CESP

Centers of Excellence Spine Program: Outcome Metrics and Discussion

COLORADO INTEGRATED CARE NETWORK (CICN)

Important Definitions

CICN – Colorado Integrated Care Network, or CICN, is a network of clinics located in the Colorado Front Range integrating physical medicine, chiropractic, physical therapy, and complimentary services. Through collaboration and technology tools, CICN aims to deliver efficient, effective and patient-focused musculoskeletal medicine.

CESP – Centers of Excellence Spine Program, or CESP, is a large-scale pilot program developed and delivered by CICN aimed at identifying a standard of care model for achieving predictable and efficient outcomes for spinal conditions. Data from over 100,000 unique patients contributed to the results, outcomes, and initiatives obtained from the CESP.

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CICN Centers of Excellence Spine Program

The Centers of Excellence Spine Program (CESP) began in 2015 as a segue into value-based care. In its infancy the CESP was primarily a research program aimed at developing a standard of care for achieving predictable and efficient outcomes for non-emergent and non-surgical spinal conditions. The CESP has progressed into a mature clinical care and musculoskeletal health business model with development of two innovative software programs and pilot studies validating reproducibility and scalability of the model.

It is the goal of CICN to shift to a value-based reimbursement model by 2020 in collaboration with allied health systems. This goal centers around the desire to reduce overall musculoskeletal health care costs, improve patient access to efficient musculoskeletal care, and improve predictability in outcomes. As a result of the CESP, CICN announced readiness to move all CICN locations to value-based in July 2018 and is awaiting payer partners.

Summary of Findings

Important findings of the CESP include the following:

- Trained multidisciplinary care teams joined with a clinical decision-making tool and home care app significantly reduces average visits to resolution for spinal diagnoses
    - 40-70% reduction in average visits to resolution for low back pain (M54.5) *(3.7 vs 6.2-15)*
    - 37-66% reduction in average visits to resolution for neck pain (M54.2) *(3.9 vs 6.2-15)*
    - 54-77% reduction in average visits to resolution across all diagnoses *(5 vs 11-15)*
- Average visits to resolution in CESP for low back pain (M54.5) and neck pain (M54.2) remained consistent within 1-2% between 2016 and 2017 using clinical decision-making algorithms
- 1.6% of patients in CESP progressed to minimally invasive spinal procedures
- 1.3% of patients in CESP progressed to surgical consultation (conversion unknown)
- 5.3% of CESP patients received advanced imaging
    - Low back pain (M54.5) – 3.5%
    - Neck pain (M54.2) – 3.2%
    - Lumbar Radiculopathy (M54.16) – 9.2%
    - Cervical Radiculopathy (M54.12) – 9.9%
- Cost savings potential estimated at $8.76M-29.76M implementing CESP care and Capitated Daily Rate Reimbursement structure vs Usual Care for 75,000 lives

Initiatives Resulting from CESP

Several significant initiatives arose from the CESP. The most noteworthy are discussed below.

Multispecialty Care

Multispecialty and/or multimodal care provided within a single patient encounter reduces average visits to resolution by over 50% for certain diagnoses versus single-disciplinary or unimodal care. Fewer average visits to resolution results in decreased out-of-pocket expense and lost productive time for the patient, and projected reductions in payer spend.

The CESP strongly supports the need for multispecialty and/or multimodal care facilities to reduce costs associated with musculoskeletal conditions.

Clinical Decision-Making and Outcome Management Software (Torrent Software)

Efficient outcomes require the right decisions at critical patient management decision-making points. Using outcome data, patient profiling, trend analysis, and clinical guidelines, a software tool was created to standardize care delivered within the CESP. This software tool is now called Torrent Clinical Decision-Making and Outcome Management Software (Torrent Software).

