

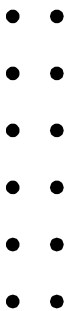


ADVANCING EVIDENCE-BASED ORTHOPEDIC CARE

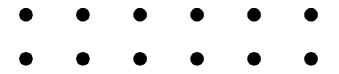
RIMN COORDINATOR LAUNCH PRESENTATION

Introductions

- Tell us your name
- Site
- Role
- One of your favorite hobbies

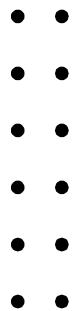


Deadline



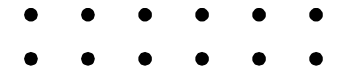
Ideally, we would like to have all of the Beta Test data entered into REDCap by **February 1st, 2025**

Please make sure to amend your site IRB's to include patients up until June 2024. Needs to be done before the first data pull.



Please make sure the PI in charge of measurements completes the App training before they identify open physes.

Study Overview

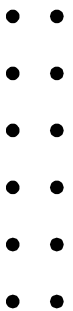


Primary Aim:

Quantify proximal tibial iatrogenic deformity at skeletal maturity in adolescents with diaphyseal tibial shaft fractures treated with antegrade rigid intramedullary nailing through an open proximal tibial physis

Hypothesis:

Antegrade rigid intramedullary nail fixation through open proximal tibia physis in adolescents nearing skeletal maturity will not cause clinically significant proximal tibial deformity (Mechanic axis deviation $> 5\text{mm}$, Leg length difference $> 1\text{ cm}$).



Study Overview Cont.

: : : : : :



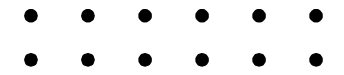
Rigid Nail



Flexible Nail

. .
. .
. .
. .
. .
. .
. .

Study Overview Cont.



2:22

TIB-Q- Lateral Tibial Physis Fusion

Grade 0 (Absent Fusion):
Radiolucent gap between epiphysis and metaphysis visible through entire lateral proximal tibia

Line delineates lateral 1/3rd of physis. Middle 1/3rd of physis not evaluated due to tibial tubercle overlap

Open

Open

0

Grade 1 (Incomplete Fusion):
Gap between epiphysis and metaphysis only visible laterally

Fused

Open

1

Grade: 0 1 **2**

← Previous Examples Knee Table of Contents Next →

2:22

TIB-Q- Lateral Tibial Physis Fusion

Grade 1 (Incomplete Fusion):
Gap between epiphysis and metaphysis only visible laterally

Fused

Open

1

Grade 2 (Complete Fusion):
Gap between epiphysis and metaphysis is completely gone

Fused

Fused

2

Grade: 0 1 **2**

← Previous Examples Knee Table of Contents Next →

Phase I

CPT/ICD9/ICD10 Codes Search Query

CPT 27759: Treatment of tibial shaft fracture (with or without fibular fracture) by intramedullary implant, with or without interlocking screws and/or cerclage

CPT procedural codes are the same for flexible and rigid, so must look in OP report or x-ray to specify that we are finding patients who had surgery with a rigid intramedullary nail (IMN)

Although we know that CPT codes work for BCH and WashU we want to ensure that we collect all the patients that we have please also check the following diagnostic codes:

ICD codes:

ICD-10: S82.20

ICD-9: 78.57 and 0QHG06Z

S52.222A	S82.222B	S82.242B	S82.291C	S82.402A	Y24.9XXA
S82.192B	S82.231A	S82.251A	S82.292A	S82.402B	S82.451A
S82.201A	S82.231B	S82.251B	S82.292B	S82.422B	S82.451B
S82.201B	S82.232A	S82.251C	S82.302A	S82.431A	S82.452A
S82.201C	S82.232B	S82.252A	S82.841A	S82.432A	S82.452B
S82.202A	S82.235A	S82.252B	S82.492B	S82.432B	S82.491A
S82.202B	S82.241A	S82.262A	S89.121A	S82.441A	-----
S82.222A	S82.242A	S82.291A	S82.401B	S82.492A	-----

Phase I Cont.

