



SEPSIS AND DEVELOPMENTAL DISABILITIES

April 21, 2021

CONTINUING EDUCATION

- The link for the evaluation of today's program is:
<https://www.surveymonkey.com/r/Sepsis-4-21>
- Please be sure to access the link, complete the evaluation form, and request your certificate. The evaluation process will remain open **two weeks** following the webcast. Your certificate will be emailed to you when the evaluation process closes after the 2-week process.
- If you have any questions, please contact Dorothy Aldridge (Dorothy.Aldridge@ohiohospitals.org)

SEPSIS WEBSITE

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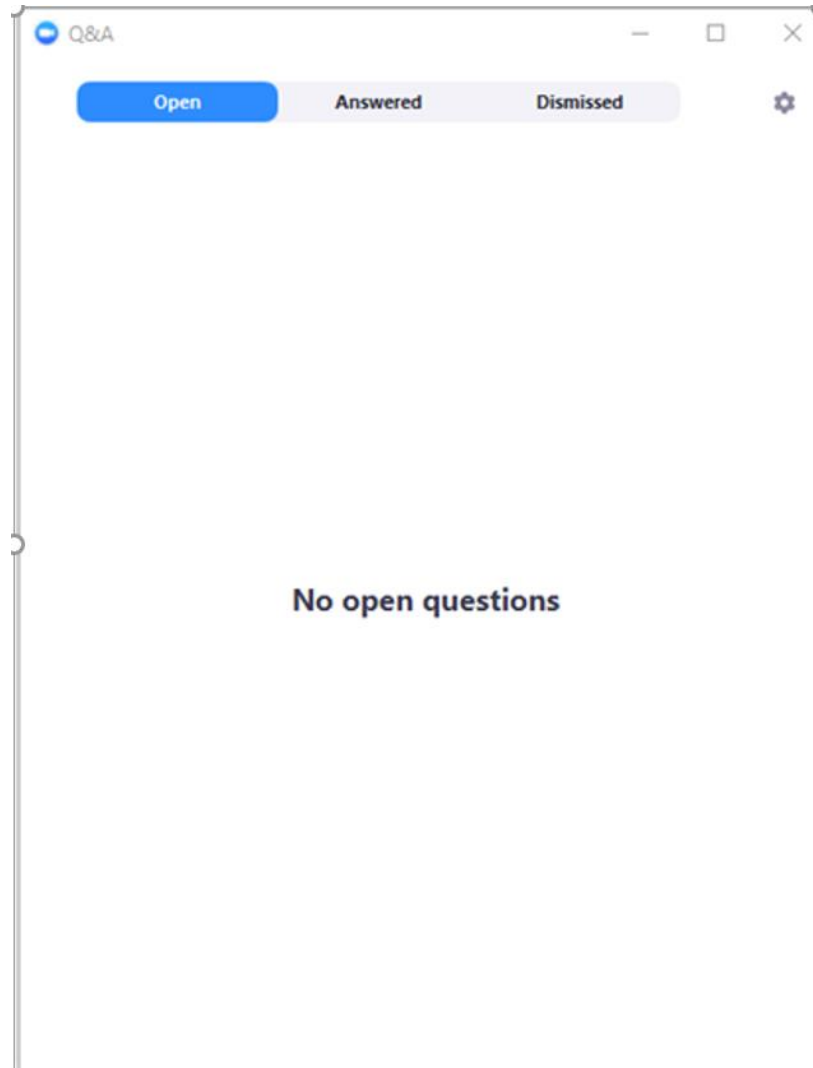


Sepsis

Reducing Sepsis Mortality in Ohio Through Early Recognition, Appropriate Intervention

The OHA Board of Trustees identified reducing sepsis mortality in Ohio as one of the key focus areas for OHA and Ohio hospitals. Sepsis is the body's overwhelming and life-threatening response to infection that can lead to tissue damage, organ failure and death. In other words, it's your body's over active and toxic response to an infection. Sepsis impacted an estimated 41,000 Ohioans in 2017. Early recognition and treatment can reduce the morbidity and mortality of sepsis.

SUBMITTING QUESTIONS



PRESENTER



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Sepsis in Individuals with Intellectual and other Developmental Disabilities

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Objectives

Following this presentation & discussion, attendees will be able to:

- (1) Define intellectual and other developmental disabilities (IDD)
- (2) Describe medical and social determinants of health that could place individuals with IDD at risk for sepsis and sepsis-associated death
- (3) Examine state-level Medicaid and Department of Developmental Disabilities data related to sepsis in this population
- (4) Propose multi-level measures to lower risk of sepsis and sepsis-related complications in individuals with IDD



Acknowledgements

Ohio Department of Developmental Disabilities

- Scott Phillips, Assistant Deputy Director, MUI Registry Unit
- Connie McLaughlin, Regional Manager Supervisor, MUI Registry Unit
- Ashley Mohler, Data Specialist

Developmental Disabilities Practice-Based Research Network

- Brittany Baugher MS, Research Coordinator



What Are Developmental Disabilities?

Developmental disabilities (DD) are a group of conditions

- Due to an impairment in physical, learning, language, or behavior
- Begin during the developmental period
- Impact day-to-day functioning and typically require supports
- Last throughout a person's lifetime

Examples of DD include Autism Spectrum Disorder, Down syndrome, Cerebral Palsy, Hearing Loss, Intellectual Disabilities, Learning Disabilities, Vision Impairment

Not all developmental disabilities involve intellectual disabilities

<https://www.cdc.gov/ncbddd/developmentaldisabilities/facts.html>

Risk Factors for Sepsis

| Risk Factors | General Population | IDD |
|-------------------|-------------------------------------|---------------------------------|
| Age | > 65 years | Throughout lifespan |
| Immunosuppression | CA, CRF, AIDS, Cirrhosis, Asplenism | Down syndrome (DS) |
| Diabetes/Obesity | | Increased rates of obesity |
| Cancer | | May be less common |
| Pneumonia (CAP) | | Aspiration PNU |
| Genetic Factors | | Immune system defects, e.g., DS |

Specific Risks related to IDD

| Risk | Contributing Factors |
|-------------------|---|
| Aspiration | Dysphagia, GERD, Dysmotility, Medications, Dependency with Feeding |
| Respiratory Tract | Anatomic Abnormalities, Kyphoscoliosis, Immobility, Ciliary Dysfunction |
| Urinary Tract | Anatomic Abnormalities, Neurogenic Bladder, Indwelling Urinary Catheters, Abnormal Voiding Patterns, Constipation, Poor Hygiene |
| Skin | Immobility, Pressure Ulcers |
| GI tract | Anatomic Abnormalities, Dysmotility, Constipation, Medications |
| Devices | Ventriculo-Peritoneal Shunt, Gastrostomy Tubes, Indwelling Urinary Catheters |

Relevant Social Determinants of Health

| Domain | Details |
|-------------------|---|
| Patient | Poor general health literacy; impairments in communication |
| Direct Caregivers | Patient is dependent on trained staff who are familiar with them to recognize acute illness |
| Physicians | Limited education and training about population; unconscious biases |
| Health System | Barriers to physical access, delays in scheduling appointments |
| Disability System | Lack of nursing involvement; “drop-in” supports |

Septicemia in Hospitalized Patients with IDD

Table 1
UHC Data, Five Most Frequent Base MS-DRGs for Adult Patients With ID (n = 39,397) Compared With Patients Without ID (n = 7,847, 560)

| Measure | Psychoses | | Seizures | | Septicemia | | Respiratory infections | | Pneumonia | |
|------------------------------------|-----------|---------|----------|--------|------------|---------|------------------------|--------|---------------|---------|
| | 885 | | 100, 101 | | 871, 872 | | 177, 178, 179 | | 193, 194, 195 | |
| MS-DRGs included | ID | Non-ID | ID | Non-ID | ID | Non-ID | ID | Non-ID | ID | Non-ID |
| Number of patients | 6,649 | 246,979 | 3,122 | 73,230 | 2,124 | 174,230 | 1,224 | 50,902 | 1,098 | 123,529 |
| % patients with ID for this MS-DRG | 2.6 | | 4.1 | | 1.2 | | 2.3 | | 0.9 | |
| % total patients (ID and non-ID) | 16.9 | 3.1 | 7.9 | 0.9 | 5.4 | 2.2 | 3.1 | 0.6 | 2.8 | 1.6 |
| Mean LOS | 11.85** | 9.54 | 4.29** | 3.9* | 7.45 | 6.69** | 7.6* | 7.78** | 4.76** | 4.58** |
| Expected LOS | 9.61 | 9.5 | 3.95 | 3.8 | 7.41 | 7.15 | 6.82 | 7.92 | 4.31 | 4.46 |
| LOS index | 1.23 | 1 | 1.09 | 1.03 | 1.01 | 0.94 | 1.12 | 0.98 | 1.11 | 1.03 |
| % ICU stay | 2.89** | 2.11 | 17.52 | 16.81 | 41.91** | 38.42 | 15.93 | 14.39 | 12.15** | 9.56 |
| % cases ≥1 complications | 0.3** | 0.2 | 2.2** | 1.2 | 4.1 | 3.9 | 2.6** | 1.6 | 1.2 | 0.8 |

Note. MS-DRG = Medicare Severity Diagnosis Related Groups; ID = intellectual disability; LOS = length of stay; ICU = intensive care unit.

LOS: * $p < .05$, ** $p < .01$, difference between observed and expected values.

