS NE	GEHA	Meridian	Wellmark	
BCBS of Western	Gravinger	Moda Health	WellSense	
BCBS Regence	BCBS FL	Molina	WPS Health Insurance	
BCBS RI	Harvard Pilgrim	Montana Health Coop	YourCare	
BCBS SC	BCBS HI	Neighborhood Health		

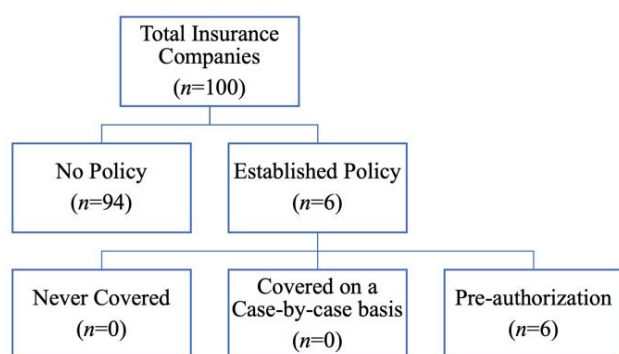
Figure 1. Coverage for Open Fasciotomy.

**Table 1.** Coverage Criteria for Open Palmar Fasciotomy.

Categories	Number of Companies (n=5)
Joint Involvement	
MP or PIP or DIP	5 (100%)
Degree of Contracture	
20 °	5 (100%)
Diagnosis Requirement	
Palpable cord and limited function	5 (100%)

### 3.2. Percutaneous Fasciotomy Coverage

Six companies (6%) provided preauthorized coverage for a percutaneous palmar fasciotomy (CPT code: 26040) (Figure 2). Medically necessary criteria involved different joint involvement, degree of contracture, as well as a palpable cord and limited function (Table 2). All six companies required a minimum contracture of 20 degrees of either the MCPJ or PIPJ. Five companies (83.3%) also included the contracture of the DIPJ with a minimum flexion contracture of 20 degrees. Of these six companies, five of them did not have a policy for CCH.



Company Coverage for Percutaneous Fasciotomy				
No Policy				Established Policy
AmeriHealth (NJ)	BCBS TX	Healthcare	New Mexico Health Connections	Active
Arkansas BCBS	BCBS VT	HealthPartners	Oscar Health Insurance	Aetna
Aspirus Astre	Bluecross of Michigan	Highmark BCBS PA	Pacific Source Health Plan	Antem Group
Auris Northwest Health	Boston Medical Center Healthnet Plan	Horizon BCBS NJ	Premier	Antem Blue Cross
Avera	BridgeSpan	Humana	Presbyterian Health	BCBS GA
Avmed	Capital Blue Cross	Independence BC	Priority Health	Empire BCBS
BCBS AL	CareSource	Inland Empire Health Plan	Providence Health Group	Unicare
BCBS AZ	Catalyst Health System in Illinois	Johns Hopkins Healthcare	Sanford Health Group	
BCBS CA	Cigna	Kaiser Permanente	Tricare	
BCBS Carefirst	Common Ground Healthcare Group	Keystone First	Tufts	
BCBS Idaho	Dean Health Group	Lifetime Healthcare group	Ucare	
BCBS Illinois	Emblem	Lifewise	Uniform Medical Plan ("Medica")	
BCBS KC	Excelitas	Louisiana Health Service Group	United	
BCBS KS	Fallows Health	Maine Comm Health group	Univern	
BCBS MA	BCBS WV	Medica	University Health Alliance	
BCBS MN	Fidelis	Medicaid	UPMC	
BCBS NC	Forward Health	Medical Mutual of Ohio	Vantage	
BCBS ND	Gateway	Medicare	Wellcare	
BCBS NE	GEHA	Meridian	Wellmark	
BCBS of Western	Gelinger	Moda Health	Wellness	
BCBS Regence	BCBS FL	Moda	WPS Health Insurance	
BCBS RI	Harvard Pilgrim	Montana Health Corp	YourCare	
BCBS SC	BCBS HI	Neighborhood Health		
BCBS TN	HealthFirst	Network Health		

**Figure 2.** Coverage for Percutaneous Fasciotomy.**Table 2.** Coverage Criteria for Percutaneous Palmar Fasciotomy.

Categories	Number of Companies (n=6)
Joint Involvement	
MP or PIP or DIP	1 (16.7%)
MP or PIP	5 (83.3%)
Degree of Contracture	
20 °	6 (100%)
Diagnosis Requirement	
Palpable cord	1 (16.7%)
Palpable cord and limited function	5 (83.3%)

### 3.3. Collagenase Clostridium Histolyticum Coverage

Thirty-seven companies (37%) had a policy that offered preauthorized coverage for injections of CCH (Figure 3). There was significant variation in the medically necessary

criteria for CCH injections (Table 3). The most common medically necessary criteria were the involvement of either the MCP or PIP joint ( $n = 30$ , 81.1%). Almost all companies stated had a restriction for up to three injections ( $n = 36$ , 97.3%), with only one company, *Fidelis*, not stating a restriction in their policy. The CPT code covered for this procedure varied amongst insurers. The most frequently covered codes were "injection of an enzyme into the palmar cord" (CPT code: 20527) and "manipulation of palmar fascial cord post enzyme injection" (CPT code: 26341) with equal coverage by the same companies ( $n = 20$ , 54.1%). Additionally, five of these 20 companies had further coverage of "an injection of a single tendon origin" (CPT code: 20551) with two of these five companies providing further coverage for "an injection of a single tendon sheath of aponeurosis" (CPT code: 20550).

