

### Introduction

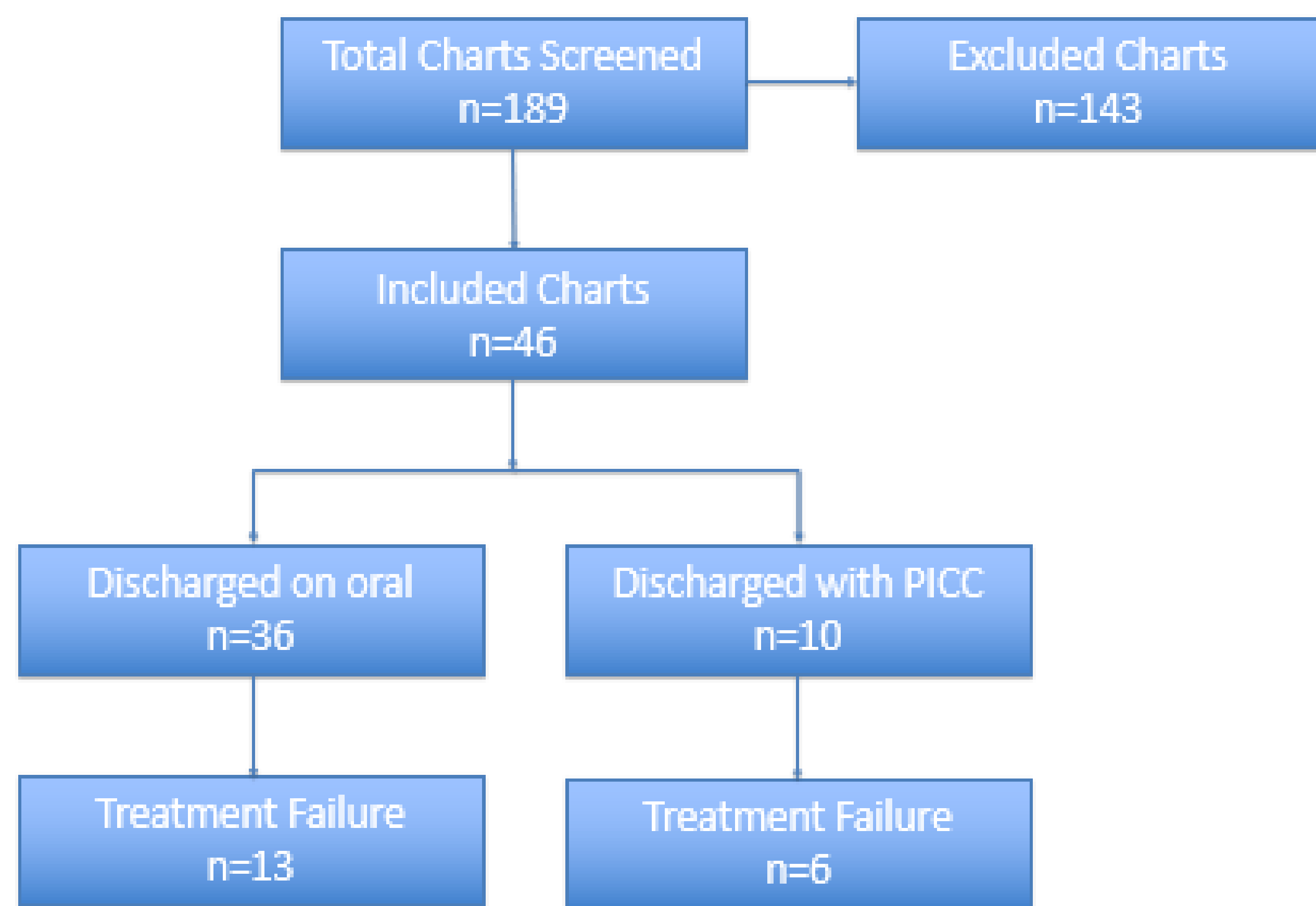
Acute hematogenous osteomyelitis (AHO) is an invasive bacterial infection in children requiring hospitalization. Local antibiotic resistance and virulence patterns of *S. aureus* have made the creation of generalized guidelines challenging. Traditional management of these infections consisted of prolonged use of intravenous antibiotics, though recent data support similar treatment outcomes and fewer adverse events with earlier transition to oral therapy for uncomplicated cases.

