



Intervention in ACHD

-Experience in South Korea

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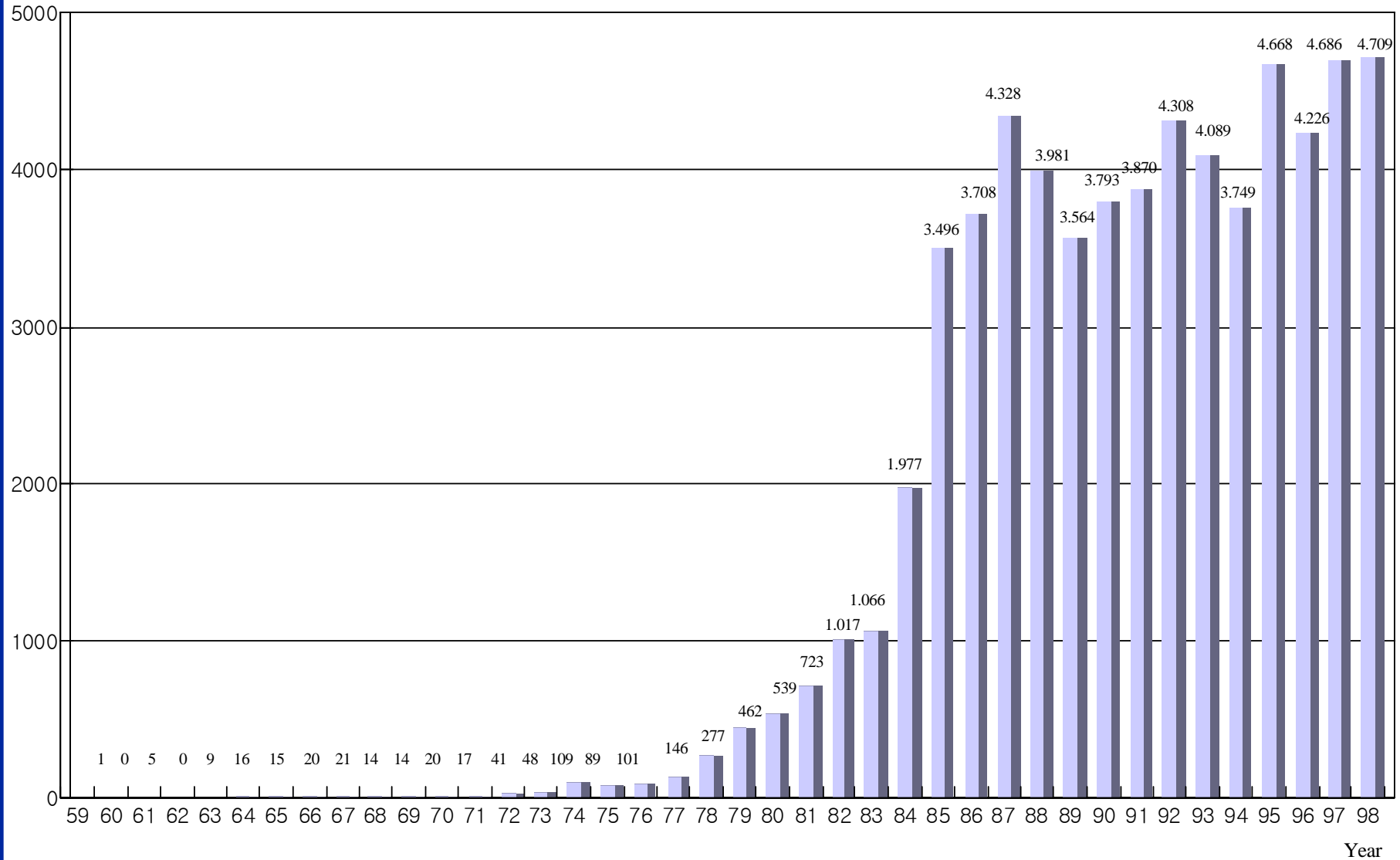


Medical Doctors in South Korea

- **Population** **50 million**
- **MD (2006)** **104,132 (1:480)**
- **Pediatric cardiologists** **118**
- **Pediatric cardiac surgeons** **74**

