

Interventions in ACHD: Experience in Saudi Arabia



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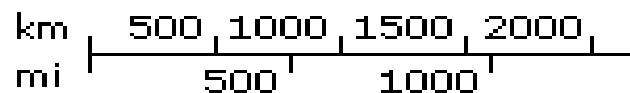
Prince Salman Heart Center Riyadh, Saudi Arabia

2009-06-24



King Fahd Medical City in Riyadh.

Saudi Arabia, Asia



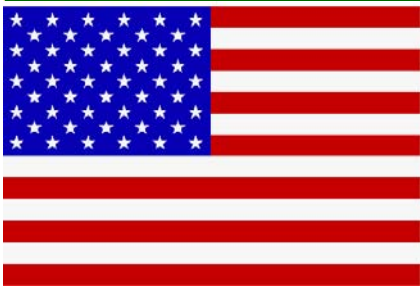
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Background

Adult Congenital Population



- USA - 800,000 adults CHD



- 1400 new patients with ACHD in Canada each year

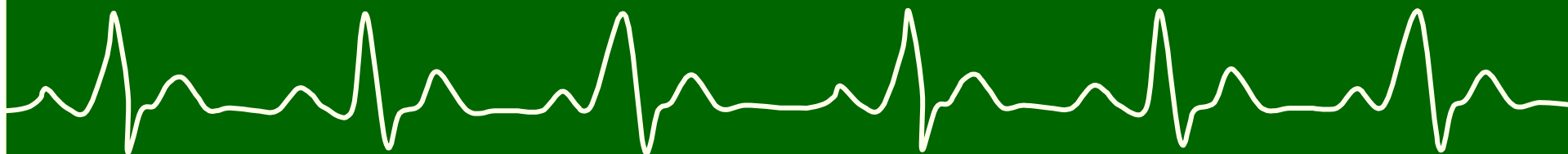


Background

Adult Congenital in KSA

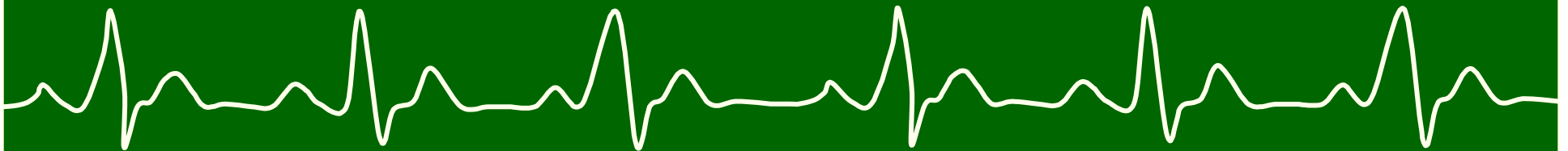


- Not known (CHD registry)
- 1st cardiac surgery 1975
- Many 1000s ACHD (>14 yrs)



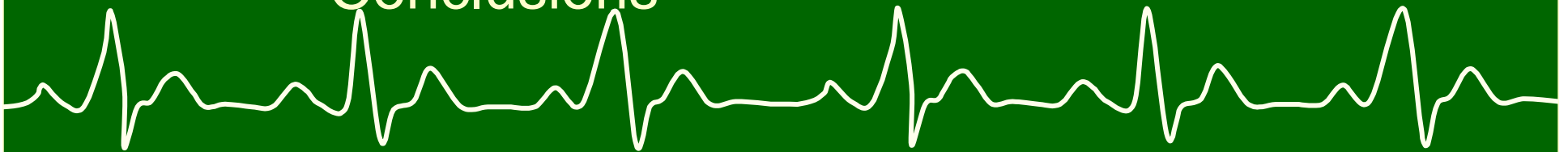
Adult Congenital Population Subtypes

1. Post surgical “**total corrections**”/ TT procedures
2. Post palliative procedures to improve life quality
3. Late presenter (no diagnosis, no plan of action)
4. **FU** Patients: a) no treatment necessary
b) no available treatment (supportive care)



Outline

- Demographics in Saudi Arabia
- Healthcare System
- Cardiovascular Hospitals in KSA
 - PSSC, KFSH (R,J), National Guard, PSHC
- ACHD in Saudi Arabia
- Interventional Cardiology in ACH patients
 - Procedures, Publications
 - Our experience
- Conclusions





http://www.saudia-online.com/saudi_arabia.htm#geo

In 1902,
Abdul Aziz Bin Abdul Rahman Al-Saud

Recaptured Riyadh from the Al-Rashid.

In 30 years united most tribes into one nation.

23 Sept 1932 – foundation of the modern kingdom of Saudi Arabia.

Geography/ Demographics



المملكة العربية السعودية



26 Million
inhabitants
> 6 Million
"expatriates"

Saudi Constitution

“The state is to guarantee the rights of the citizen and his family in the event of emergency, disease, disability, and old age; it is to support the social security system and encourage legal and natural persons to contribute to charitable acts...”

“The state is to take charge of all aspects of health and ensure that health care is provided for all citizens.”

New Minister of Health

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Egyptian conjoined twins separated in Saudi Middle East Online

[slideshow](#)



(photo: WN / Jamal Penjweny)

[Body](#) | [Health](#) | [Medical](#) | [Photos](#) | [Saudi](#) |

RIYADH - A team of 70 medical personnel led by Saudi Arabia's minister of health successfully separated conjoined Egyptian twins on Saturday at a Riyadh...




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National Health Care System

- Ministry of Health responsible for healthcare / hospitals (Public + private sectors)