### Objectives

- Identify trends in AHO management at UF Health Shands Children's Hospital between 2010-2017
- Categorize adverse events related to AHO management
- Understand variability in current AHO management

### Methods

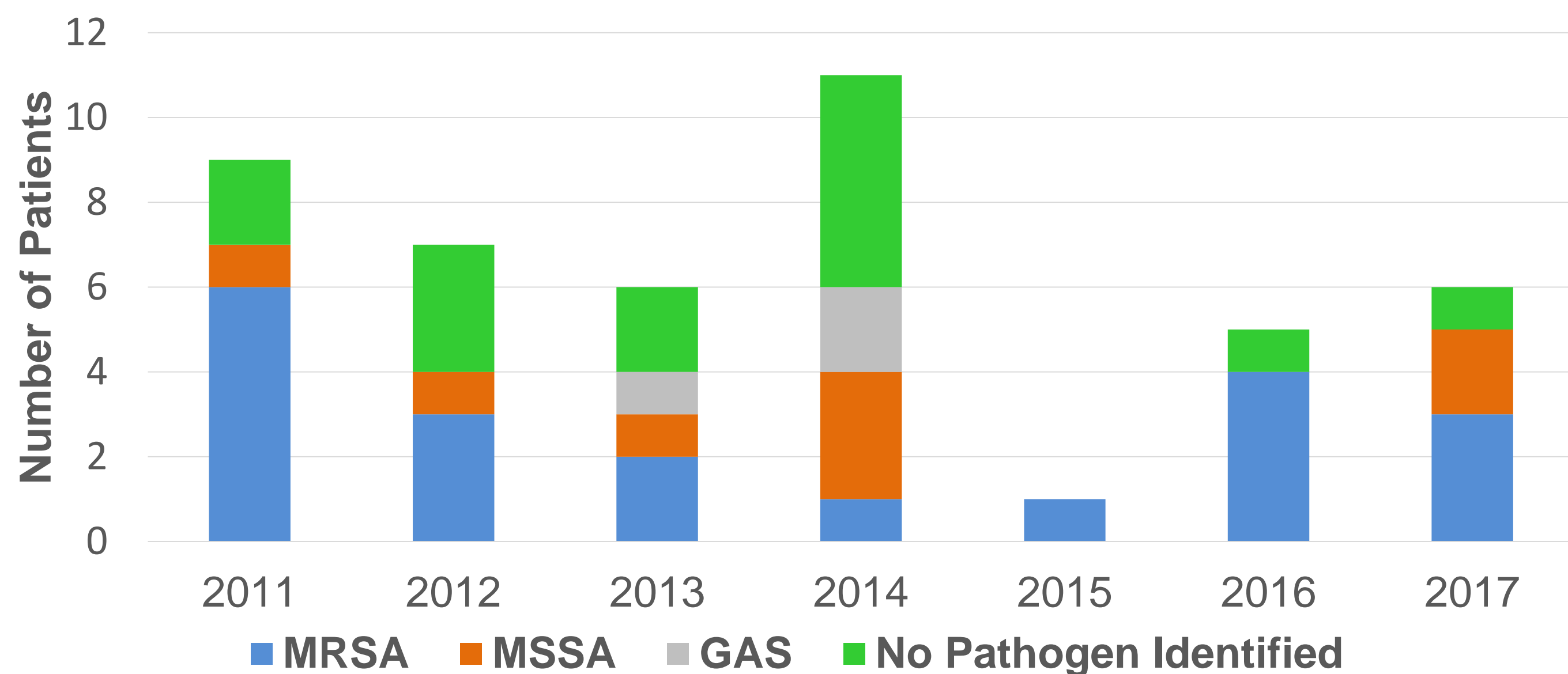
A retrospective case series review was performed of children admitted to UF Health Shands Children's Hospital in Gainesville, FL between January 2010 and December 2017 with a discharge diagnosis of AHO based on ICD-9/ICD-10 codes. The following exclusion criteria were applied: chronic osteomyelitis, osteomyelitis secondary to fracture or surgery, immunocompromised, transfers from outside hospitals. Data were descriptively analyzed and trends in management were identified using process control.



