

# ***BMP2 vs. Autograft for Critical Size Tibial Defects Inclusion/Exclusion Criteria***

To be completed by the PHYSICIAN

Patient Study Number	Completed By: _____ Clinic: _____
Visit Date (MM/DD/YY) ____ / ____ / ____	Visit Schedule (check appropriate box) <input type="checkbox"/> Pre-Op

**Directions:** Answer every question by filling in the correct circle or writing in the information. If you need to change an answer, completely erase or cross out the incorrect mark, initial, and fill in the correct information. **Mark only one answer for each question unless otherwise instructed. Shade circles like this: ●**

## **Criteria for Inclusion**

Questions 01 - 09 must be answered YES for subject to be included in the study

		Yes	No
01.	Patient's age is 18-65 with an open tibia fractures involving the diaphysis	<input type="radio"/>	<input type="radio"/>
02.	Patient's tibia fracture has a circumferential bone defect of at least one centimeter in length compromising at least 50% of the circumference of the bone	<input type="radio"/>	<input type="radio"/>
03.	The definitive treatment of the patient's tibia fracture is with an intramedullary nail (may have temporary external fixation prior to IM nail placement)	<input type="radio"/>	<input type="radio"/>
04.	Patient's treatment plan includes placement of a bone graft between 6 to 10 weeks after their initial injury	<input type="radio"/>	<input type="radio"/>
05.	Patient does not have evidence of infection by clinical examination	<input type="radio"/>	<input type="radio"/>
06.	Patient was independent living and ambulation prior to injury	<input type="radio"/>	<input type="radio"/>
07.	Patient is English speaking	<input type="radio"/>	<input type="radio"/>
08.	The patient, or a designated appointee, must be willing to provide consent. The patient must be available for follow-up for at least 12 months following definitive surgical procedure	<input type="radio"/>	<input type="radio"/>
09.	Surgeon agrees to randomize patient	<input type="radio"/>	<input type="radio"/>
<p>* Patients who smoke are eligible for inclusion</p> <p>** A female of childbearing potential must have a negative pregnancy test within 72 hours prior to surgery and must agree use adequate contraception for a period of at least 1 year following implantation of rhBMP-2. Written, informed consent will be obtained from the patient or legal guardian.</p> <p>*** Patients with bilateral tibia fracture; if both fractures require a bone graft, then each will be randomized separately.</p>			

## **Criteria for Exclusion**

Questions 10-29 must be answered NO for subject to be included in the study

		Yes	No
10.	Patient is pregnant or lactating.	<input type="radio"/>	<input type="radio"/>
11.	Patient has a known hypersensitivity to rhBMP-2 or bovine type I collagen.	<input type="radio"/>	<input type="radio"/>
12.	Patient has a history of tumor, a resected or extant tumor, an active malignancy, or is undergoing treatment for malignancy.	<input type="radio"/>	<input type="radio"/>
13.	Patient is skeletally immature (<18 years of age or no radiographic evidence of epiphyseal closure).	<input type="radio"/>	<input type="radio"/>
14.	Patient has inadequate neurovascular status, e.g. high risk of amputation.	<input type="radio"/>	<input type="radio"/>
15.	Patient has compartment syndrome of the affected limb.	<input type="radio"/>	<input type="radio"/>
16.	Patient has immune deficiency or history of auto-immune disease.	<input type="radio"/>	<input type="radio"/>
17.	Patient is undergoing treatment of any other investigational therapy within the month preceding implantation or planned within the 12 months following implantation.	<input type="radio"/>	<input type="radio"/>
18.	Patient is unable to return for required follow-up visits and/or medical co morbidities which preclude treatment with a general anesthetic.	<input type="radio"/>	<input type="radio"/>
19.	Patient has an active infection at the operative site, purulent drainage from the fracture or evidence of active osteomyelitis at the time of bone grafting. In addition, patients with intraoperative positive gram stain or an elevated CRP after laboratory screening for infection will be excluded.	<input type="radio"/>	<input type="radio"/>
20.	Patient has segmental defects longer than 5 cm in length.	<input type="radio"/>	<input type="radio"/>
21.	Patient has segmental defects that require more than 60 cc of bone graft.	<input type="radio"/>	<input type="radio"/>
22.	Patient requires more than one large kit of rh-BMP 2 at time of surgery.	<input type="radio"/>	<input type="radio"/>