% ICU stay: ** $p < .01$, difference between adult individuals with and without ID.

% patients with one or more complications: ** $p < .01$, difference between adult individuals with and without ID.

Ohio Medicaid Claims Data

Sepsis

CY 2016-2020

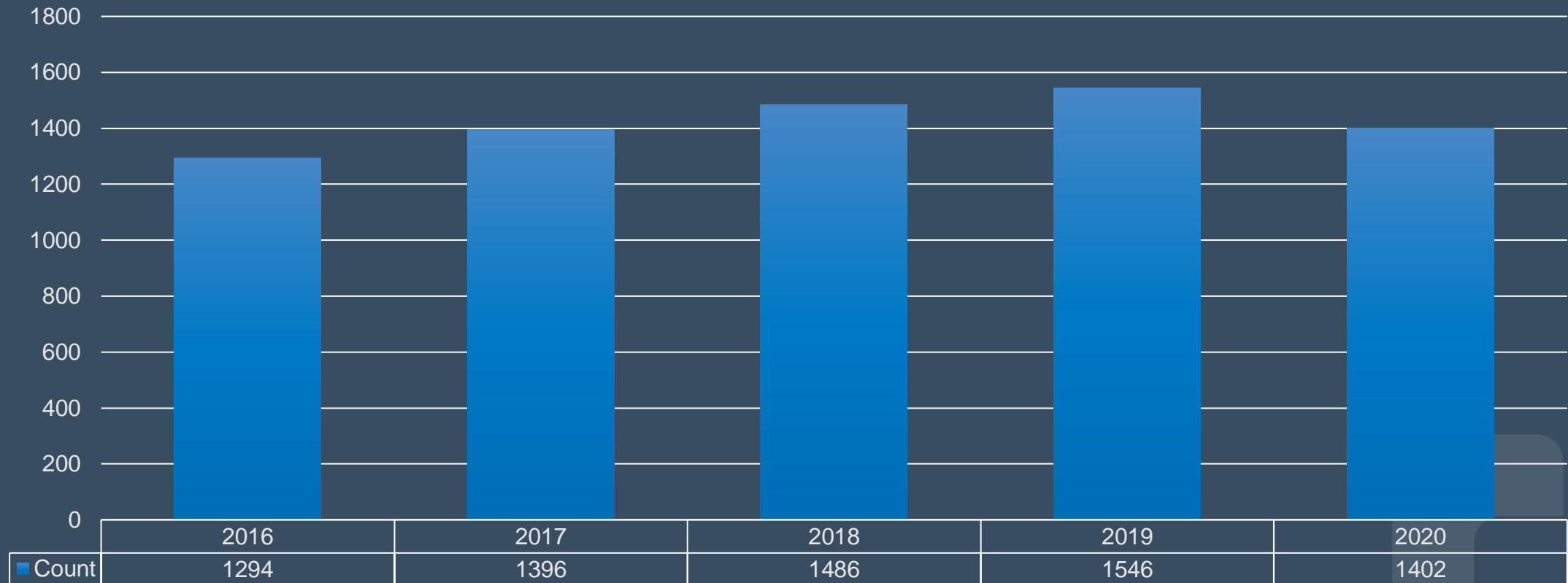


Overview

- The study population includes individuals who were served by DODD during calendar years 2016-2020
- Claims from Medicaid's Quality Decision Support System for calendar years 2016-2020 were reviewed for these individuals
- Any hospital admission with a primary diagnosis related to sepsis was included in the analysis
- Demographic and DD/MH diagnosis information was obtained from DODD's Data Warehouse
- Mortality related data was obtained through a review of death certificates and Incident Tracking System.

Admissions with a Primary Sepsis Diagnosis per Year*

Count

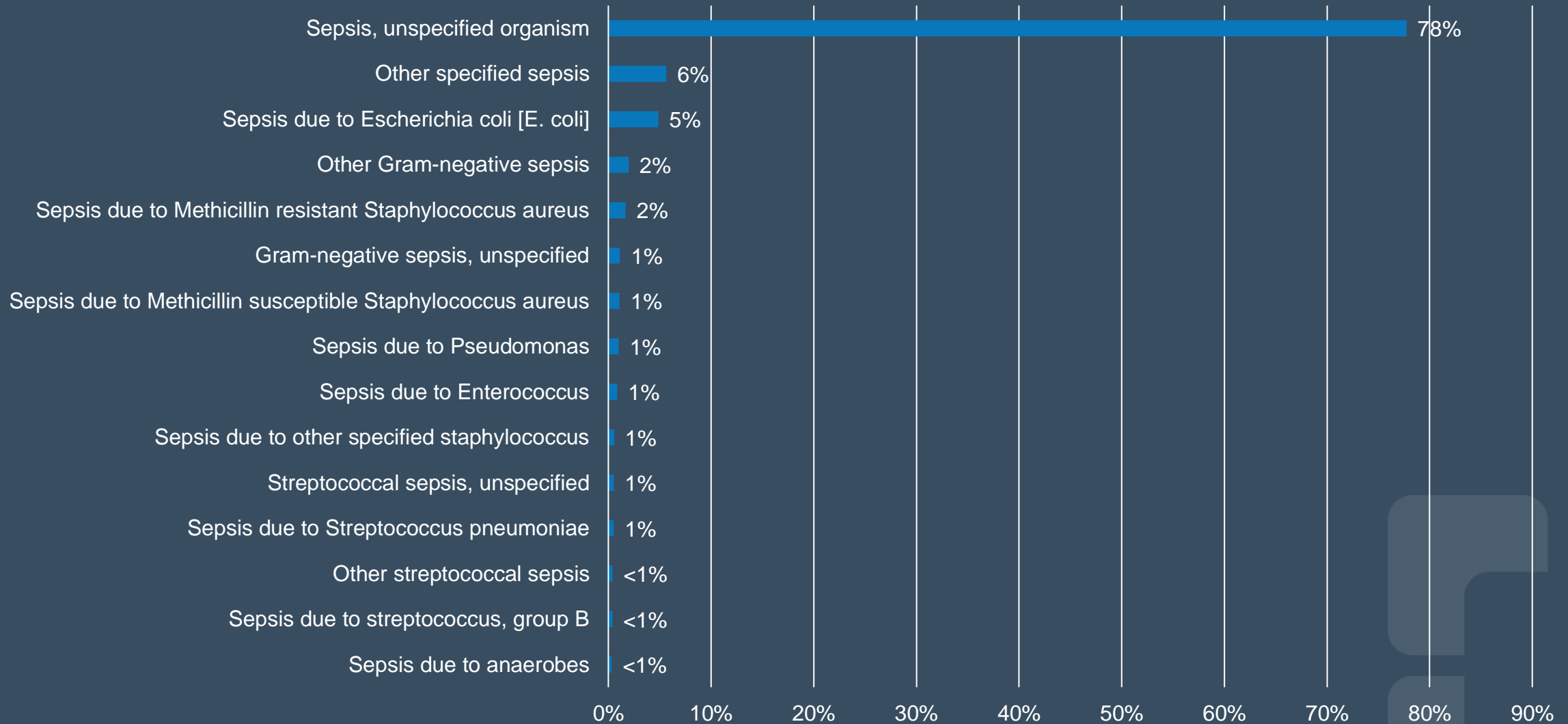


*Data from 2020 may be incomplete at this time, since providers have one year to bill.

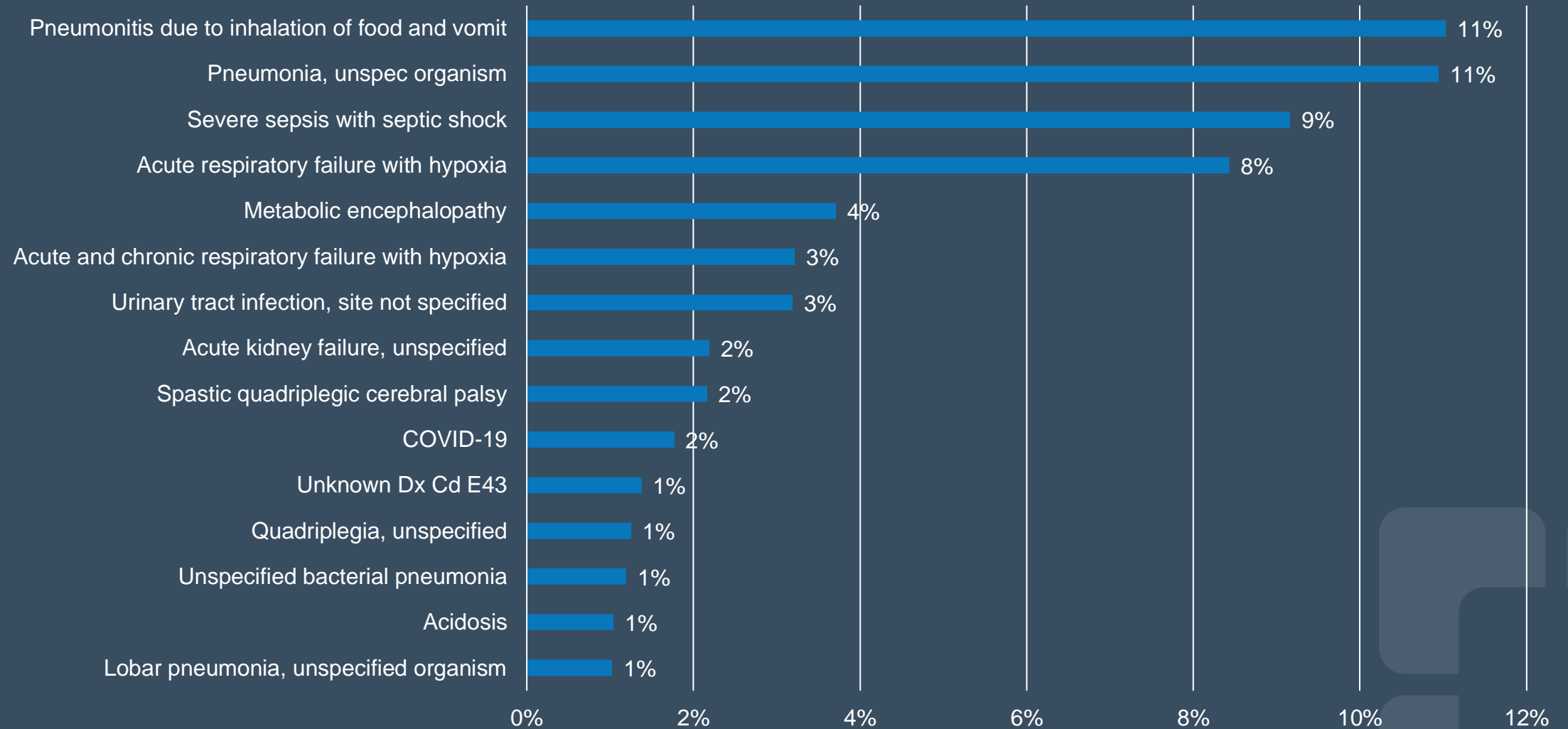
The following slides combine
the data from calendar years
2016-2020.