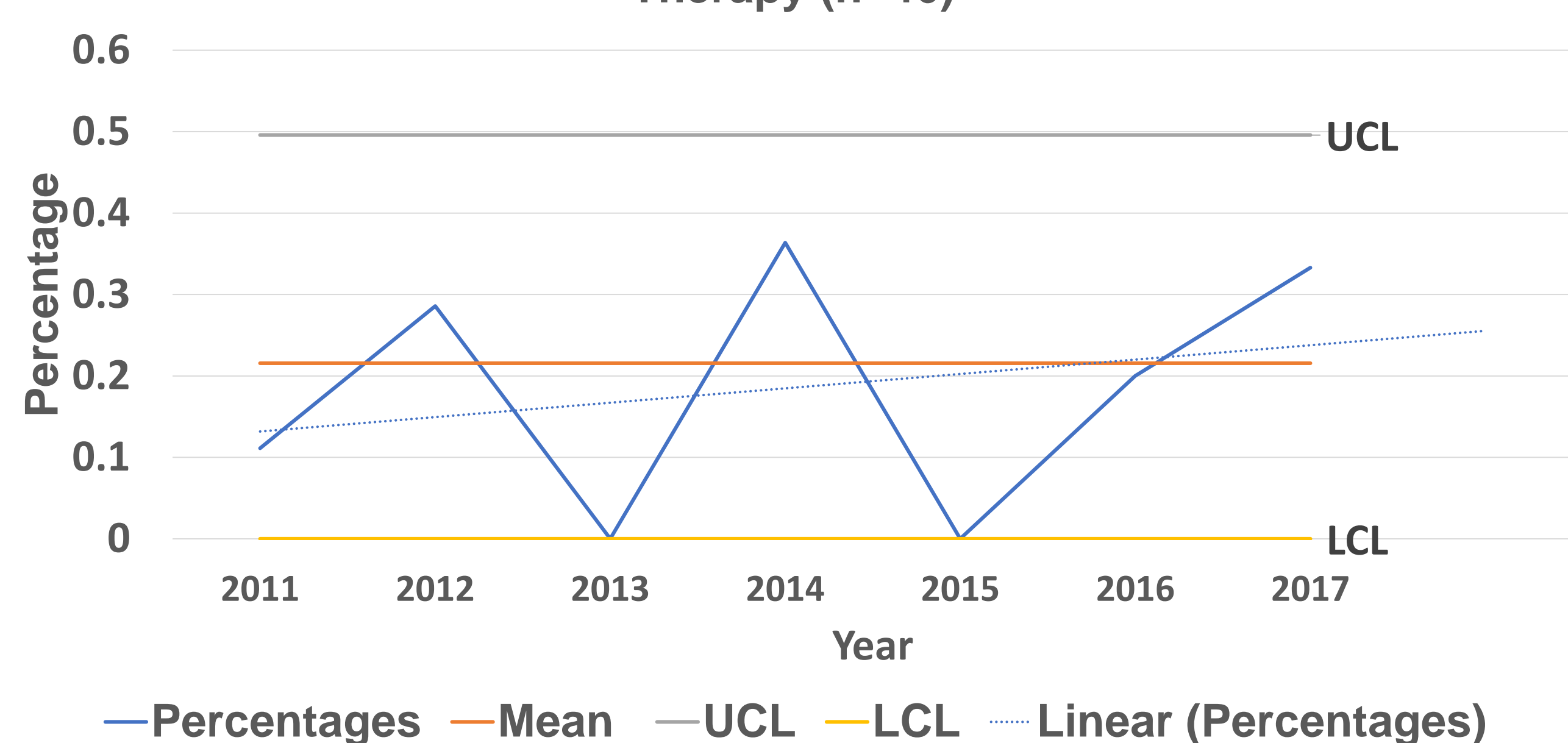
Study Flow Diagram

### Results

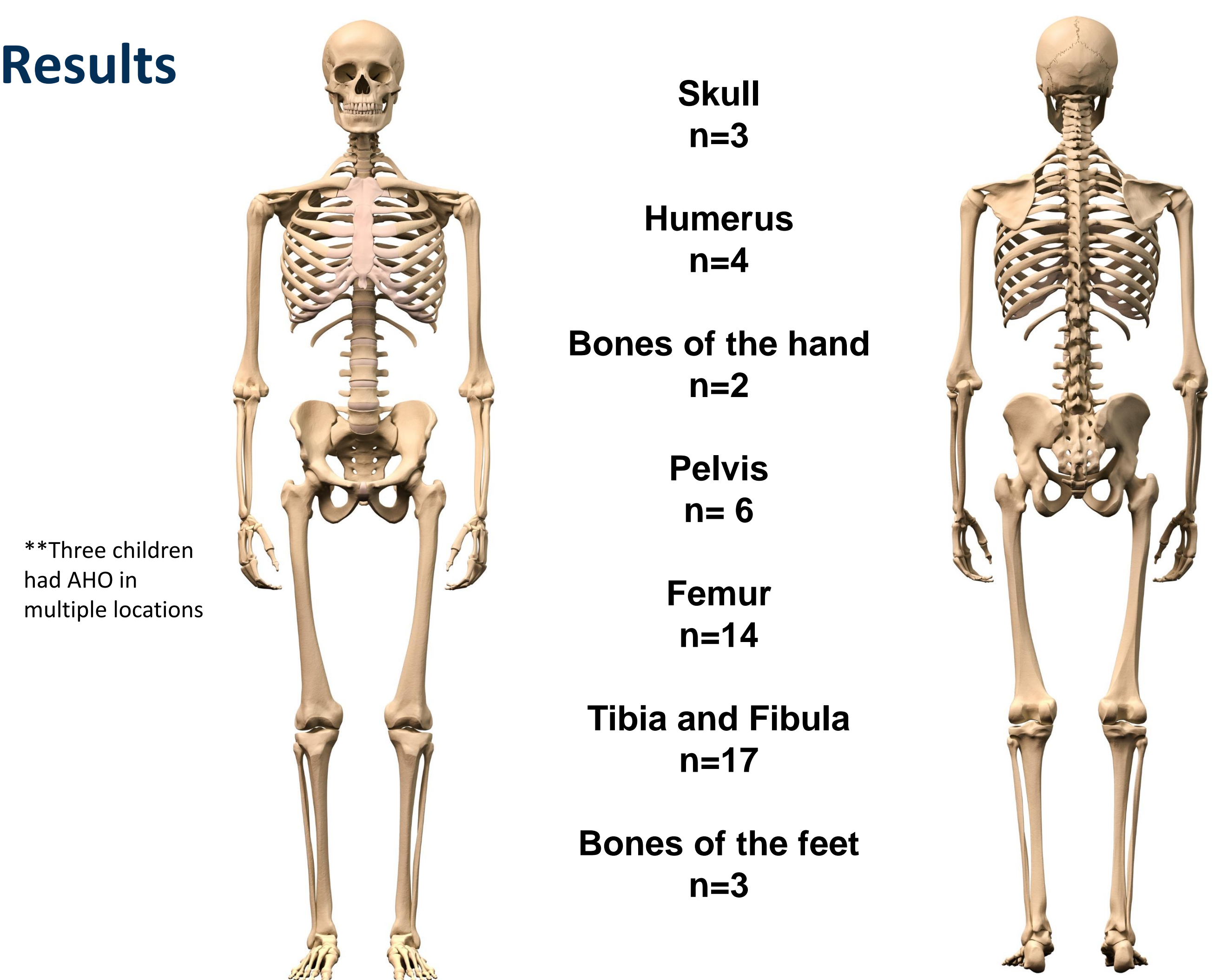
Etiology of Acute Hematogenous Osteomyelitis by Year (n = 46)



Percentage of Individuals Discharged on Intravenous Therapy (n=46)



