



Grady

Decreasing the Time to Antibiotic Administration for Open Blunt Tibia Fractures: a Multi-Disciplinary Approach

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The Setting

Grady Memorial Hospital, Atlanta, Ga

- Large academic public safety net hospital
- The only adult level 1 trauma center in Atlanta
 - Designated since 1987 (state) and verified since 2017 (ACS)
- 989 bed hospital
- 7,443 trauma registry patients in 2022, 10,776 trauma activations
- 22% penetrating, 78% blunt



The Challenge

- The Grady Trauma Program identified an OFI around the timing of administration of antibiotics for patients with open blunt tibia fractures
 - TQIP goal of 60 minutes to antibiotics from admission
- Can we do this for all open fracture patients?



Marcel Duchamp

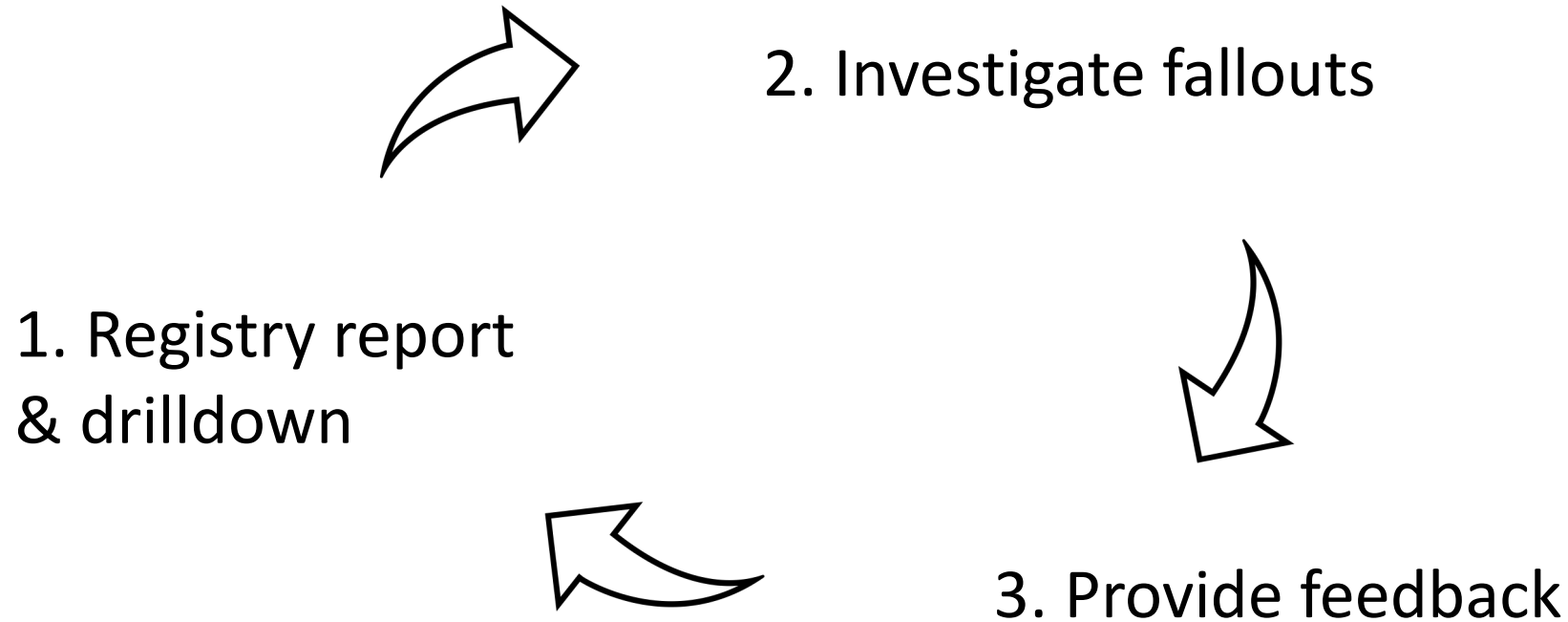
In Advance of the Broken Arm

1964. Wood and galvanized-iron snow shovel, 52"
(132 cm) high

Preparation

- Identify the problem: Our antibiotic administration times were 60+ minutes
 - Clarify internal goal: all open fractures
- Identify the stakeholders and get buy-in
 - Trauma
 - Orthopedics
 - Pharmacy
 - ED leadership
 - Nursing
- Consensus on a process

Intervention: Surveillance Process



Intervention: Clinical

- Educate everyone
 - Clinical rational and TQIP rational
- A nurse driven protocol for administering antibiotics
 - Antibiotics for open fractures and *suspected* open fractures
 - Nursing education
- Standardization of antibiotic and dosage
 - Cefazolin 2 g/100ml
 - Available in the Pyxis in the trauma bay

Intervention: Data Management

- Registrar capture of open fractures
 - Education around where to find the antibiotic admin time in the chart
 - Education around capturing open fractures

Fallouts

Who falls out?

