JAOA ORIGINAL CONTRIBUTION

Survey of Billing and Coding for Counterstrain Tender Points

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Context: The names of certain counterstrain tender points are incongruent with their physical locations because of an assumption that these points are reflective of dysfunction in neighboring body areas. Because the body area that is physically examined does not always match the body region in which somatic dysfunction is diagnosed for these tender points, it is not always clear which evaluation and management service codes should be used for billing physician services.

Objective: To assess the attitudes of osteopathic physicians toward the billing and coding of incongruent counterstrain tender points.

Methods: Physician members of the American Academy of Osteopathy who use counterstrain in clinical practice were surveyed regarding the body area that they would physically examine when assessing for incongruent tender points and, if tender points were present, the body regions to which they would assign somatic dysfunction for billing and coding purposes. Physician responses were categorized as indicating a structural approach (ie, reflective of anatomic location) or a functional approach (ie, reflective of dysfunction in neighboring body areas) to tender point examination and treatment. Associations between sex, specialty, and years in practice with the approach chosen were also examined.

Results: Of 175 physicians who responded to the survey, 156 met the study criteria. Respondents were primarily board-certified in neuromusculoskeletal medicine/osteopathic manipulative medicine (98 [63%]), special proficiency in osteopathic manipulative medicine (30 [19%]), or family practice/family practice and osteopathic manipulative treatment (94 [60%]). Ninety percent of physicians predominantly chose responses indicating a structural approach to the physical examination of tender points and 21% predominantly chose responses indicating a functional approach to somatic dysfunction diagnosis. There were inconsistencies among individual respondents regarding the type of approach chosen for a single tender point. For certain tender points, differences were seen for approach between men and women, specialty, and years in practice.

Conclusion: Our survey respondents had clear differences in opinion regarding physical examination location and somatic dysfunction diagnosis for incongruent tender points. These results suggest inconsistency among physicians in determining the physical examination component of evaluation and management services and the *International Classification of Disease, Ninth Revision*, or ICD-9, diagnostic codes in the assessment of these incongruent tender points.

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Counterstrain is a system of somatic dysfunction diagnosis and osteopathic manipulative treatment (OMT) developed by Lawrence Jones, DO, in the 1950s.[1] It uses static body positioning to treat discrete areas of tenderness and tissue texture abnormalities, called tender points. These tender points occur at predicable locations and were given specific names by Dr Jones, but the names of some tender points are incongruent with their anatomic locations. These anatomically incongruent names stem from Dr Jones' belief that certain tender points were reflective of somatic dysfunction in adjoining areas of the body and that those tender points were functionally associated with distal somatic dysfunction by means of neurologic or structural relationships.[2,3] This viewpoint is consistent with the osteopathic concept that structure and function are interrelated.[4]

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Unfortunately, the tender point naming system presents challenges for modern billing and coding. For example, the anterior L1 tender point (AL1) is on the medial anterior superior iliac spine (ASIS).[1,3,5] To find this tender point, the physician must palpate the medial aspect of the ASIS, which is part of the pelvic/groin/buttocks physical examination body area identified by the Centers for Medicare & Medicaid Services (CMS). But for billing and coding purposes, the physician must determine if this tender point is reflective of pelvic somatic dysfunction (ie, tenderness and tissue texture abnormality on the ASIS of the pelvis) or lumbar somatic dysfunction, as Dr Jones believed, or both.[3,5,6(pp13,65-66)] Justifications on the basis of the osteopathic concept of structure and function can be made to support either or both diagnoses.

As electronic medical records (EMRs) become more common, templates for specialized care, such as osteopathic manipulative medicine (OMM), are being developed. However, when osteopathic physicians and EMR programmers translate the physical examination findings of the 10 somatic dysfunction body regions into the 10 CMS physical examination body areas, confusion may arise because the 2 systems do not correspond perfectly. For example, the *1995 Documentation Guidelines for Evaluation and Management Services* published by the CMS combines the thoracic and lumbar somatic dysfunction body regions into a single body area: the spine.[7] Thus, when physicians code for evaluation and management (E/M) services, they must first identify the body area that was physically examined and then identify the body region in which somatic dysfunction was diagnosed. The latter would be used as the justification for performing OMT, if recommended during that visit.

Although most somatic dysfunction physical examination findings clearly correlate to a particular body area and somatic dysfunction diagnosis, others are less clear, such as the incongruent counterstrain tender points. The current study evolved from a survey given to members of the Educational Council on Osteopathic Principles. The purpose of the survey was to determine which physical body area and which somatic dysfunction diagnosis to assign to certain counterstrain tender points within an OMM EMR template that was being developed at A.T. Still University-Kirksville College of Osteopathic Medicine (ATSU-KCOM). The results of the Educational Council on Osteopathic Principles survey demonstrated that this topic was of general interest and that there were 2 schools of thought regarding counterstrain: (1) the anatomic approach and (2) the classic Dr Jones functional approach (ie, structure vs function). Therefore, for the present study, we modified the original survey to assess the attitudes of osteopathic physicians toward the billing and coding of incongruent tender points.