Significantly more policies provided coverage for CCH compared to open fasciotomy ( $n = 37$  vs  $n = 5$ , 37% vs 5%,  $p < 0.001$ ) and percutaneous fasciotomy ( $n = 37$  vs  $n = 6$ , 37% vs 6%,  $p < 0.001$ ). Additionally, there were significantly more policies that covered CCH with a requirement for a palpable cord when compared to the tabletop test ( $n = 28$  vs  $n = 14$ , 75.6% vs 37.8%,  $p < 0.001$ ). This was also true for open fasciotomy and PNA, as the tabletop test was not required (Open fasciotomy:  $n = 5$  vs  $n = 0$ , 100% vs 0%,  $p = 0.008$ ; PNA:  $n = 6$  vs  $n = 0$ , 100% vs 0%,  $p = 0.002$ ).

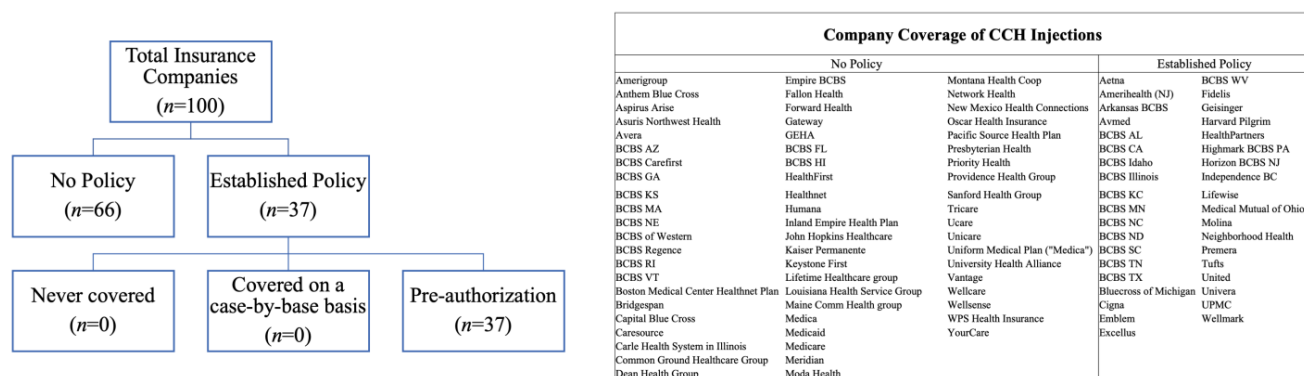


Figure 3. Coverage for CCH Injections.

Table 3. Coverage Requirements for CCH Treatment.

Requirements	Number of Companies (n=37)
Joint Involvement	
MP or PIP or DIP	30 (81.1%)
Degree of Contracture	
20 °	23 (62.2%)
20 ° - 100 ° (MP) or 20 ° - 80 ° (PIP)	6 (16.2%)
40 ° (MP) or 20 ° (PIP)	2 (5.4%)
Diagnosis Requirement	
Palpable cord	28 (75.6%)
Palpable cord and limited function	8 (21.6%)
Tabletop Test	14 (37.8%)
Injections Covered	
Up to 3	36 (97.3%)
CPT Code Covered	
Injection of enzyme into palmar cord (20527)	20 (54.1%)
Manipulation of palmar fascial cord post enzyme injection (26341)	20 (54.1%)
Injection of single tendon sheath or apo-neurosis (20550)	5 (13.5%)
Injection of single tendon origin (20551)	2 (5.4%)

## 4. Discussion

At the time of this study, there were a total of forty-eight defined policies for the well-studied treatment modalities defined above for Dupuytren's contracture. Additionally, despite direct liaison with individual insurers, coverage criteria remained ambiguous. Of the insurers with an existing

Dupuytren's treatment policy, there were significantly fewer companies that addressed surgical management when compared to CCH. Among both surgical and non-surgical treatment was the common criteria of the requirement of a palpable cord that affected the MP or PIP joint, as well as evidence of the limitation of joint function. Insurers who covered CCH injections followed the Food and Drug Administration (FDA) recommendation on the maximum number of injections per cord being three CCH injections. The AAHS states that both open surgery, CCH or PNA are all valid therapeutic treatments, but that the treatment utilized should be determined by the patient-physician decision [9, 10]. While there is no difference in the functional outcome or reduction of contracture with a fasciotomy, there is literature that supports a fasciotomy having a significantly lower five-year re-intervention rate when compared to PNA or CCH [11, 12]. However, our findings find that policies are more likely to only cover one treatment option rather than two or all three of them. With the fewest companies having preauthorized coverage of an open fasciotomy despite the lower re-intervention rate and comparable outcomes, this would suggest that current insurance policies need to be revised to offer broader coverage tailored to the consumer's needs.