- Very sick patients with lots of other interventions or hemodynamically unstable
- *Or*, very stable patients
- An occult open fracture
 - Facial/dental injuries
- Antibiotics given prior to arrival

Fallout

MRN	TRN	Open Fx Mechanism	Injury	Arrived Date	Arrived Time	Transfer from GSH	Activation	Date Order Written	Time Order	ATBX Given Date	ATBX Given Time	Minutes to ATBX (Goal is < 60 from arrival)	RN	Notes	Admit Service
1E+08	2E+07	Blunt	Open Tib/Fib	11/6/2021	21:57	No	L1	11/7/2021	1:07	11/7/2021	1:12	195		Ancef given in helicopter, but TQIP definition states that it must be given at our facility or referring facility	Trauma
1E+07	2E+07	Blunt	Open Patella	11/14/2021	13:05	No	No Act	11/14/2021	18:34	11/14/2021	20:54	469		Open nasal bone fracture. Not reported to nursing as open fracture. Dx when Otolary.. saw patient	Ortho
1E+07	2E+07	Blunt	Open Tib/Fib	11/17/2021	12:08	No	L2	11/14/2021	16:18	11/17/2021	16:18	250		Not diagnosed as open fracture until ortho consult done at 2029 on 11/17 @18:00	Ortho
1E+08	2E+07	Blunt	Open Femur	1/4/2022	22:31	No	L1	1/4/2022	23:29	1/ 5/2022	0:13	102		Will speak with RN regarding GSW to extremity and obvious fracture, should be considered open fracture. Rocephin and Vanc ordered, no note that they deferred Ancef in chart,	Trauma

TQIP Data

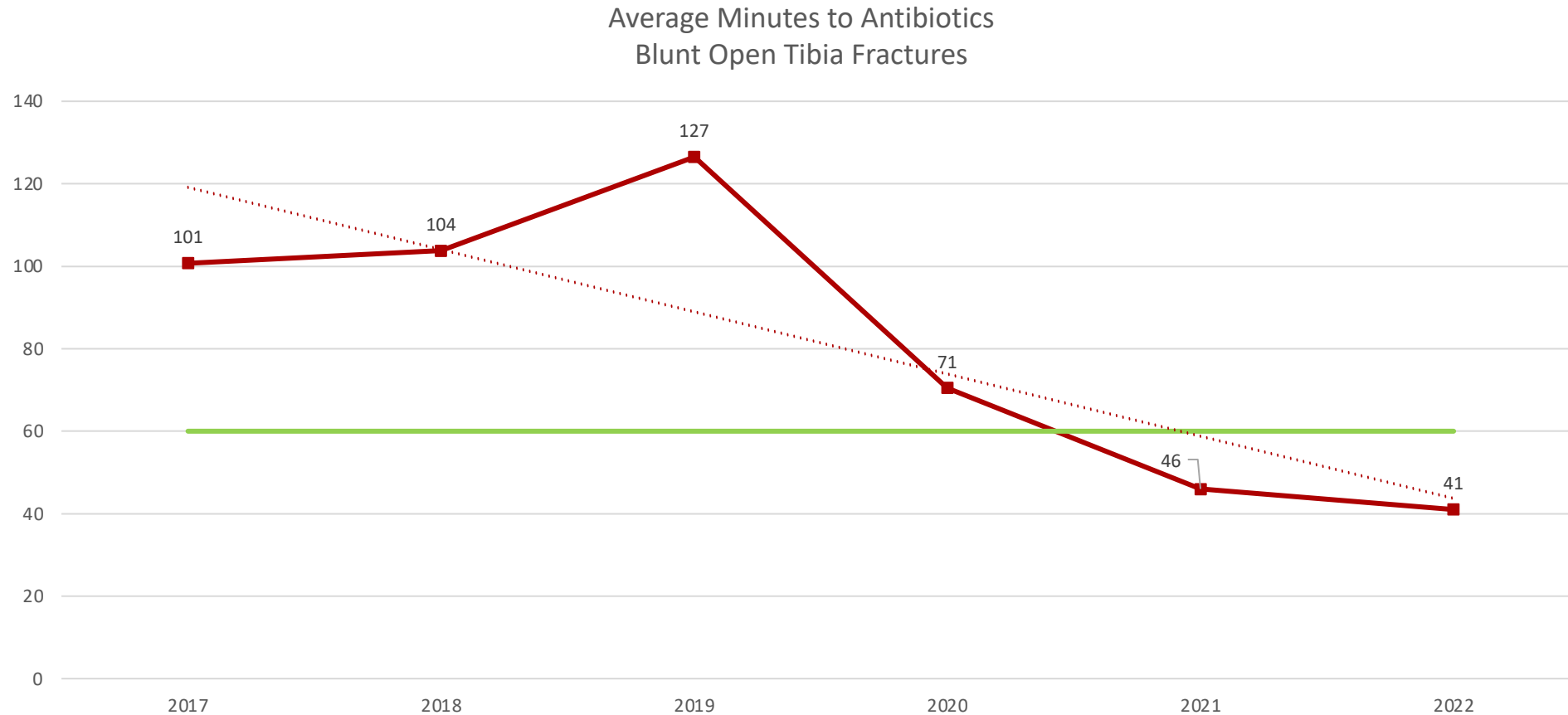
Table 20: Antibiotic Therapy in Patients with Open Tibia Shaft Fracture