Torrent Software delivers the following to providers:

- Treatment algorithms based on primary diagnosis and patient profile
- expected number of visits to resolution
- expected/target outcomes
- compliance to home care
- patient management decision alerts and recommendations
- virtually reported patient symptom severity and progress toward functional goals
- appropriateness of response to care
- appropriate action recommendations for inadequate response to care
- appropriate time for discharge to home care or resolution
- patient home care progressions and education material
- treatments performed by care team members

Communication Tools in Care Transitions

Care transitions between specialists represent cost liability for payers and value-based primary care groups. Strong communication reduces duplication of services and assessment. Additionally, it reduces delays in delivering appropriate care. As a result of the CESP, CICN implemented LeadingReach Software with the goal of streamlining care transitions and improving provider communication.

Patient Reported Outcomes and Home Care App

Patient Reported Outcomes (PRO) improve accuracy in determining appropriateness of response to care. PRO contributed to a reduction in average visits to resolution in the CESP. This observation resulted in PRO capture being standard within the CESP.

Compliance rates to home care programs are perceived as low in many studies. In the CESP providers utilize an app-based home care program. Home care instructions and progressions are passed to patients via the app. Compliance to the assigned home care program is tracked within the app and populated on the patient dashboard within Torrent Software. Providers push alerts to the patient if compliance begins to decrease. Patients and providers are also able to communicate via the secure app. This level of oversight appears to contribute to improved outcomes, as evidenced by the study shown within this report under "Software Tools to Improve Efficiency of Outcomes".

Provider Training

Provider training is an important component of the CESP. Mandatory provider training within the CESP included 19 hours of continuing education focused on diagnosis and condition management. Survey data concludes that providers feel CESP training results in better patient management decisions.

Outcome Data

Outcome Metrics Report Facts

Third Party Data Extraction

CICN Outcome Metrics are extracted from Advanced Provider Solutions EHR by Genzeon.

2017 CICN Centers of Excellence Spine Program Data Summary

65,459 patient encounters accounted for within these metrics

15,111 unique patients accounted for within these metrics

31 of 43 CICN clinic locations contributed to report metrics

CESP Average Visits to Resolution: Common Diagnoses of the Lumbar and Cervical Spine

Common Lumbar Conditions

M54.5 – Low Back Pain

13.06% incidence as primary diagnosis

CESP Average Visits to Resolution – 3.7

M53.86 – Dorsopathies of Lumbar Spine (Facet Syndrome)

0.97% incidence as primary diagnosis

CESP Average Visits to Resolution – 4.6

M47.816 – Lumbar Spondylosis without radiculopathy or myelopathy

0.48% incidence as primary diagnosis

CESP Average Visits to Resolution – 3.4

M54.16 – Lumbar Radiculopathy

1.40% Incidence as primary diagnosis

CESP Average Visits to Resolution – 4.8

S33.5XXA – Sprain of Lumbar Ligamants, Initial Encounter

1.89% incidence as primary diagnosis

CESP Average Visits to Resolution – 4.0

Common Cervical Spine Diagnoses

M54.2 – Cervicalgia

12.24% incidence as primary diagnosis

CESP Average Visits to Resolution – 3.9

M53.82 – Cervical Dorsopathies (Facet Syndrome)