2 branches

Primary healthcare centers

Clinics for preventive,
prenatal Emergency
basic services

Mobile clinics for remote
areas

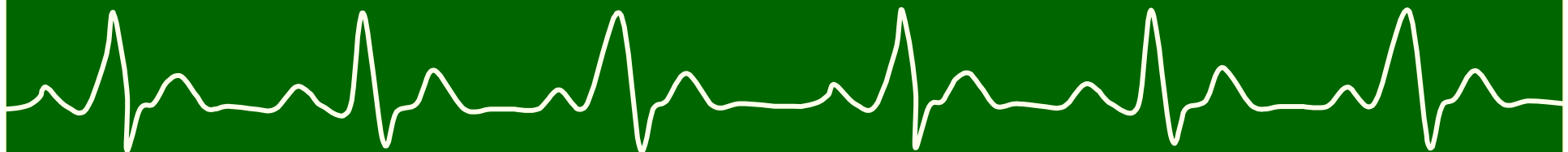
Hospitals

Specialized Centers



Health Care System KSA

	MOH	others
Hospitals	62 %	38 %
Clinics	53 %	47 %



Healthcare system in KSA

The Ministry of Health

- 1970
- 74 hospitals



9,039 beds



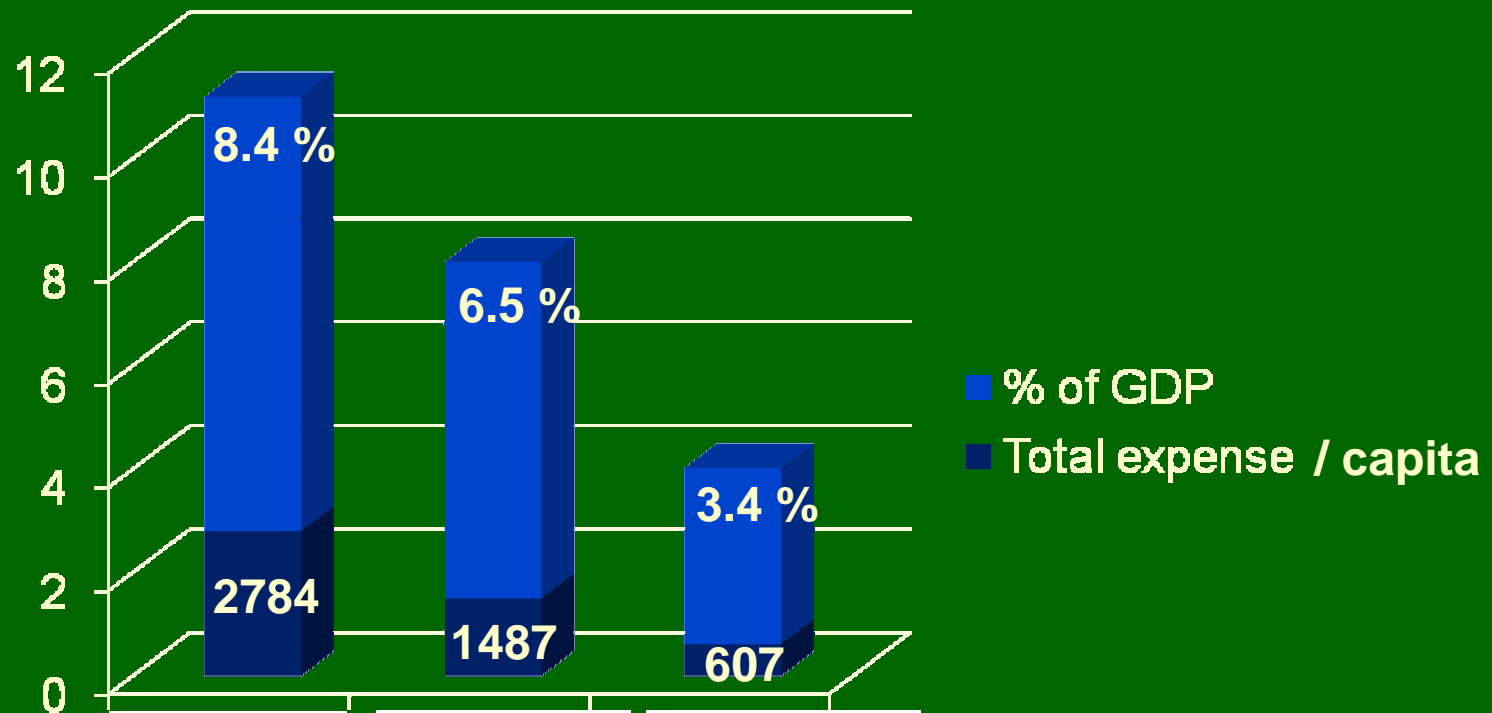
- 2005
- 350 hospitals



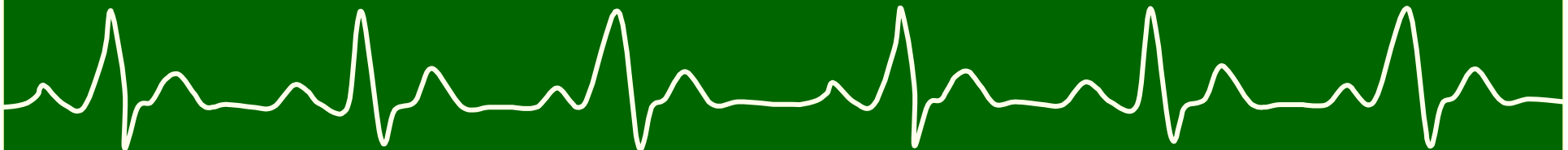
- 48,000 beds



Some health indicators in comparison

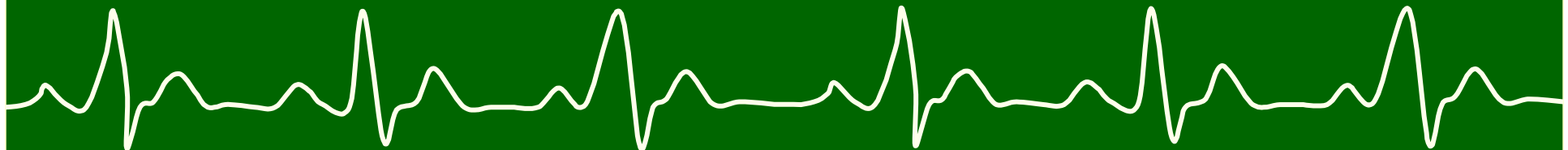


60.000.000 48.000.000 26.000.000



Cardiovascular Centers in KSA

- 1. Babbtain
- 2. KFSH-J
- 4. KFSH-R
- PSCC
- KACC
- PSHC



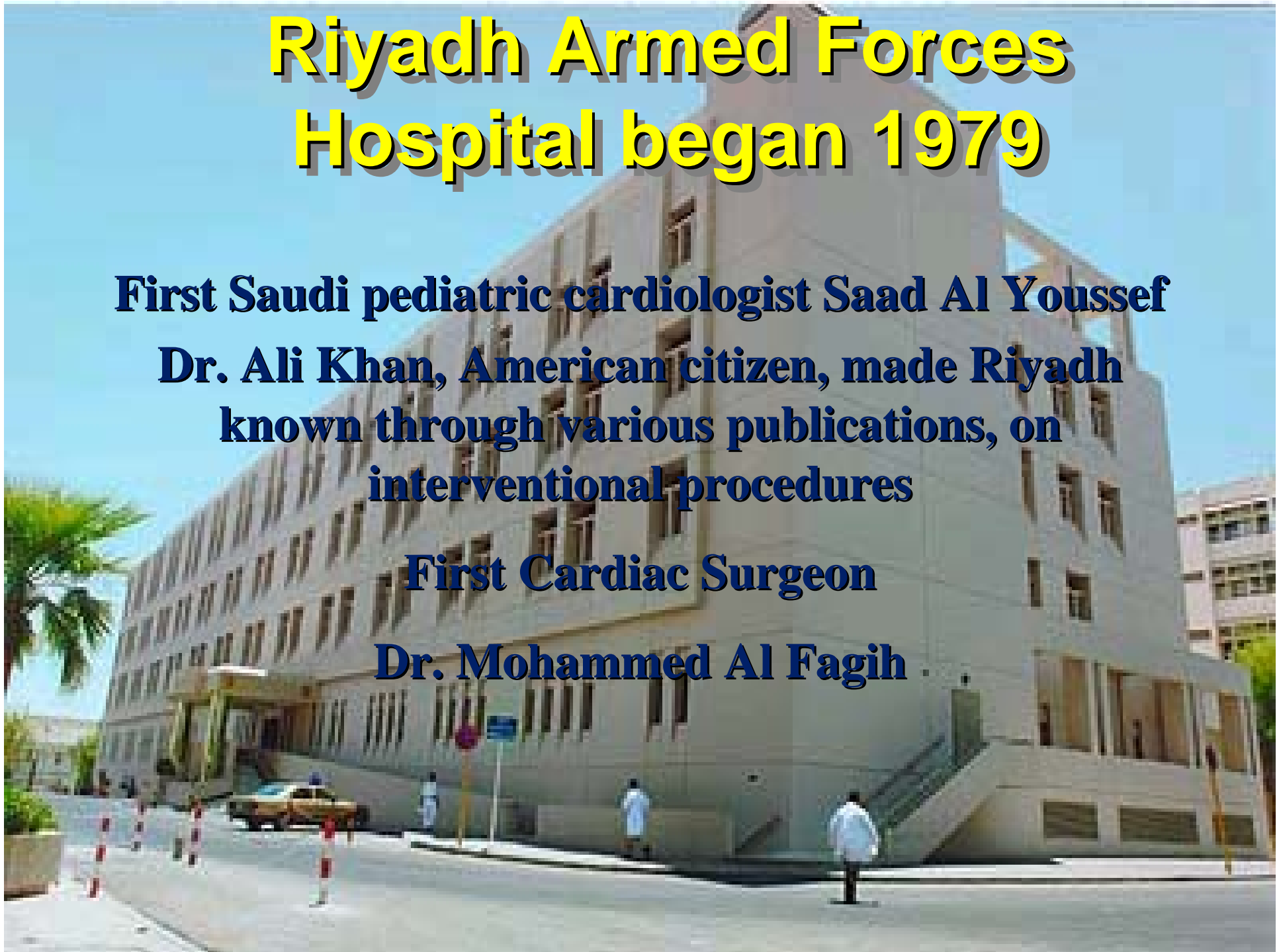
Riyadh Armed Forces Hospital began 1979

First Saudi pediatric cardiologist Saad Al Youssef

**Dr. Ali Khan, American citizen, made Riyadh
known through various publications, on
interventional procedures**

First Cardiac Surgeon

Dr. Mohammed Al Fagih



King Faisal Specialist Hospital since 1975

1st Cardiac Surgeon

Dr. Zohair Al Halees

1st Pediatric
Cardiologist

Dr. Syasmandar Rao

More than 700 cardiac catheters a year

More than 1200 cardiac surgery/ year

King Fahad National Guard Hospital Riyadh

**550 bed tertiary care hospital,
15 miles outside Riyadh
Since 1995 Cardiac Surgery Program**



King Khalid National Guard Hospital Jeddah

350 bed, tertiary care hospital





King Faisal Specialist Hospital & RC, Jeddah





King Fahd Medical City in Riyadh.