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23.	Patient anticipated treatment plan also includes the use of other procedures to promote fracture healing, e.g. ultrasound, magnetic field or electrical stimulation.	<input type="radio"/>	<input type="radio"/>
24.	Patient's tibia fracture has been treated with addition fixation beyond the intramedullary nail, e.g. plates, wires, or screws	<input type="radio"/>	<input type="radio"/>
25.	Patient has a pathological fractures; a known history of Paget's disease or known history of heterotopic ossification.	<input type="radio"/>	<input type="radio"/>
26.	Patient has a Glasgow Coma Scale less than 15 (less than fully awake) at the time of informed consent.	<input type="radio"/>	<input type="radio"/>
27.	Patient has previous hardware in place which prevents placement of an intramedullary nail for treatment of the tibial shaft fracture.	<input type="radio"/>	<input type="radio"/>
28.	Patient not treated with an intramedullary nail.	<input type="radio"/>	<input type="radio"/>
29.	Patient is pending incarceration or is currently incarcerated	<input type="radio"/>	<input type="radio"/>

30. Does the patient qualify for the study?

- ☐ Yes  
☐ No

Please affix randomization label here

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***Patient Information***

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Last Name			First Name			MI			(For Internal Use Only)		
_____			_____			_____			Physician's Name: _____		
Street Address 1 _____									Medical Record Number _____		
Street Address 2 _____											
City			State			Zip Code					
_____			_____			_____					
Home Phone (or primary contact) (____) _____ - _____			Work Phone (____) _____ - _____			Date of Birth (MM/DD/YYYY) ____ / ____ / ____					
Sex M/F _____			E-mail (example: <a href="mailto:john.doe@abc.com">john.doe@abc.com</a> ) _____								

**Alternate Contact Information 1**

Relationship to patient		Last Name		First Name		MI	
_____		_____		_____		_____	
Street Address 1 _____				Home Phone (or primary contact) (____) _____ - _____			
Street Address 2 _____							
City		State		Zip Code			
_____		_____		_____			

**Alternate Contact Information 2**

Relationship to patient		Last Name		First Name		MI	
_____		_____		_____		_____	
Street Address 1 _____				Home Phone (or primary contact) (____) _____ - _____			
Street Address 2 _____							
City		State		Zip Code			
_____		_____		_____			

*Please continue on next page*

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**01a. Date of Injury** \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (MM/DD/YY)

**b. Time of Injury** \_\_\_\_ : \_\_\_\_ AM / PM (circle one)

**02. Ethnicity**

- ☐ American Indian  
☐ Asian or Asian American  
☐ Black or African American  
☐ Hispanic or Latino  
☐ Native Hawaiian or Pacific Islander  
☐ White or Caucasian  
☐ Other (Specify): \_\_\_\_\_

**03. Side of injury**

- ☐ Left      ☐ Right

**04. Additional upper extremity fractures**

	<u>None</u>	<u>Right</u>	<u>Left</u>	<u>Bilateral</u>
a. Clavicle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Scapula	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Humerus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Radius	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Ulna	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Wrist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Hand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**05. Additional lower extremity fractures**

	<u>None</u>	<u>Right</u>	<u>Left</u>	<u>Bilateral</u>
a. Pelvis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Acetabulum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Femur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Tibia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Ankle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Foot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**06. Additional spinal fractures**

	<u>None</u>	<u>Right</u>	<u>Left</u>	<u>Bilateral</u>
a. Cervical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Thoracic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Lumbar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**07. Additional injuries**

	<u>None</u>	<u>Right</u>	<u>Left</u>	<u>Bilateral</u>
a. Upper extremity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Lower extremity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Spine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**08. Sensation at time of presentation**

<u>Location</u>	<u>Normal</u>	<u>Diminished</u>	<u>Absent</u>
a. Superficial peroneal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Deep peroneal nerve	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Posterior tibial nerve	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Using the AIS scoring scale, score questions 09-14 (the 6 body regions). Where multiple injuries occur in one region, use the highest scoring injury of that region.