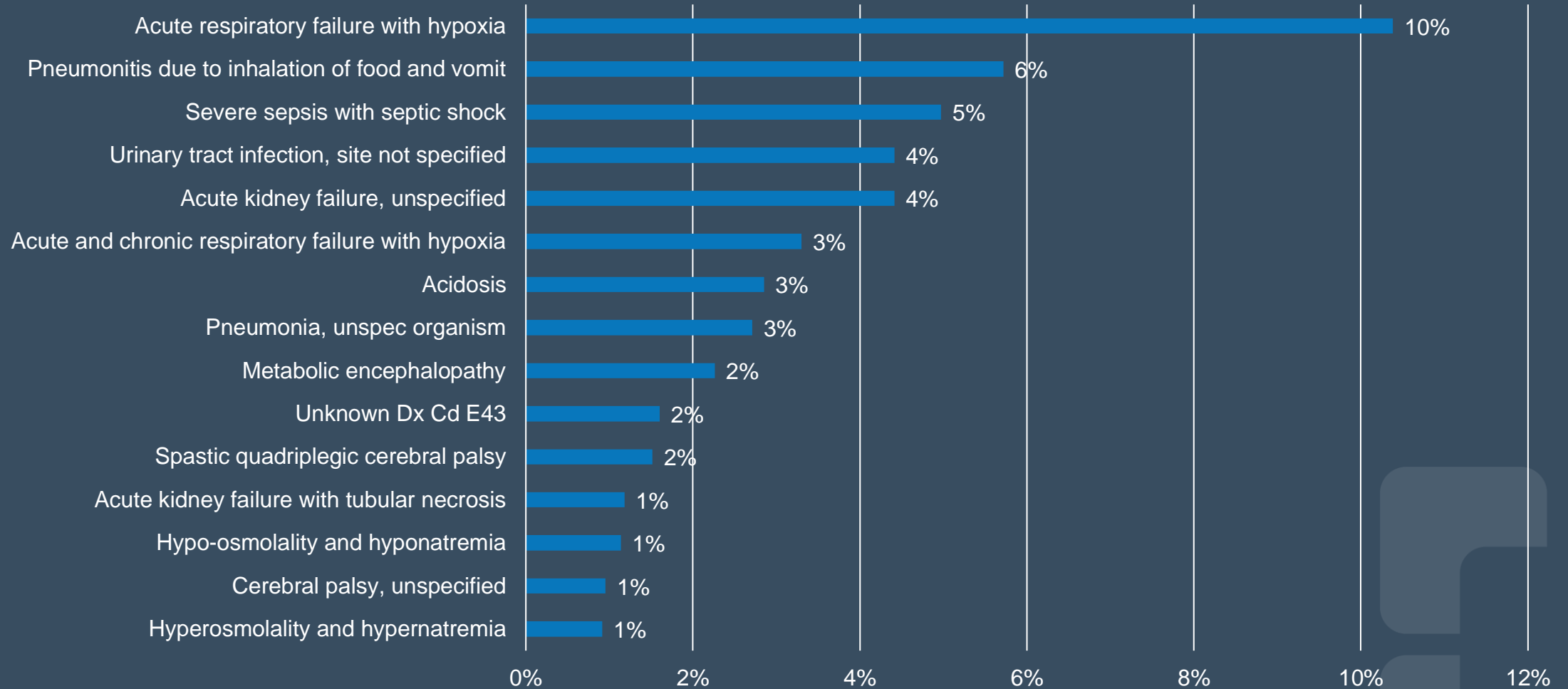
Top Primary Diagnoses



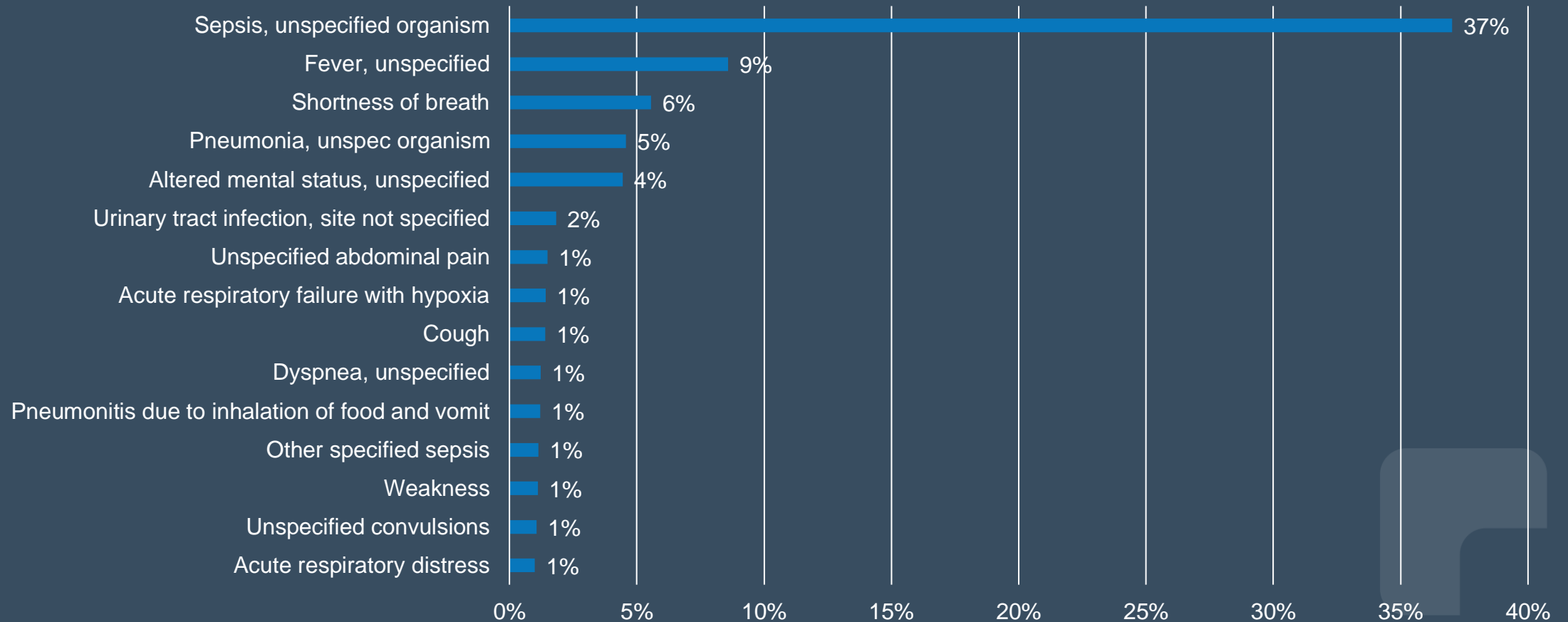
Top Secondary Diagnoses



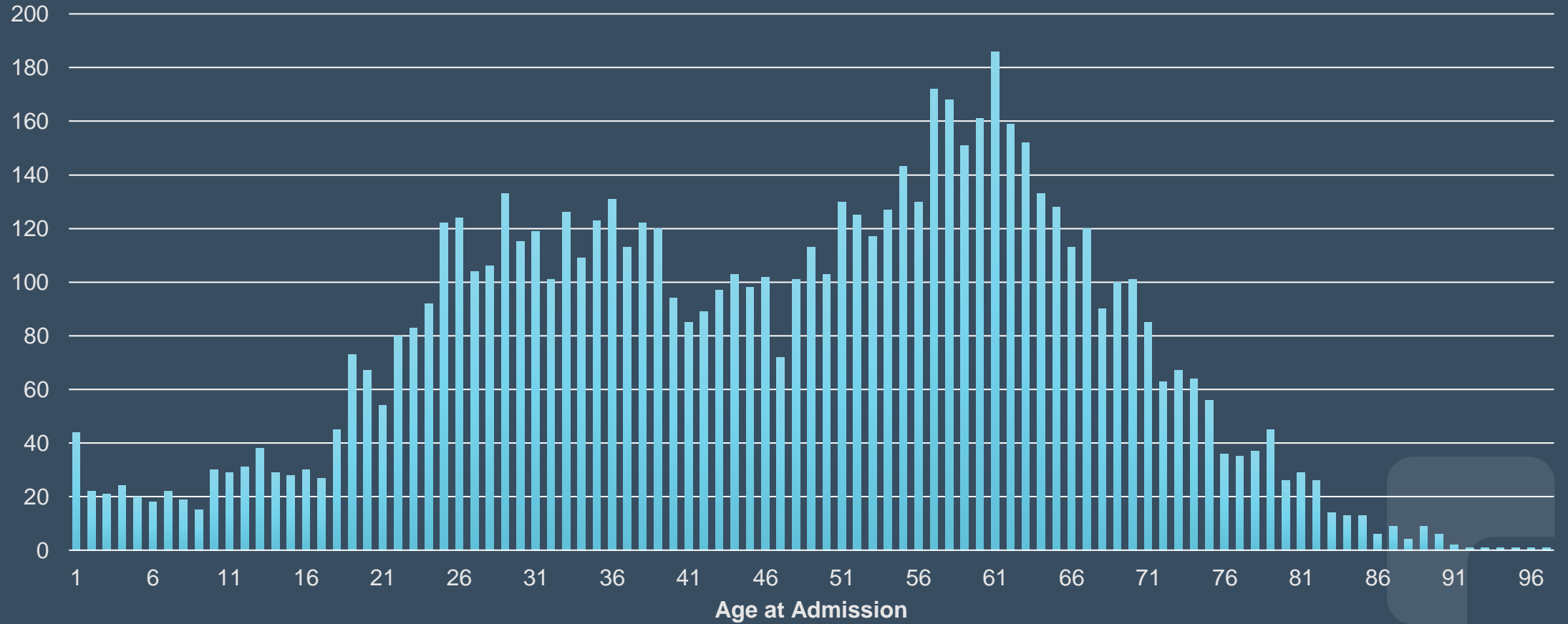
Top Tertiary Diagnoses



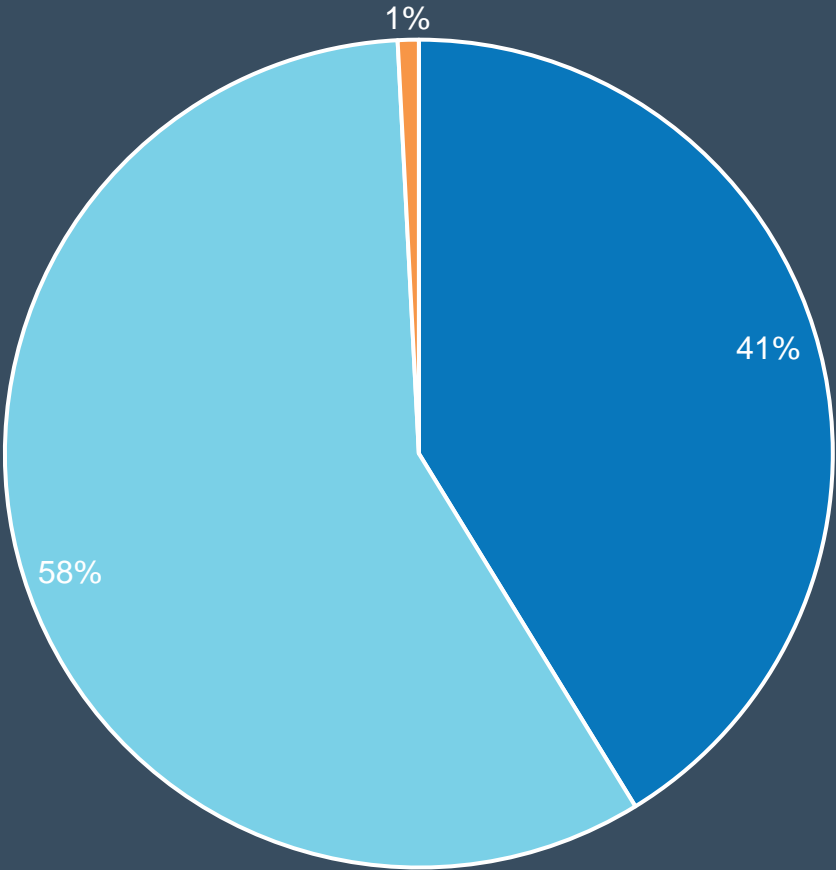
Top Reasons for Admission



Age Distribution

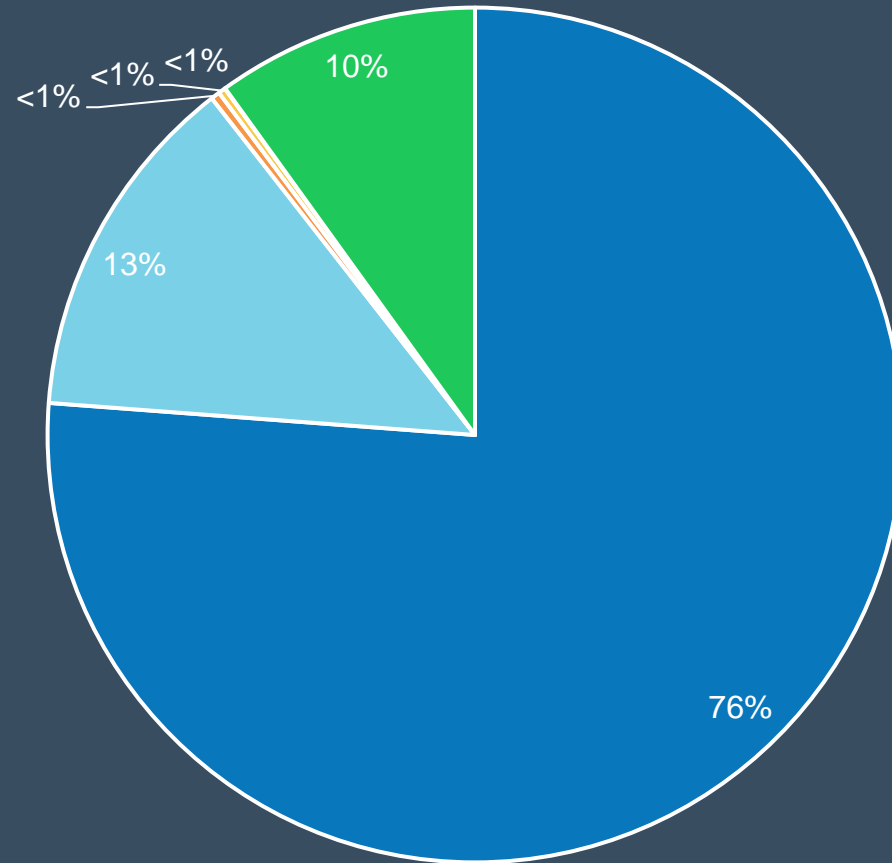


Gender



Female Male Unknown

Race



White/Caucasian

Asian

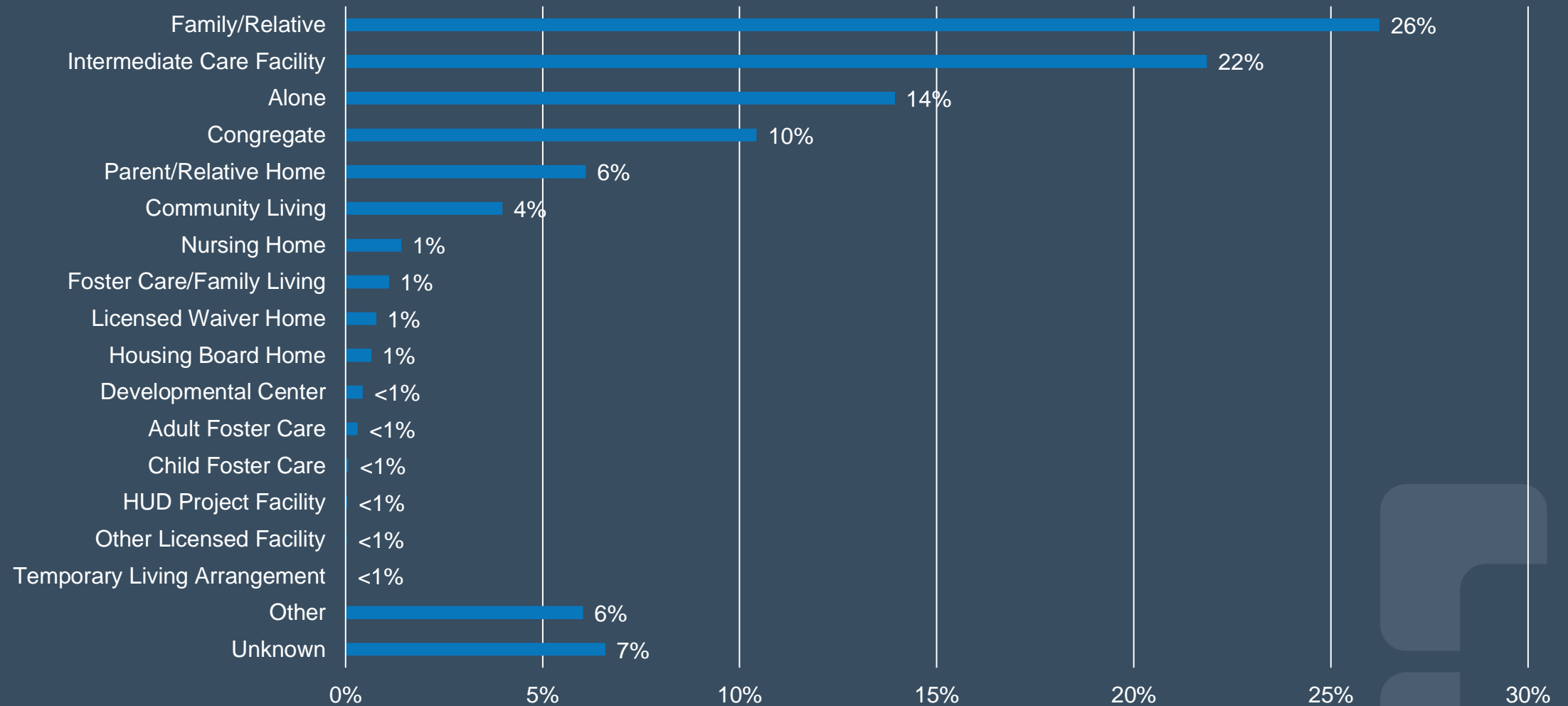
Black or African American

Native Hawaiian and Other Pacific Islander