	Open Tibia Shaft Fracture	Antibiotic Therapy	Time to Antibiotic Therapy (minutes) ¹	Time to Antibiotic Therapy more than 60 Minutes	Unknown Time to Antibiotic Therapy
Group	N	N (%)	Median (IQR)	N (%) ¹	N (%)
All Hospitals	7,756	7,646 (98.7)	24 (12-67)	1,881 (27.2)	109 (1.4)
Your Hospital	62	62 (100.0)	12 (8-30)	9 (15.3)	0 (0.0)
¹ Among patients receiving Antibiotic Therapy after Hospital/ED Arrival					

Grady Fall 2022 Benchmark report

- Unknown Time to Antibiotic Therapy is 0
- Grady's median time to antibiotics is 12 minutes, half the national average median of 24 minutes

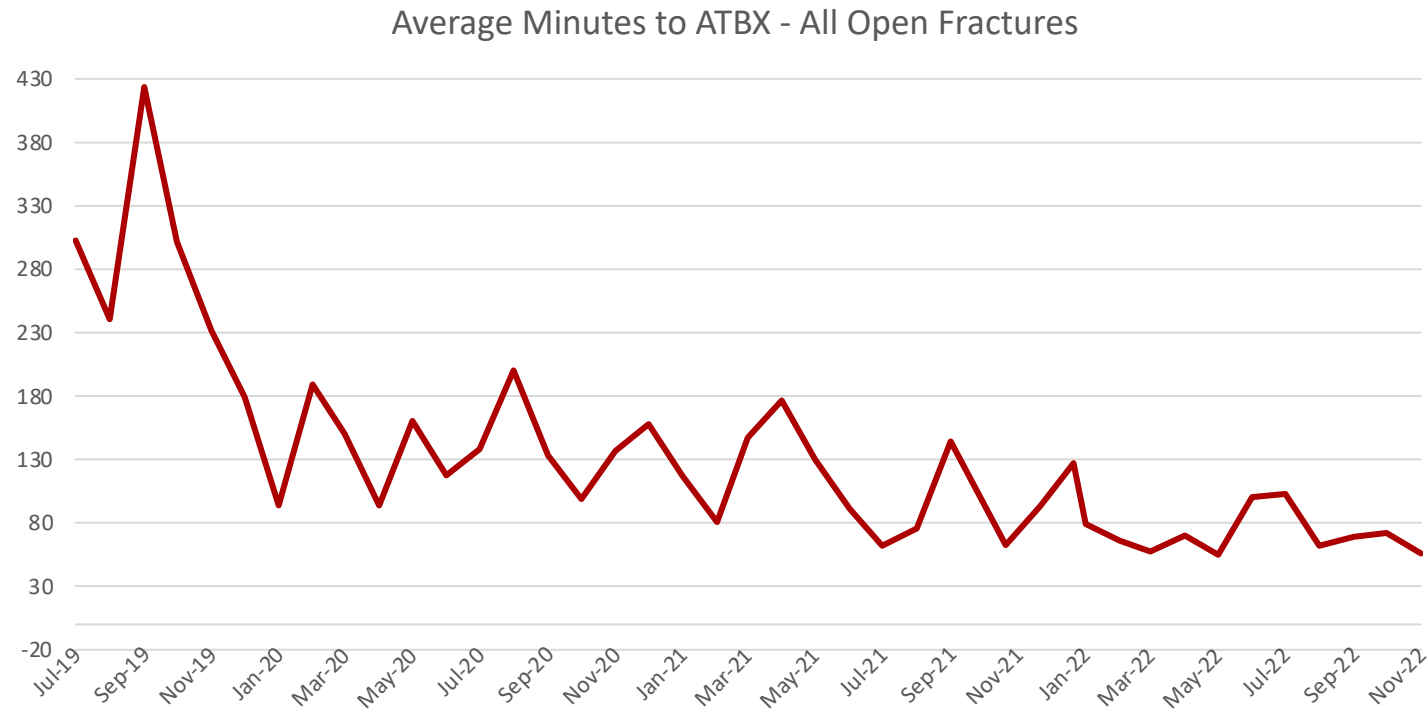
The Overall Trend



But where to next?

More Than Just Blunt Tibia Fractures