Advertisement

Saudi Arabia recruiting 2,000 Filipino nurses

September 23, 2008 by [liza](#) · [Leave a Comment](#)

Saudi Arabia's Ministry of Health (MOH) is recruiting 2,000 Filipino nurses in cooperation with the Philippine Overseas Employment Administration (POEA), said a report from [Inquirer.net](#) on Monday.
[Read more](#)

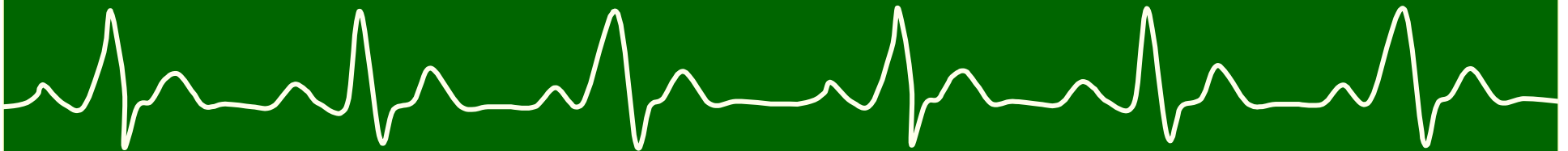


Filed Under: [News](#)

Tagged: [employment opportunities](#), [Filipino nurses](#), [job openings](#), [KSA](#), [nurse](#), [nurse shortage](#), [overseas jobs](#), [POEA](#), [Saudi Arabia](#)

ACHD Centers in KSA

- 2 Saudi Physicians with ACHD training
 - 1 adult cardiologist, 1 pediatric cardiologists
- 5 centers have A C H D clinics
- The lead is to the pediatric cardiologists
- None has an “independent” ACHD unit

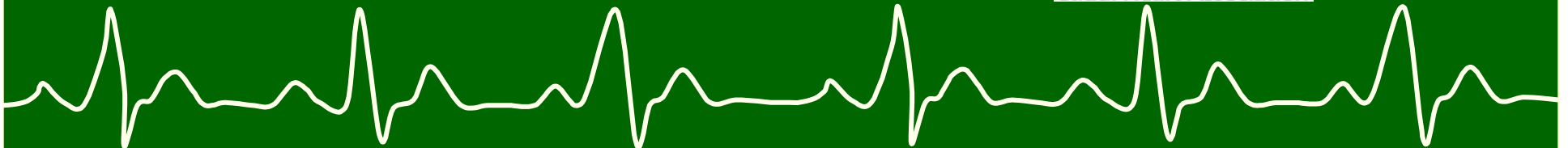


ACHD Centers in KSA

- 1st ACHD center 2002, KFSH-J
- Since Oct 2002, only 3 ACHD specific symposia
- Each Saudi Heart Association Meetings at least ACHD session



21st Scientific Sessions of SHA
February 8-11, 2010, Riyadh, KSA



King Faisal Specialist Hospital, Jeddah Pediatric Cardiology

What interventions are done at KFSH Jeddah?

"Closing"

PDA: GT coil, PFM, Amplatzer

ASD: Amplatzer

Musc VSD: Amplatzer

PM VSD: Not yet
Coronary artery fistula
occlusion
Blalock Taussig shunts



"Opening"

Balloon Dilations

Valvar PS, AS,
peripheral PS,
Coarctation of aorta,
Aorto pulmonary collaterals
Stenosed shunts, SVC
stenosis

Stent implantation

pulmonary artery stenosis,
Blalock Taussig shunt,
aortic coarctation,
PDA stent
Glenn shunts

PSHC ACHD Interventions, Riyadh

"Closing"

PDA: GT coil, PFM, Amplatzer

ASD /PFO: Amplatzer,
Occlutec, Premiere

PM, Musc VSD: PFM coil

PM VSD: Not yet
Coronary artery fistula
occlusion

Blalock Taussig shunts



King Fahd Medical City in Riyadh.

"Opening"

Balloon Dilations

Valvar PS,
peripheral PS,
Coarctation of aorta,
Aorto pulmonary collaterals
Stenosed shunts

Stent implantation

pulmonary artery stenosis,
Blalock Taussig shunt,
aortic coarctation,
PDA stent

Interventions in ACHD at other Centers, Riyadh

"Closing"

PDA: GT coil, PFM, Amplatzer

ASD /PFO: Amplatzer,
Occlutec, Premiere

PM, Musc VSD: PFM coil

PM VSD: Not yet
Coronary artery fistula
occlusion
Blalock Taussig shunts

"Newer Procedures"

PDA stent

Pulmonary valve implant

Hybrid Procedure (HLSH,
VSD closure)

Aortic valve implant

"Opening"

Balloon Dilations

Valvar PS,
peripheral PS,
Coarctation of aorta,
Aorto pulmonary collaterals
Stenosed shunts

Stent implantation

pulmonary artery stenosis,
Blalock Taussig shunt,
aortic coarctation

2009-06-24



Interventional Cardiology in ACHD at KFSH- J

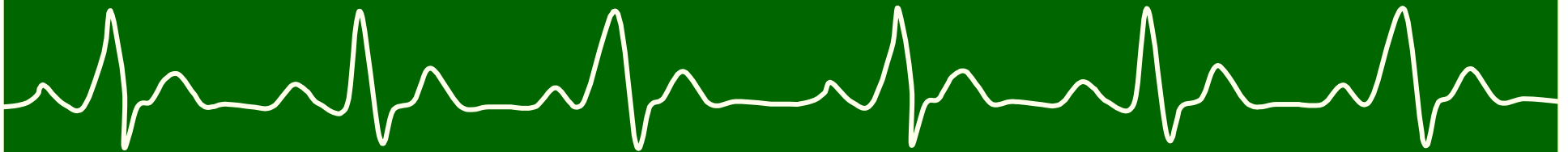
Feb 2002 and Nov 2004



- 30 patients (14 – 59 years)

Demographics

- 18 f (mean 25 yrs),
- 12 m (mean 20 yrs)



Interventional Cardiology in ACHD at KFSH- J

Feb 2002 and Nov 2004

30 patients
(14 – 59 years)

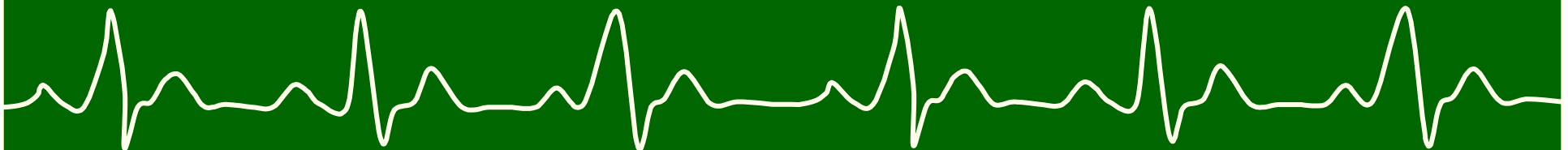


Diagnosis

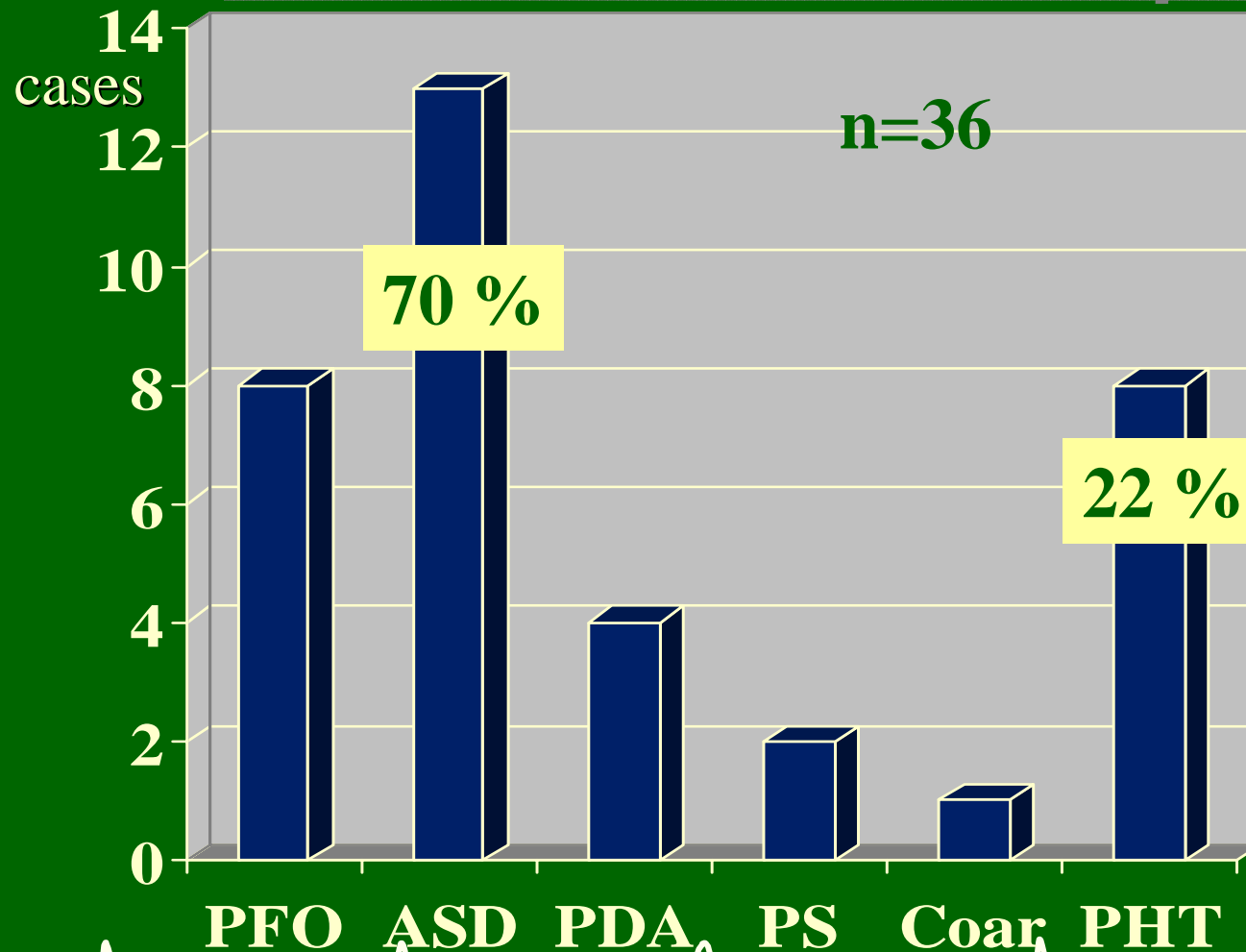
- 16 = L-R shunt
- 7 = complex
- 5 = obstructive lesions
- 2 = arrhythmia