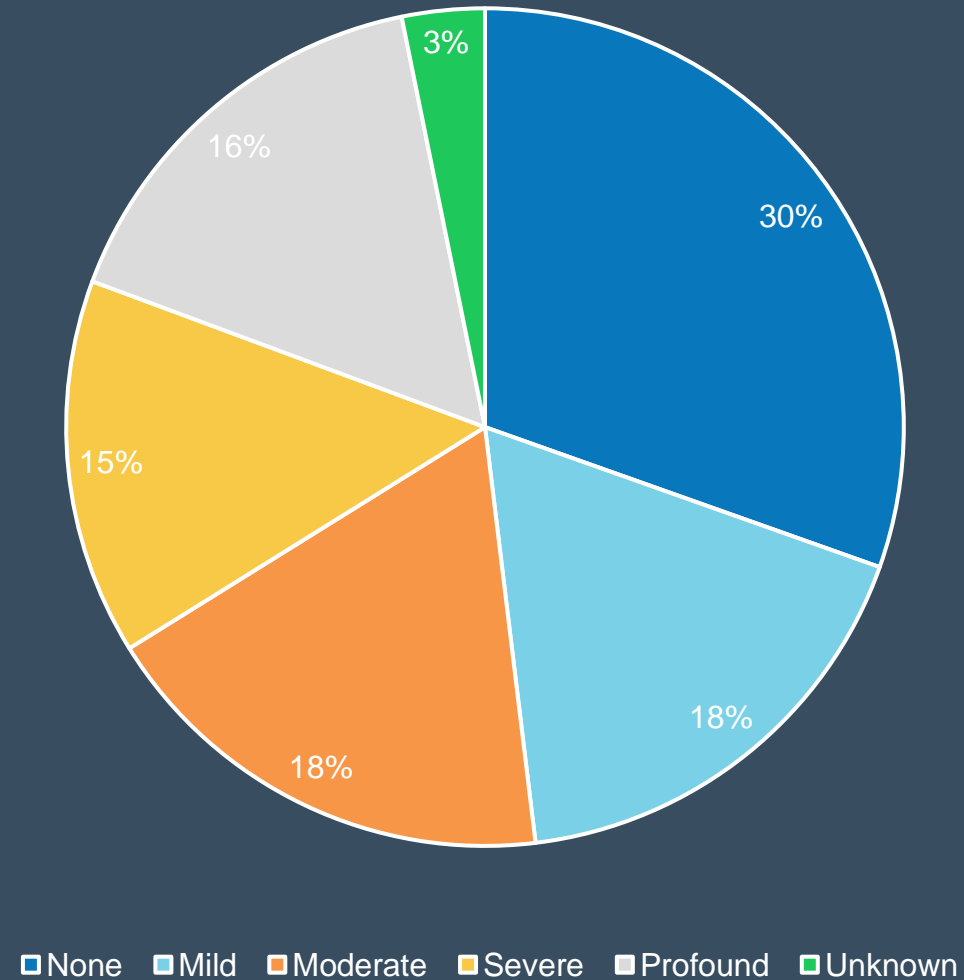
American Indian or Alaskan Native

Other or Unknown

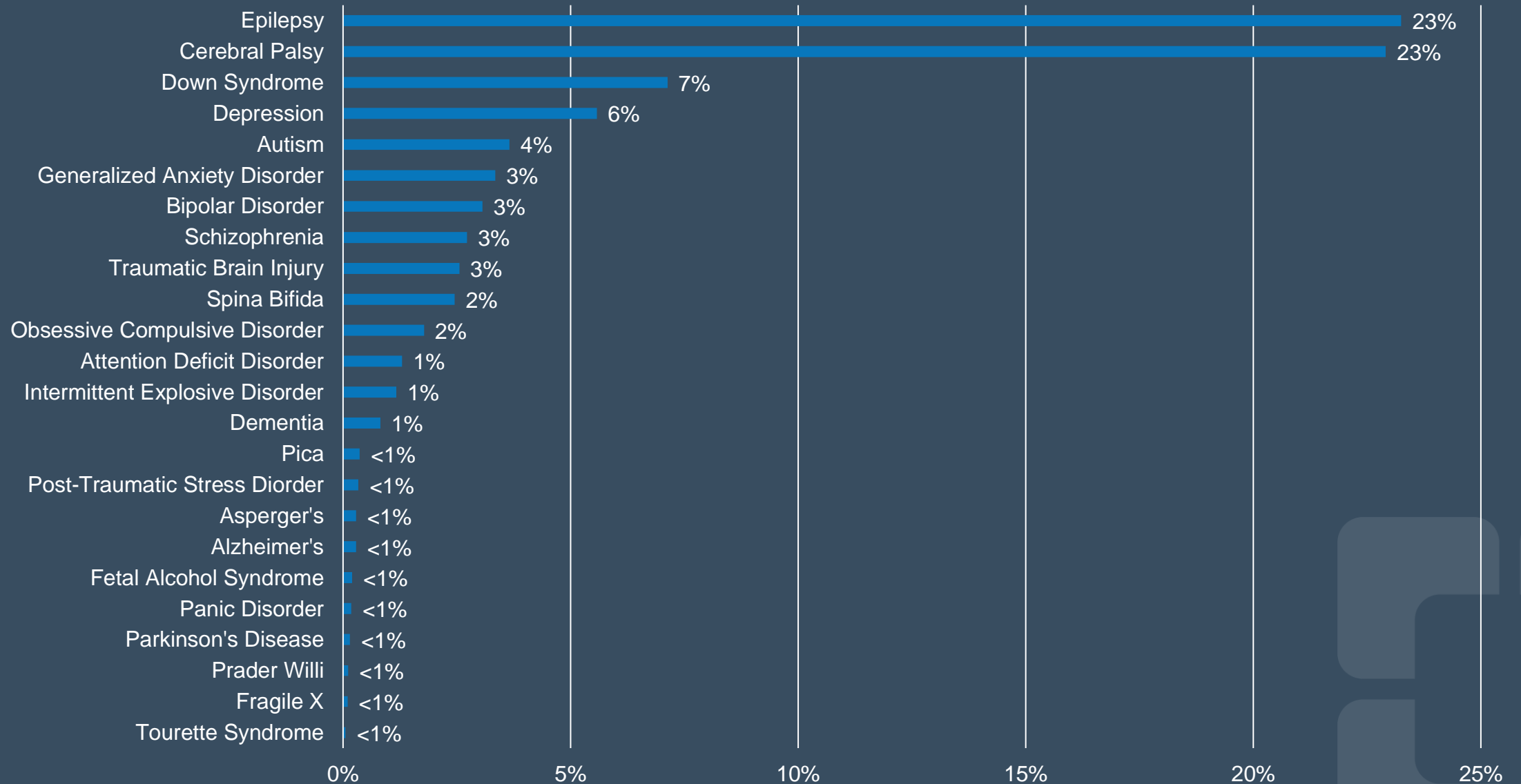
Living Arrangement



Intellectual Disability Level



Diagnoses



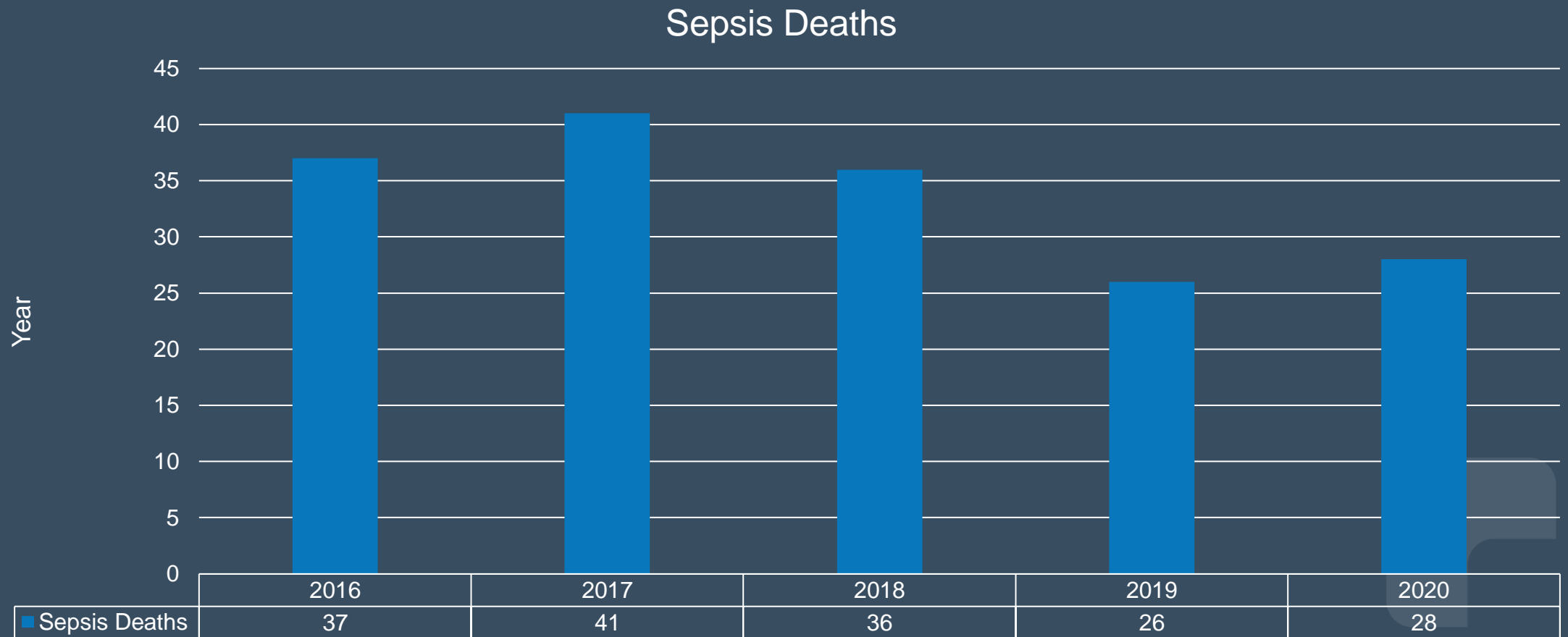
Sepsis deaths data was
Collected from the
Incident Tracking System and
Major Unusual Incidents



Major Unusual Incidents Data - 2020

- In 2020, there were 5,965 total Unanticipated Hospitalization MUIs filed.
