

## Appendix 1: Acupuncture Intervention

**Background of the Intervention:** The following acupuncture procedures and protocol were developed by Dr. Mao in consultation with experienced acupuncturists in China and U.S. The acupuncture points and techniques were selected to treat musculoskeletal pain and are based on classical and modern foundational acupuncture textbooks written in Chinese and/or English. We have piloted versions of this protocol in our prior research to demonstrate efficacy in pain reduction and adequate safety in the cancer population.

### Operating Procedure:

Prior to the treatment session, the acupuncturist will:

- Review relevant medical history, laboratory results, and imaging studies to rule out absolute contraindications and to ensure appropriate precautions are taken.
- Greet patient/support members and escort them into private room.
- Take a focused history on pain and co-morbid symptoms (e.g. general aching, psychological distress, fatigue, or poor sleep).
- Conduct a focused physical examination with close attention to medical equipment (e.g. intravenous lines, chemotherapy ports) and areas of swelling/infection/deformities that may affect treatment protocol. If applicable, incorporate tongue/pulse diagnosis to guide acupuncture point selection.
- Assist patient onto table. Establish comfortable body positioning that is appropriate for treatment approach. Offer pillow, and/or bolster to maximize comfort.
- Instruct patient to adjust their clothing per his/her preferences and as indicated for treatment.

During the treatment session, the acupuncturist will:

- Insert needles by following the acupuncture treatment protocol as described below and in Tables 1 and 2.
- Offer blanket to maximize comfort.
- Dim lights and offer quiet music.

After the treatment session, the acupuncturist will:

- Assist patient to get off table.
- Ask patient to re-assess pain and other symptoms, evaluate for adverse events, and invite feedback to be incorporated into future treatment sessions.
- Complete clinical/research documentation.

### Acupuncture Treatment Protocol (Total Duration: 30 Minutes)

- Identify one focal body area that the patient considers to be the most painful (e.g. neck, shoulder, back). This will be the primary area of focus for the entire treatment course.
- Choose at least four acupuncture points from Table 1 to address the primary area of pain. The acupuncturist may use clinical judgment to select additional acupuncture points or local trigger points (“ashi” or tender points) not listed in Table 1. The rationale for choosing unlisted points should be clearly documented. All selected points should be specified in clinical/research documentation.
- Choose at least four acupuncture points from Table 2 to address the patient’s co-morbid symptoms. The acupuncturist may use clinical judgment to select additional acupuncture points not listed in Table 2. The rationale for choosing unlisted points should be clearly documented. All selected points should be specified in clinical/research documentation.
- Limit the total number of points to 10-20.
- Sanitize hands and clean the skin at needle insertion sites with alcohol pads using aseptic technique.
- Insert needle to appropriate depth with brief manual stimulation to achieve “De Qi” sensation.
- Connect TENS unit to four points near the primary area of pain by attaching positive/negative leads to the needles. Set electrical frequency at 2 Hz. Turn on TENS unit and gradually increase electrical intensity to appropriate level, i.e. the patient should feel the stimulation, but it should not be painful.
- Set timer for 20 minutes, then leave room.
- Document acupuncture procedure, including points used and total needle count.

- After 20 minutes, enter room, turn off TENS unit and detach leads from needles.
- Sanitize hands and remove needles and wipe any blood with a sterile cotton-tipped applicator.
- Perform a final needle count to ensure all needles were removed.
- Sanitize hands.

Table 1: Acupuncture Point Selection Guide for Musculoskeletal Pain						
Primary Pain Location	Acupuncture Points					
Head / Neck	Jianjing (G.B.21)	Huatuo (Extra)	Luozhen (Extra)	Dazhui (G.V.14)	Fengchi (G.B.20)	
Scapula	Tianzong (S.I.11)	Bingfeng (S.I.12)	Jianwaishu (S.I.14)	Gaohuangshu (U.B.43)		
Shoulder	Jianyu (L.I.15)	Jianliao (S.J.14)	Jianzhen (S.I.9)	Naoshu (S.I.10)	Houxi (S.I.3)	
Elbow	Quchi (L.I.11)	Chize (Lu. 5)	Tianjing (S.J.10)	Waiguan (S.J.5)	Hegu (L.I.4)	
Wrist	Yangchi (S.J.4)	Neiguan (P.C.6)	Daling (P.C.7)	Hegu (L.I.4)	Daling (L.I.5)	Yanglao (S.I.6)
Hand / Finger	Houxi (S.I.3)	Sanjian (L.I.3)	Baxie (Extra)	Hegu (L.I.4)		
Back	Shenshu (U.B.23)	Dachangshu (U.B.25)	Weizhong (U.B.40)	Chengshan (U.B.57)	Huatuo (Extra)	Kunlun (U.B.60)
Hip	Huantiao (G.B.30)	Yinmen (U.B.37)	Juliao (G.B.29)	Quixu (G.B.40)	Fengshi (G.B.31)	
Leg	Chengshan (U.B.57)	Feiyang (U.B.58)	Fengshi (G.B.31)			
Knee	Lianqiu (St.34)	Dubi (St.35)	Xiyang (Extra)	Yanlingquan (G.B.34)	Xiyangguan (G.B.33)	Yinlingquan (Sp.9)
Ankle	Jiexi (St.41)	Shangqui (Sp.5)	Quixu (G.B.40)	Kunlun (U.B.60)	Taixi (K.3)	
Foot / Toe	Gongsun (Sp.4)	Shugu (U.B.65)	Bafeng (Extra)	Taixi (Liv. 3)		
Table 2: Acupuncture Point Selection Guide for Addressing Co-Morbid Symptoms Associated with Pain						
Co-Morbid Symptoms	Acupuncture Points					
General Aching	Houxi (S.I.3)	Shenmai (U.B.62)	Dabao (Sp.21)	Geshu (U.B.17)	Yinlingquan (Sp.9)	Hegu/Taixi (L.I.4/Liv.3)
Psychological Distress	Neiguan (P.C.6)	Taixi (Liv.3)	Yin Tang (Extra)	ShenMen (Auricular)	Baihui (Du.20)	
Fatigue	Sanxinjiao (Sp.6)	Zusanli (St.36)	Qihai (CV6)			
Sleep	Shenmen (Ht.7)	Anmian (Extra)				