1.49% incidence as primary diagnosis

CESP Average Visits to Resolution – 4.9

M47.812 – Cervical Spondylosis without Radiculopathy or Myelopathy

0.99% incidence as primary diagnosis

CESP Average Visits to Resolution – 4.5

M54.12 Cervical Radiculopathy

1.62% incidence as primary diagnosis

CESP Average Visits to Resolution – 5.7

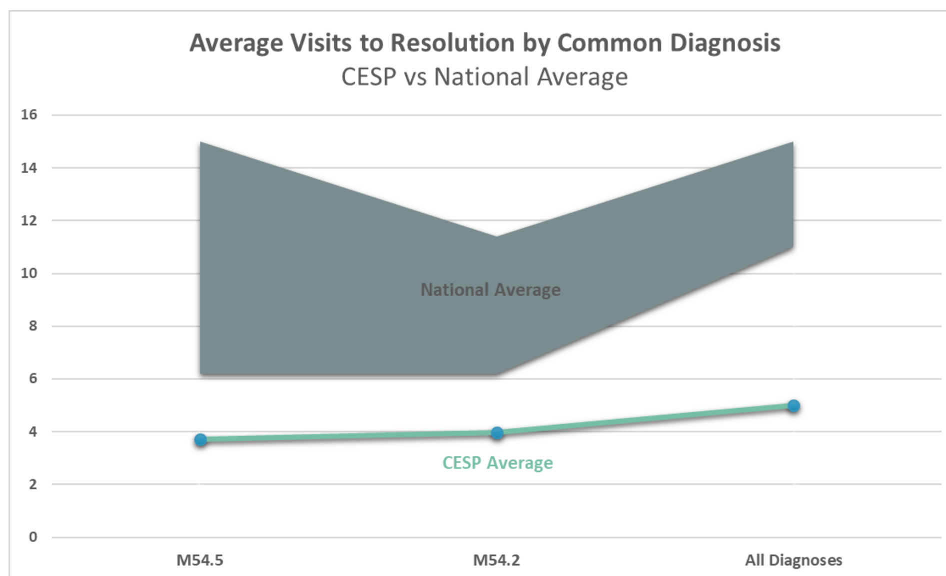
S13.4XXA – Cervical Sprain of Ligaments, Initial Encounter

1.85% incidence as primary diagnosis

CESP Average Visits to Resolution – 5.5

Corvel Data Comparison: Average Visits by Common Diagnosis

CESP Average Visits to Resolution for M54.5, M54.2, and All Diagnoses is compared to 2013 Corvel Physical Therapy Utilization data. CICN average visits by common diagnosis represents significant improvement compared to national average. ***Chiropractic, Physiatry, and Chiropractic/Physical Therapy collaboration data not available for comparison.*



Pain Improvement and Progress Toward Functional Goals

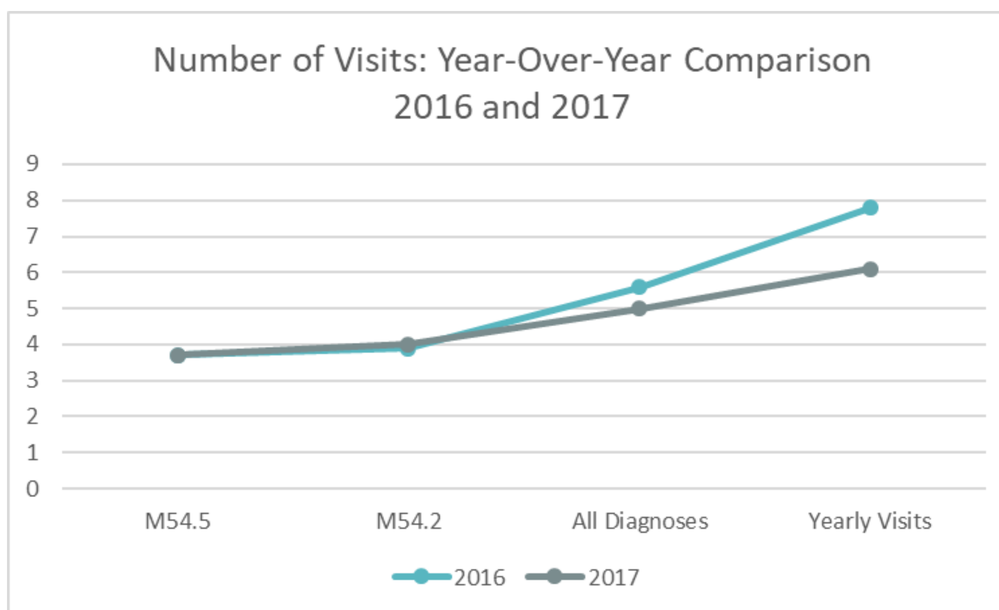
CESP pain improvement and progress toward functional goals at initial presentation and discharge is reported below. Of important note is that CESP standard of care warrants discharge to home care at earliest point representing minimal additional benefit expectation through continued in-office visits. Correlated patient reported outcomes data not available due to capture in different software programs. Thus, final pain improvement and progress torward functional goals data not reported.