 - Unanticipated Hospitalizations are the most commonly filed MUI accounting for 30% of all MUIs
- Among MUI Hospitalizations:
 - 5,144 Medical Hospitalizations 821 Psychiatric Hospitalizations
- Among MUI Medical Hospitalizations
 - Infectious disease was leading cause with 804 (13%) of medical hospitalizations
- Sepsis accounted for 3.25% of medical hospitalizations

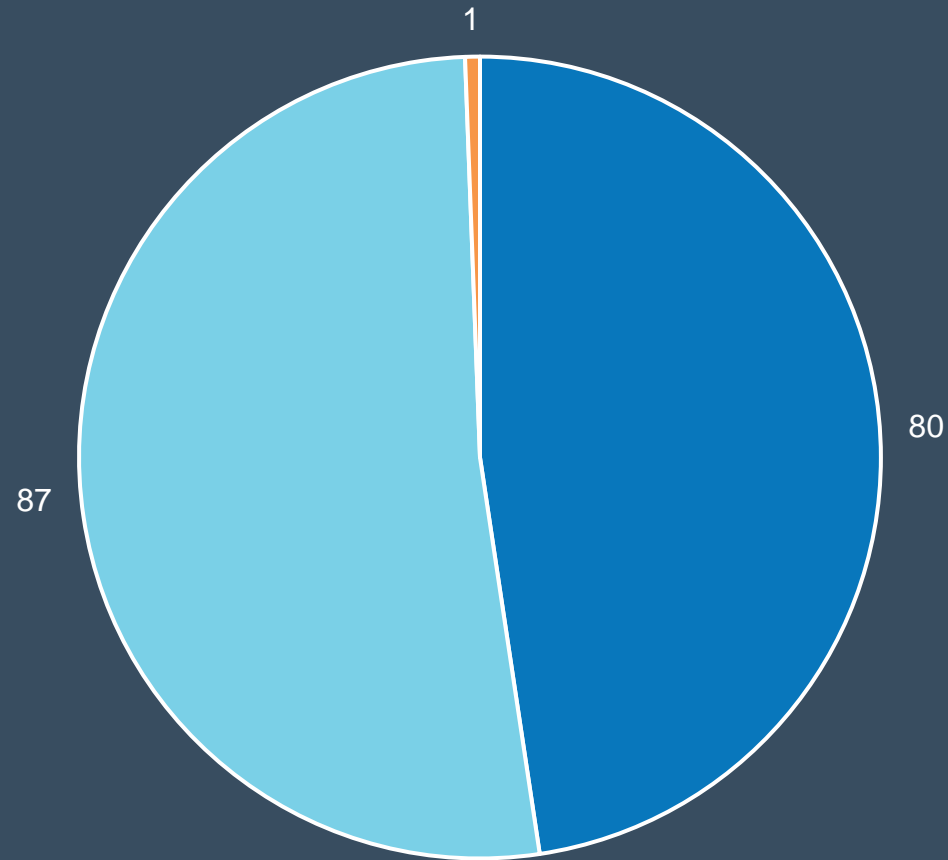
Sepsis Deaths 2016-2020



The following slides combine the data from calendar years 2016-2020 for people who died of sepsis (n=168)