Cardiac Surgery for Congenital Heart Disease in Korea

Number





Medical Insurance

- **Controlled by Korean government**
- **Patients should pay 20% of total medical costs in admission, and 50% in out patient clinic.**
- **Covering all kinds of cardiac surgery**
- **Partially cover cardiac intervention**



Medical Costs(\$)

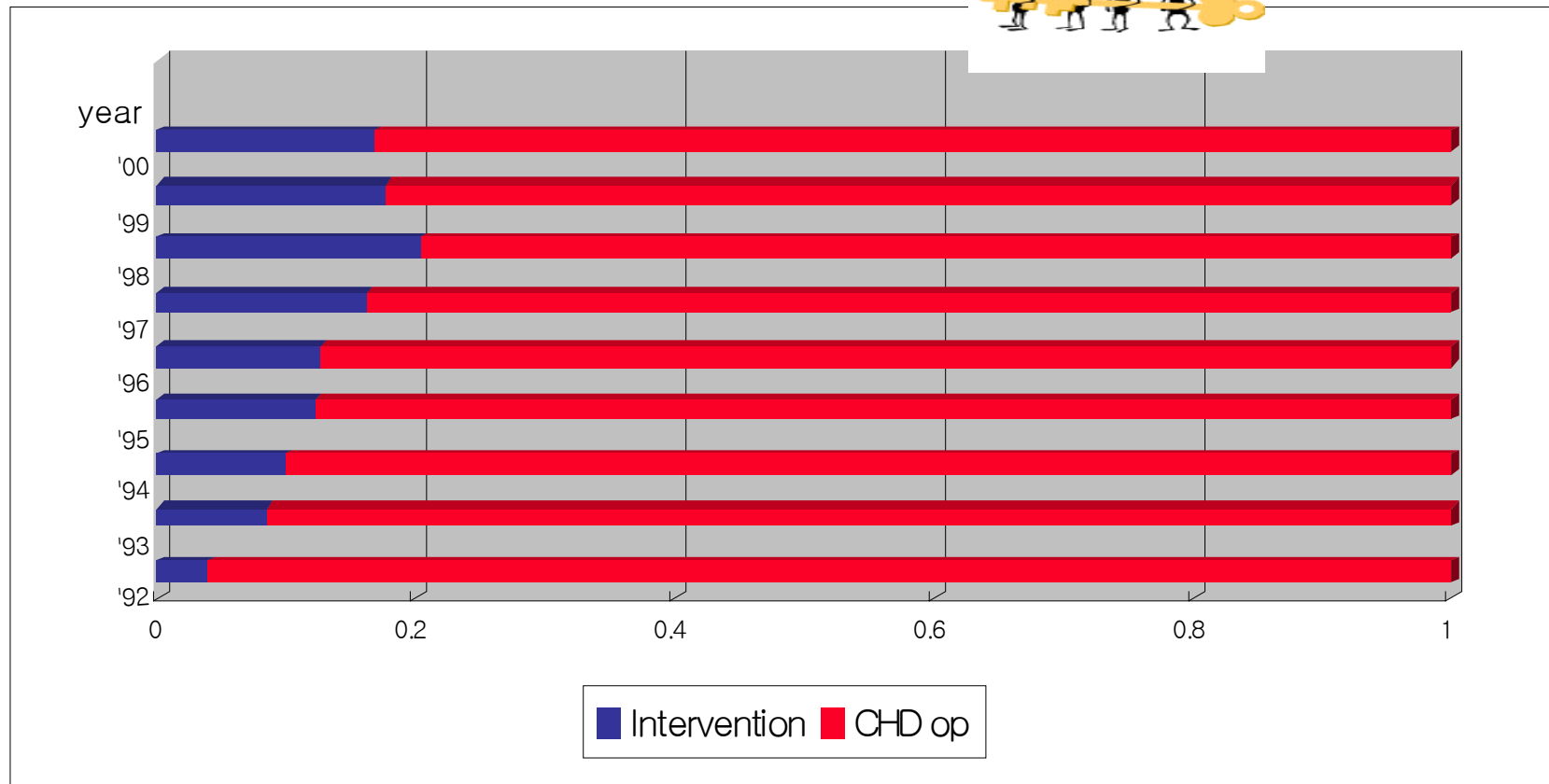
	<u>surgery</u>		<u>Amplatzer</u>		<u>coil</u>	
	total	pt	total	pt	total	pt
PDA	4,000	1,300	4,550	2,090	2,000	910
ASD	7,730	2,360	10,000	7,270		
VSD	7,730	2,360	10,000	7,270		