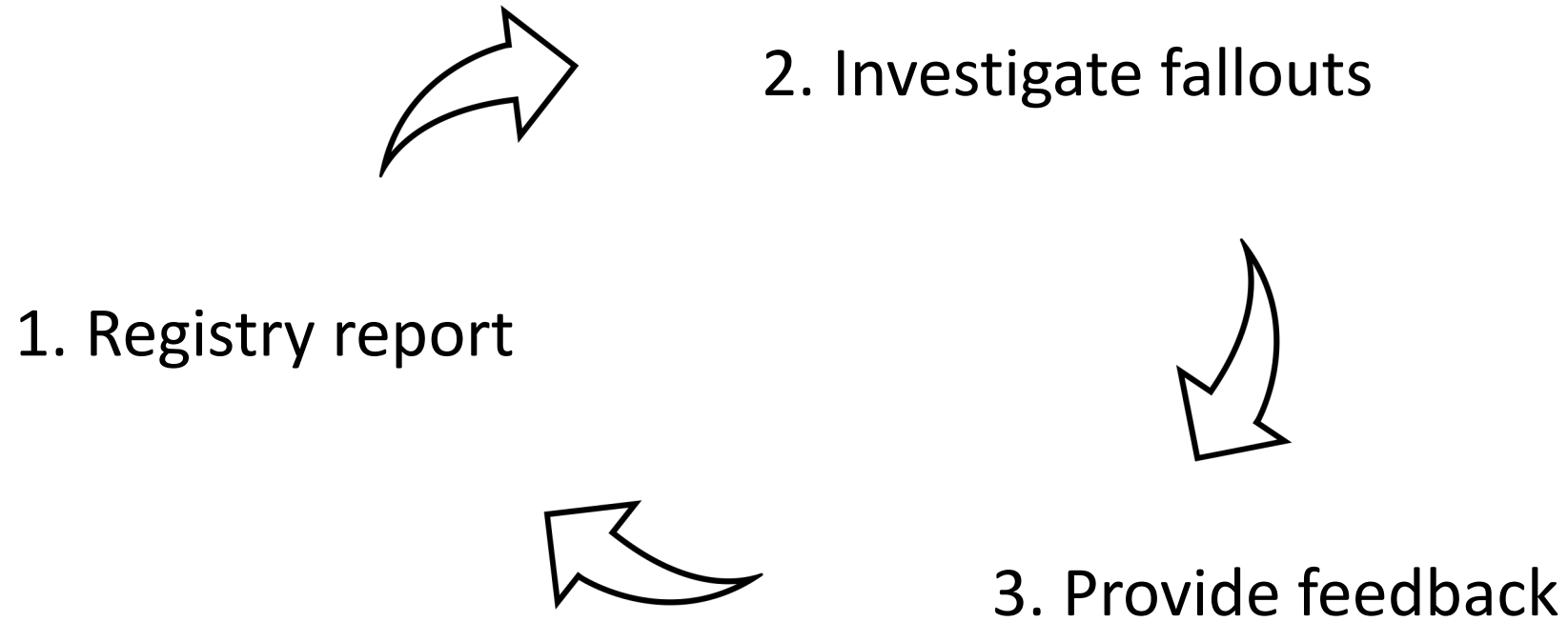
- While TQIP only benchmarks blunt open fracture data currently, our process is for all open fractures at Grady



Sustainability

- Constant attention to identification and remediation
 - Especially important given staff turn-over
 - Monthly monitoring via registry report shared with stakeholders and drilldowns into fallouts
 - Ongoing registrar education
- Continue making improvements
 - IV push Cefazolin available in addition to IVPB Cefazolin
 - 30 minute goal time for antibiotic administration in Grady
- Constant monitoring and feedback

Sustainability



Thank You!

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