CESP Pain Improvement and Progress Toward Functional Goals

Pain Rating Improvement (all diagnoses)	**2017**	**2016**
Average Pain Rating @ Presentation (0-10 Numeric Pain Rating)	5.84	5.87
Average Reduction in Pain Rating @ Discharge	49.86%	43.96%
Average Pain Score @ Discharge	2.93	3.29
Progress Toward Functional Goals Improvement (all diagnoses)		
Average Improvement Toward Functional Goals @ Discharge	42.45%	35.87%

Consistency in Outcomes: YOY Comparison

Year over year consistency in data is suggestive of treatment algorithm reliability and a predictor for successful scalability.

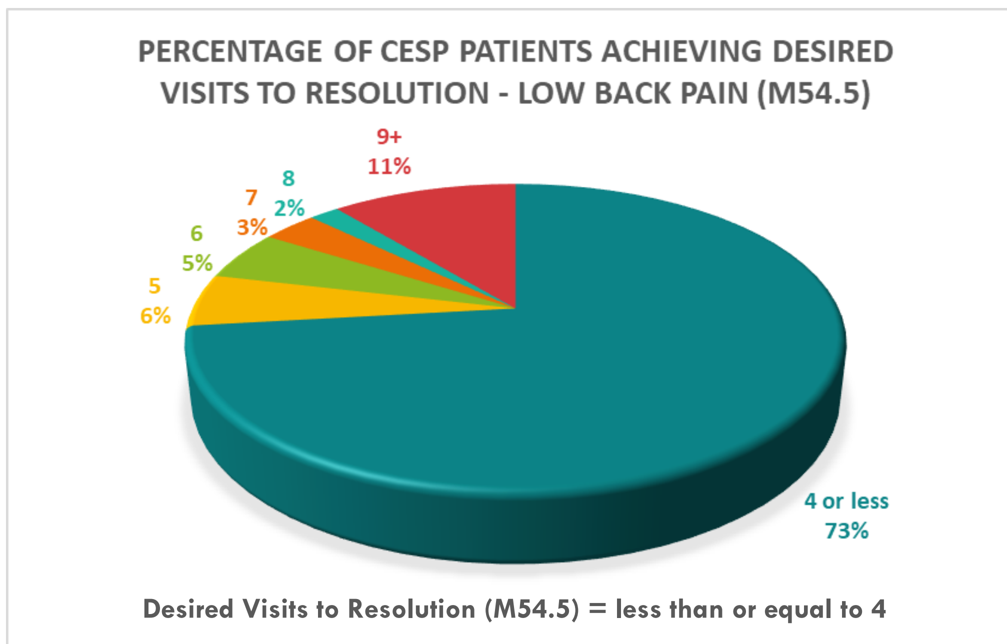


CESP average visits to resolution for M54.2 and M54.5 was consistent between 2016 and 2017. There was a slight reduction in average visits for the "all diagnoses" metric in 2017. This correlates with the introduction of new "discharge to home care" guidelines for 2017.

Average yearly visits per patient exhibited a statistically significant decline, representing improvement in efficiency. This correlates with both new "discharge to home care" guidelines and implementation of patient home care and outcome reporting app aimed at reducing reoccurrence rates.

Expected Outcome Determination: Visits to Resolution

CESP data results in determination of expected number of visits to resolution. This number provides a target by which providers can compare response to care and identify outliers. Outliers can be identified quickly, and action taken to determine contributions to failure to achieve expected outcomes.



CESP study determines that 73% of patients assigned a low back pain (M54.5) diagnosis achieve condition resolution in 4 or fewer visits. 16% achieve condition resolution for low back pain (M54.5) between 5-8 visits. This finding is consistent with reoccurrence contribution. 11% of patients within the CESP are considered "outliers", requiring 9 or greater visits to achieve resolution.

As a result of CESP identifying outlier percentage, initiatives are being developed. These include:

- biopsychosocial assessment for all patients achieving less than 40% self-reported improvement at expected visit to resolution
- Predictive Outcome Profiling (POP), which is described in greater detail under "Proposals for Future Success and Expansion" in this report

Referrals and Advanced Imaging Utilization

Advanced Imaging Utilization – CESP

CESP Advanced Imaging Utilization metrics are reported via provider survey due to limitations within the CICN EMR. CESP advanced imaging utilization is 5.3% for spinal diagnoses included in the study (see chart

below). Data suggests CESP utilization of advanced imaging represents a reduction versus “Usual Medical Care”, which was 27.8% in this survey.