Treatment

- 16 interventions
- 11 surgery
- 2 medication
- 1 inoperable
- 1 no treatment



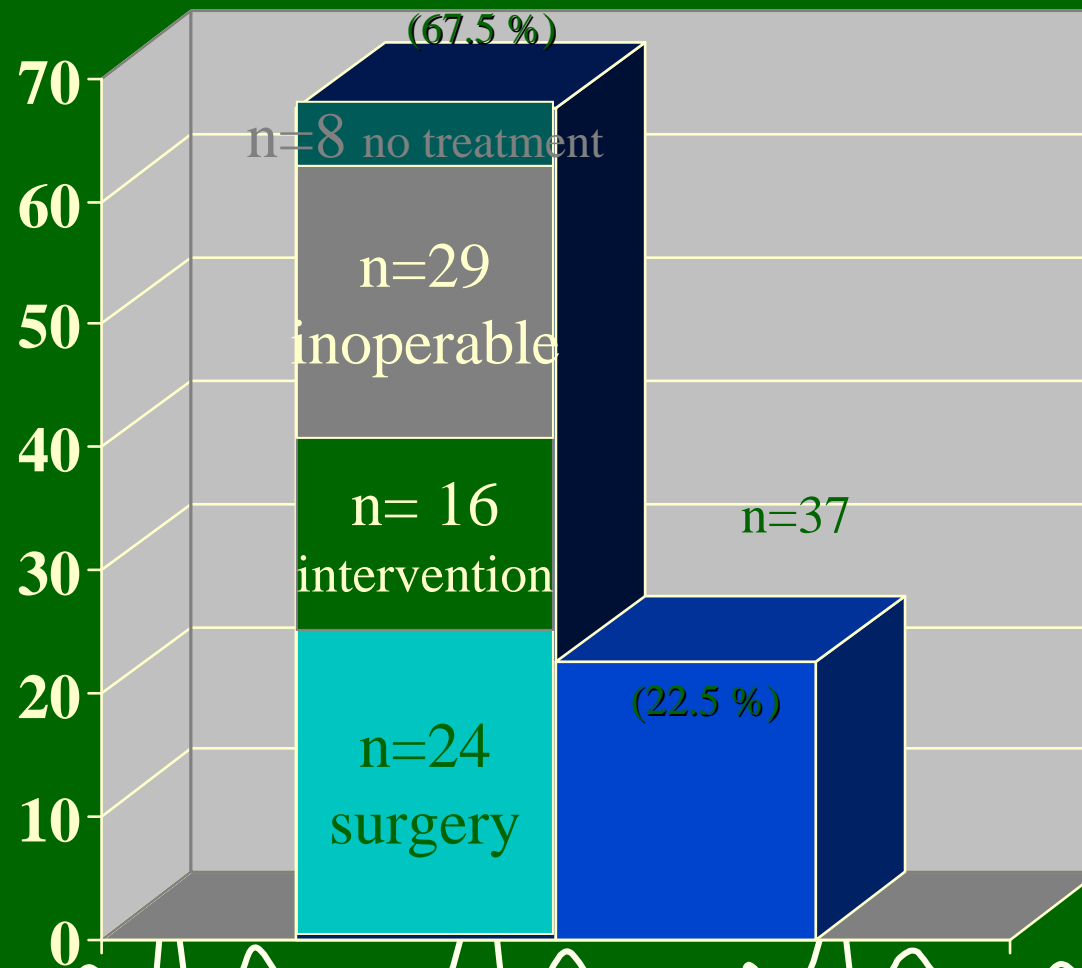
Interventions in ACHD at PSHC Nov 2007 – April 2009