Congenital heart surgery in Korea

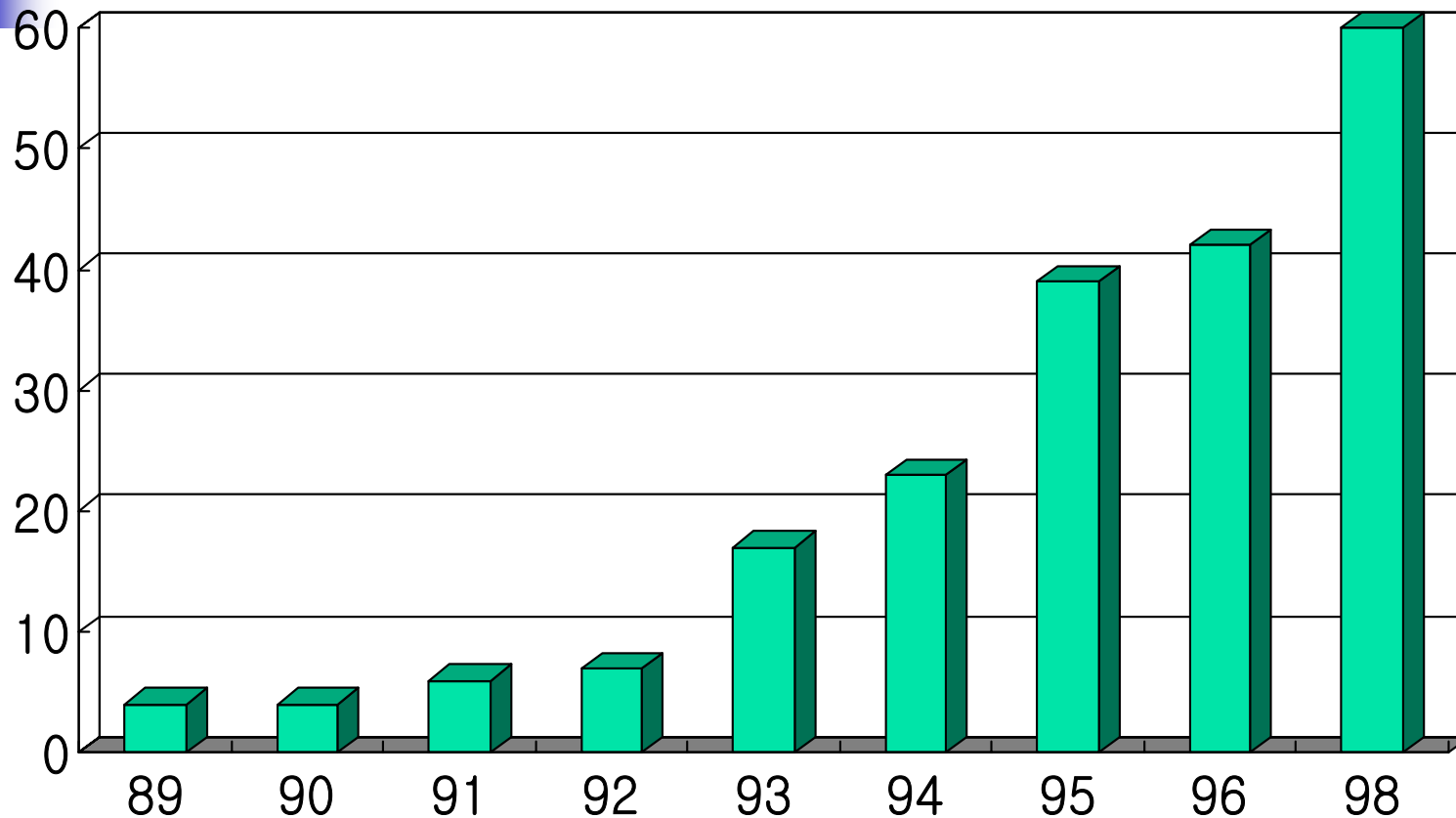
- **Cardiac centers** **60**
- **OHS > 300/year** **10**
 - **Big 5 centers > 80% of all CHD cases**
- **Mortality in simple CHD** **<1%**

Percentile profile of Current Management of CHD in Korea : 1992 ~2000



Trends in Indication of Cath.

