STS/EACTS Latin America Cardiovascular Surgery Conference
November 15-17, 2018
Hilton Cartagena | Cartagena, Colombia

Global Postoperative Mortality in Critical Congenital Heart Disease: A Systematic Review

Pablo Sandoval, Pablo Bermúdez, Néstor Sandoval, María Teresa Domínguez, Darío Londoño, Rodolfo Dennis

NO DISCLOSURES

INTRODUCTION

- 8 - 12 x 1000 newborns have a Congenital Heart Disease
- About 7,200 newborns, (18 per 10,000), in the United States are diagnosed with Critical Congenital Heart Disease (CCHD) each year.
- Part of cost effective analysis study for pulse oximetry routine screening in Colombia

- **Principal Objective**: Identify early postoperative mortality (30 days) in children < 1 year for each CCHD

- **Specific objectives**: Differentiate world-wide mortality rates
  Identify origin of published literature

(Genetics Home Reference, 2018)

METHODS

6 Data-bases

Pubmed®, Sciencedirect®, Lilacs®, Ebsco-Host®, Cochrane®, Scopus®

Key Words

- Cardiac Surgical Procedure
- Mortality OR Survival

-Pulmonary Atresia
-Tricuspid Atresia
-D - Transposition of Great Arteries
-Tetralogy of Fallot
-Hypoplastic Left Heart Syndrome (HLHS)
-Total Anomalous Pulmonary Venous Connection (TAPVC)
-Truncus Arteriosus

Inclusion Criteria

- **Type of Study**: Cohort or Case and Control Studies
- **Age:** Patients < 1 year old
- **Dates:** Between *01-01-2012* and *08-01-2017*
- **Language:** Spanish and English
- **Mortality:** 30 day mortality