For the insurers that covered open fasciotomy but not CCH, the research commonly referenced by the companies was in respect to a study that stated despite the better outcomes proposed with CCH, it was associated with fewer quality-adjusted life-years (QALY) [16]. Each policy that covered open fasciotomy cited Brazzelli et al. who reported that when fasciotomy was compared to PNA, there is a 0.11 increase in QALY for an open fasciotomy and a 0.082 decrease in QALY for CCH. The shared decision to prioritize QALY's with an open fasciotomy should arise from the provider-patient decision as recommended by the AAHS and should not be determined by the insurer. One important caveat of the study by Brazzelli et al. is that he did conclude that further data was needed to establish an economic model, something that may further dictate insurance policy changes [16]. With equivocal efficacy at managing the contracture with reduced recurrence rates, the greatest benefit may be seen in the initial coverage of higher cost options to assist patients with payment options,

as well as prevent greater healthcare costs down the line.

Open fasciotomy has been found to have the lowest rate of recurrent contractures at five years (15-20%), but retains a higher financial burden, higher complication rate, and a longer recuperative period. PNA has a shorter recovery period, low complication rate, and can be performed in the outpatient setting, but has a higher rate of contracture recurrence at five years (60-75%) [2, 6, 9, 10, 17]. Like PNA, CCH injections are often cited to have a low complication rate with a five-year recurrence rate at 35-47% [2, 6, 18]. One study did note that minor complications (local pain, edema, pruritis) are found at a higher rate with CCH when compared to PNA [19]. From 2012 to 2014, there has been an increase in patients receiving CCH treatments from 7.5% to 27.1%, in stark contrast to open fasciotomy rates that decreased from 70.6% in 2007 to 54.6% in 2014 [20]. With the introduction of CCH, there has been a decrease in surgery associated with Dupuytren contracture [21]; however, this is not unexpected as the introduction of any treatment modality will impact the utilization of prior treatments.

Ultimately, the variance in definitive outcomes and complication profile further reinforces the necessity that the treatment modality be specific and tailored to each individual patient. The absence of publicly available coverage of surgical managements could push patients towards pursuing CCH instead of a surgical option that they could hypothetically be better suited for. The difference in policies for CCH could also be related to further stipulations being associated with CCH; the product previously recalled from the European Union, Asia, and Australia, although not for safety concerns [22]. A patient's choice of treatments can be influenced by the insurance coverage they have [23], which can also impact the joint decision between the physician and patient [9].

One clinical assessment commonly used for the diagnosis of Dupuytren's contracture is the tabletop test, which is a non-invasive and effective method to determine the degree of severity of the disease [24]. Described by Hueston, this involves placing the patients flat against a table, if the hand cannot be placed flat this is indicative of Dupuytren's, and patients usually report discomfort when the flexion deformity is  $>15^\circ$  [25]. Despite the test being easy and inexpensive to diagnose Dupuytren's contracture [26], most insurance companies that covered CCH did not require this test.

This paper is limited by the methodological design of the study and its cross-sectional nature. The assumption of coverage based on the presence of a policy may not demonstrate a company's true coverage. If there is an absence of policy, these companies may determine criteria based on an individual's circumstance. This does not allow us to draw the conclusion that there is a lack of coverage for treatment options. Another limitation of this study is that open fasciotomies and their subsequent CPT codes were not analyzed. The lack of this treatment modality analyzed is a significant limitation of the study. However, our study does provide a large

sample size of insurance companies to further elucidate the insurance landscape of the United States. It further demonstrates some of the difficulty navigating the insurance landscape and the lack of cohesive treatments offered by different insurance companies. It further demonstrates the need for cohesive and available modalities.

## 5. Conclusion

This paper proves that there is great variability in the coverage for Dupuytren's; many companies only provided coverage for one treatment option, with most providing coverage for CCH. With each therapeutic option having its own unique set of benefits and drawbacks, but overall equivalent outcomes, the lack of options offered can limit the benefits to the patient. In line with the American Association for Hand Surgery and the Dupuytren's Foundation, the therapeutic option should be a joint decision between the patient and the physician. By limiting the options available, this can decrease the benefit to patients as many cases need to be individualized in their approach. Future research into this area should involve additional prospective, longitudinal studies to further investigate how the insurance market changes overtime.

## Abbreviations

CCH	Collagenase <i>Clostridium Histolyticum</i>
PNA	Percutaneous Needle Aponeurotomy
CPT	Current Procedural Terminology
MCP	Metacarpophalangeal Joint
PIP	Proximal Interphalangeal Joint
DIP	Distal Interphalangeal Joint
FDA	Food and Drug Administration
QALY	Quality-Adjusted Life-Years
AAHS	American Association for Hand Surgery

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## Conflicts of Interest

The authors declare no conflicts of interest.

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