■ Intervention

Status at Presentation

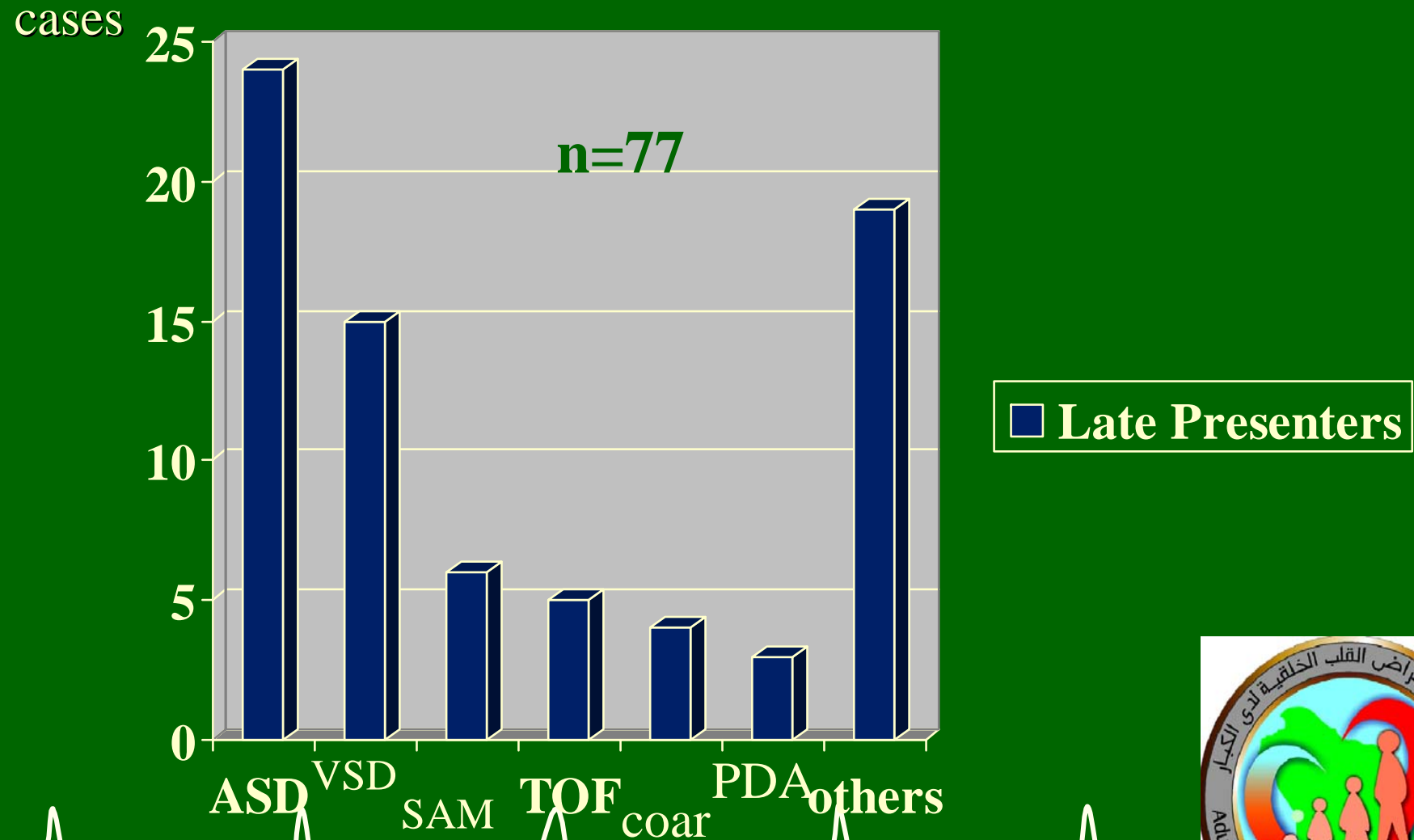
n=77 / 114 patients



■ Late Presenter
■ S/P surgery



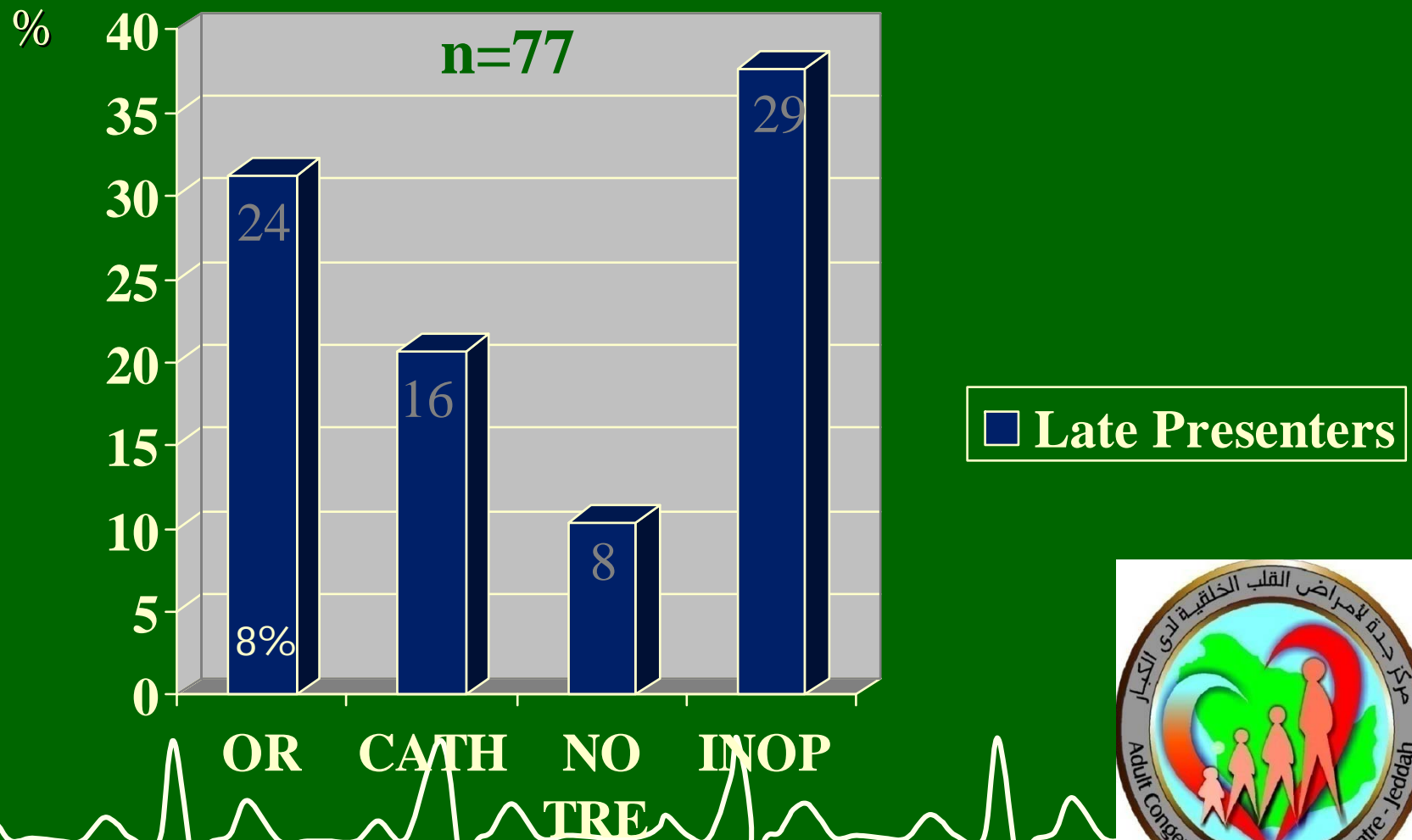
Diagnosis of Late Presenters



70% "simple CHD"



Management of Late Presenters



**68% of 77 / 114 patients
were late Presenter**



29/77 (37.7%)

**either inoperable or not suitable
for surgery**



Prince Salman Heart Center (PSHC), Riyadh

A C H D unit

Introduction of new devices at the Hospital

Institutional Review Board (IRB)

**Proposal has to be sent to
IRB for approval**

**National or International
Multicenter studies
encouraged**

Supply issues

**Good planning is
essential**

**Occasionally, the right
size device is not
available**

Example for ACHD Manuscripts from KSA

1: [Z Kardiol](#). 1993 Jul;82(7):432-5.

1: [Cardiol Young](#). 1999 Nov;9(6):602-5.

1: [Can J Cardiol](#). 2000 Feb;16(2):167-74.

1: [Catheter Cardiovasc Interv](#). 2005 Dec;66(4):580-4.

1: [Am Heart J](#). 2007 Mar;153(3):433-8.

1: [Pediatr Cardiol](#). 2008 May;29(3):585-8. Epub 2007 Dec 11.

1: [Am Heart J](#). 2008 Nov;156(5):910-7. Epub 2008 Sep 24.

1: [J Card Surg](#). 2008 Jul-Aug;23(4):339-40.

1: [Cardiology](#). 2009 Feb 14;113(3):213-221. [Epub ahead of print]

1: [Pediatr Cardiol](#). 2009 Jan 30. [Epub ahead of print]

Clinical and Genetic Analysis of Long QT Syndrome in Children from Six Families in Saudi Arabia: Are They Different?

[Bhuiyan ZA](#), [Al-Shahrani S](#), [Al-Khadra AS](#), [Al-Ghamdi S](#), [Al-Khalaf K](#), [Mannens MM](#), [Wilde AA](#), [Momenah TS](#).

Department of Clinical Genetics, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands, z.a.bhuiyan@amc.uva.nl.

Congenital long QT syndrome (LQTS) is an inherited cardiac arrhythmia disorder characterized by prolongation of the QT interval; patients are predisposed to ventricular tachyarrhythmias and fibrillation leading to recurrent syncope or sudden cardiac death. We performed clinical and genetic studies in six Saudi Arabian families with a history of sudden unexplained death of children. Clinical symptoms, ECG phenotypes, and genetic findings led to the diagnosis of LQT1 in two families (recessive) and LQT2 in four families (three recessive and one dominant). Onset of arrhythmia was more severe in the recessive carriers and occurred during early childhood in all recessive LQT1 patients. Arrhythmia originated at the intrauterine stages of life in the recessive LQT2 patients. LQT1, causing mutation c.387-5 T > A in the KCNQ1 gene, and LQT2, causing mutation c.3208 C > T in the KCNH2 gene, are presumably founder mutations in the Assir province of Saudi Arabia. Further, all LQTS causing mutations detected in this study are novel and have not been reported in other populations.