CESP Advanced Imaging Orders M54.5, M54.2, M54.16, M54.12

Date Period 1/12/18 - 1/25/18

M54.5 Low Back Pain		**M54.16 Lumbar Radiculopathy**		**M54.2 Cervicalgia**		**M54.12 Cervical Radiculopathy**	
Total # Patients	254	***Total # Patients***	130	***Total # Patients***	436	***Total # Patients***	181
MRI Orders	9	*MRI Orders*	12	*MRI Orders*	14	*MRI Orders*	18
CT Orders	0	*CT Orders*	0	*CT Orders*	0	*CT Orders*	0
	3.5%		9.2%		3.2%		9.9%

TOTALS	
Total Patients	**1,001**
Advanced Images	**53**
Total Percentage	**5.3%**

NOTE: Survey includes only new patient presentations

Referrals to Advanced Care Utilization

CESP referrals to advanced care metrics are reported via provider survey due to limitations within the CICN EMR. CESP advanced care utilization is 2.9% for spinal diagnoses included in the study (see chart below). Data suggests CESP utilization of advanced care represents a reduction versus “Usual Medical Care” utilization, which was 12.2% in this survey.

It is CICN’s goal to progress patients warranting advanced care rapidly upon evidence of below expected response to CESP care. However, it is a priority to avoid unnecessary advanced care when possible.

CESP Referral Habits Study - May 2017

Minimally Invasive Spine Procedures (ESI, Rhizotomy, Facet Inj)	1.6%	16 of 1000 patients
Surgical Consult Referrals*	1.3%*	13 of 1000 patients
Primary Care or OB-GYN (non-musculoskeletal pain origin suspected)	0.9%	9 of 1000 patients

**Verified diagnoses of surgical referrals for this sample:*
Lumbar radiculopathy, progressive motor weakness (foot drop) x 3 Lumbar radiculopathy, sensory deficit, failed conservative care x 2 Cervical radiculopathy, progressive motor weakness x 2
Cervical radiculopathy, motor weakness, failed conservative care Rib fracture with suspected displacement (STAT Referral) Synovial cyst in lumbar spine
Lumbar spinal stenosis, motor weakness, failed conservative care x 2

Referral patterns were based on review of 1000 unique patient notes dated 5/1/17 to 5/10/17. Only spinal diagnoses included.

Research

Software Tools to Improve Efficiency of Outcomes

CESP research contributed to the development of Torrent Software and implementation of the BlueJay Engage Home Care App. In 2017, CICN Clinical Training combined with use of Torrent Software and BlueJay Engage was compared to CICN Clinical Training only. Results show a marked improvement in efficiency of outcomes in clinics utilizing the software tools.

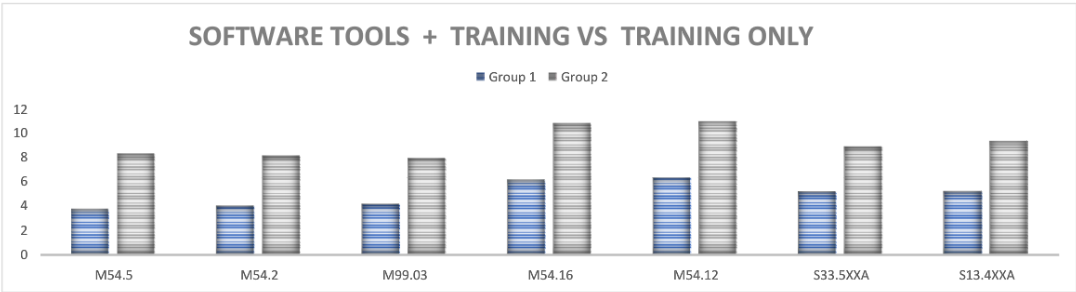
Clinics Utilizing Software Tools and Training vs. Training Only

Group 1 – CICN clinics having received training AND utilizing 2018 CICN clinical decision-making tool and CICN accountability pilot program for duration of metric reporting period (5 clinics)