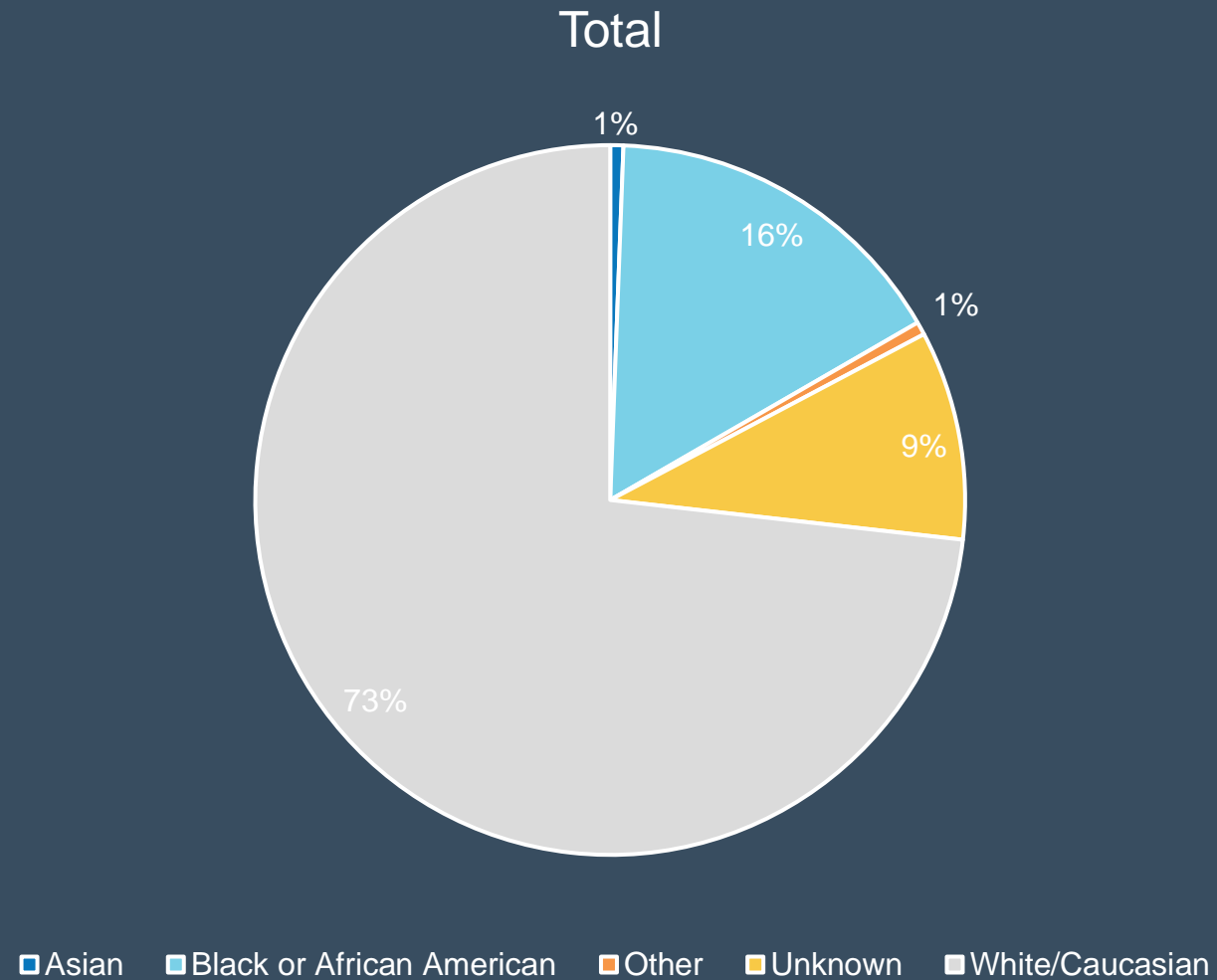


Gender Breakdown-Sepsis Deaths

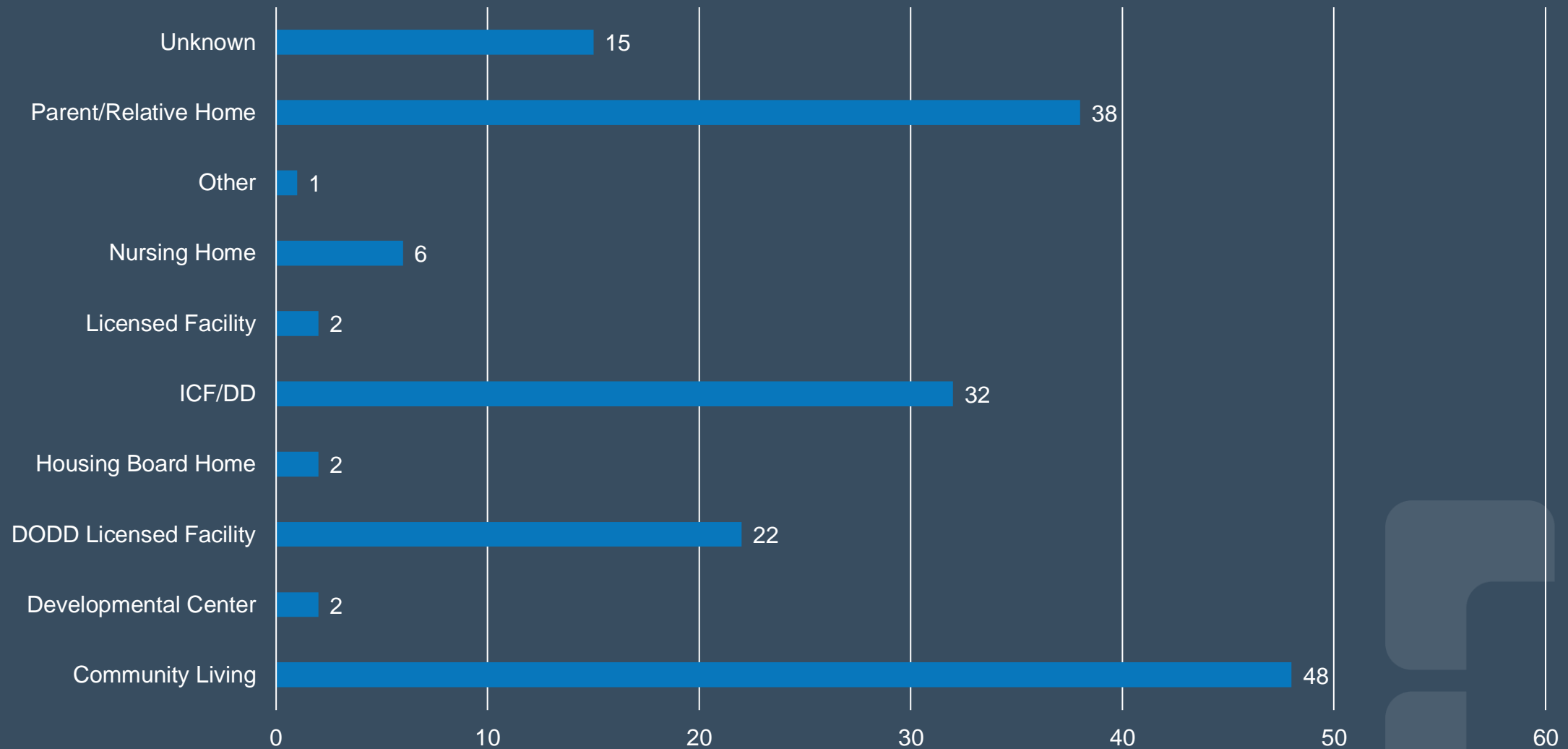


Female Male Unknown

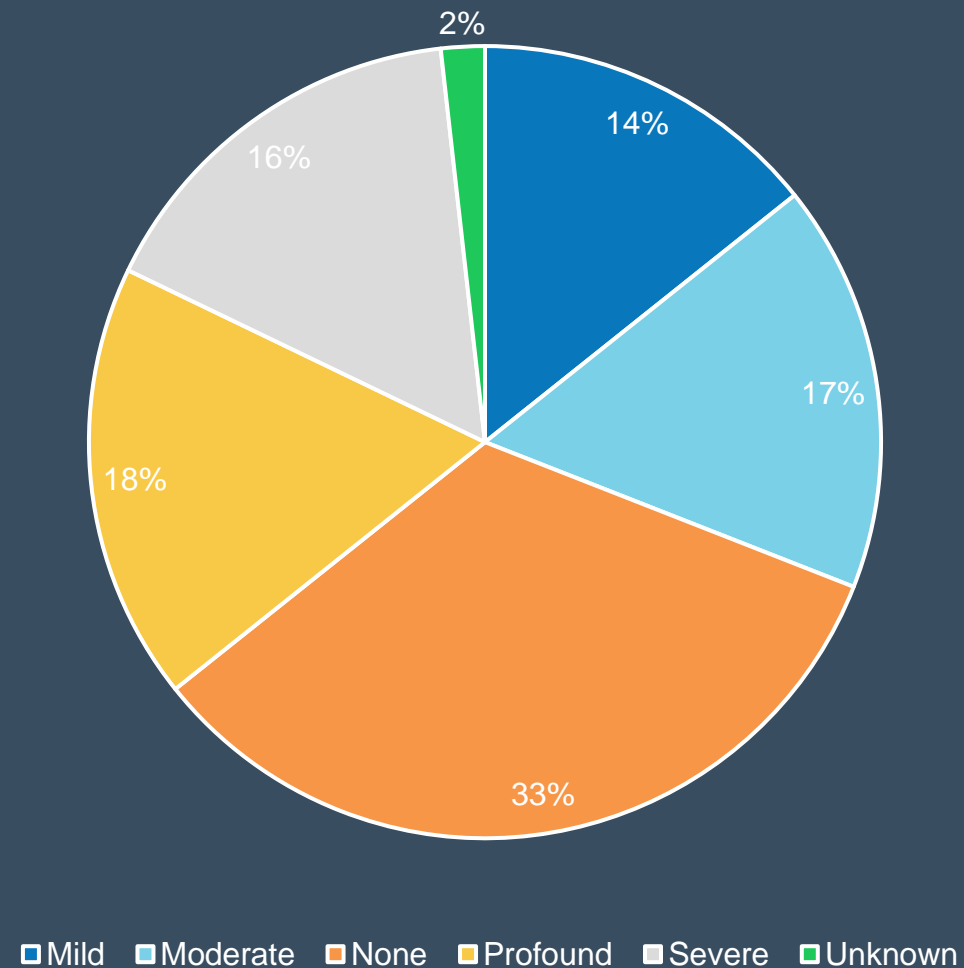
Race-Sepsis Deaths



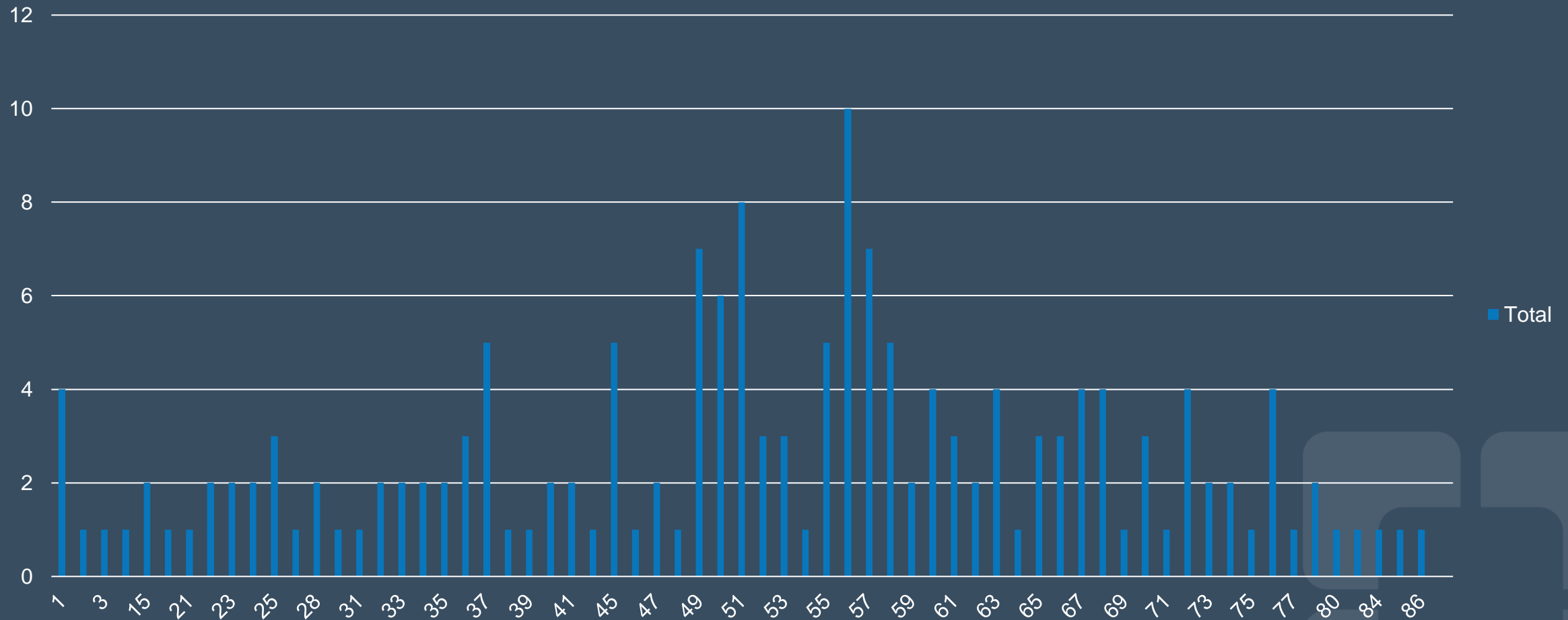
Living Arrangement-Sepsis Deaths



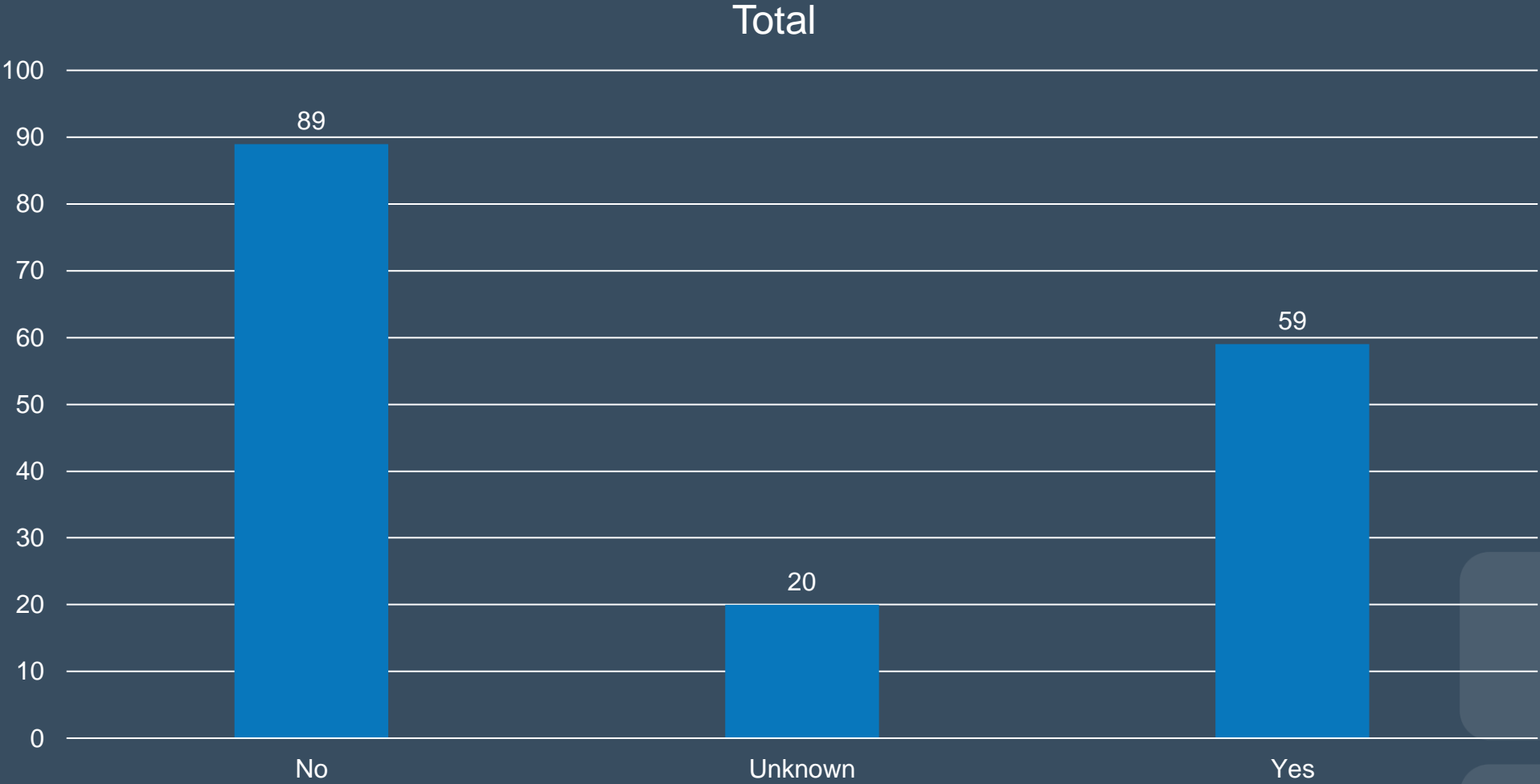
Intellectual Disability Level- Sepsis Deaths



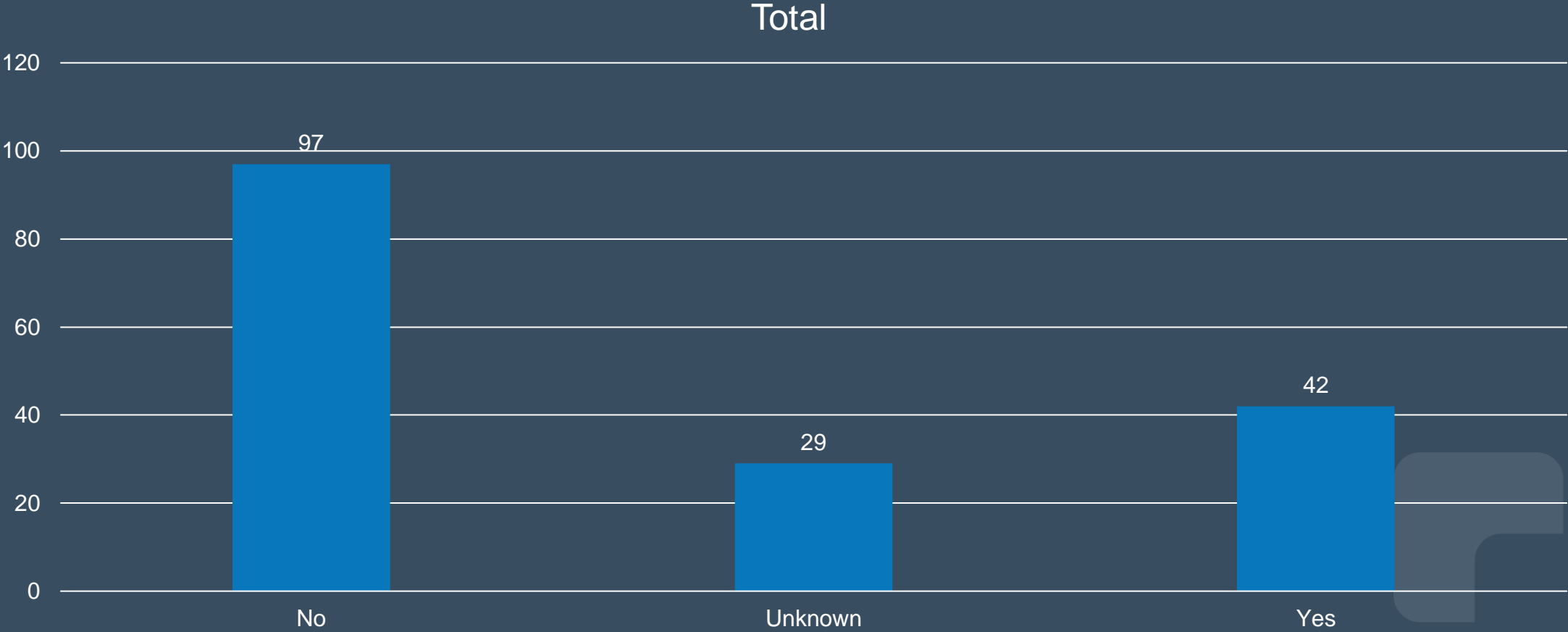
Age Distribution at time of Death



Seizure Diagnosis- Sepsis Deaths



Chronic Respiratory Conditions & Sepsis Deaths



Other Potential Risk Factors for Sepsis Deaths

Mechanical Ventilation (Prior to Hospitalization)

- 26% Yes
- 38% No
- 36% Unknown

Chronic Bladder Catheterization (Prior to Hospitalization)

- 7 % Yes
- 31 % No