PMID: 19184172 [PubMed - as supplied by publisher]

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Conclusions

2009-06-24

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The Good, the Better and the Ugly

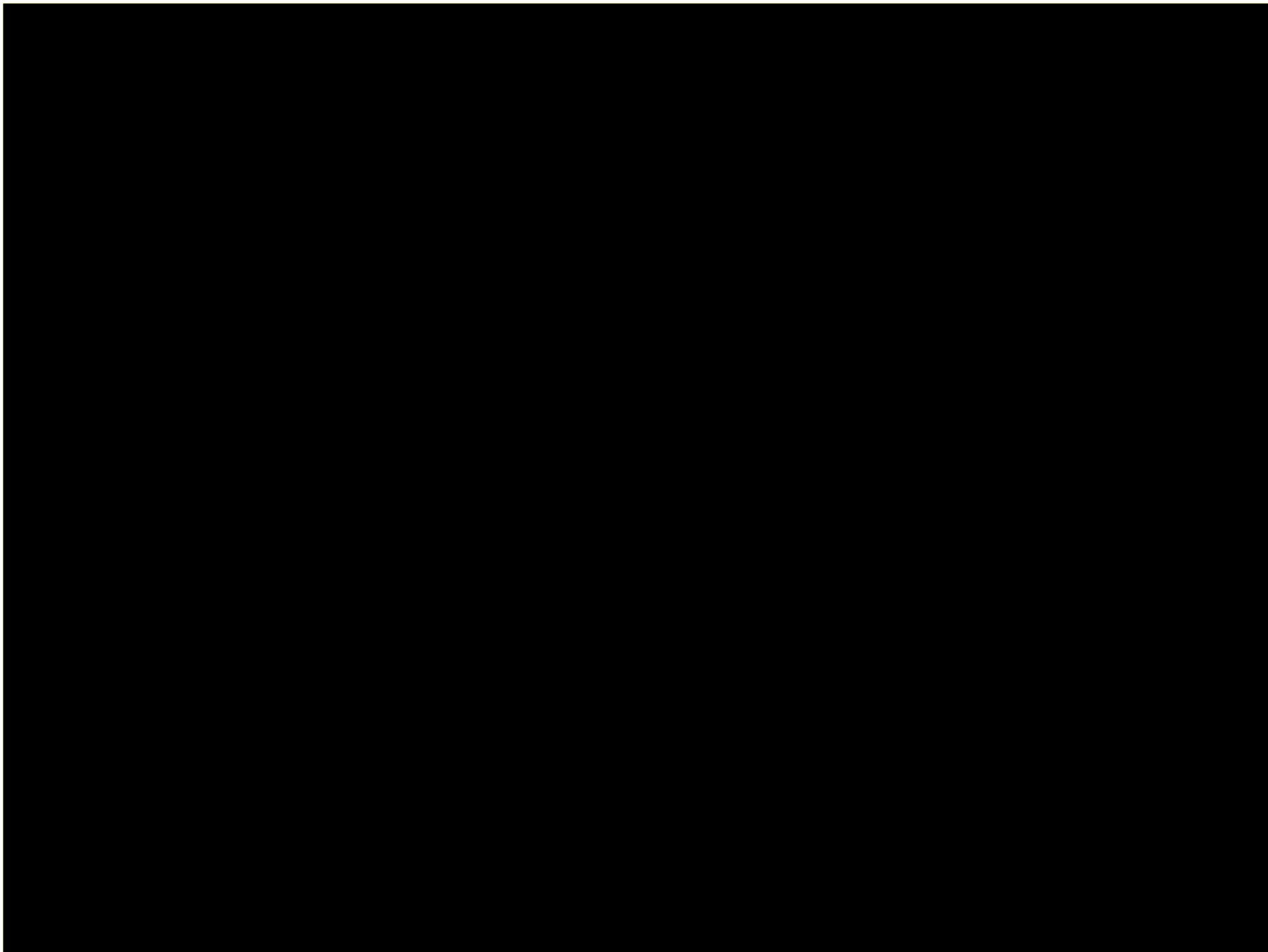
1- Excellent Centers, not enough

2- All interventions are done

3- Many late presenters

There is a need for early detection to reduce rate of late presenter

**Only recently there is more coordination and collaboration between the different centers thru
SAUDI HEART ASSOCIATION**



ongenital Heart Disease Association P.A.C.H.D.A.



Meeting for P.A.
thea Alexand
dria - Egypt
bruary 2002







Join us for the 5TH WORLD CONGRESS of Paediatric Cardiology and Cardiac Surgery



21-26 June 2009, Cairns Convention Centre, Cairns, Australia

[Website](#) | [On-line Registration](#) | [Important Dates](#)

PCCS2009 e-News #4

Chairman's Message

The planning for the detailed program has advanced substantially and the speaker's list is almost complete and will be published on the website in the near future - so stay tuned. The 1400 abstracts have been carefully assessed with more than 180 accepted for oral presentation and well over 1000 for poster presentation....



Joint Chairmen

Professor Jim Wilkinson FRCP, FRACP, FACC, FRCPCH, FCSANZ
Senior Cardiologist, Royal Children's Hospital, VIC

Dr Peter Pohlner FRACS

A/Medical Director Cardiothoracic Surgery, Prince Charles Hospital, QLD

CME Approved Event

This event is approved for up to 33 credits by the Centre for Continuing Medical Education ("CME"). The Centre for CME, Faculty of Medicine, McGill University is fully accredited by the Committee on Accreditation of Canadian Medical Schools and through the (CACMS) is accredited to award AMA PRA category 1 credits....

PACHDA Meeting News



We are pleased to report that there will be a half day meeting of the Pan Arab Congenital Heart Disease Association (PACHDA) during the congress. The program for this meeting will be advertised on the Congress Website in the near future, once the speakers have confirmed their participation."

Countdown to
Early Registration

14 days

What's on offer in Cairns, QLD

[Destination information](#)
[Tours and Options](#)

Interested in Sponsorship?

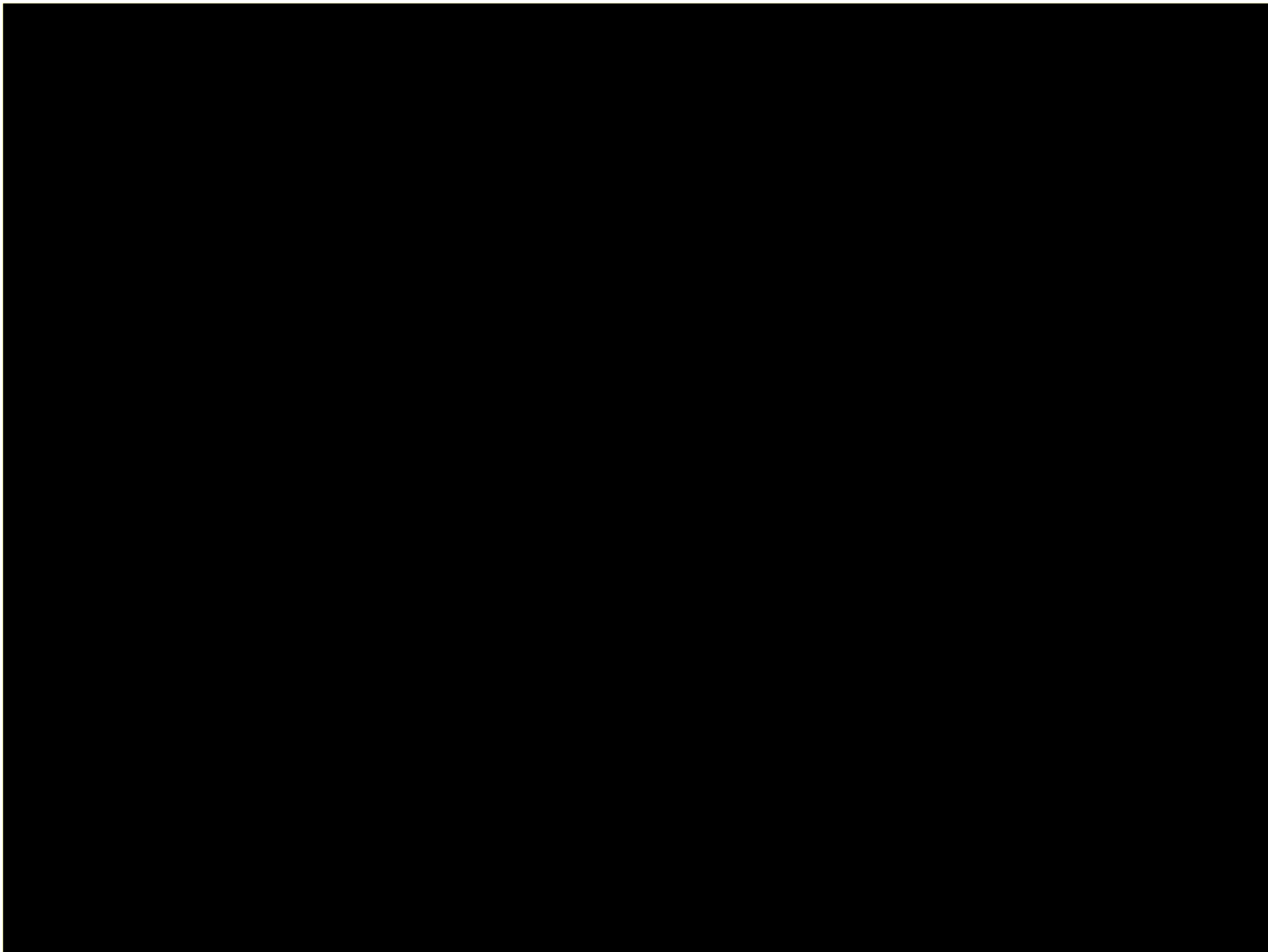
See the Conference
[Website](#) or [Email](#) for
available options