**Region      AIS Score**

<b>09.</b>	<b>Head &amp; Neck</b>	_____
<b>10.</b>	<b>Face</b>	_____
<b>11.</b>	<b>Chest</b>	_____
<b>12.</b>	<b>Abdomen</b>	_____
<b>13.</b>	<b>Extremity</b>	_____
<b>14.</b>	<b>External</b>	_____

**AIS Score**

Minor (AIS 1)  
 Moderate (AIS 2)  
 Serious (AIS 3)  
 Severe (AIS 4)  
 Critical (AIS 5)  
 Unsurvivable (AIS 6)

**15. If known, please record the ISS score below**

\_\_\_\_ ISS Score

**16. Primary cause of injury**

- ☐ Motor vehicle accident  
☐ Motorcycle accident  
☐ Bicycle accident  
☐ Pedestrian accident  
☐ Recreational activity  
☐ Fall from a height greater than 4 feet  
☐ Fall from a height less than 4 feet  
☐ Direct trauma (blunt)  
☐ Direct trauma (penetrating)  
☐ Crush  
☐ Twist  
☐ Other (Specify): \_\_\_\_\_

*Please continue on next page*

# BMP2 vs. Autograft for Critical Size Tibial Defects

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Visit Schedule ( <i>check appropriate box</i> ) <input type="checkbox"/> Pre-Op	

**17. High energy injury**

☐ Yes ☐ No

**18. Work related injury**

☐ Yes ☐ No (*Skip to question 20*)

**19. If “Yes”, is patient currently seeking or receiving Workers’ Compensation?**

☐ Yes ☐ No (*Skip to question 20*)

**20. Patient has been or is currently involved in litigation**

☐ Yes ☐ No

**21. History of smoking or tobacco use**

☐ No (*Skip to question 25*)  
☐ Yes, quit smoking (*Continue to question 22*)  
☐ Yes, current smoker (*Skip to question 23*)

**22. If “Yes, quit smoking”, specify years tobacco free**

\_\_\_\_\_ years

**23. If “Yes, current smoker”, specify packs smoked per day**

\_\_\_\_\_ . \_\_\_\_\_ packs per day

**24. If “Yes, current smoker”, specify years smoked**

\_\_\_\_\_ years smoked

**25. History of drug or alcohol use**

☐ Yes ☐ No (*Skip to question 28*)

**26a. If “Yes”, is there a history of drug or alcohol abuse?**

☐ Yes (*Specify below*)  
☐ No (*Skip to question 28*)

**b. If “Yes”, specify type of drug or alcohol abuse (*Mark all that apply*)**

☐ Alcohol ☐ Drugs ☐ Both

**27a. If “History of drug or alcohol abuse”, is the patient recovered?**

☐ Yes (*Specify below*)  
☐ No (*Skip to question 28*)

**b. If “Yes”, specify years recovered**

\_\_\_\_\_ years

**28a. Patient’s height** \_\_\_\_\_ inches

**b. Patient’s weight** \_\_\_\_\_ lbs

**Current Medications** (*Mark all that apply*)

29a. <u>Type</u>	b. <u>Dose</u>	c. <u>Duration</u>
<input type="radio"/> <b>Steroids</b> (examples: Cortone, Deltasone, Medrol, Prelone)	_____mg/da y	____yrs____mos
<input type="radio"/> <b>Anticoagulants</b> (examples: Coumadin, Miradon)	_____mg/da y	____yrs____mos
<input type="radio"/> <b>Anticonvulsants</b> (examples: Phenytoin, Carbamazepine, Phenobarbital, diazepam)	_____mg/da y	____yrs____mos
<input type="radio"/> <b>Statins</b> (examples: Lipitor, Lescol, Pravachol, Zocor)	_____mg/da y	____yrs____mos
<input type="radio"/> <b>Anti-inflammatories</b> (examples: Anaprox, Celebrex, Motrin, Naprosyn)	_____mg/da y	____yrs____mos
<input type="radio"/> <b>Biophosphonates</b> (examples: Actonel, Boniva, Fosamax)	_____mg/da y	____yrs____mos
<input type="radio"/> <b>Antibiotics</b> (examples: Amoxil, Ceporex, Cydomycin, Vibramycin)	_____mg/da y	____yrs____mos
<input type="radio"/> <b>Calcium channel blockers</b> (examples: Adalat, Cardizem, Dilacor XR, Norvasc)	_____mg/da y	____yrs____mos
<input type="radio"/> <b>Calcium or Vitamin D</b> (examples: Cal-Citrate, Citracal, Os-Cal, Viactiv)	_____mg/da y	____yrs____mos
<input type="radio"/> <b>Parathyroid hormone</b> (examples: Forteo)	_____mg/da y	____yrs____mos

