



Background

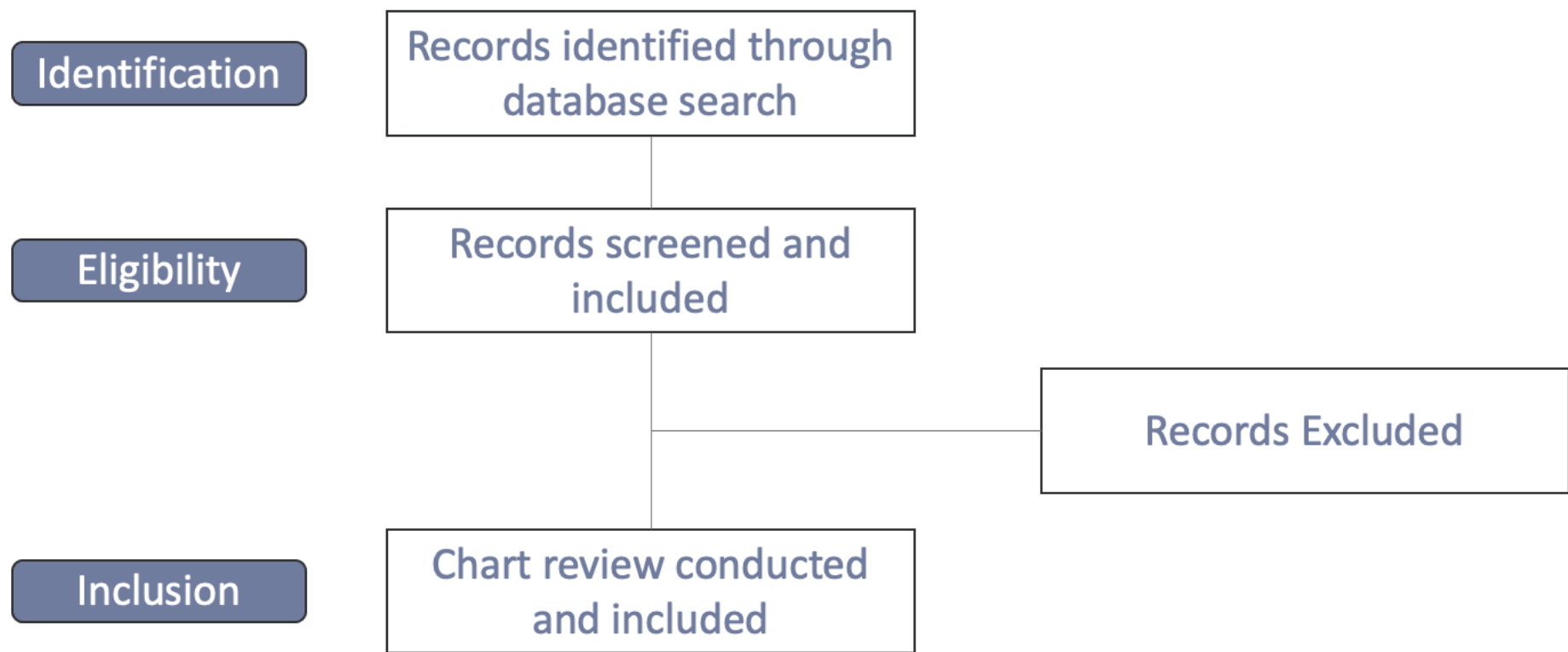
Background: Upper extremity congenital anomalies occur in approximately 27:10,000 live births, however, these vary depending on the specific limb difference. For example, 1:1,000 babies are born with extra fingers, but 1:10,000-15,000 are born with amniotic band syndrome.

Causes: The underlying cause of most congenital limb abnormalities remains unknown, and some may be passed down genetically. Other possible causes include mothers' exposure to certain chemicals, tobacco smoke, viruses, or medications.

Detection: Some limb differences are easier to detect during a prenatal US/MRI, however hand specific congenital differences have a lower rate of detection, and the specificity depends on a variety of factors.