- 62 % Unknown



Summary

In persons with intellectual and other developmental disabilities (IDD):

- Sepsis may account for a significant percentage of hospitalizations
- Presenting symptoms are primarily respiratory in nature
- Sepsis appears to be primarily related to respiratory tract infections
- Sepsis may occur throughout adulthood, not just among elders
- The micro-organism(s) responsible for sepsis is less likely to be specified
- Sub-groups at higher risk for sepsis may include individuals with co-morbid epilepsy, cerebral palsy, and/or Down syndrome
- There was no apparent survival advantage/disadvantage according to level of intellectual disability
- Pre-morbid mechanical ventilation, chronic bladder catheterization and seizure disorder may be risk factors for sepsis death

Prevention of Sepsis and Sepsis-Associated Death

- Direct Care Worker/Family Education
 - Basic education about sepsis
 - Early identification of signs of serious acute illness
 - Vulnerable sub-populations: Independent living, ICF/DD, nursing homes; co-morbid epilepsy, cerebral palsy, Down syndrome
- Health Professional Education & Training
 - Possible higher risk of sepsis among individuals with IDD
 - Risk throughout adulthood, not just among elders
- Health System
 - Collaboration between DD Support System and Health System
 - Research (health services, training, practice-based research)



Every life deserves world class care.

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