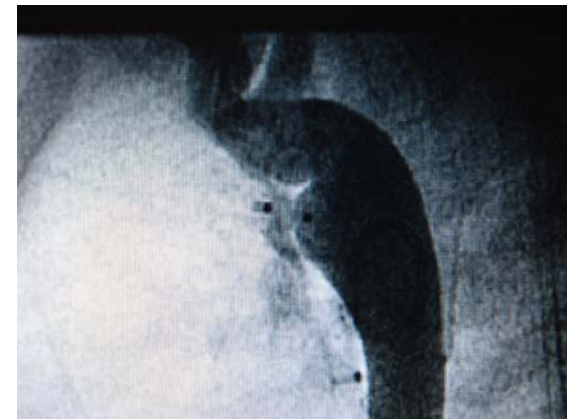
- Proportion of intervention in SGH





PDA

- | | |
|------------------|-------------|
| | 1st |
| ■ Rashkind | 1991 |
| ■ Button | 1993 |
| ■ Gianturco coil | 1995 |
| ■ Cardioseal | 1995 |
| ■ Pfm coil | 1996 |
| ■ Amplatzer | 1998 |

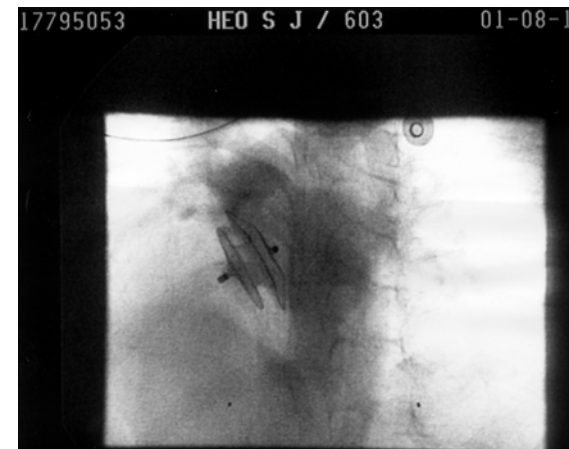
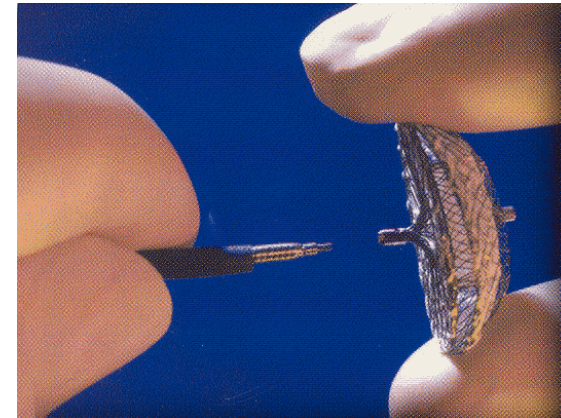