Group 2 – Clinics receiving training only (10 clinics) for duration of metric reporting

**Training includes Excellence in Practice Seminars, in-clinic training with CICN clinical director, and CICN accountability reports and reviews*

ICD-10	% Incidence	ICD-10 Description	Group 1	Group 2
M54.5	13.06	Lumbago	3.70	8.23
M54.2	12.24	Cervicalgia	3.82	8.06
M99.03	4.24	Segmental/somatic dysfunction, lumbar	4.11	7.86
M54.16	1.40	Radiculopathy, lumbar	6.10	10.72
M54.12	1.62	Radiculopathy, cervical	6.31	10.91
S33.5XXA	1.89	Sprain of lig of cervical spine, initial enc	5.14	8.80
S13.4XXA	1.85	Sprain of lig of lumbar spine, initial enc	5.16	9.26

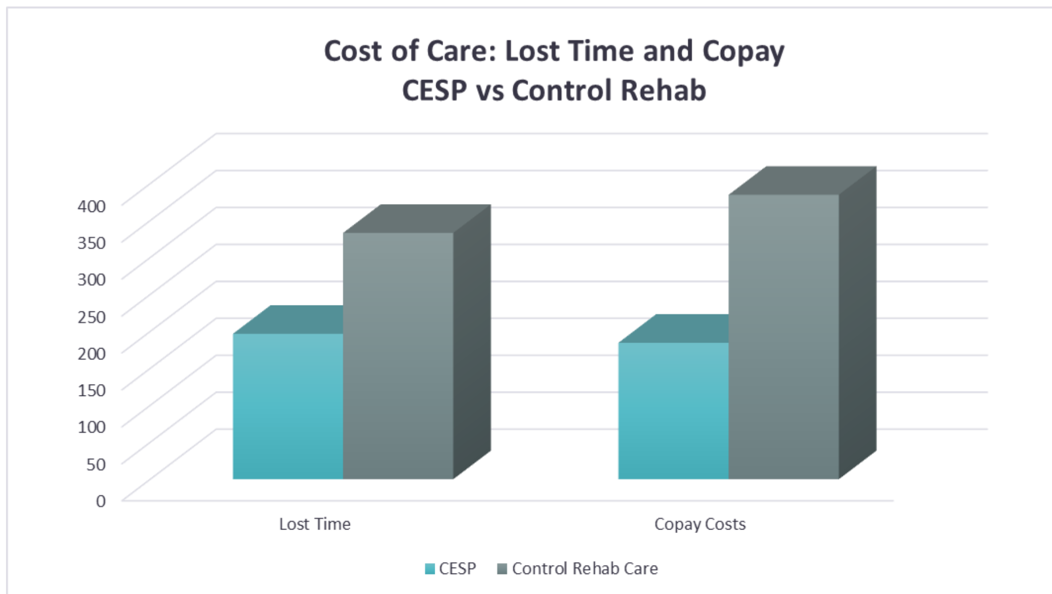


Cost of Care: Lost Time and Copay Expense

CESP vs. Usual Care

In 2017, CICN performed a study of time and copay costs for CESP care compared to non-CICN rehabilitative care (Control Rehab). Data for Control Rehab Care was provided by Advanced Provider Solutions EMR.