: : : : : :

- Go through all potentially eligible patient charts
- Include the rigid nails
- Exclude flexible nails



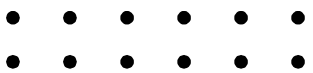
Rigid Nail



Flexible Nail

Implants:								
Implant Name	Type	Inv. Item	Serial No.	Manufacturer	Lot No.	LRB	No. Used	Action
SMITH & NEPHEW/RICHCO /ORTHO TRIGEN META-NAIL 10MM 36CM TIBIAL NAIL INTRAMEDULLARY TITANIUM 71655136 - LOG11588750	Nail	SMITH & NEPHEW/RICHCO/ORTHO Trigen Meta-nail 10mm 36cm Tibial Nail Intramedullary Titanium 71655136		Smith & Nephew/Richco/Ortho	22CT6 1140	Right 1		Implanted

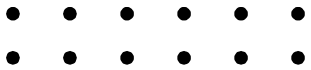
Phase I -> Phase II



MRN	NAME	X-Ray/Surgery DATE	Tib Q		DATE of XRAY	1: Post Op: AP and Lateral X-ray 2 to 4 months				Date of last x-ray?	Was skeletal immaturity reached by last Post-op	2: Post Op: If you saw skeletal maturity being				3: Post Op: Was there a standing AP 2-4 months post op If yes fill out the following						4: Post Op: Was there a standing		
						MPTA:	LDTA:	PPTA:	ADTA:			MPTA:	LDTA:	PPTA:	ADTA:	MPTA Left:	MPTA: Right	LDTA Left:	LDTA Right	AP Standing	Leg length	MAD (med)	MPTA Left:	MPTA: Right
123456	Marino, Josh	11/11/2024																						
123457	Marino, Josh	11/12/2024																						
123458	Marino, Josh	11/13/2024																						
123459	Marino, Josh	11/14/2024																						
123460	Marino, Josh	11/15/2024																						
123461	Marino, Josh	11/16/2024																						
123462	Marino, Josh	11/17/2024																						
123463	Marino, Josh	11/18/2024																						
123464	Marino, Josh	11/19/2024																						
123465	Marino, Josh	11/20/2024																						
123466	Marino, Josh	11/21/2024																						

- • • RC's will fill out the highlighted section of the Physician Excel Sheet
- • • Once all patients with rigid nails have been identified and entered into this sheet, send this to your PI
- • • PI's will be responsible for the other columns
- • •

Phase II Cont.



MRN	NAME	X-Ray/Surgery DATE	Tib Q		DATE of XRAY	1: Post Op: AP and Lateral X-ray 2 to 4 months post op				Date of last x-ray?	Was skeletal immaturity reached by last Post-op?	2: Post Op: If you saw skeletal maturity being reached				3: Post Op: Was there a standing AP 2-4 months post op If yes fill out the following						4: Post Op: Was there a standing AP 2-4 months post op If yes fill out the following		
						MPTA:	LDTA:	PPTA:	ADTA:			MPTA:	LDTA:	PPTA:	ADTA:	MPTA Left:	MPTA: Right:	LDTA Left:	LDTA Right:	AP Standing:	Leg length:	MAD (med):	MPTA Left:	MPTA: Right:
123456	Marino, Josh	11/11/2024																						
123457	Marino, Josh	11/12/2024																						
123458	Marino, Josh	11/13/2024																						
123459	Marino, Josh	11/14/2024																						
123460	Marino, Josh	11/15/2024																						
123461	Marino, Josh	11/16/2024																						
123462	Marino, Josh	11/17/2024																						
123463	Marino, Josh	11/18/2024																						
123464	Marino, Josh	11/19/2024																						
123465	Marino, Josh	11/20/2024																						
123466	Marino, Josh	11/21/2024																						

- The remaining columns involve all of the radiographic measurements and follow up data
- RC's will eventually enter this data into REDCap once the PI's finish their measurements
- Please make sure that PI's know to send this back to you (only applicable if you do not share the sheet with them on a shared drive site like WUSTL Box)

REDCap Accounts

New users

- Email mjoshua@wustl.edu with your **Name**, **Site email**, and **Site name**
- Will need Google Authenticator or Microsoft Authenticator

Returning Users

- Email the BCH REDCap team at crit.request@childrens.harvard.edu and fill out the email as shown below
- Project link: https://redcap.tch.harvard.edu/redcap_edc/redcap_v14.0.43/index.php?pid=5140
- For email input your site email that was used in the initial REDCap

Send

To

crit.request@childrens.harvard.edu ×

Cc

[REDCap question] PID 5140

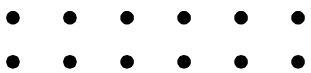
Email:
Project title: "Tibia Nail: CORTICES"
Project Link: https://redcap.tch.harvard.edu/redcap_edc/redcap_v14.0.43/index.php?pid=5140


Dear REDCap administrator,

I would like to reactivate my account for the above project, in the external BCH External redcap.