**History of surgery**

<u>Procedure</u>	<u>Systemic</u>	<u>Extremity</u>	<u>Date</u> (MM/DD/YY)
30. _____	<input type="radio"/>	<input type="radio"/>	____/____/____
31. _____	<input type="radio"/>	<input type="radio"/>	____/____/____
32. _____	<input type="radio"/>	<input type="radio"/>	____/____/____
33. _____	<input type="radio"/>	<input type="radio"/>	____/____/____
34. _____	<input type="radio"/>	<input type="radio"/>	____/____/____
35. _____	<input type="radio"/>	<input type="radio"/>	____/____/____
36. _____	<input type="radio"/>	<input type="radio"/>	____/____/____

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**Patient's Current Medical History** (Mark all that apply)

*In question 37, please indicate the patient's personal medical history of the following conditions.*

*In question 38, please indicate if the patient is receiving treatment or medication for the condition.*

*In question 39, please indicate if the condition limits the patient's activities.*

	<b>37. <u>History</u></b>	<b>38. Receiving treatment / <u>Medication</u></b>	<b>39. <u>Limits activity</u></b>
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Anemia or other blood disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Back pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cancer – metastatic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cancer – not metastatic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Circulatory disorder including ankle or leg swelling, blood clots, peripheral vascular disease, aneurysm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Depression	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diabetes – diet controlled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diabetes – medication controlled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diabetes – insulin controlled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heart disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
High blood pressure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
History of stroke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kidney disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leg pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liver disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lung disease or asthma	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous system disorder including Parkinson's disease, multiple sclerosis, cerebral palsy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obesity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Osteoarthritis/degenerative arthritis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Osteoporosis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rheumatoid arthritis/lupus/ankylosing spondylitis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thyroid disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ulcer or stomach disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other history ( <i>Specify below</i> )	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# BMP2 vs. Autograft for Critical Size Tibial Defects Fracture Characteristics Form

To be completed by the PHYSICIAN

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**01. "Open" fracture, select Gustillo Type** (See description below)

- ☐ I
- ☐ II
- ☐ IIIA
- ☐ IIIB
- ☐ IIIC

**Type I** Wound  $\leq$  1.0 cm in length and clean

**Type II** Wound > 1.0 cm without extensive soft tissue damage, flaps or avulsions

**Type IIIA** Extensive soft tissue injury or flaps with soft tissue coverage of bone OR segmental (caused by high energy trauma) irrespective of the size of the wound

**Type IIIB** Requiring flap coverage

**Type IIIC** Vascular injury requiring repair

**02. Specify wound length**

\_\_\_\_ mm

**03. Location of fracture in diaphysis.**

- ☐ Proximal 1/3
- ☐ Middle 1/3
- ☐ Distal 1/3

**04. Is the fibula fractured?**

- ☐ Yes
- ☐ No

**05. Location of fibula fracture.**

- ☐ Proximal 1/3
- ☐ Middle 1/3
- ☐ Distal 1/3

**06. Bone Loss Assessment (radiographic)**

**AP radiograph:**

Length \_\_\_\_ (cm)

**Lateral radiograph:**

Length \_\_\_\_ (cm)

Cortical width \_\_\_\_ (cm)

**06. Bone Loss Assessment (continued)**

**Circumferential bone loss:**

50% \_\_\_\_\_

75% \_\_\_\_\_

100% \_\_\_\_\_

**07. Bone Loss Assessment (intraoperative)**

**Pre debridement:**

Length \_\_\_\_ (cm)

Width \_\_\_\_ (cm)

Depth \_\_\_\_ (cm)

**Post debridement:**

Length \_\_\_\_ (cm)

Width \_\_\_\_ (cm)

