

eAppendix 1.
All Reported Presenting Complaints Treated with
Osteopathic Manipulative Medicine in an
Outpatient Clinical Setting by Patient Encounter
for Pediatric Patients by Defined Age Categories

Age Category ^a	No. (%)
Category 1 (n=54)	
Feeding difficulties	27 (50.0)
Misshapen head	18 (33.3)
Nonspecific head complaints	3 (5.6)
Abnormal head and neck position	2 (3.7)
Gastrointestinal complaints	2 (3.7)
Nonspecific complaints	2 (3.7)
Category 2 (n=307)	
Misshapen head	133 (43.3)
Feeding difficulties	27 (8.8)
Colic	26 (8.5)
Reflux	22 (7.2)
Abnormal head and neck position	22 (7.2)
Constipation	19 (6.2)
Nonspecific complaints	15 (4.9)
Nonspecific head complaints	13 (4.2)
Gastrointestinal complaints	8 (2.6)
Erb's palsy	6 (2.0)
Respiratory problems	7 (2.3)
Other musculoskeletal complaints	5 (1.6)
Other cervical complaints	4 (1.3)
Category 3 (n=34)	
Misshapen head	14 (41.2)
Ear complaints	10 (29.4)
Other musculoskeletal complaints	4 (11.8)
Gastrointestinal complaints	2 (5.9)
Insomnia	2 (5.9)
Headache	1 (2.9)
Colic	1 (2.9)
Category 4 (n=76)	
Lower extremity complaints	18 (23.7)
Neurological/psychological complaints	14 (18.4)
Back pain	6 (7.9)

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Age Category ^a	No. (%)
Respiratory complaints	6 (7.9)
Cervical complaints	5 (6.6)
Constipation	5 (6.6)
Misshapen head	5 (6.6)
Headache	4 (5.3)
Ear complaints	3 (3.9)
Other musculoskeletal complaints	3 (3.9)
Upper extremity complaints	3 (3.9)
Nonspecific complaints	2 (2.6)
Other head complaints	2 (2.6)
Category 5 (n=168)	
Headache	39 (23.2)
Back pain	28 (16.7)
Cervical complaints	27 (16.1)
Lower extremity complaints	16 (9.5)
Psychological complaints	15 (8.9)
Nonspecific complaints	11 (6.5)
Other musculoskeletal complaints	5 (3.0)
Visual disturbances	5 (3.0)
Nonspecific head complaints	4 (2.4)
Upper extremity complaints	4 (2.4)
Gait abnormality	3 (1.8)
Speech difficulties	3 (1.8)
Gastrointestinal complaints	2 (1.2)
Other gastrointestinal complaints	2 (1.2)
Constipation	1 (0.6)
Ear pain	1 (0.6)
Hip pain	1 (0.6)
Neurological complaints	1 (0.6)
Category 6 (n=1037)	
Back pain	475 (45.8)

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Age Category ^a	No. (%)
Headache	155 (14.9)
Cervical complaints	82 (7.9)
Lower extremity complaints	70 (6.8)
Dizziness	51 (4.9)
Upper extremity complaints	45 (4.3)
Hip/pelvic pain	44 (4.2)
Rib complaints	35 (3.4)
Nonspecific complaints	22 (2.1)
Neurological complaints	21 (2.0)
Other head complaints	16 (1.5)
Other musculoskeletal complaints	13 (1.3)
Gastrointestinal complaints	4 (0.4)
Respiratory complaints	3 (0.3)
Psychological complaints	1 (0.1)
Category 7 (n=582)	
Back pain	278 (47.8)
Neck pain	65 (11.2)
Headache	54 (9.3)
Upper extremity complaints	47 (8.1)
Lower extremity complaints	40 (6.9)
Hip/pelvic pain	29 (5.0)
Rib pain	23 (4.0)
Neurological complaints	15 (2.6)
Nonspecific complaints	11 (1.9)
Nonspecific head complaints	8 (1.4)
Gastrointestinal complaints	6 (1.0)
Other musculoskeletal complaints	4 (0.7)
Respiratory complaints	2 (0.3)

^a Age categories: 1, term neonatal (birth-27 days); 2, infancy (28 days-12 months); 3, toddler (13-23 months); 4, early childhood (2-5 years); 5, middle childhood (6-11 years); 6, early adolescence (12-18 years); 7, late adolescence (19-21 years).