Exclusion Criteria

- Patients who underwent percutaneous or medical procedures

RESULT

PRISMA 2009 Flow Diagram

IDENTIFICATION

SCREENING

ELIGIBILITY

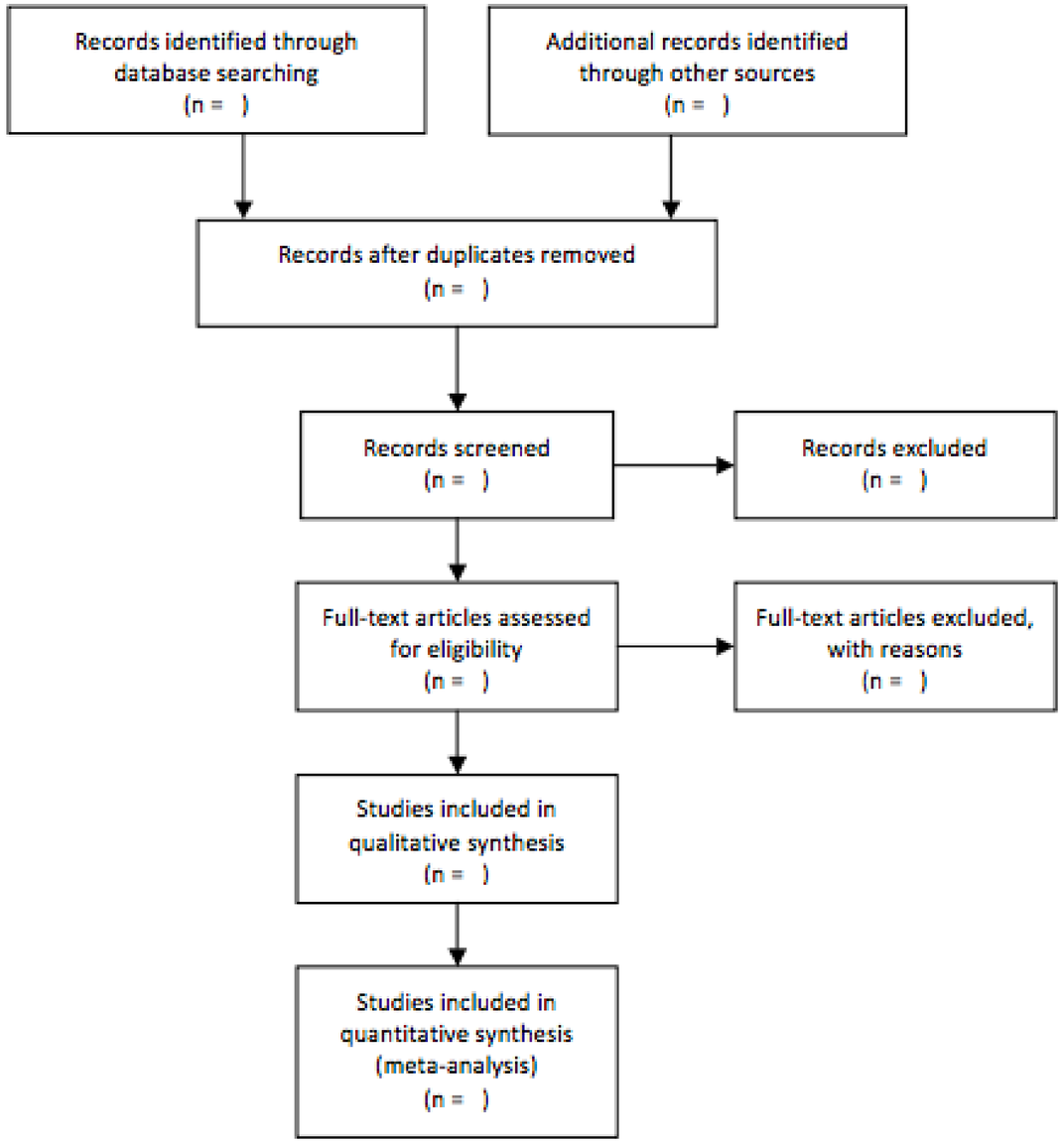
INCLUDED

Identification

Screening

Eligibility

Included



:D: 831
: 55
372
147
78
179

EXCLUDED: 87
er and younger than 1 year of age 22
ed by specific heart disease: 31
lear or extended > 30 days: 15
panish and english: 10
plete article: 9