Depth \_\_\_\_ (cm)

**08. OTA Classification (see attached illustration)**

**Location:**

\_\_\_\_\_ Diaphyseal Segment (42)

\_\_\_\_\_ Simple (A)

\_\_\_\_\_ Wedge (B)

\_\_\_\_\_ Complex (C)

**Subtype:**

\_\_\_\_\_ Simple (42-A)

\_\_\_\_\_ Spiral (42-A1)

\_\_\_\_\_ Oblique ( $\geq 30^\circ$ ) (42-A2)

\_\_\_\_\_ Transverse ( $\leq 30^\circ$ ) (42-A3)

\_\_\_\_\_ Wedge (42-B)

\_\_\_\_\_ Spiral Wedge (42-B1)

\_\_\_\_\_ Bending Wedge (42-B2)

\_\_\_\_\_ Fragmented Wedge (42-B3)

\_\_\_\_\_ Complex (42-C)

\_\_\_\_\_ Spiral (42-C1)

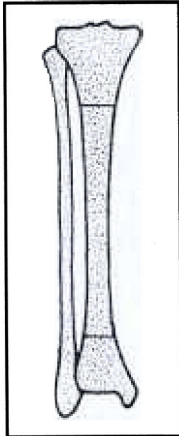
\_\_\_\_\_ Segmented (42-C2)

\_\_\_\_\_ Irregular (42-C3)

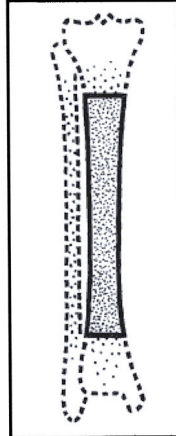
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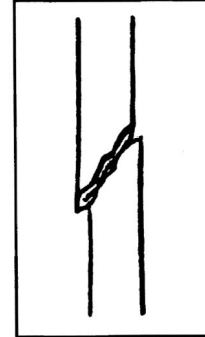
**BONE:**  
**TIBIA/FIBULA (4)**



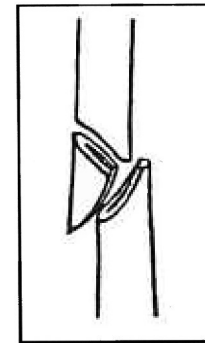
**Location:**  
**Diaphyseal segment (42)**



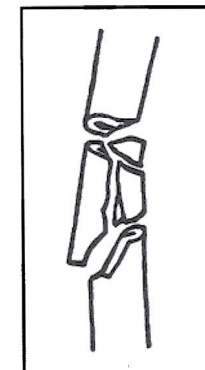
**Types:**  
**A. Simple (42-A)**



**B. Wedge (42-B)**



**C. Complex (42-C)**





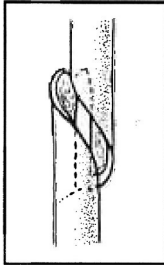
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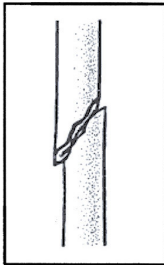
## **Groups:**

Tibia/Fibula, diaphyseal, simple  
(42-A)

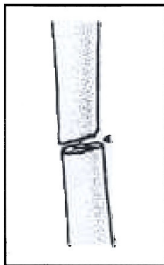
**1. Spiral (42-A1)**



**2. Oblique ( $\geq 30^\circ$ ) (42-A2)**



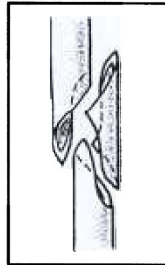
**3. Transverse ( $< 30^\circ$ ) (42-A3)**



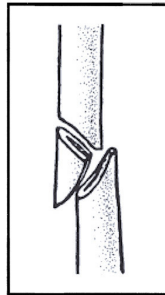
**A**

Tibia/Fibula, diaphyseal, wedge  
(42-B)