**eAppendix 2.
All Reported Clinical Assessments Treated with
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Outpatient Clinical Setting and Defined by the
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Age Category ^a	No. (%)
Category 1 (n=67)	
Feeding difficulty (R63.3, P92.8, P92.9, F98.29)	26 (38.8)
Plagiocephaly/cranial molding (Q67.3, M95.2)	13 (19.4)
Abnormalities of skull and/or face bones (Q75.9)	7 (10.4)
Cephalhematoma due to birth injury (P12.0)	4 (6.0)
Torticollis (M43.6)	3 (4.5)
Caput succedaneum (P12.81)	3 (4.5)
Gastroesophageal reflux disease (GERD) (K21.9)	2 (3.0)
Birthmark not otherwise specified (Q82.5)	1 (1.5)
Constipation (K59.00)	1 (1.5)
Contracture of left hip (M24.552)	1 (1.5)
Failure to thrive (R62.51)	1 (1.5)
Neonatal obstruction of right nasolacrimal duct (H04.531)	1 (1.5)
Other congenital deformities of chest (Q67.8)	1 (1.5)
Other injuries to skeleton due to birth trauma (P13.9)	1 (1.5)
Perinatal jaundice from other excessive hemolysis (P58.8)	1 (1.5)
Temporomandibular joint (TMJ) disorder (M26.609)	1 (1.5)
Category 2 (n=350)	
Plagiocephaly (Q67.3)	100 (28.6)
Abnormalities of skull and/or face bones (Q75.9)	47 (13.4)
Torticollis (M43.6, Q68.0)	42 (12.0)
Colic/fussy infant (R10.83, R68.12)	34 (9.7)
Feeding difficulty (P92.9, R63.3)	27 (7.7)
Constipation (K59.00)	25 (7.1)
GERD (K21.9)	23 (6.6)
Injury to brachial plexus due to birth trauma (P14.3)	6 (1.7)

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Age Category ^a	No. (%)
Otitis media (H65.00, H65.499, H66.90)	5 (1.4)
Ear pain (H92.09)	4 (1.1)
Hip pain/dysfunction (M25.552, M25.651, M25.652)	3 (0.9)
Spasm of muscle (M62.4)	3 (0.9)
Down's syndrome (Q90.9)	3 (0.9)
Cough (R05)	3 (0.9)
Gas pain (R14.1)	3 (0.9)
Upper respiratory infection (J06.9)	2 (0.6)
Genu varum of knee (M21.161, M21.162)	2 (0.6)
Other vomiting of newborn (P92.09)	2 (0.6)
Congenital facial asymmetry (Q67.0)	2 (0.6)
Hiccups (R06.6)	2 (0.6)
Cervical strain (S13.4)	2 (0.6)
Problems with head (V48.8)	2 (0.6)
Oral thrush (B37.9)	1 (0.3)
Nasolacrimal duct obstruction (H04.559)	1 (0.3)
Dermatitis due to food taken internally (L27.2)	1 (0.3)
TMJ disorder (M26.6)	1 (0.3)
Other congenital deformities of chest (Q67.8)	1 (0.3)
Bowing of leg (Q68.5)	1 (0.3)
Congenital deformity of ankle (Q74.2)	1 (0.3)
Strain of fascia at shoulder level of left arm, initial encounter (S46.912A)	1 (0.3)
Category 3 (n=36)	
Plagiocephaly (Q67.3)	14 (38.9)
Otitis media (H65.91, H66.90, H66.91)	9 (25.0)
Colic/fussy infant (R10.83, R68.12)	4 (11.1)
TMJ disorder (M26.60)	2 (5.6)
Abnormal posture (R29.3)	2 (5.6)
Insomnia (G47.00)	1 (2.8)
Otalgia, unspecified ear (H92.09)	1 (2.8)