Methods

The present study received approval from the local institutional review board and the American Academy of Osteopathy (AAO). In May 2010, physician members of the AAO were e-mailed a description of the study and a link to an electronic survey regarding the physical examination and diagnosis of 15 anatomically incongruent tender points and tender point groups. Members of the AAO were targeted for this survey because the AAO oversees board certification in neuromusculoskeletal medicine/osteopathic manipulative medicine (NMM/OMM) and provides continuing medical education programs that focus on OMM. Nonphysician members, students, resident physicians, and foreign AAO members were not e-mailed to participate in the study. The electronic survey was open for 4 weeks, and a reminder e-mail was sent 2 weeks after the first e-mail. To ensure that the respondents were familiar with the use of counterstrain in clinical practice, they were asked whether they used counterstrain diagnosis and treatment in their practices. Only respondents who reported that they used counterstrain diagnosis and treatment in their clinical practices were eligible to complete the entire survey. Before completing the main part of the survey (*Appendix*), respondents were asked demographic questions regarding sex, specialty, and years in practice.

To develop the survey, we assessed tender points commonly taught at US osteopathic medical schools and identified 15 tender points and tender point groups that were incongruent with their named location or were questionable with regard to the somatic dysfunction body region to which they belonged. We listed these 15 incongruent tender points in the survey (created using Zoomerang software [Zoomerang, San Francisco, California]) and asked participants to identify the body area that would be physically evaluated during the assessment of each tender point or tender point group and the body region in which somatic dysfunction would be diagnosed if a tender point were present (*Appendix*). The survey also contained space for participants to leave open-ended comments.

Because different counterstrain references may cite slightly different locations for the same tender points, we noted the general location of some of the tender points in the survey for clarity. For example, the anterior C1 (AC1) tender point is cited as occurring on the posterior angle of the mandible by Jones[6(p51)] and on the C1 transverse process by Essig-Beatty et al.[8] Further, the survey was designed so the respondent could choose only 1 physical examination body area or somatic dysfunction body region for each question. The survey included the following 10 physical examination body areas identified in the 1995 CMS E/M coding guide[7]: head, neck, spine, chest/ribs/breasts, abdomen, pelvis/groin/buttocks, right upper

extremity, left upper extremity, right lower extremity, and left lower extremity. In addition, the survey included the following 10 somatic dysfunction body regions identified in *International Classification of Disease, Ninth Revision* (ICD-9),[9] followed by their ICD-9 code: head (739.0), cervical (739.1), thoracic (739.2), lumbar (739.3), sacral (739.4), pelvic (739.5), lower extremity (739.6), upper extremity (739.7), rib cage (739.8), and abdomen (739.9).[10]

To categorize the physicians' responses as indicating either a structural or functional approach, multiple counterstrain reference textbooks[1-3,5,6] were reviewed for descriptions of the physical locations of each tender point included in the survey. If respondents chose the physical location of the tender point for either the location of the physical examination or the somatic dysfunction diagnosis, then their response was categorized as indicating a structural approach. In some instances, separate counterstrain reference textbooks cited different physical locations for the same tender point. The responses for questions regarding these tender points were categorized as indicating a structural approach for both locations. For example, Jones[6(pp60,72,73)] describes the upper pole L5 (UPL5) tender point as physically located on the superior medial surface of the posterior superior iliac spine (PSIS), whereas Rennie and Glover[3] describe this tender point as physically located on the L5 spinous process or between the L5 spinous process and the PSIS. Therefore, if respondents chose the spine or pelvic/groin/buttocks area as the physical examination location for this tender point or if they chose the lumbar or pelvis region for the somatic dysfunction diagnosis, their responses were categorized as indicating a structural approach to that aspect of billing and coding. If respondents chose a distal region or the region moved by the muscular structure (muscular insertion site) for the physical examination location or somatic dysfunction diagnosis of a tender point, then their responses were categorized as indicating a functional approach.