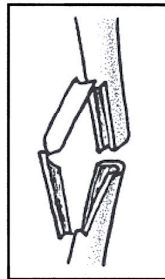
**1. Spiral wedge (42-B1)**



**2. Bending wedge (42-B2)**



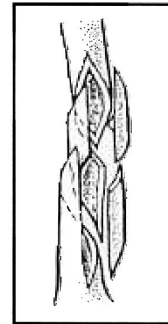
**3. Fragmented wedge (42-B3)**



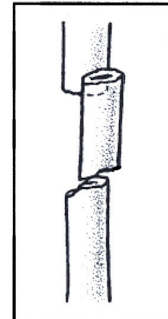
**B**

Tibia/Fibula, diaphyseal, complex  
(42-C)

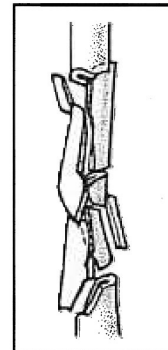
**1. Spiral (42-C1)**



**2. Segmented (42-C2)**



**3. Irregular (42-C3)**



**C**

# BMP2 vs. Autograft for Critical Size Tibial Defects

## Surgical Summary

To be completed by the PHYSICIAN

Patient Study Number	Completed By: _____
	Clinic: _____
Visit Date (MM/DD/YY) ____ / ____ / ____	Visit Schedule (check appropriate box) <input type="checkbox"/> Day of Surgery

**Directions:** Answer every question by filling in the correct circle or writing in the information. If you need to change an answer, completely erase or cross out the incorrect mark, initial, and fill in the correct information. **Mark only one answer for each question unless otherwise instructed. Shade circles like this: ●**

### Component Details

- 01. Length**                      \_\_\_\_ \_\_\_\_ mm
- 02. Diameter**                      \_\_\_\_ \_\_\_\_ . \_\_\_\_ mm
- 03. Material**  
☐ Stainless steel      ☐ Titanium
- 04. Manufacturer**  
☐ DePuy  
☐ Smith & Nephew  
☐ Stryker  
☐ Synthes  
☐ Zimmer  
☐ Other (Specify): \_\_\_\_\_
- 05. Proximal locking**  
 Number of screws      \_\_\_\_\_
- 06. Distal locking**  
 Number of screws      \_\_\_\_\_
- 07. Date and time of irrigation and debridement**  
 a. Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (MM/DD/YY)  
 b. Time \_\_\_\_ : \_\_\_\_ AM / PM (circle one)
- 08. Date and time of definitive fixation**  
 a. Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (MM/DD/YY)  
 b. Time \_\_\_\_ : \_\_\_\_ AM / PM (circle one)
- 09. Stabilization prior to definitive fixation**  
☐ Brace                                      ☐ External fixation  
☐ Plaster / fiberglass                      ☐ Traction  
☐ Other (Specify): \_\_\_\_\_
- 10. Length of surgery (skin to skin)** \_\_\_\_ \_\_\_\_ minutes

### **11. Fasciotomy performed (Mark all that apply)**

- ☐ None                      ☐ Posterior  
☐ Anterior                      ☐ Lateral

### **12. Did the patient have abdominal surgery?**

- ☐ Yes      ☐ No

### **13. Did the patient have any other surgical procedures?**

- ☐ Yes (Specify below)      ☐ No

### **14. Planned secondary surgeries (Mark all that apply)**

- ☐ None  
☐ Flap coverage  
☐ Irrigation and debridement  
☐ VAC placement  
☐ Other (Specify below)

### **15. Cancellous chips**

- a. Amount of cancellous chips inserted \_\_\_\_ \_\_\_\_ (cc)  
 b. Brand of cancellous chips used:  
 \_\_\_\_\_

### **16. Radiographic alignment on post-operative films**

- a. \_\_\_\_ ° ☐ Varus or ☐ Valgus  
 b. \_\_\_\_ ° ☐ Anterior angulation or ☐ Posterior angulation

### **17a. Rotational alignment of affected extremity**

- ☐ Normal (Skip to question 41)  
☐ Internally rotated  
☐ Externally rotated

- b. If "Internally" or "Externally" rotated, specify degrees** \_\_\_\_ °

### **18a. Leg length discrepancy**

- ☐ None (Skip to question 42)  
☐ Affected leg shorter than unaffected leg  
☐ Affected leg longer than unaffected leg

- b. If 'Short' or 'Long', specify discrepancy**  
 \_\_\_\_ \_\_\_\_ mm