### Results



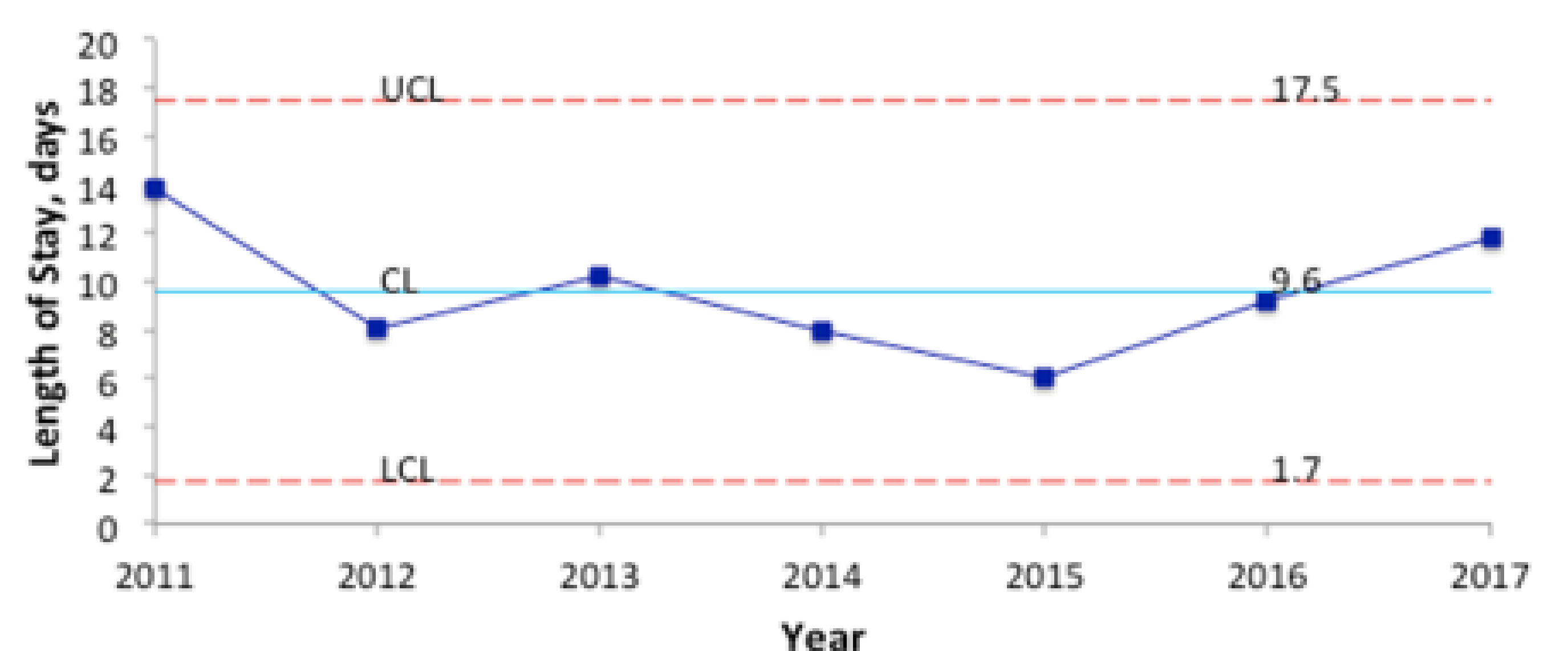
Antimicrobial Susceptibilities of *S. aureus* Isolates Identified

Antibiotic	Sensitive n	Intermediate n	Resistant n
Ciprofloxacin	21	0	6
Clindamycin	25	0	2
Erythromycin	9	0	19
Gentamicin	27	0	0
Levofloxacin	22	3	3
Linezolid	28	0	0
Minocycline	27	0	0
Moxifloxacin	24	1	2
Oxacillin	8	0	19
Penicillin	1	0	27
Rifampin	28	0	0
Tetracycline	27	0	0
Tigecycline	27	0	0
Sulfa-Trimethoprim	27	0	0
Vancomycin	28	0	0

Demographics	N (%)
<b>Age</b>	
0 to 5	13 (28)
6 to 8	10 (22)
9 to 11	14 (30)
12 to 18	9 (20)
<b>Gender</b>	
Male	31 (67)
Female	15 (33)

Initial Antibiotics	N
Clindamycin monotherapy	17
Cefazolin or Oxacillin	5
Vancomycin monotherapy	3
Vancomycin in combination	13
Other	5
None	3

Acute Hematogenous Osteomyelitis Length of Stay



UCL: Upper control limit  
 CL: Center line  
 LCL: Lower control limit

### Conclusions & Next Steps

- Locally, MRSA was implicated most often in AHO cases
- Variability exists in antibiotic selection for empiric treatment of uncomplicated AHO
- A large percentage (78%) of children with AHO have been discharged on enteral antibiotics from 2010 onwards
- Length of stay has remained unchanged during this period
- Future directions of the project include developing guidelines to help standardize practice

### Acknowledgments

This quality improvement study was funded through the University of Florida College of Medicine Medical Student Research Program. The authors wish to acknowledge the UF Health Shands Antimicrobial Management Program and UF COM Quality Improvement & Patient Safety Discovery Pathway for their support of this study.