WORLD HEART
FEDERATION

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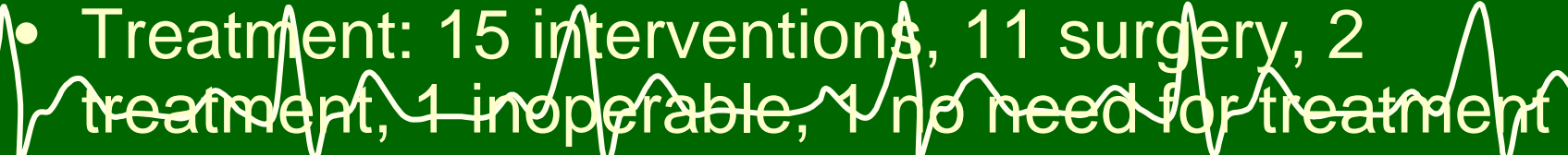




Interventions in ACHD at PSHC Nov 2007 – April 2009

Demographics

- 36 patients (14 – 60 years)
- 25 f , 11 m (14 yrs – 60 yrs)
- 25 = shunt lesions (8 PFO, 13 ASD, 4 PDA)
- 7 = complex (3 or more associated lesions)
- 5 = obstructive lesions
- 2 = arrhythmia

- 
- Treatment: 15 interventions, 11 surgery, 2 treatment, 1 inoperable, 1 no need for treatment

Conclusions (1/2)

ACHD services including, interventional cardiology are quite advanced in the KSA

Not yet enough centers for ACHD

1- Excellent Centers

2- All interventions are done

3- Many late presenters

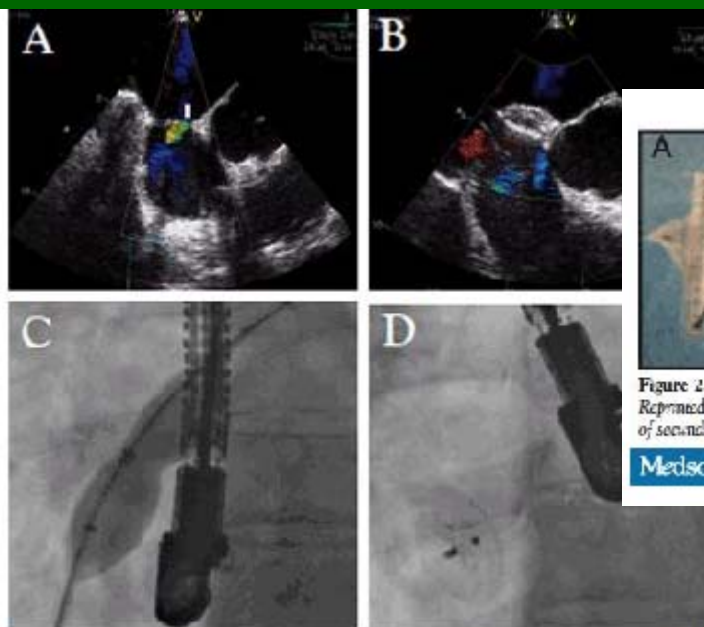


Figure 1. Percutaneous atrial septal defect (ASD) closure. (A and B) Transesophageal echocardiographic image of an ASD before and after the deployment of an Amplatzer Septal Occluder (ASO). (C) Fluoroscopic image of the sizing balloon across the interatrial septum. (D) Fluoroscopic image of the ASO after deployment.

Source: J Invasive Cardiol © 2008 Health Management Publications, Inc.

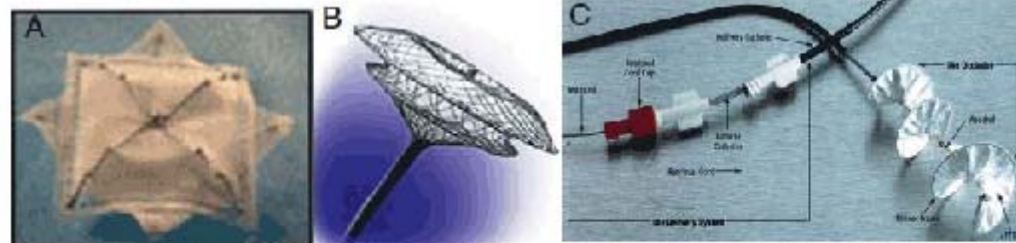


Figure 2. FDA-approved atrial septal defect occluders (A) CardioSEAL/StarFlex, (B) Amplatzer septal occluder, (C) Helex septal occluder.¹⁶ Reprinted with permission from Jones TK, et al, Results of the U.S. multicenter pivotal study of the Helex septal occluder for percutaneous closure of secundum atrial septal defects. J Am Coll Cardiol 2007;49:2215-2221.

Medscape

Source: J Invasive Cardiol © 2008 Health Management Publications, Inc.

S W O T Analysis

= a tool of strategic planning

= a scan of internal (present) and external environment (future)

Present	Future
Strength Resources, reputation, access to high grade natural resources	Opportunities Which could allow growth and profit Unfulfilled customer need New technology
Weakness Absence of certain strength Flip side of a strength	Threats Shifts in consumer tastes New regulations Increased trade barriers

Strength

Excellent set ups for pediatric cardiac care

Well trained Pediatric Cardiologist

Well trained Pediatric Cardiac Surgeons

All types of interventions and cardiac surgeries are performed

No “real” financial constraints

Weakness

Complicated paper work necessary to get into the system

Patients show up relatively late “late presenter”

Poor patient compliance

Poor follow up, as patients have to travel quite vast distances

No health insurance coverage for everybody

Many foreigners with low budget have to be treated on government expenses

Service runs only with support of large numbers of foreigner staff

Opportunities (1/2)

500.000 to 600.000 live births per year

Hence 5000 additional patients with CHD

Many patients with very complex CHD

Potential for increasing staff experience

**To decrease dependency on world market
by training national nurses, technicians,
and other essential support**

**Incidence and prevalence of CHD not yet
established**

Vast possibilities for research

Opportunities (2/2)

Natural History of the disease can be studied with newer diagnostic modalities

Because of high rate of consanguinity, a possible link can be forged between consanguinity and CHD

Support poorer countries in the region in offering treatment of their patients

Threats

Large number of pediatric cardiac specialist leads to underutilization of their expertise

Dependency on “expatriates” – Any changes in world politics could negatively affect the standard of health care abruptly, unless locals are trained



KING FAISAL SPECIALIST HOSPITAL & RESEARCH CENTER-JEDDAH
DEPARTMENT OF CARDIOVASCULAR DISEASES

2nd Annual Symposium
**CONGENITAL HEART DISEASE
IN THE ADULT**

DATE:
OCTOBER 12-13, 2004

VENUE:
TO BE ANNOUNCED



** First Announcement * First Announcement * First Announcement **

SYMPOSIUM
Adult Congenital Heart Disease Program

2009-06-24

CONTACT PERSON FOR REGISTRATION & INFORMATION
MI-YEON KIM (PROGRAM COORDINATOR)
667-7777 EXT. 2170/5234 PAGER 9920

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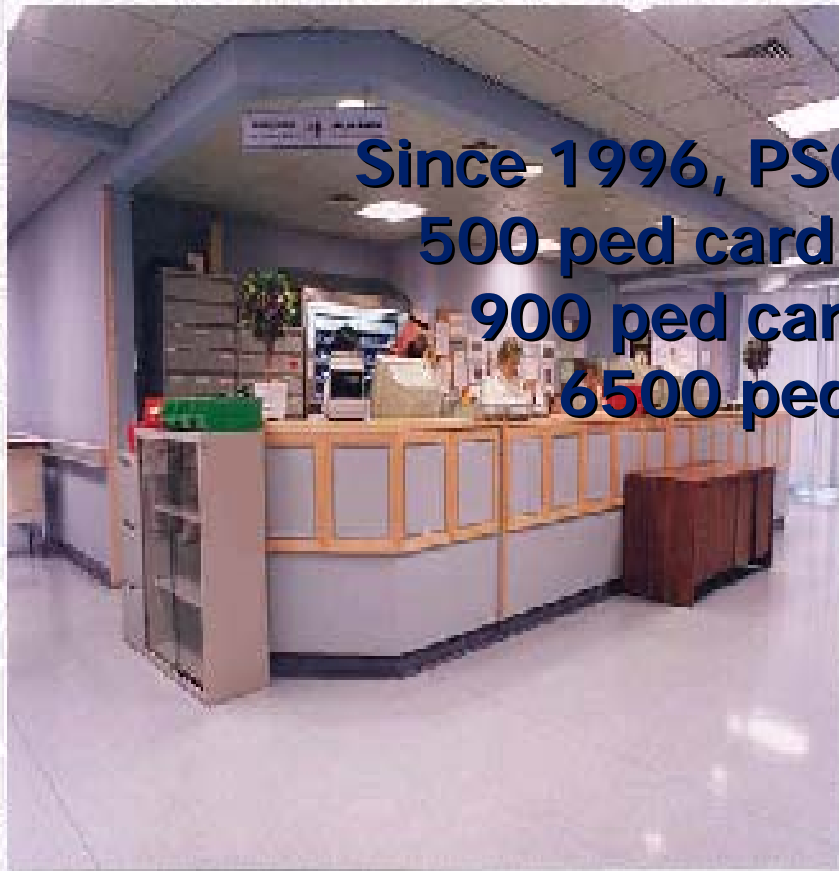