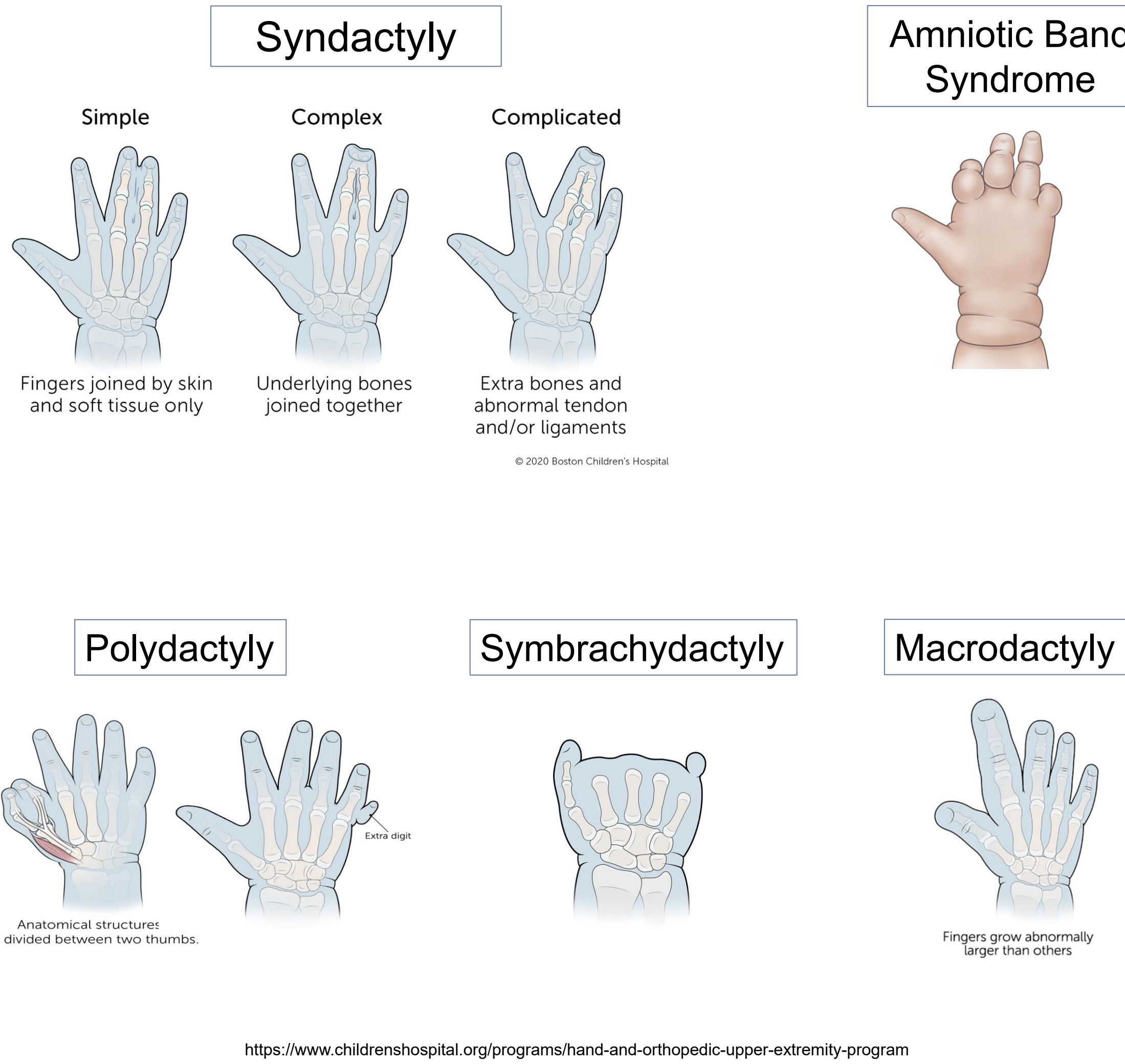
Methods

Eligibility & Patient Selection: Patients who received care through the Maternal Fetal Care Center (MFCC) at Boston Children's Hospital from 12/2013 to 07/2023 were identified using our hospital database.