Sincerely

Phase III

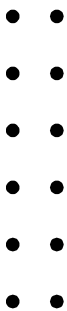


 Data Collection Instrument	Status
Eligibility	<input type="radio"/>
Demographics	<input type="radio"/>
Injury Characteristics	<input type="radio"/>
Radiographic Measurements	<input type="radio"/>

Once PI's have identified all patients with open or partially open physes, data collection can begin for the first three sections

PI's will most likely identify eligible patients before finishing the measurements, so you can get a head start on data collection

Do not worry about until PI's complete the excel sheet

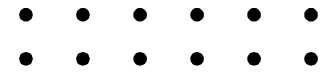


A diagram consisting of two rows of six dots each, arranged in a rectangular grid. The dots are solid black circles.





Do not enter any data for that patient

Phase III Cont.








➕ Adding new Record ID * Choose an existing Study ID *Please refer to the Data Entry Guide for instructions about Study ID creation. **test.**




Record ID * Choose an existing Study ID *Please refer to the Data Entry Guide for instructions about Study ID creation. test


Site  



Demographics



Sex   ☐ Male ☐ Female reset


Patient date of birth    Today M-D-Y

Date of injury    Today M-D-Y



Age at time of injury  [View equation](#)


Height   (cm)

Weight   (kg)

BMI  [View equation](#)

Form Status

Complete?  

Lock this instrument? ☐  **Lock**

If locked, no user will be able to modify this instrument for this record until someone with Instrument Level Lock/Unlock privileges unlocks it.

When entering your patient data, you will be asked to enter a new or existing Record ID. **Please use your 2-digit Unique Site Number (shown below) for your site's data.**

SITE #	SITE	SITE #	SITE
20	Boston Children's	30	Le Bonheur Children's/Campbell Clinic
21	Levine Children's	31	Lurie Children's
22	Children's Atlanta	32	Nationwide Children's
23	Children's Colorado	33	Rady Children's
24	Scottish Rite for Children	34	Seattle Children's
25	Children's LA USC	35	St. Louis Children's
26	Children's Philadelphia	36	Texas Children's
27	Cincinnati Children's	37	Vanderbilt Children's
28	CS Mott Children's	38	UCSF Benioff Children's Hospital
29	Gillette Children's		

To generate your REDCap Record IDs, please use the following format (below), where 'S' is the 2-digit site code and 'P' is the 3-digit record ID. The IDs should be sequentially recorded.

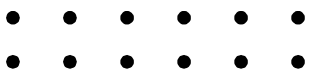
SS - PPP

2-digit Unique **Site** Number

3-digit Sequential **Patient** ID Number

For example, BCH's first patient would have a REDCap ID of "20-001". BCH's twentieth patient would have a REDCap ID of "20-020". It is crucial that sites use the correct site ID to avoid duplicate REDCap IDs.

Phase III Cont.



Injury Characteristics

Mechanism of injury (MOI)

MVA/MCA/ATV

Auto-ped

Sports

Fall from height

Other:

reset

Date of surgery

Today

M-D-Y

Age at time of surgery

View equation

Time from injury

days

View equation

Surgical technique

Open reduction

Closed reduction

reset

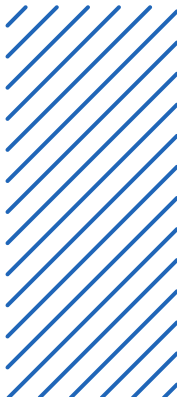
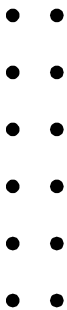
MVA/MCA/ATV: MVA: Motor Vehicle Accident High impact, MCA: Motorcycles and moped Accident, All Terrain Vehicle Accident.

Auto-ped: Automatic vehicle vs. pedestrian, includes non-motorized bicycle vs. car, and children struck on skateboards and non-motorized scooters.

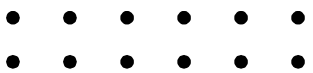
Sports

Fall from height: fall from greater than the height of the person

Other: Any mechanism not otherwise included

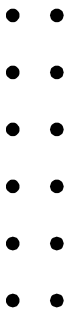


Phase III Cont.

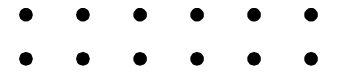


Was there a Left hand xray obtained within 3 months of injury?	<input type="radio"/> Yes <input type="radio"/> No	reset
Was there an ipsilateral or contralateral knee radiograph obtained within 3 months of injury?	<input type="radio"/> Yes <input type="radio"/> No	reset

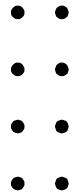
Will be calculated by the PI's when finding Tib Q using the skeletal bone age app



Phase III Cont.