ASD

- **Button** 1993
- **CardioSEAL** 1995
- **Amplatzer** 1998

1st



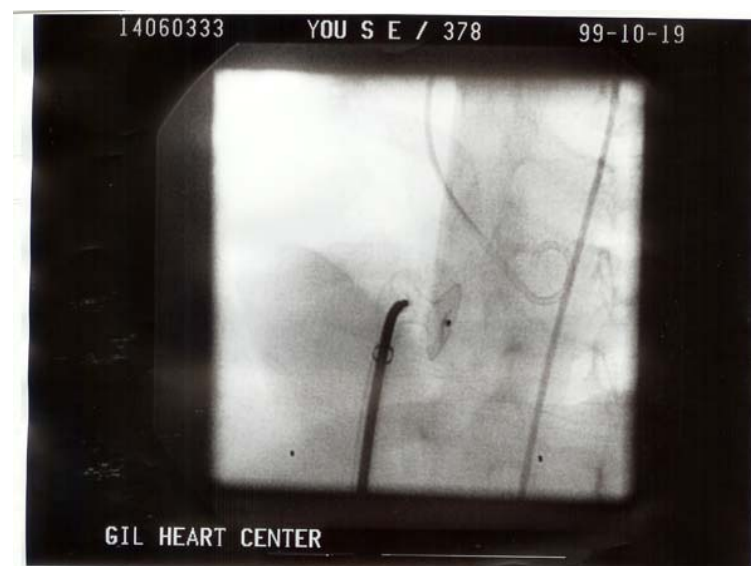
Muscular VSD

- Button
- Amplatzer

1st

1995

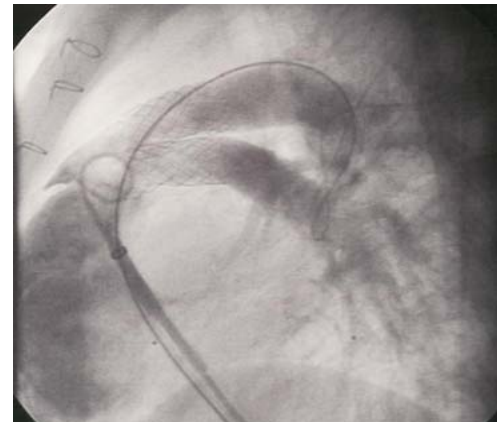
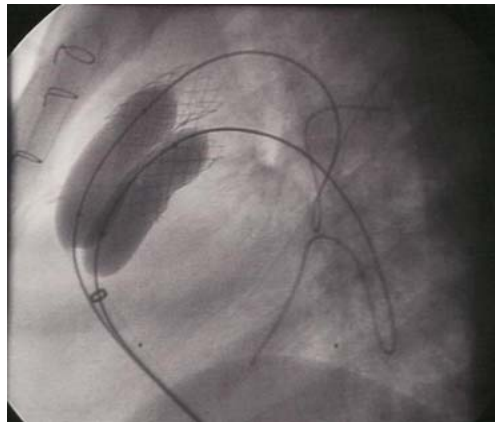
1999