The percentage of responses indicating a structural approach vs a functional approach and the 95% confidence interval for each percentage were calculated for physical examination location and somatic dysfunction diagnosis for each tender point. McNemar tests were used to test for inconsistencies in approach to physical examination location and somatic dysfunction diagnosis within individuals (eg, if an individual chose a response indicating a structural approach for the physical examination location of a tender point and a response indicating a functional approach for the somatic dysfunction diagnosis of the same tender point). In order to test for differences in approach to physical examination location and somatic dysfunction diagnosis according to respondents' reported sex, specialty, and years in practice, Fisher exact tests were used. Statistical analyses were conducted using SAS software (version 9.2; SAS Institute Inc, Cary, North Carolina). $P \leq .05$ was considered statistically significant.

Results

Of the 738 AAO physician members invited to participate, 175 physicians responded to the electronic survey, resulting in a 24% response rate. Of the respondents, 156 physicians (89%) reported using counterstrain in their clinical practice and were able to complete the rest of the survey. Of the respondents who used counterstrain, 104 were male (67%) and 51 were female (33%); 1 physician did not specify sex (*Table 1*). There was no significant difference between men and women for specialty ($P > .18$) or years in practice ($P = .22$), except for the Fellow of the American Academy of Osteopathy certification (17% of men vs 2% of women; $P = .008$).

Survey responses for physical examination location were more likely to indicate a structural approach than a functional approach, but the approach indicated by responses for somatic dysfunction diagnosis varied (*Figure 1*). As a result, on the same tender point, there were inconsistencies between the approach indicated for physical examination location and the approach indicated for somatic dysfunction diagnosis. For example, 140 respondents (91%) indicated that the anterior T1-6 (AT1-6) tender points, which are physically located on the sternum, should be assessed by physically examining the chest/rib area, but only 60 respondents (38%) indicated they would diagnose these tender points as somatic dysfunction of the rib

Table 1.
Demographic Variables of Survey Respondents (N=156)

Demographic Variable	No. (%)
Sex	
Male	104 (67)
Female	51 (33)
Specialty/Fellowship	
Neuromusculoskeletal medicine/OMM	98 (63)
Special proficiency in OMM	30 (19)
Family practice or family practice and OMT	94 (60)
Fellow of the American Academy of Osteopathy	18 (12)
Sports medicine	4 (3)
Emergency medicine	1 (1)
Years in Practice	
1-5	32 (20)
6-10	26 (17)
11-15	25 (16)
16-20	23 (15)
21-25	18 (12)
>25	32 (20)

Abbreviations: OMM, osteopathic manipulative medicine; OMT, osteopathic manipulative treatment.

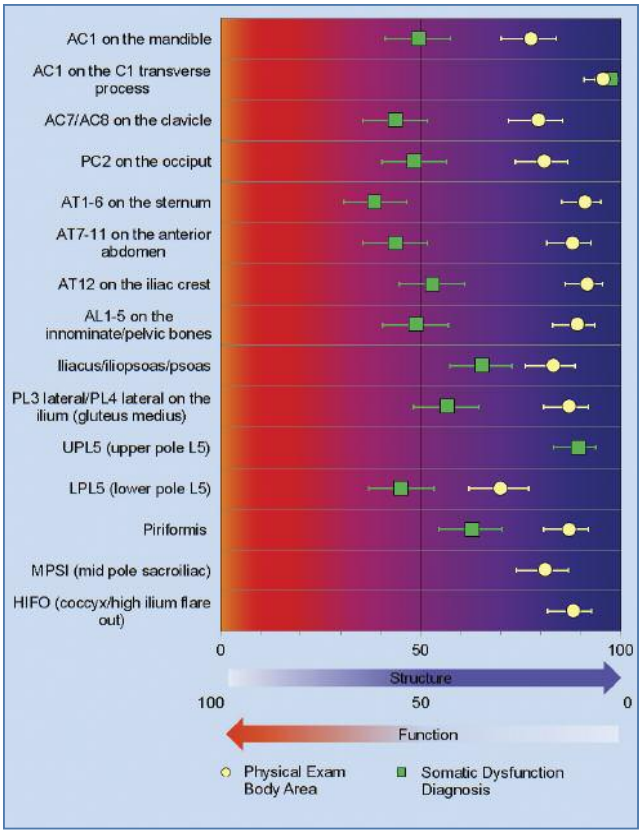

Figure 1. *Survey responses to body area physically examined and body region in which somatic dysfunction is diagnosed for each tender point or tender point group as correlated to a structural (ie, anatomic) approach vs a functional approach (N=156).* ***Abbreviations:*** *A, anterior; LP, lower pole; P, posterior.*

region (*Table 2*). This type of inconsistency was statistically significant ($P<.001$) for the following tender points: AC1 on the mandible, anterior C7 and C8 (AC7/AC8), posterior C2 (PC2) on the occiput, AT1-6, AT7-11, AT12 on the iliac crest, anterior L1-5 (AL1-5), iliacus/iliopsoas/psoas, posterior lateral L3 and L4 (PL3/PL4), UPL5, lower pole L5 (LPL5), and piriformis.