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Age Category ^a	No. (%)
Torticollis (M43.6)	1 (2.8)
Abnormality of gait (R26.9)	1 (2.8)
Headache (R51)	1 (2.8)
Category 4 (n=81)	
Congenital anomaly of lower extremity (Q74.9, Q66.22, Q66.4)	11 (13.6)
Lower extremity pain/sprain or strain (M25.579, M79.609, S86.919A)	8 (9.9)
Abnormal involuntary movements (R25.9)	7 (8.6)
Plagiocephaly (Q67.3)	6 (7.4)
Headache (G44.209, R51)	5 (6.2)
Neck pain/sprain or strain (M54.2, S13.4XXA)	5 (6.2)
Back pain (M54.9)	5 (6.2)
Constipation (K59.00)	4 (4.9)
Attention deficit disorder of childhood with hyperactivity (F90.1)	3 (3.7)
Dystonia (F24.9)	3 (3.7)
Other seizures (G40.89)	3 (3.7)
Otitis media (H65.00, H65.499)	3 (3.7)
Cough (R05)	3 (3.7)
Developmental speech articulation disorder (F80.0)	2 (2.5)
Pharyngitis, acute (J02.9)	2 (2.5)
Allergic rhinitis, cause unspecified (J30.9)	2 (2.5)
Hip pain (M25.559)	2 (2.5)
Difficulty in walking (R26.2)	2 (2.5)
Other specific developmental learning difficulties (F81.89)	1 (1.2)
Enuresis (F98.0)	1 (1.2)
Acute upper respiratory infection, unspecified (J06.9)	1 (1.2)
Wrist pain (M25.539)	1 (1.2)
Low back pain (M54.5)	1 (1.2)

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Age Category ^a	No. (%)
Category 5 (n=192)	
Headache (R51, G43.0, G43.009, G43.909, G44.1, G44.209, G44.219, G44.329, G44.89)	45 (23.4)
Neck pain/strain/sprain (M54.2, S13.4XXA)	27 (14.1)
Back pain/dorsalgia/thoracic pain (M54.9, M54.6)	18 (9.4)
Leg/ankle/foot/limb pain (M25.5, M25.579, M79.606, M79.609, M25.561, M25.569, M25.571)	16 (8.3)
Low back pain/strain (M54.5, S33.5XXA)	12 (6.3)
Autism (F84.0)	10 (5.2)
Chromosomal abnormality (Q99.9)	9 (4.7)
Tourette syndrome (F95.2)	5 (2.6)
Torticollis, unspecified (M43.6)	5 (2.6)
Gait abnormality (R26.9)	5 (2.6)
Enuresis (F98.0)	3 (1.6)
Disturbances of vision (H53.16)	3 (1.6)
Constipation (K59.0, K59.04)	3 (1.6)
Strabismus (H50.9)	3 (1.6)
TMJ disorder (M26.6, M26.629)	3 (1.6)
Speech abnormality (R47.02)	3 (1.6)
Attention-deficit/hyperactivity disorder (ADHD) of childhood (F90.9)	2 (1.0)
Inguinal hernia (K40.90)	2 (1.0)
Spasm of muscle (M62.4)	2 (1.0)
Allergy to milk products/other foods (Z91.001, Z91.018)	2 (1.0)
Hip/pelvis pain (M25.559, R10.2)	2 (1.0)
Arm pain (M25.532, M79.602)	2 (1.0)
Insomnia, unspecified (G47.00)	1 (0.5)
Chondritis of external ear, bilateral (H61.033)	1 (0.5)
Allergic rhinitis (J30.9)	1 (0.5)

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Age Category ^a	No. (%)
Epidermal cyst (L72.0)	1 (0.5)
Disorders of sacrum (M53.3)	1 (0.5)
Generalized abdominal pain (R10.84)	1 (0.5)
Scoliosis (and kyphoscoliosis), idiopathic (M41.2)	1 (0.5)
Sacroiliac pain (M53.88)	1 (0.5)
Occipital neuralgia (M54.81)	1 (0.5)
Jaw strain (S03.40XA)	1 (0.5)
Category 6 (n=1724)	
Low back pain/lumbar sprain/strain (M54.5, S33.5XXA, S33.5XXD, S33.8XXA, S33.9XXA, S39.012A)	331 (19.2)
Back pain/dorsalgia/thoracic pain/sprain/strain (M54.6, M54.89, M54.9, S23.3XXA)	274 (15.9)
Neck pain/strain/sprain (M53.82, M54.2, S13.4XXA, S19.9XXA)	258 (15.0)
Lower extremity/knee/ankle/foot pain (M25.561, M25.562, M25.569, M25.571, M25.572, M25.579, M72.2, S86.919A)	163 (9.5)
Cluster/tension/posttraumatic/other headache (G44.021, G44.029, G44.201, G44.209, G44.221, G44.229, G44.311, G44.319, G44.329, R51)	133 (7.7)
Vertigo (H81.311, H81.319, R42)	86 (5.0)
Pain/sprain in upper extremity (M25.51, M25.539, M75.50, M75.80, M77.00, M79.603, M79.641, M79.642, M79.644, S43.491S, S63.502A, S63.681S)	72 (4.2)
Migraine (G43.001, G43.009, G43.10, G43.109, G43.111, G43.909)	55 (3.2)
Rib/chest wall pain/strain/sprain/costochondritis (M94.0, R07.81, R07.89, R07.9, S23.41XA)	52 (3.0)
Back muscle spasm (M62.40, M62.459, M62.830, M62.838)	46 (2.7)
Hip/pelvic pain/sprain (M25.551, M25.552, M25.559, M70.60, R10.2, S73.109A)	40 (2.3)