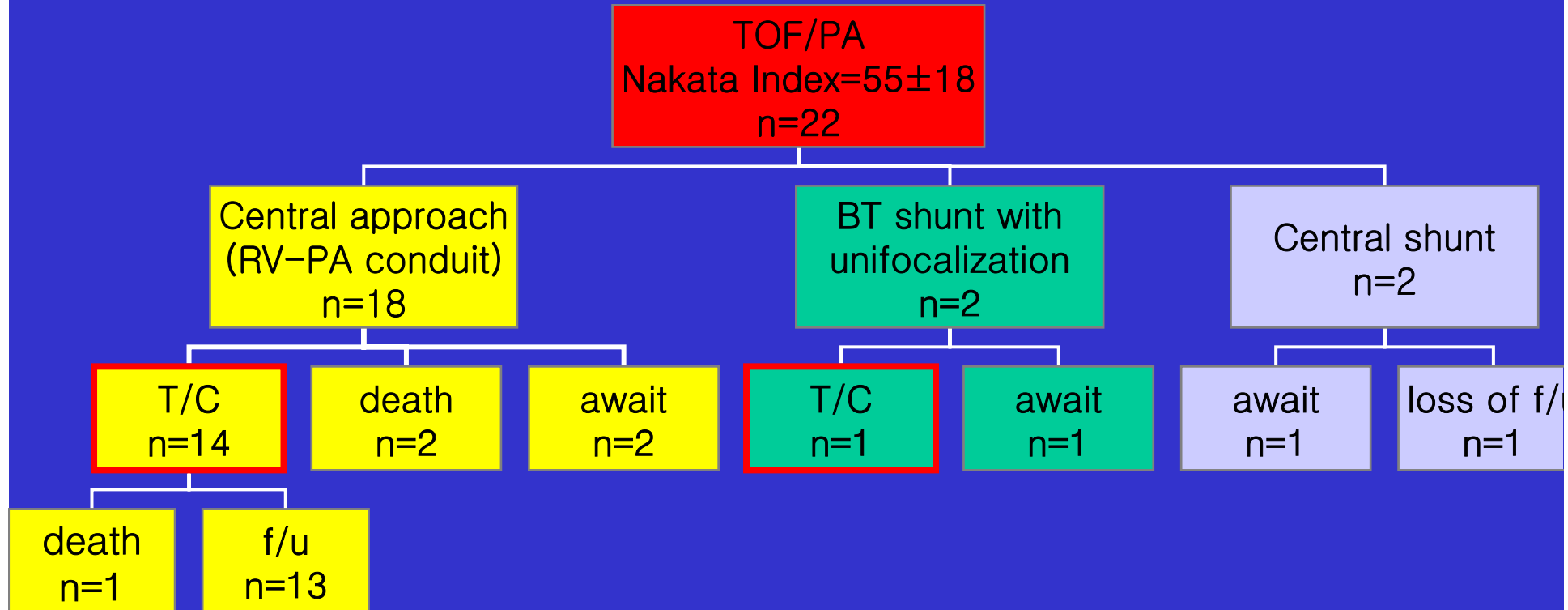


Balloon & stent

- **Valvuloplasty** **1985**
- **Angioplasty** **1992**
- **Stent for PA** **1993**
- **Stent for CoA** **not tried**



- SEJONG GENERAL HOSPITAL





PA with IVS

- **Multicenter study(5 centers in Korea)**
 - 1993.3 ~ 2001.2, 146pts
- **Initial palliative Tx**
 - **Balloon valvuloplasty** 78
 - **Surgery** 68



Final Outcomes in BV

Bi	58 (74%)
1 1/2	5 (7%)
wait	1 (1%)
Fontan	1 (1%)
expire/lost	13 (17%)
total	78



Survival rates

	1Y	3Y	4Y	5Y
Hanley (87-91)	69		64	
Toronto (92-98)	75			67
Korea (93-2001)		79		



Future

- **TCO of PM VSD**
 - **Korean FDA approval**
- **Amplatzer septal occluder**
 - **Med. insurance**
- **Pul & aortic valve implantation**
- **Fetal intervention**



Involved Cardiac Centers

- Asan Medical Center
- Busan University Hospital
- **Cheju Halla General Hospital**
- Choongang University Hospital
- Gil Medical Center
- Hallym University Hospital
- Korea University Hospital
- Samsung Medical Center
- Sejong General Hospital
- Seoul National University Hospital
- Yeungnam University Medical Center
- Yonsei University Hospital