Among individual respondents, application of a structural approach vs a functional approach to both the physical examination location and the diagnosis of somatic dysfunction was inconsistent across the tender points. Respondents chose responses indicating a structural approach for some tender points but responses indicating a functional approach for others. When assigning a physical examination body area, 141 respondents (90%) predominantly chose a structural approach (ie, selected that approach for at least 10 of the 15 tender points surveyed), whereas 6 (4%) predominantly chose a functional approach; the other 9 (6%) chose a structural approach for approximately half of the tender points and a functional approach for the other half. When identifying a somatic dysfunction diagnosis, 77 respondents (49%) predominantly chose a structural approach, whereas 32 (21%) predominantly chose a functional approach; the other 47 (30%) chose a structural approach for approximately half of the tender points and a functional approach for the other half.

There were significant differences between male and female respondents with regard to the physical examination location of the PL3/PL4 and piriformis tender points and the somatic dysfunction diagnosis of the UPL5 tender points. Female respondents more frequently classified the physical examination location of the PL3/PL4 tender point as part of the pelvic/groin/buttocks body area (ie, structural approach) than male respondents (98% vs 82%; $P=.004$). Female respondents also chose the structural approach for the physical examination location of the piriformis tender point, classifying it as part of the pelvic/groin/buttocks body area more frequently than male respondents (100% vs 81%; $P=.0002$). Male respondents more frequently chose a structural approach than female respondents when classifying the somatic dysfunction diagnosis of the UPL5 tender points (93% vs 81%; $P=.045$).

There were significant differences between specialties (NMM/OMM only, family practice or family practice and osteopathic manipulative treatment [FP] only, both, or neither) in respondents' approach to coding the physical examination location of tender points for the AC1 transverse process and LPL5 tender points. For the AC1 transverse process tender point, respondents with specialties in NMM/OMM only and FP only more frequently chose the structural approach than respondents with neither of these specialties (100% and 100% vs 71%, respectively; $P=.007$). Respondents with a specialty in NMM/OMM only more frequently chose the structural approach for the LPL5 tender point than those with a specialty in FP only (84% vs 52%; $P=.02$).

There were significant differences between respondents' reported years in practice on their approach to coding the somatic dysfunction diagnosis of the UPL5 ($P=.03$) and LPL5 ($P=.04$) tender points. For UPL5 tender points, respondents with 16 to 20 years in practice and those with more than 25 years in practice more frequently used the structural approach than those with 11 to 15 years in practice (100% and 97% vs 72%, respectively). For LPL5 tender points, respondents with 11 to 15 years in practice and 21 to 25 years in practice more frequently chose the structural approach than those with 1 to 5 years in practice (68% and 63% vs 28%, respectively), and those respondents with 11 to 15 years in practice also more frequently used the structural approach than those with 16 to 20 years in practice (68% vs 35%).

Table 2.
Physical Examination Location and Somatic Dysfunction Diagnosis of Anatomically Incongruent Tender Points as Identified by Osteopathic Physicians (N=156)