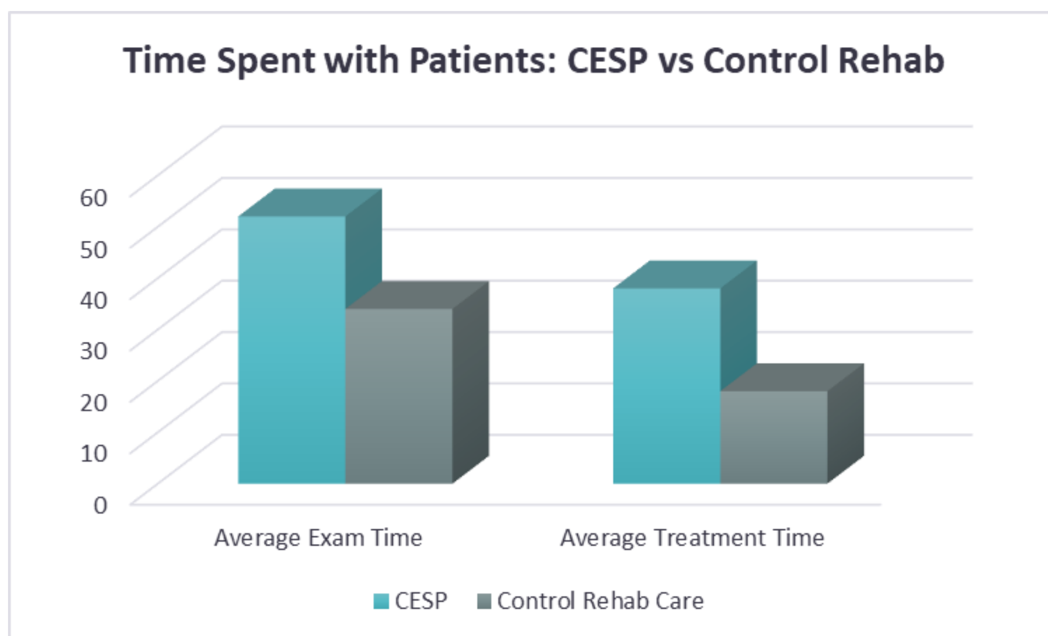
CESP care resulted in significant savings in both patient time and copay costs compared to Control Rehab Care.



Time Spent with Provider: CESP vs Usual Care

Prior CICN research (2015) shows a correlation between time spent with provider in a rehabilitative care setting and efficiency in outcomes regarding average visits to resolution.

In 2017, CICN compared face to face time spent by CESP providers vs Non-CICN providers. CESP data acquired via billing and documentation review. Non-CICN data provided by Colorado Chiropractic Society multidisciplinary survey.



Proposals for Future Success and Expansion

The following proposals are made for future success and expansion of the initiatives developed through the CESP.

Payer Contracting

Multidisciplinary Contracts

Single disciplinary payer contracts and intermediary use represent a hindrance to the delivery of multidisciplinary care. Such contracts also cause costly administrative burden.

Given the significant improvement in outcomes found in the CESP we recommend to payers that a multidisciplinary contract be offered to collaborative care systems. Secondarily, we propose that collaborative systems of a certain size be excluded from costly intermediary use. Accountability should remain necessary. Accountability measures for consideration include outcome reporting directly to payers or affiliated ACO's.

ACO or IPA Contracting

Access to a full continuum of care is important to ACO success. It is conceived that partnering geographically disbursed high-value musculoskeletal groups with value-based primary care groups offers substantial cost savings potential for payers. Ensuring access to care for referred patients is an important consideration. Therefore, we propose collaborated contracting with ACO's and/or IPA's.

Such collaboration may also allow patient triage via the primary care setting and steerage to the most efficient care pathway. Consideration of incentives for patients utilizing services within this network may be considered. An example may be reduced copays for clinics included in the ACO and/or IPA.

Value-Based Reimbursement Structures

Multiyear data showing consistency and predictability in outcomes for spinal diagnoses opens the door for value-based reimbursement to move into non-emergent spinal care. It is our opinion that a version of capitated payment should be considered to create predictability in spend for payers, value-based providers, and patients. We have identified two structures that may benefit payers, value-based providers, and patients. These include a capitated daily rate and global case fee.

Capitated Daily Rate with Accountability Reporting

In the current system, multidisciplinary care often results in submittal of multiple claims per patient encounter. Such instances incur more administrative charges and often warrants multiple copays for the patient. Thus, care that has proven to result in fewer visits to resolution and decreased lost productive time results in duplicate copays, insurance confusion, and access to care issues for the patient. Given the superior outcomes, such care should be encouraged.