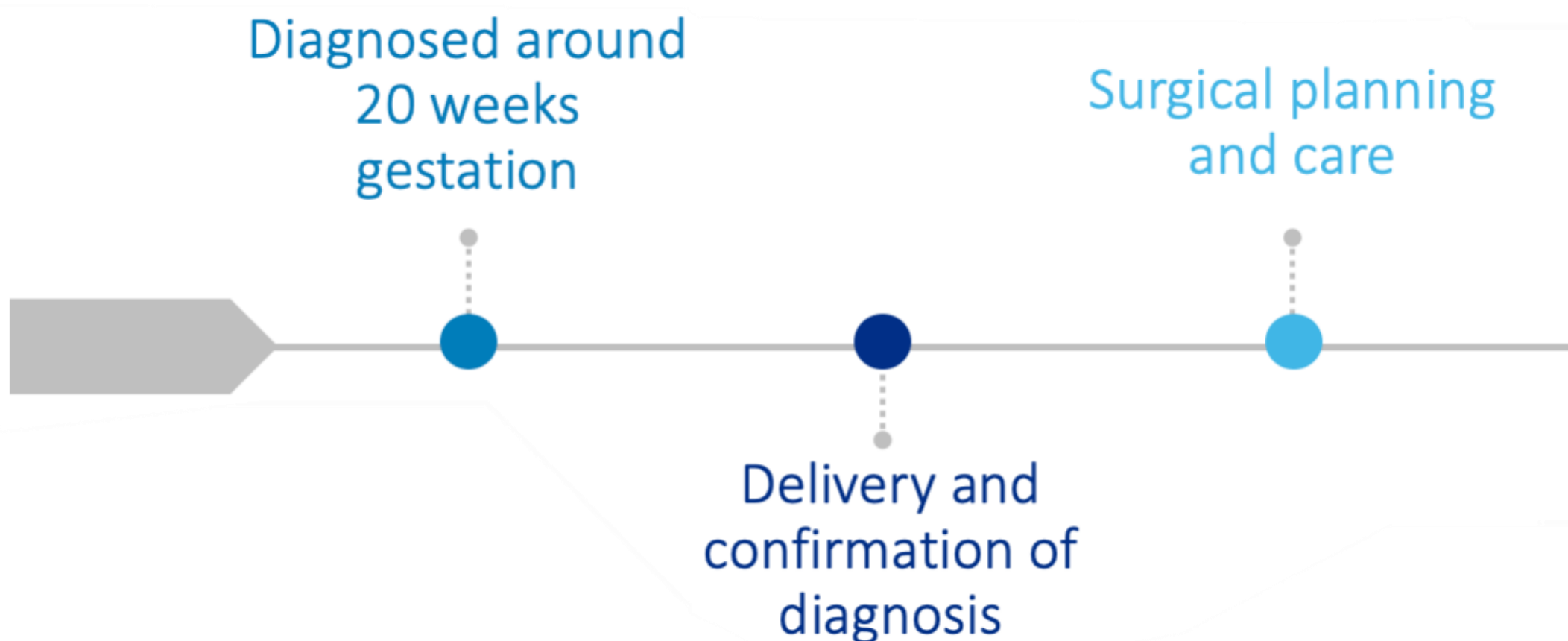
Data Collection & Study Endpoints: A chart review was conducted for each eligible patient using the electronic medical record. Data points collected from the electronic medical records included imaging modality, pre- and postnatal diagnoses, as well as pregnancy outcomes.

Hand Anomalies



Pediatric Considerations

- Functional and QOL limitations
- Maximizing functionality and QOL
- Concerns for future growth
- Considerations for family planning
- Additional genetic testing for family if applicable



Results/Outcomes

Outcome	Patients n (%)
Accurate	57 (77)
Not accurate	10 (13.5)
Pregnancy termination	1 (1.4)
Post natal diagnosis not yet available	4 (5.4)
Unknown	2 (2.7)

Table 1: Accuracy of pre and postnatal diagnoses with included additional outcomes

Imaging Modality	Patients n (%)
US	34 (45.9)
US & MRI	40 (54.1)
MRI	0 (0)

Table 2: Imaging modality utilized in prenatal screening

Diagnosis	Patients n (%)
Polydactyly	25 (33.8)
Symbrachydactyly	15 (20.3)
Syndactyly	4 (5.4)
Amniotic band syndrome	2 (2.7)

Table 3: Most common accurately diagnosed congenital hand anomalies

Conclusions

Although upper limb differences can be diagnosed prenatally, current imaging modalities remain imperfect and some diagnoses may be more susceptible to an inaccurate diagnosis. There did not appear to be improved diagnostic accuracy when utilizing US and MRI together compared to US alone. While overall accuracy is high, it should be recognized that this study was conducted within a highly specialized center and generalizability of results may be limited in less specialized groups. Thus, care should be taken when advising parents prenatally and when considering intervention.