Tender Point	Specified Physical Location	Physical Examination Location[a]	Category	No. (%)[b]	Somatic Dysfunction Diagnosis	Category	No. (%)[b]
AC1	Mandible	Head	Structural	121 (78)	Head	Structural	77 (49)
		Neck	Functional	35 (22)	Cervical	Functional	79 (51)
AC1	C1 transverse process	Head	Functional	7 (4)	Head	Functional	4 (3)
		Neck	Structural	149 (96)	Cervical	Structural	152 (97)
AC7/AC8	Clavicle	Neck	Functional	32 (21)	Cervical	Functional	87 (56)
		Chest/sternum	Structural	50 (32)	Ribs	Structural	14 (9)
		Upper extremity	Structural	73 (47)	Upper extremity	Structural	53 (34)
PC2	Occiput	Head	Structural	126 (81)	Head	Structural	75 (48)
		Neck	Functional	30 (19)	Cervical	Functional	80 (52)
AT1-6	Sternum	Chest/sternum	Structural	140 (91)	Ribs	Structural	60 (38)
		Spine	Functional	14 (9)	Thoracic	Functional	96 (62)
AT7-11	Anterior abdomen	Spine	Functional	19 (12)	Thoracic	Functional	88 (56)
		Abdomen	Structural	137 (88)	Abdomen	Structural	68 (44)
AT12	Iliac crest	Spine	Functional	13 (8)	Thoracic	Functional	73 (47)
		Pelvic/groin/buttocks	Structural	133 (85)	Pelvis	Structural	77 (50)
		Abdomen	Structural	10 (6)	Abdomen	Structural	5 (3)
AL1-5	Innominate/ pelvic bones	Spine	Functional	17 (11)	Lumbar	Functional	80 (51)
		Pelvic/groin/buttocks	Structural	135 (87)	Pelvis	Structural	75 (48)
		Abdomen	Structural	3 (2)	Abdomen	Structural	1 (<1)
Iliacus/ iliopsoas/ psoas	Location not specified	Spine	Functional	8 (5)	Lumbar	Functional	29 (19)
		Lower extremity	Functional	18 (12)	Lower extremity	Functional	23 (15)
		Abdomen	Structural	40 (26)	Abdomen	Structural	21 (14)
		Pelvic/groin/buttocks	Structural	88 (57)	Pelvis	Structural	79 (52)
					Sacrum	Functional	1 (<1)
PL3 lateral/ PL4 lateral (gluteus medius)	Ilium	Spine	Functional	11 (7)	Lumbar	Functional	59 (39)
		Pelvic/groin/buttocks	Structural	135 (87)	Sacrum	Functional	7 (5)
		Lower extremity	Functional	9 (6)	Pelvis	Structural	86 (57)
UPL5	Location not specified	Spine	Structural	59 (39)	Lumbar	Structural	105 (70)
		Pelvic/groin/buttocks	Structural	93 (61)	Sacrum	Functional	16 (11)
					Pelvis	Structural	29 (19)
LPL5	Location not specified	Spine	Functional	46 (30)	Lumbar	Functional	83 (55)
		Pelvic/groin/buttocks	Structural	107 (70)	Sacrum	Structural	36 (24)
					Pelvis	Structural	32 (21)
Piriformis	Location not specified	Pelvic/groin/buttocks	Structural	135 (87)	Sacrum	Functional	23 (15)
		Spine	Functional	0	Pelvis	Structural	98 (63)
		Lower extremity	Functional	20 (13)	Lower extremity	Functional	35 (22)
MPSI	Location not specified	Spine	Functional	29 (19)	Sacrum	Structural	127 (83)
		Pelvic/groin/buttocks	Structural	124 (81)	Pelvis	Structural	26 (17)
HIFO	Coccyx	Spine	Functional	18 (12)	Sacrum	Structural	73 (49)
		Pelvic/groin/buttocks	Structural	132 (88)	Pelvis	Structural	77 (51)

[a] Physical examination locations were based on body areas in the Centers for Medicare & Medicaid Services' *1995 Documentation Guidelines for Evaluation and Management Services*.[6]

[b] Some percentages do not total 100 becaause of rounding.

Abbreviations: A, anterior; HIFO, high ilium flare out; LP, lower pole; MPSI, mid pole sacroiliac; P, posterior; UP, upper pole.

Forty-nine of the 156 physicians (31%) who completed the survey submitted written comments about the survey topics. Fourteen respondents commented that the surveyed tender points could be coded differently depending on the physician's interpretation of the dysfunction. Eleven reported that they code all dysfunctional regions indicated by an individual tender point. Ten reported that they code based on the anatomic location of the point. Eight commented on the anatomic complexity of the iliacus/iliopsoas/psoas muscle group and the difficulty of coding for

evaluation and diagnosis of these structures. Four commented that a single tender point should not be considered somatic dysfunction without evaluation of the associated region. Three reported that they code based on Dr Jones' functional correlations.[6] Two recommended a restructuring of the coding system for somatic dysfunction.

Comment

The results of the present survey demonstrate differences of opinion among AAO members who completed the survey regarding the body area that would be physically examined and the body region in which somatic dysfunction would be diagnosed for a tender point that has a name different from its physical location. On the basis of survey responses, the following 3 approaches to somatic dysfunction diagnosis were found: (1) the structural approach—diagnosing a tender point by its anatomic location, (2) the functional approach—diagnosing a tender point on the basis of how Dr Jones originally correlated the tender points to other body regions of dysfunction, and (3) the holistic approach—diagnosing a tender point based on both the structural and the functional approaches. In the latter approach, which was not specifically assessed in this study, a single tender point may be assigned more than 1 somatic dysfunction body region diagnosis. Given the multiple approaches to diagnosis, many respondents commented on their personal frustration with adapting the osteopathic concepts of interrelatedness of structure and function to modern methods of billing and coding.

The only significant differences between male and female respondents in the study were the disproportionate number of male physicians with Fellow of the American Academy of Osteopathy certifications and the overwhelming number of female physicians who considered the physical examination locations of PL3, PL4, and piriformis tender points as part of the pelvic/groin/buttocks area. This latter result may be a result of social attitudes regarding that body region.[11,12] For the other 2 demographic variables, the differences in responses for specialty and years in practice probably reflect differences in training at different times and among different specialties.