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Age Category ^a	No. (%)
Scoliosis (M41.124, M41.30, M41.9)	26 (1.5)
TMJ disorder/abnormal jaw closure (M26.51, M26.60)	22 (1.3)
Sacroiliitis/sacroiliac/sacrococcygeal pain (M46.1, M53.3)	15 (0.9)
Pregnant state, incidental (V22.2, Z33.1)	14 (0.8)
Torticollis (M43.6)	10 (0.6)
Unequal leg length (M21.70, Q72.811, Q72.812)	10 (0.6)
Epilepsy (G40.90)	7 (0.4)
Nausea and vomiting (R11.2)	7 (0.4)
ADHD (F90.0, F90.2, F90.9)	6 (0.3)
Pain in unspecified joint(s) (M25.50)	6 (0.3)
Nocturnal enuresis (N39.44)	6 (0.3)
Obesity (E66.01, E66.9)	5 (0.3)
Atypical facial pain (G50.1)	5 (0.3)
Connective tissue disease (M35.9)	5 (0.3)
Spondylosis/spondylolisthesis (M43.06, M43.16)	5 (0.3)
Occipital neuralgia (M54.81)	5 (0.3)
Abnormal posture (R29.3)	4 (0.2)
Skull fracture (S02.2XXS, S02.91XS)	4 (0.2)
Dislocated TMJ (S03.0XXA, S03.0XXD)	4 (0.2)
Autism spectrum disorder (F84.0)	3 (0.2)
Upper respiratory infection/pneumonia/upper respiratory disease (J06.9, J18.9, J39.9)	3 (0.2)
Myalgia (M79.1)	3 (0.2)
Driver injured in collision with other motor vehicles (V43.62XS, V49.49XA, V49.49XD)	3 (0.2)
Tourette's disorder (F95.2)	2 (0.1)
Asthma (J45.90, J45.909)	2 (0.1)
Acne vulgaris (L70.0)	2 (0.1)
Menstrual cramps (N94.6)	2 (0.1)
Epigastric pain (R10.13)	2 (0.1)

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Age Category ^a	No. (%)
Generalized pain (R52)	2 (0.1)
Postconcussion syndrome (F07.81)	1 (0.1)
Tobacco abuse (F17.200)	1 (0.1)
Thoracic outlet syndrome (G54.0)	1 (0.1)
Other localized visual field defect (H53.452)	1 (0.1)
Chronic nonsuppurative otitis media (H65.499)	1 (0.1)
Perforation of tympanic membrane (H72.00)	1 (0.1)
Acute maxillary sinusitis (J01.00)	1 (0.1)
Chronic adenotonsillitis (J35.03)	1 (0.1)
Constipation, unspecified (K59.00)	1 (0.1)
Rib stiffness (M25.60)	1 (0.1)
Postural kyphosis, thoracic region (M40.04)	1 (0.1)
Other spondylosis with myelopathy, lumbar region (M47.16)	1 (0.1)
Radiculitis, thoracic or lumbar (M54.15)	1 (0.1)
Other synovitis and tenosynovitis (M65.80)	1 (0.1)
Pyelonephritis (N12)	1 (0.1)
Urinary tract infection (N39.0)	1 (0.1)
Ehlers-Danlos syndrome (Q79.6)	1 (0.1)
Dysphagia (R13.10)	1 (0.1)
Rash and other nonspecific skin eruption (R21)	1 (0.1)
Muscle fasciculation (R25.3)	1 (0.1)
Fever (R50.9)	1 (0.1)
Concussion (S06.0)	1 (0.1)
Other complications due to other internal prosthetic device, implant, and graft (T85.898A)	1 (0.1)
Unspecified fall, initial encounter (W19.XXXA)	1 (0.1)
Category 7	
Low back pain/lumbar sprain/strain (M53.87, M54.16, M54.30, M54.5, S33.9XXA)	186 (21.5)
Neck pain/strain/sprain (M54.12, M54.2, S13.4XXA)	120 (13.9)