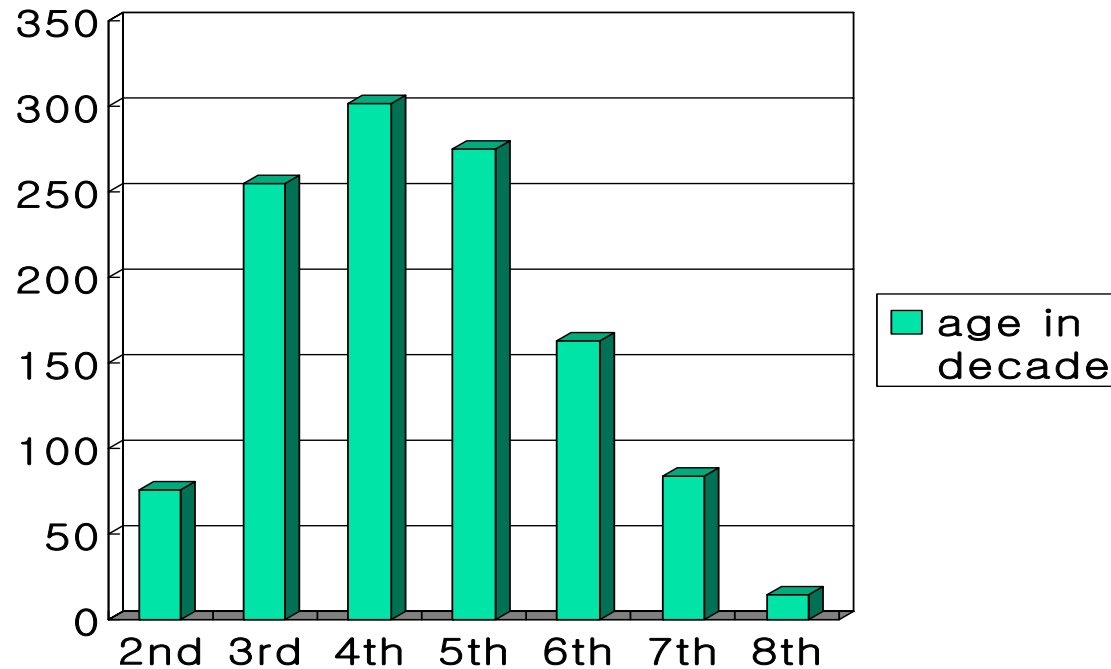


Intervention in ACHD

- **Estimated Pts with ACHD
in South Korea > 150,000**
- **Retrospective study**
- **1997-2009**
- **Intervention in 12 cardiac centers**

Patients

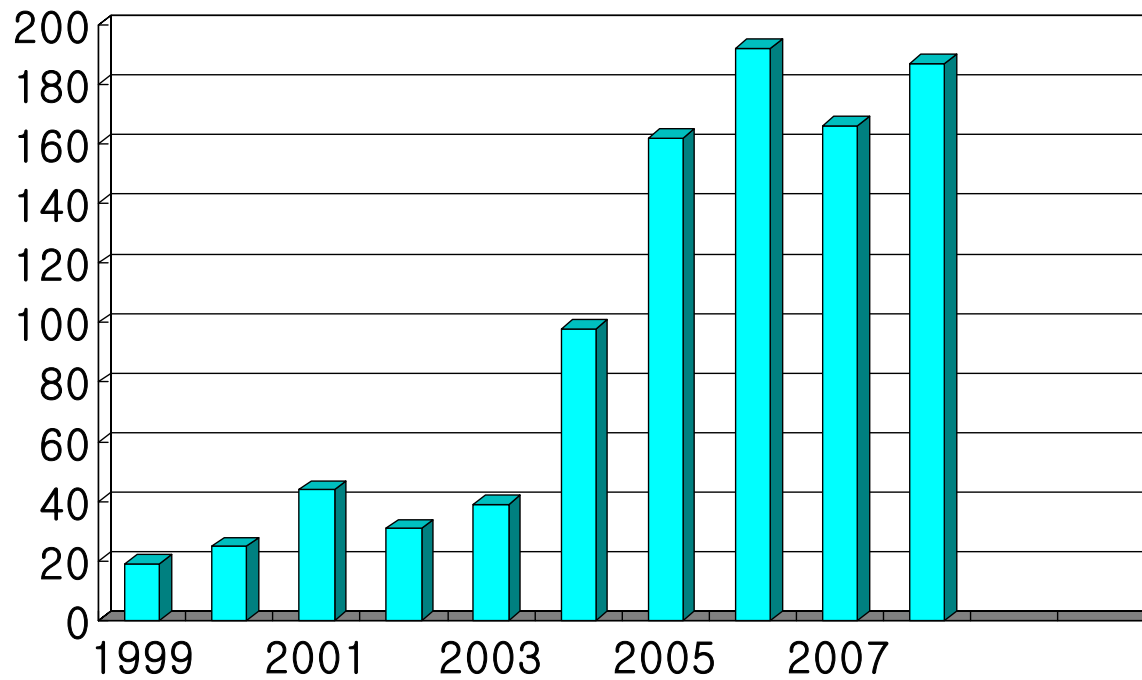
- **N=1170(M:F=376:794=1:2.1)**
- **Med. Age : 38(18-81)years**