Responses regarding the physical examination location and somatic dysfunction diagnosis for tender point areas such as the iliopsoas, which includes the iliacus and psoas tender points, were difficult to classify as structural or functional. If the tender point is truly located within the named muscle, then the structural approach may be consistent with 5 different somatic dysfunction diagnoses. This complexity was noted in the open-ended comments of 8 respondents. For example, the iliopsoas, which includes the iliacus, psoas major, and psoas minor muscles, is found by palpating deep through the lower abdomen (abdominal region, ICD-9 code 739.9) to the iliac fossa (pelvic region, ICD-9 code 739.5). It originates in the lumbar region (lumbar region, ICD-9 code 739.3), crosses the pelvic and sacral boney structures (sacral region, ICD-9 code 739.4) on the anterior innominate, and inserts on the femur (lower extremity region, ICD-9 code 739.6). So is evaluation of the iliopsoas muscle part of the physical examination of the spine (lumbar), pelvis/groin/buttocks, or lower extremity? The answer likely depends on how it was examined. When the iliopsoas is in spasm, standing evaluation may reveal lumbar flexion,[13] supine evaluation may reveal tenderness in the deep abdomen on the iliopsoas muscle belly on the anterior ilium,[3,5] and prone evaluation may reveal reduced hip extension range of motion.[13] Assessments of gross range of motion of the lumbar spine or hip are typically considered physical examination of the spine and lower extremity, respectively.[14-16] Palpation of the lower abdomen or pelvis would likewise be physical examination of the abdomen or pelvis.[15,17,18]

The true problem of applying the osteopathic concept of structure and function to modern billing and coding arises from diagnosing disease in 1 body area by examining a separate body area, a problem that is not unique to osteopathic medicine. For example, when evaluating a patient's ankles and finding bilateral pitting edema, we may classify that finding, using the 1995 CMS documentation guidelines, as either physical examination of the cardiovascular system[19] or physical examination of the lower extremity body areas.[7] But when billing the E/M service, many coding experts report that it is inappropriate to count a single physical examination element as examination of 2 separate organ systems or body areas.[20-22] They fear that this practice may be viewed as "double dipping," or being paid twice for the same service.[20-22] Likewise, if we find tenderness at the medial ASIS while evaluating the pelvis, we have a clear anatomic justification for recording that finding as an evaluation of the pelvis/groin/buttocks area. But because our profession believes that this tender point is indicative of lumbar somatic dysfunction, we could also justify this finding as an evaluation of the spine. However, like the pitting edema example, to use this single physical finding as an evaluation of both the spine and the pelvis may be considered double dipping.

The pitting edema example can be used to further examine the problem of the osteopathic concept of structure and function in the context of modern billing and coding. For example, congestive heart failure (CHF) could be the cause of the peripheral edema. According to the Acute Decompensated Heart Failure National Registry, up to 65% of patients with acute CHF have pitting peripheral edema.[24] However, the presence of lower extremity pitting edema could also be an adverse effect of a medication or a sign of a different disorder, such as lymphedema,[25] seronegative symmetrical synovitis,[26] complex regional

pain syndrome,[27] deep vein thrombosis,[28] or any condition involving hypervolemia or hypoproteinemia.[29,30] Thus, as a sign of CHF, pitting peripheral edema has a low sensitivity. Therefore, we could not make a diagnosis of CHF solely on the basis of 1 physical sign.

The diagnosis of somatic dysfunction is made by the presence of tenderness, asymmetry, restricted range of motion, and tissue texture abnormalities, or TART findings, on a physical examination. The tenderness and tissue texture abnormalities that typically accompany a tender point[1] on the medial aspect of the ASIS are clear TART findings on the pelvic structures. However, like the association between peripheral edema and CHF, a single physical finding of tenderness and tissue texture abnormality on the medial ASIS may also be a sign of somatic dysfunction of the lumbar spine because of a functional association with the lumbar vertebra,[3,5,6(pp13,65,66)] somatic dysfunction of the lower extremity region because of the attachment of the sartorius muscle,[31,32] or somatic dysfunction of the abdomen because of the external oblique muscle that attaches at this site.[31] Therefore, a definitive evaluation of this finding should include a physical examination of the associated body areas to determine the true nature of the dysfunction and appropriate documentation that reflects each body area physically examined.