Administrative Cost Savings using Capitated Daily Rate

CICN study determines the average cost of delivery per 60-minute multidisciplinary patient encounter to be approximately $118. Nearly 35% of this cost of delivery is contributed to non-provider costs, which include billing, staff time for tasks such as patient scheduling and benefits checks, leased space, supplies, and miscellaneous. Costs associated with single-disciplinary contract billing average $9.20 per encounter. CICN estimates a reduced billing cost of $6.24 is achievable under a multidisciplinary contract. This represents a savings of 32% that can be shared between patient, payer, and/or provider. Additional savings are anticipated through consolidation and/or avoidance of intermediary use. Estimates suggest intermediary fees associated with a multidisciplinary rehabilitation patient encounter are $19-25 (average of $22). CICN estimates that discontinuation of intermediary use for CICN care could result in a consolidated billing and oversight cost of $14.40 (average) per patient encounter. $14.40 compared to $31.20 ($22 intermediary plus $9.20 billing) represents a 54% ($16.80) cost savings that could be shared between provider and payer. With a total of nearly 75,000 patient encounters, this represents a total administrative cost savings of $1,260,000 annually. Larger savings are realized with larger patient volume.

Administrative Costs Saving Projection			
	Billing/encounter	Intermediary Costs	Admin Cost Per Encounter
Non-CESP (Usual Care)	$ 9.20	$ 22.00	$ 31.20
CICN CESP	$ 6.24	$ 8.16	$ 14.40
Savings %	-32.17%	-62.91%	-53.85%
$ Savings Per Encounter	$ 2.96	$ 13.84	
Total Savings Per Encounter		**$ 16.80**	
Total Annual Admin Savings		**$ 1,260,000.00**	

Cost Savings Projections from Fewer Average Visits to Resolution using Capitated Daily Rate

The CESP results in significant reduction in average visits to resolution. Using the comparison shared in this report under “Corvel Data Comparison: Average Visits by Common Diagnosis” we see that amongst all diagnoses the CESP resulted in average visits of 5 compared to 11-15. This represents an opportunity for substantial total spend savings for payers, value-based health systems, and patients.

Average Total Spend for CESP Care (5 visits to resolution avg x $134 avg allowed amount): $670

Average Total Spend for Non-CESP (11-15 visit to resolution avg x $70 avg allowed amount): $770-1050 **single disciplinary data only available*

Total Savings using Capitated Daily Rate

Total cost savings estimates using the CESP model for a total of 75,000 lives are significant.

Cost of Care Savings:

75,000 x $670 (case cost for CESP care) = $50,250,000
75,000 x $770-1050 (care cost for "usual care") = 57,750,000 – 78,750,000
Total Savings: $7.5M-28.5M

Administrative Savings:

$1,260,000 Annually

Total Annual Savings Compared to "Usual Care" = $8.76M-29.76M

It is reasonable to consider these savings as a source of funds for value-based incentives.

Global Case Fee

A Global Case Fee (GCF) represents an opportunity to create highly predictable spend models using incidence data. CESP and resulting initiatives create strong predictability in outcomes using clinical algorithms and predictive outcome profiling. This allows CICN the ability to accommodate a GCF. GCF's cover care associated with a diagnosis incident. This model puts risk on the clinic/provider to resolve a case efficiently.

Telemedicine Collaboration in the Rehab Setting

Primary medical care and urgent care delivered within the rehabilitative setting for non-emergent musculoskeletal conditions offers cost savings potential, elimination of duplicate assessment, and improved efficiency of care delivery for the patient. With telemedicine becoming common practice, it is proposed that telemedicine be implemented into CICN clinics and a covered benefit by payers.

CICN telemedicine has been modeled. This model proposes that CICN providers launch a telemedicine consult as part of the patient examination when medical necessity for low-level medical intervention, such as non-opioid and non-narcotic medications, is warranted. To maintain the primary care physician (PCP) relationship and avoid conflicts of interest it is proposed that CICN collaborate with an urgent care or telemedicine group to provide such services.

Predictive Outcome Profiling

Predictive Outcome Profiling (POP) offers opportunity to improve management and predictability in outcomes for patient "outliers". Outliers in this instance is defined as patients that significantly deviate from expected outcomes.

As a progression of the CESP, a pilot program is being performed using POP to influence the care algorithm and alert providers when patients exhibit factors that elevate the risk of being an outlier. Such factors are identified in the patient intake questionnaire and biopsychosocial assessments.