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Back pain/dorsalgia/thoracic pain/sprain/strain (M54.6, M54.89, M54.9, S23.3XXA)	113 (13.1)
Tension/spinal/epidural/other headaches (G44.201, G44.209, G44.221, G44.229, G44.52, O29.4, O89.4, R51)	59 (6.8)
Pregnancy (O00.0, O00.01, V22.1, V22.2, Z33.1, Z3A.28, Z3A.35)	58 (6.7)
Chest discomfort/rib pain/costochondritis (M94.0, R07.89, R07.9, S23.41XA)	45 (5.2)
Lower extremity pain/strain/sprain (M25.561, M25.562, M25.569, M25.579)	42 (4.9)
Pain/sprain in upper extremity (M25.51, M25.539, M25.549, M75.50, S43.439A, S43.80XA, S46.912A, S63.8X9A, S66.811A)	40 (4.6)
Hip/pelvis pain (M25.552, M25.559, M70.60, R10.2)	21 (2.4)
Migraine (G43.009, G43.019, G43.10, G43.109, G43.909)	19 (2.2)
Scoliosis (M41.115, M41.125, M41.129, M41.20, M41.9)	18 (2.1)
Muscle spasm (M62.40, M62.838)	16 (1.9)
Torticollis (M43.6)	14 (1.6)
Pain/strain or sprain of sacrococcyx (M46.1, M53.3, M53.88, S33.8XXA)	14 (1.6)
Thoracic outlet syndrome (G54.0)	12 (1.4)
TMJ disorder (M26.60, M26.602)	9 (1.0)
Car passenger injured in vehicle collision (V43.62XS)	9 (1.0)
Spondylolisthesis/intervertebral disk disorder of lumbar region (M43.16, M51.06, M51.1, M51.36, M51.86)	8 (0.9)
Numbness/paresthesia (R20.2, R20.9)	5 (0.6)
Obesity (E66.01, E66.9, O99.212)	4 (0.5)
Light-headedness (R42)	4 (0.5)
Postconcussion syndrome (F07.81)	3 (0.3)

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Age Category ^a	No. (%)
Bell's palsy (G51.0)	3 (0.3)
Carpal tunnel (G56.00, G56.01, G56.02)	3 (0.3)
Occipital neuralgia (M54.81)	3 (0.3)
Menstrual problems (N92.1, N94.3, N94.4)	3 (0.3)
Postpartum blues/depression (O90.6)	3 (0.3)
Abdominal pain/strain (R10.31, R10.9, S39.011S)	3 (0.3)
Idiopathic thrombocytopenic purpura (D69.3)	2 (0.2)
Upper respiratory infection/bronchitis (J06.9, J40)	2 (0.2)
Pneumonia (J18.9)	2 (0.2)
Anosmia (R43.0)	2 (0.2)
Lipoma, unspecified site (D17.9)	1 (0.1)
Entrapment of lateral cutaneous nerve of thigh (G57.10)	1 (0.1)
Chronic pain due to trauma (G89.21)	1 (0.1)
Aural vertigo (H81.319)	1 (0.1)
Pharyngitis, acute (J02.9)	1 (0.1)
Constipation (K59.00)	1 (0.1)
Unequal leg length (M21.70)	1 (0.1)
Pain in joint involving multiple sites (M25.50)	1 (0.1)
Neuralgia and neuritis, unspecified (M79.2)	1 (0.1)
Maternal care for breech presentation (O32.1XX0)	1 (0.1)
Mild or unspecified preeclampsia (O14.0)	1 (0.1)
Edema or excessive weight gain in pregnancy (O26.00)	1 (0.1)
Heartburn (R12)	1 (0.1)
Abnormal posture (R29.3)	1 (0.1)
Seizure (R56.9)	1 (0.1)
Brachial plexus lesions (S14.3XXA)	1 (0.1)
Muscle strain (T14.90XA)	1 (0.1)

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Age Category ^a	No. (%)
Other specified complication of medical care, sequela (T88.8XXS)	1 (0.1)
History of traumatic fracture (V15.51)	1 (0.1)

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