Most EMR software programs use the 1997 CMS bullet system for determining the contribution of the physical examination to the E/M service provided during a patient encounter. This system separates different elements of physical examination into bulleted items and limits the use of body areas to within the context of the musculoskeletal organ system examination. In the 1997 system, the 10 physical examination body areas are grouped into the following 6 musculoskeletal anatomic areas: (1) head/neck, (2) spine/ribs/pelvis, (3) right upper extremity, (4) left upper extremity, (5) right lower extremity, and (6) left lower extremity.[33] Thus, the 1997 bullet system minimizes the confusion of incongruent tender points to those whose names cross anatomic regions, such as anterior C7 which is found on the clavicle but named for the cervical region.

As for the tender points that lie between anatomic areas, the primary author (K.T.S.) contacted EMR and billing and coding experts for CMS's provider in the Midwestern United States in 2010. The response was clear: "We are not concerned with how you classify it [them] as long as you do so consistently" (Barbara Lawrenz, electronic communication, March 2010). Therefore, each physician must decide how to classify these incongruent tender points and other dysfunctions, such as trapezius or iliopsoas muscle dysfunctions, that cross several anatomic areas.

Although not specifically studied as part of this survey, the physician's approach to somatic dysfunction diagnoses may affect how OMT is billed and thus the OMT reimbursement. Osteopathic manipulative treatment is billed based on the number of body regions treated during an encounter.[10] Because somatic dysfunction is the primary indication for performing OMT,[10] the number of body regions diagnosed with somatic dysfunction may impact the number of body regions treated with OMT. For example, a physician evaluates a patient who presents with neck pain and diagnoses an anterior C1 tender point on the mandible, a posterior C4 tender point on the posterior cervical spine, and an anterior C8 tender point on the clavicle. If the physician chooses a functional approach to ICD-9 diagnostic coding, then the somatic dysfunction assessment would be limited to the cervical region (ICD-9 code 739.1). If the physician treats all 3 tender points with OMT, only 1 to 2 OMT body regions (current procedural terminology [CPT] code 98925) may be charged. However, if the physician chooses a structural approach, then he or she could code for somatic dysfunction of the head (739.0), cervical (739.1), and upper extremity (739.7) regions. And if OMT was used to treat each separate dysfunction, the physician could charge for 3 to 4 OMT body regions (CPT code 98926). Regardless of the diagnostic approach, to bill for both an E/M service and OMT for the same date of service, the E/M documentation should clearly indicate the physical findings indicative of somatic dysfunction in each body region diagnosed to justify using OMT as a treatment option.[34,35] Then, the OMT documentation must clearly indicate which body regions were treated to justify the OMT code billed.[34,35]

The evidence base for correlating tender points, such as AL1, with somatic dysfunction in other body regions is largely based on expert opinion as documented in various counterstrain textbooks.[3,5,6(pp13,65,66)] Thus, correlating incongruent tender points with distal somatic dysfunction is an excellent research opportunity for establishing structure-function relationships. Examiners could evaluate patients prospectively for tender points and somatic dysfunction in the functionally associated body regions to establish evidence-based correlations. Retrospectively, EMRs that are part of practice-based research networks could allow thousands of patients to be reviewed for structure-function associations by identifying segmental spinal somatic dysfunctions and tender points that occur in the same patient or in patients with the same conditions. However, this research would be limited by the designs of EMR programs. For EMRs to be useful in this capacity, they must allow for documentation of spinal segmental dysfunction and tender point locations. Further, EMR designers will need to decide how to classify the incongruent tender points within the confines of an electronic framework. ATSU-KCOM chose a structural approach for their EMR template for OMM, for a direct electronic correlation between the

body area that was physically examined and the somatic dysfunction diagnosis.

One of the limitations of this study was the small number of respondents; we had a 24% response rate. Another limitation was that the anatomic location was specified for some of the tender points and may have biased some of the respondents with regard to physical examination location. The anatomic location of those tender points was specified to minimize confusion that may have arisen because individual references cite several tender point locations occurring in different body areas for a single named point, such as AC1. Additionally, attitudes about counterstrain may have been influenced by where the respondents received their osteopathic training, which is information that was not requested in the survey.

Conclusion

Results of the present survey demonstrated differences in opinion about which body area was physically evaluated and which somatic dysfunction diagnosis should be assigned to incongruent tender points. Therefore, inconsistency likely exists among physicians about how the physical examination component of E/M services is determined and which ICD-9 diagnostic codes are used in the assessment of these incongruent tender points.

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Appendix 1.
Counterstrain Billing Survey

For each of the following tender points or groups of tender points, indicate (1) what body area is being physically examined when you find the tender point and (2) what somatic dysfunction body region would you assign to a positive tender point. ICD-9 codes are indicated in parentheses.