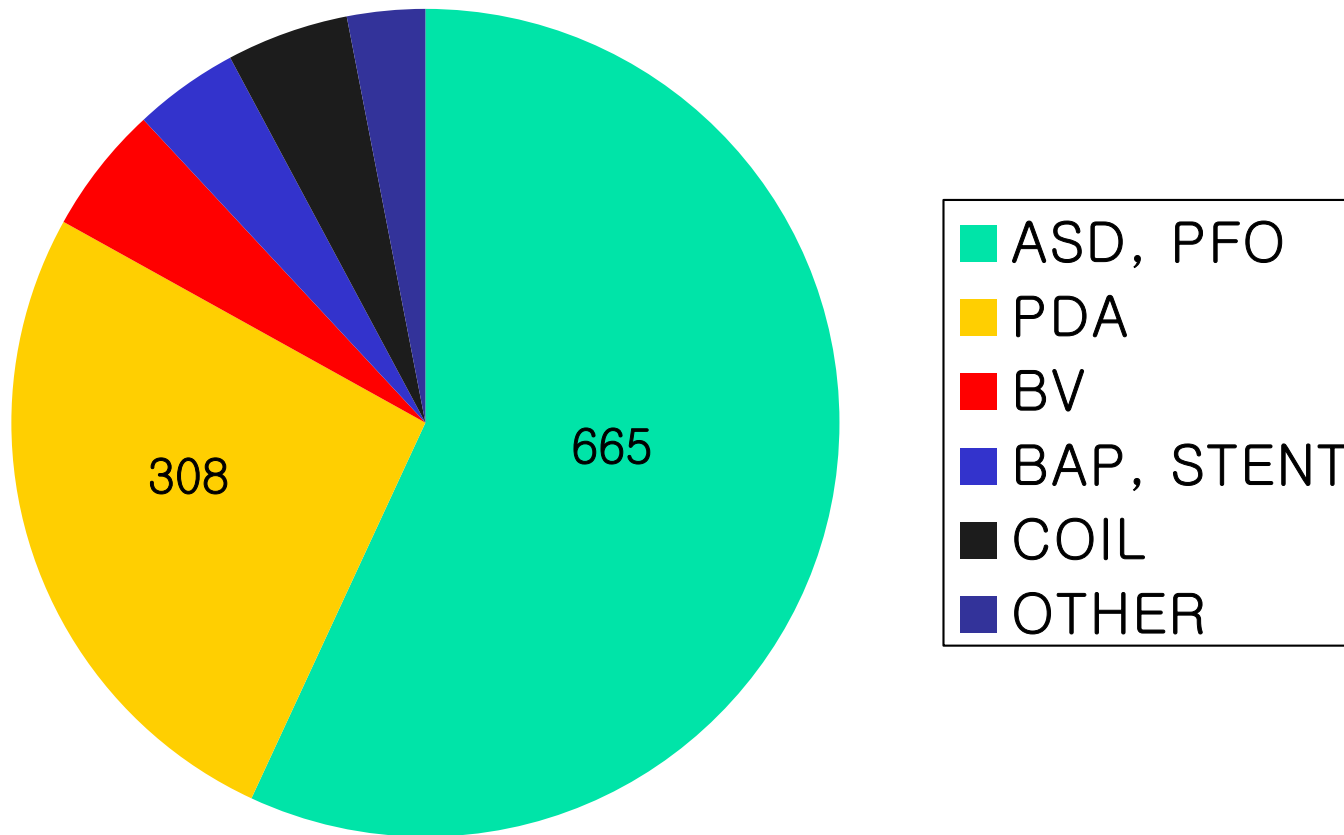


Study period

■ 1997 ~ 2009



Interventions





Complications of ASD closure

■ Fail to implant	10(0.9%)
■ Groin hematoma	7(0.6%)
■ Arrhythmia	4
■ Ao-RA fistula	1
■ Femoral AV fistula	2
■ Retroperitoneal hematoma	1
■ LAA laceration	1
■ Bronchospasm(dye allergy)	1
■ Thromboembolism or TIA	0



Results of PFO closure

- **Successful implantation** 99/108 (92%)
- **Failed** 9/108(8%)
 - **Not cross(5), multiple fenestration(1), unstable device(3)**
- **Residual leak after procedure** 3/99(3%)
 - **In 6M 1(1%)**
- **No thrombosis on the device**
- **Recurrent attack 4(4%)**
 - **Headache (3)**
 - **Stroke (1) after 3M**



Complications of PFO closure

- **Unstable device** 3
- **Arrhythmia : A/F, A/f** 2
- **TIA** 2
- **Transient ST elevation** 1
- **Transient headache** 1
- **Expire d/t AMI** 1