CLUDED: 7
RITERIA < 75% 7

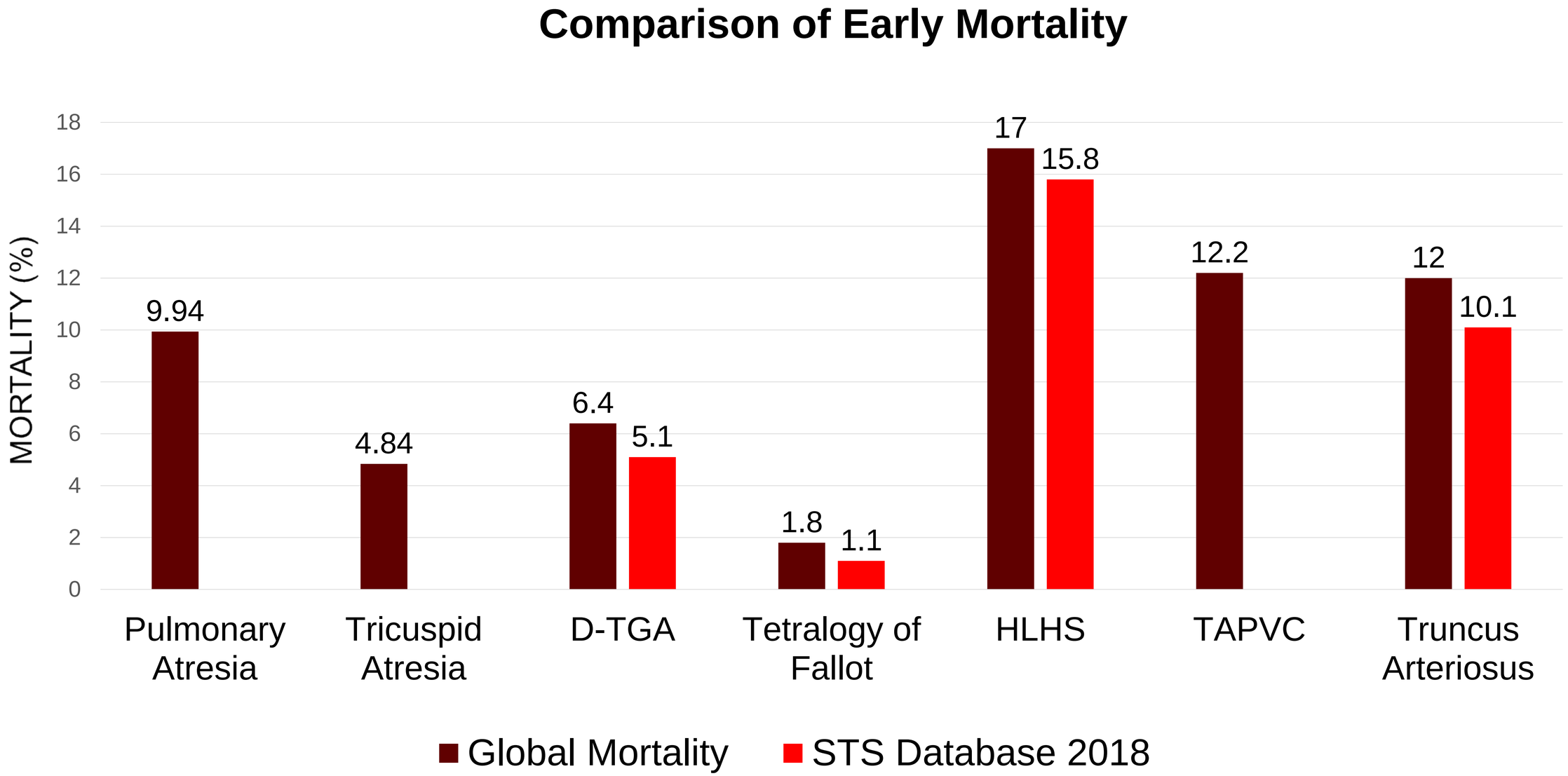
RESULTS

Early Mortality in Cardiovascular Surgery for Critical Congenital Heart Disease in Children Under One Year of Age (Expressed in Percentage of Interventions 95% CI)									
	Number of Studies	Number of Procedures	Global	North America	South America	Europe	Asia	Oceania	Africa
Pulmonary Atresia	5	342	9,94 (6,98-13,61)	17,07 (10,06-26,38)*	ND	18,88 (11,79-28,51)*	1,76 (0,45-4,72)	ND	ND
Tricuspid Atresia	3	454	4,84 (3,06-7,24)	4,84 (3,14-7,12)	ND	ND	ND	ND	ND
D-TGA	34	7099	6,39 (5,83-6,98)	3,04 (2,45-3,73)	23,95 (19,29-29,14)	6,73 (5,66-7,93)	5,95 (4,07-8,38)	2,88 (1,89-4,19)	3,52 (0,90-9,30)*
Tetralogy of Fallot	21	7323	1,80 (1,51-2,13)	2,13 (1,77-2,55)	ND	1,19 (0,58-2,17)	0,61 (0,19-1,47)	1,03 (0,45-2,04)	ND
HLHS	44	10145	17,02 (16,29-17,76)	17,12 (16,35-17,93)	23,07*	16,88 (14,93-18,98)	9,75 (4,63-17,68)*	13,3 (4,38-29,1)*	ND
TAPVC	7	598	12,2 (6,96-15,10)	6,66 (3,75-10,86)	ND	20,32 (14,54-25,96)	10,18 (6,65-14,77)	ND	ND
Truncus Arteriosus	6	150	12,00 (7,26-18,30)	16,66 (4,42-38,9)*	ND	3,27 (0,55-10,41)*	10,00 (1,71-29,29)*	21,56 (11,9-34,39)*	ND