AC1 on the mandible
What body area is being physically examined to find this tender point?
☐ Head ☐ Neck
If this point is found to be tender, you would diagnosis this tender point as somatic dysfunction of the
☐ Head (739.0) ☐ Cervical (739.1)

AC1 on the C1 transverse process
What body area is being physically examined to find this tender point?
☐ Head ☐ Neck
If this point is found to be tender, you would diagnosis this tender point as somatic dysfunction of the
☐ Head (739.0) ☐ Cervical (739.1)

AC7/AC8 on the clavicle
What body area is being physically examined to find these tender points?
☐ Neck ☐ Chest/sternum ☐ Upper extremity
If any of these points are found to be tender, you would diagnosis them as somatic dysfunction of the
☐ Cervical (739.1) ☐ Upper extremity (739.7) ☐ Ribs (739.8)

PC2 on the occiput
What body area is being physically examined to find this tender point?
☐ Head ☐ Neck
If this point is found to be tender, you would diagnosis this tender point as somatic dysfunction of the
☐ Head (739.0) ☐ Cervical (739.1)

AT1-6 on the sternum
What body area is being physically examined to find these tender points?
☐ Chest/sternum ☐ Spine
If any of these points are found to be tender, you would diagnosis them as somatic dysfunction of the
☐ Thoracic (739.2) ☐ Ribs (739.8)

AT7-11 on the anterior abdomen
What body area is being physically examined to find these tender points?
☐ Spine ☐ Abdomen
If any of these points are found to be tender, you would diagnosis them as somatic dysfunction of the
☐ Thoracic (739.2) ☐ Abdomen (739.9)

(continued)

Appendix 1 *(continued).*

AT12 on the iliac crest
What body area is being physically examined to find this tender point?
☐ Spine ☐ Pelvic/Groin/Buttock ☐ Abdomen
If this point is found to be tender, you would diagnosis this tender point as somatic dysfunction of the
☐ Thoracic (739.2) ☐ Pelvis (739.5) ☐ Abdomen (739.9)

AL1-5 on the innominate/pelvic bones
What body area is being physically examined to find these tender points?
☐ Spine ☐ Pelvic/Groin/Buttock ☐ Abdomen
If any of these points are found to be tender, you would diagnosis them as somatic dysfunction of the
☐ Lumbar (739.3) ☐ Pelvis (739.5) ☐ Abdomen (739.9)

Iliacus/Iliopsoas/Psoas
What body area is being physically examined to find this tender point?
☐ Spine ☐ Pelvic/Groin/Buttock ☐ Abdomen
☐ Lower extremity
If any of these points are found to be tender, you would diagnosis them as somatic dysfunction of the
☐ Lumbar (739.3) ☐ Sacrum (739.4) ☐ Pelvic (739.5)
☐ Lower extremity (739.6) ☐ Abdomen (739.9)

PL3 lateral/PL4 Lateral on the ilium (posterior lateral L3 and posterior lateral L4)
What body area is being physically examined to find these tender points?
☐ Spine ☐ Pelvic/Groin/Buttock ☐ Sacrum
If any of these points are found to be tender, you would diagnosis them as somatic dysfunction of the
☐ Lumbar (739.3) ☐ Sacrum (739.4) ☐ Pelvis (739.5)

UPL5 (upper pole L5)
What body area is being physically examined to find this tender point?
☐ Spine ☐ Pelvic/Groin/Buttock ☐ Sacrum
If this point is found to be tender, you would diagnosis this tender point as somatic dysfunction of the
☐ Lumbar (739.3) ☐ Sacrum (739.4) ☐ Pelvis (739.5)

LPL5 (lower pole L5)
What body area is being physically examined to find this tender point?
☐ Spine ☐ Pelvic/Groin/Buttock ☐ Sacrum
If this point is found to be tender, you would diagnosis this tender point as somatic dysfunction of the
☐ Lumbar (739.3) ☐ Sacrum (739.4) ☐ Pelvis (739.5)

Piriformis
What body area is being physically examined to find this tender point?
☐ Pelvic/Groin/Buttock ☐ Sacrum ☐ Lower extremity
If this point is found to be tender, you would diagnosis this tender point as somatic dysfunction of the
☐ Sacrum (739.4) ☐ Pelvis (739.5) ☐ Lower extremity (739.6)

MPSI (mid pole sacroiliac)
What body area is being physically examined to find this tender point?
☐ Pelvic/Groin/Buttock ☐ Sacrum
If this point is found to be tender, you would diagnosis this tender point as somatic dysfunction of the
☐ Sacrum (739.4) ☐ Pelvis (739.5)

HIFO (coccyx/high ilium flare out)
What body area is being physically examined to find this tender point?
☐ Pelvic/Groin/Buttock ☐ Sacrum
If this point is found to be tender, you would diagnosis this tender point as somatic dysfunction of the
☐ Sacrum (739.4) ☐ Pelvis (739.5)