Fracture location	<input type="radio"/> Distal 1/3 of shaft <input type="radio"/> Middle 1/3 of shaft <input type="radio"/> Proximal 1/3 of shaft	reset
Fracture characteristics	<input type="radio"/> Transverse <input type="radio"/> Spiral <input type="radio"/> Oblique <input type="radio"/> Comminuted	reset
Fracture open	<input type="radio"/> Yes <input type="radio"/> No	reset
Fibula fracture	<input type="radio"/> Yes <input type="radio"/> No	reset
OTA Classification		
Attachment: ota.jpg (259.6 kB)		
Use the link provided above to identify the OTA Classification <input type="text"/>		



Fracture open
(not open or closed reduction)

OTA

41A1
41A2
41A3
41B1
41B2
41B3
41C1
41C2
41C3

42A1
42A2
42A3
42B1
42B2
42B3
42C1
42C2
42C3

43A1
43A2
43A3
43B1
43B2
43B3
43C1
43C2
43C3

Tibia

41 Proximal end segment

41A Extraarticular
41A1 Avulsion
41A2 Simple
41A3 Wedge or multifragmentary

41B Partial articular
41B1 Split
41B2 Depression
41B3 Split depression

41C Complete articular
41C1 Simple articular, simple metaphyseal
41C2 Simple articular, wedge or multifragmentary metaphyseal
41C3 Fragmentary or multifragmentary metaphyseal

42 Diaphyseal segment

42A Simple
42A1 Spiral
42A2* Oblique ($>30^\circ$)
42A3* Transverse ($<30^\circ$)

42B Wedge
42B2* Impact wedge
42B3* Fragmentary wedge

42C Multifragmentary
42C2* Impact segmental
42C3* Fragmentary segmental

* Qualifiers:
42A and 42B: a Proximal 1/3, b Middle 1/3, c Distal 1/3
42C: i Proximal diaphyseal-metaphyseal, j Pure diaphyseal,
k Distal diaphyseal-metaphyseal

43 Distal end segment

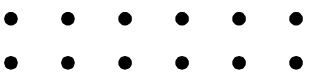
43A Extraarticular
43A1 Simple
43A2 Wedge
43A3 Multifragmentary

43B Partial articular
43B1 Split
43B2 Split depression
43B3 Depression

43C Complete articular
43C1 Simple articular, simple metaphyseal
43C2 Simple articular, multifragmentary metaphyseal
43C3 Multifragmentary articular and multifragmentary metaphyseal



Phase III Cont.



Nail technique

Suprapatellar

Infrapatellar

Extraarticular lateral

Other:

reset

Nail Diameter

mm

Nail Length

cm

Nail Manufacturer

Nail location

Above physis

At physis

Below physis

reset

Implants:

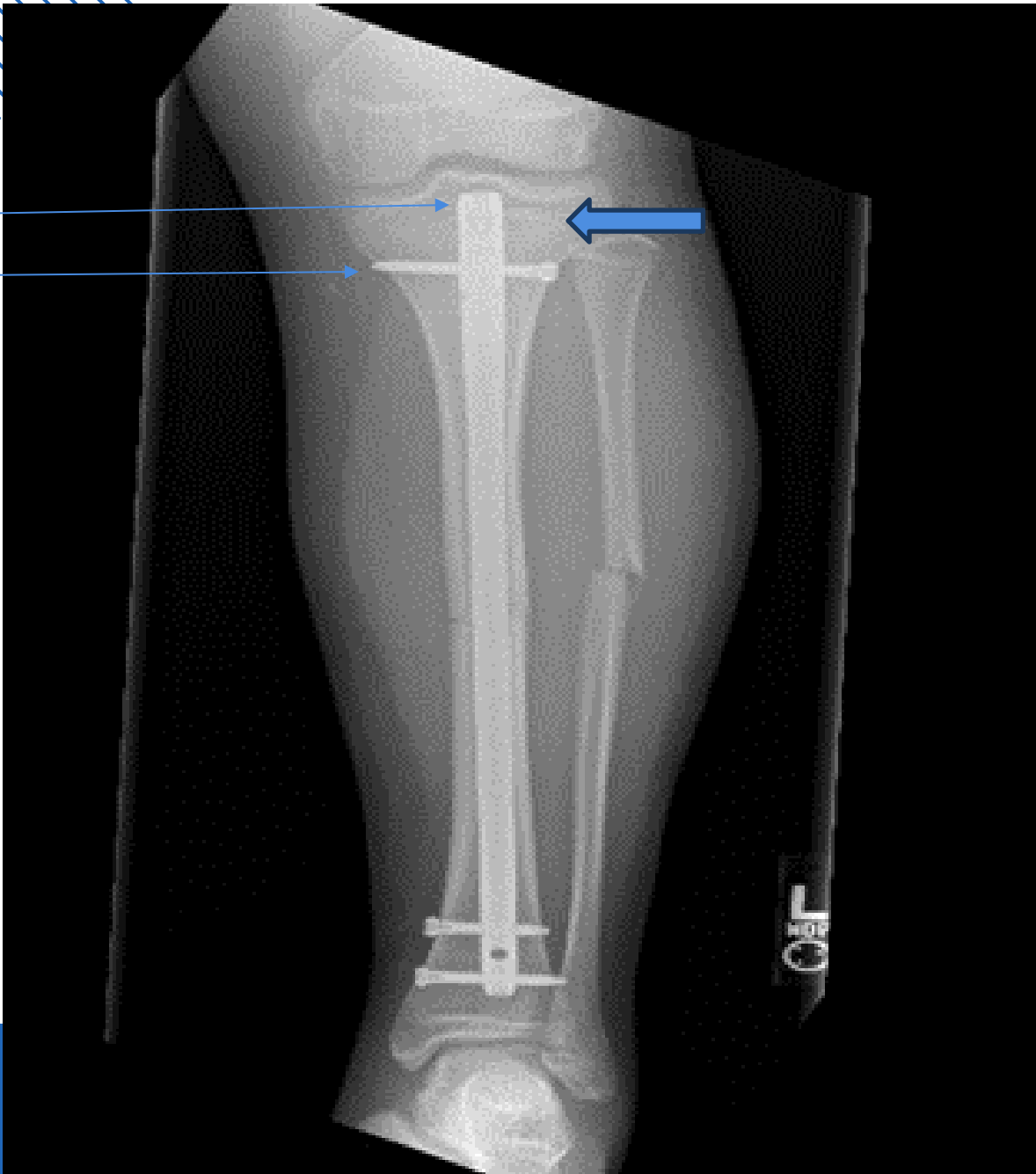
Implant Name	Type	Inv. Item	Serial No.	Manufacturer	Lot No.	LRB	No. Used	Action
SMITH & NEPHEW/RICHCO /ORTHO TRIGEN META-NAIL 10MM 36CM TIBIAL NAIL INTRAMEDULLARY TITANIUM 71655136 - LOG11588750	Nail	SMITH & NEPHEW/RICHCO/ORTHO Trigen Meta-nail 10mm 36cm Tibial Nail Intramedullary Titanium 71655136		Smith & Nephew/Richco/Ortho	22CT6 1140	Right	1	Implanted

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- •
- •

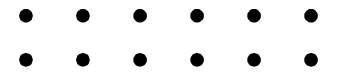
In the op notes on the date of surgery you can find all of the specific nail information

Above

Below



Phase III Cont.



Date of x-ray depicting radiographic healing	<input type="text"/> Today M-D-Y
Time for radiographic healing	<input type="text"/> View equation weeks
Post-op immobilization	<input type="checkbox"/> Cast/splint <input type="checkbox"/> Boot <input type="checkbox"/> Other:
Date patient regained full weight bearing without assistance	<input type="text"/> Today M-D-Y
Time to full weight bearing without assistance	<input type="text"/> View equation weeks
Complications?	<input checked="" type="radio"/> Yes <input type="radio"/> No reset
Complications	<input type="checkbox"/> Infection <input type="checkbox"/> VTE (Venous thrombosis) <input type="checkbox"/> Nerve or vessel injury <input type="checkbox"/> Physeal arrest <input type="checkbox"/> Delayed/nonunion <input type="checkbox"/> Unplanned return to OR (i.e. other than HWR) <input type="checkbox"/> Ipsilateral extremity injury <input type="checkbox"/> Other:
Return to OR for HWR	<input type="radio"/> Yes <input type="radio"/> No reset
Full return to normal activities and sports?	<input type="radio"/> Yes <input type="radio"/> No reset
Last date of follow-up after injury	<input type="text"/> Today M-D-Y

Healing

The date at which the physician has indicated that there is radiographic healing.

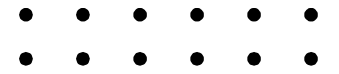
Complications

Only list complications that are **POST TREATMENT**.

Both deep and superficial infections are included.

Do not include Compartment syndrome or hardware removal as complications.

Feedback



Please reach out with any questions, comments, concerns!

- Data entry guide unclear
- REDCap errors, typos, access, etc.
- Unable to find certain data points

Customer Support 24/7: mjoshua@wustl.edu

Questions?