**Information calculated from studies with less than 100 procedures performed*

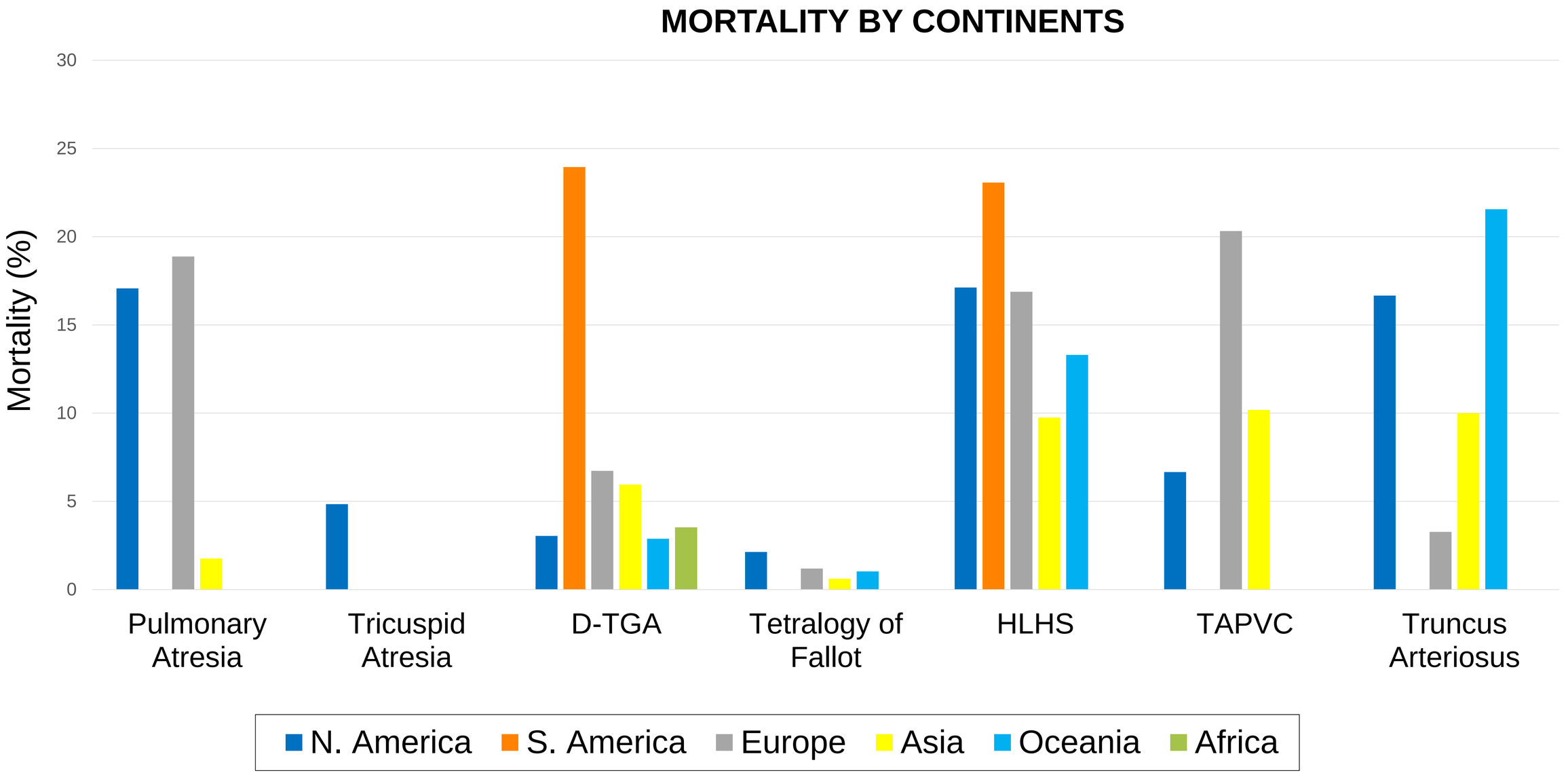
Average Mortality 9,17%

RESULTS

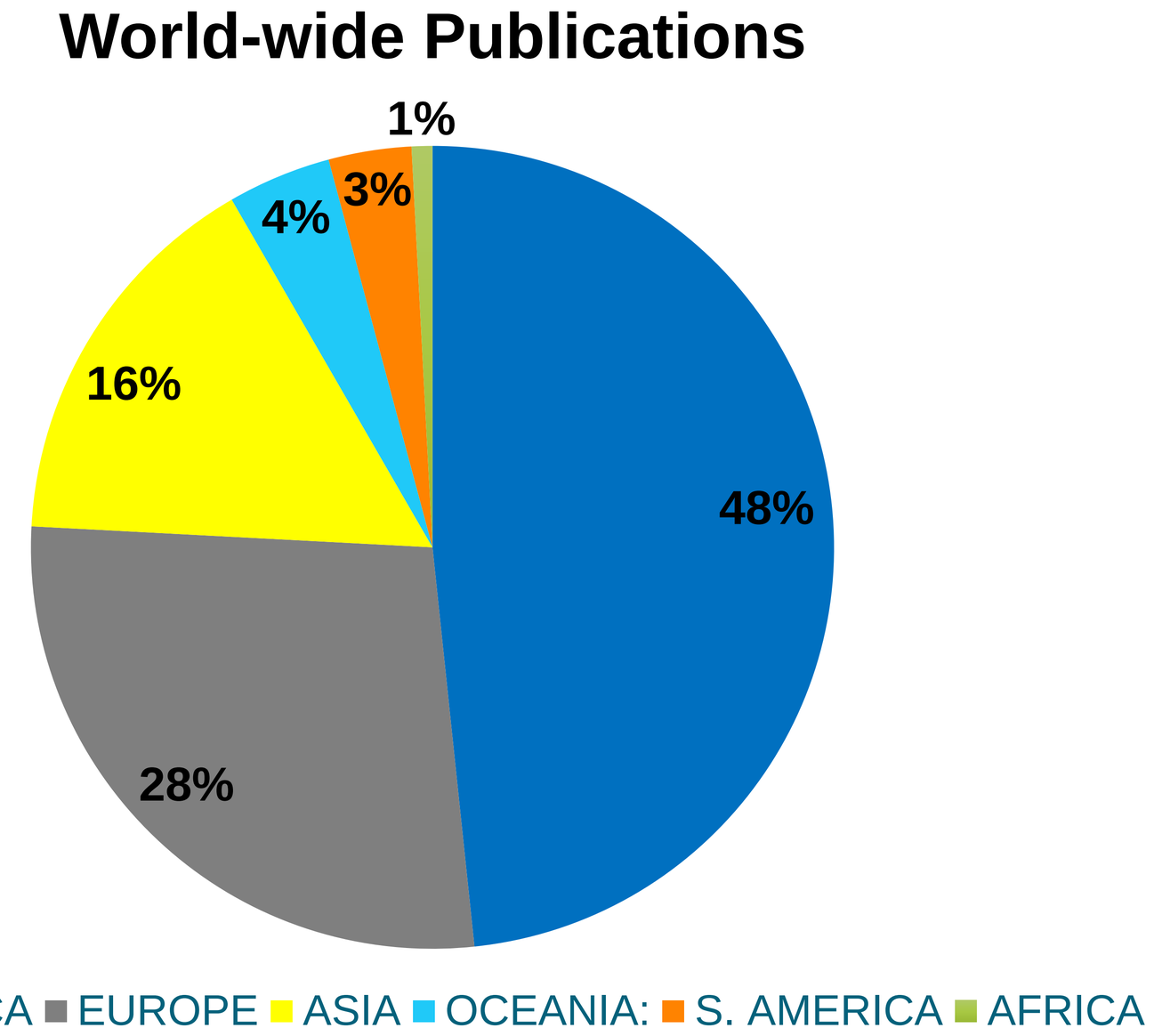


(Jacobs et al., 2018)

RESULTS


MORTALITY BY CONTINENTS
Mortality (%)
30
25
20
15
10
5
0
Pulmonary Atresia
Tricuspid Atresia
D-TGA
Tetralogy of Fallot
HLHS
TAPVC
Truncus Arteriosus
N. America
S. America
Europe
Asia
Oceania
Africa

RESULTS


World-wide Publications
1%
3%
4%
16%
48%
28%
N. AMERICA
EUROPE
ASIA
OCEANIA:
S. AMERICA
AFRICA

CONCLUSIONS

- Even though there are referral centers with low mortality rates, the aggregates demonstrated that mortality continues to be elevated
- There are important differences in regions regarding outcomes and publications
- Efforts have to be made to obtain global mortality indicator to compare to local results
- This study helped demonstrate that the use of pulse oximetry is cost effective and should be implemented as a national health policy in order to improve detection and survival rates of CCHD

LIMITATIONS

- Publication bias
- Pathology vs Procedure Mortality
- Risk Factors were not taken into account

STS/EACTS Latin America Cardiovascular Surgery Conference

November 15-17, 2018

Hilton Cartagena | Cartagena, Colombia

The Society of Thoracic Surgeons

EACTS

THANK YOU