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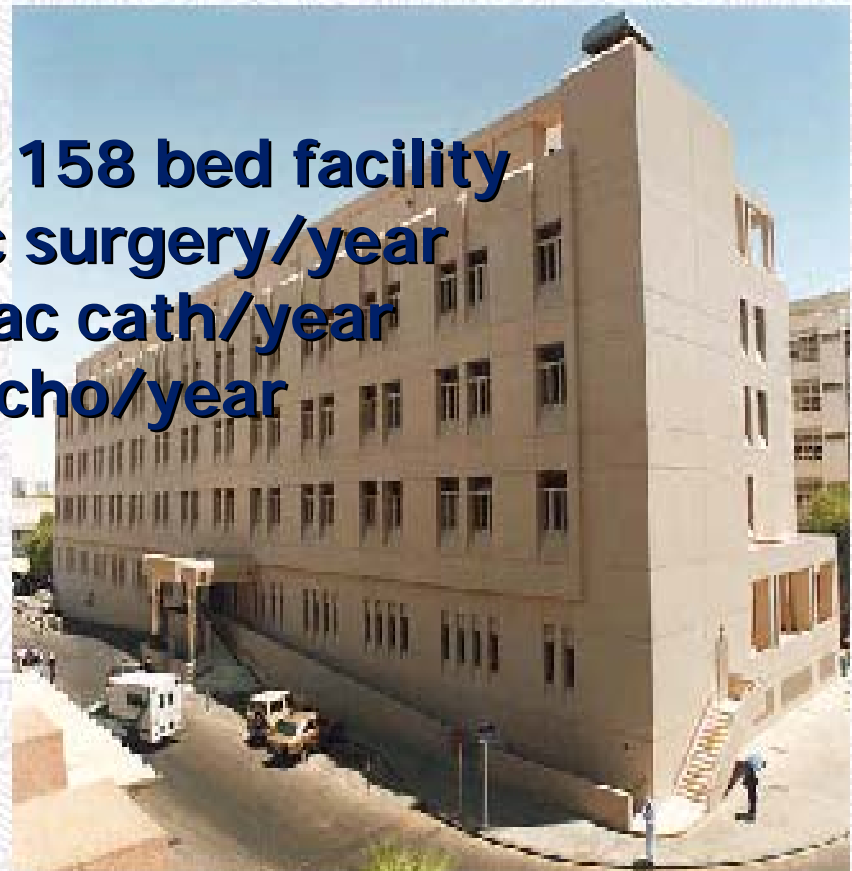
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Prince Sultan Cardiac Center

Riyadh, Kingdom of Saudi Arabia



**Since 1996, PSCC 158 bed facility
500 ped cardiac surgery/year
900 ped cardiac cath/year
6500 ped echo/year**



Healthcare system in KSA

62% hospitals
53% Clinics

**The Ministry of
Health**

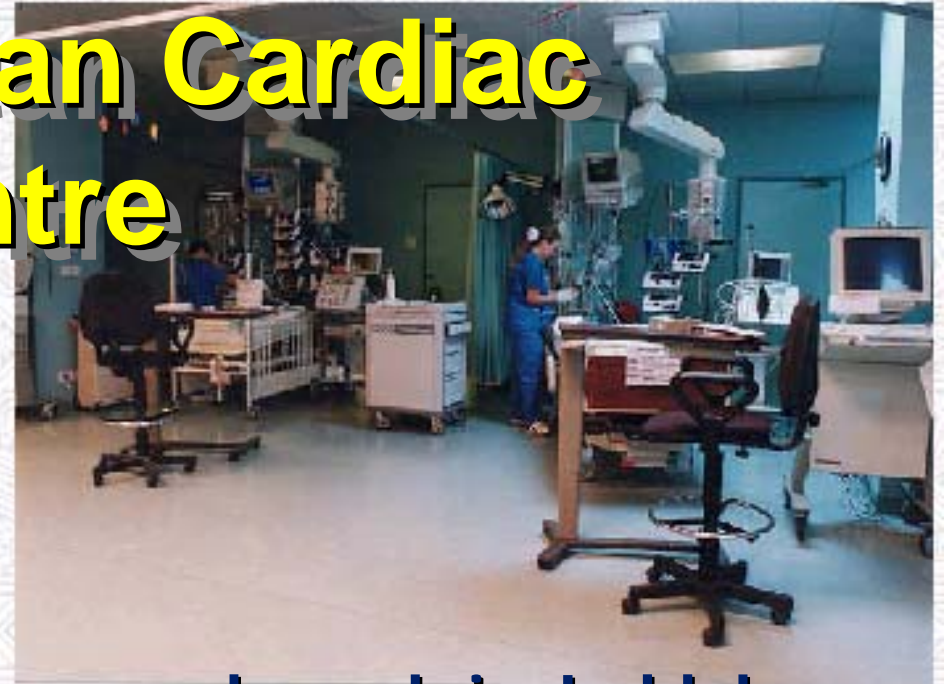
38 % hospitals
47% clinics

- government agencies, Ministry of Defense, National Guard, the Ministry of the Interior, and several other ministries,
- private entities.

<http://www.hziegler.com>



Prince Sultan Cardiac Centre



The Military Hospital has a new branch in Jeddah



Healthcare system in KSA

- **1) Ministry of Health Facilities**

These serve the general public and are located in both the large cities and the small towns throughout Saudi Arabia.

- **2) Military Hospitals**

These serve members of the Saudi Arabia armed forces and members of their families, according to the branch of the military in which the individual serves.

- **Saudi Arabian National Guard (SANG)**

- SANG is the branch of the military that is involved with defence against external threats and internal threats. SANG has four hospitals which provide care to the soldiers of the Saudi Arabian National Guard and their dependents:
- King Abdulaziz Medical City, Riyadh (650 beds, formerly the King Fahad National Guard Hospital);
- King Abdulaziz Medical City, Jeddah (350 beds, formerly the King Khalid National Guard Hospital);
- King Abdulaziz Medical City – Dammam (100 beds);
- King Abdulaziz Medical City – Al Ahsa (300 beds);
- The Saudi Arabian National Guard also operates clinics in Riyadh and Taif.



Healthcare system in KSA

- **Saudi Arabian Ministry of Defence and Aviation (MODA)**
- MODA provides defense against primarily external threats. It includes the Saudi Arabian Army, the Royal Saudi Naval Forces, the Royal Saudi Air Force and Royal Saudi Air Defence. MODA operates nine hospitals which provide care to the soldiers of MODA and their dependents:
- Riyadh Military Hospital Al Kharj, Riyadh (1,000+ beds);
- Prince Sultan Cardiac Center, Riyadh (150+ beds);
- North West Armed Forces Hospital, Tabuk (350 beds);
- King Fahd Military Medical Complex, Dhahran (316 beds);
- Armed Forces Hospital at King AbdulAziz Airbase, Al Khobar (280 beds);
- King Fahad Armed Forces Hospital, Jeddah (200+ beds);
- King Faisal/King Fahad Hospital, Khamis Mushayt (total 258 beds);
- Al Hada Hospital, Taif (500+ beds);
- Hafr Al-Batin Armed Forces Hospital, Hafr Al-Batin (300 beds);
- Wadi Al-Dawassir Hospital, Wadi Al-Dawassir (100 beds).



Healthcare system in KSA

- **3) Ministry of the Interior**

This serves members the ministry of the interior, including the police and customs collectors.

Security Forces Hospital, Riyadh (500 beds), serves the Ministry of Interior personnel.

- **4) Referral Hospitals**

Every citizen is eligible to go to the referral hospitals for specialized care. These facilities include:

- King Faisal Specialist Hospital & Research Centre-Riyadh Site (700 beds);
- King Faisal Specialist Hospital & Research Centre-Jeddah Site (250 beds);
- King Khalid Eye Specialist Hospital, Riyadh (360 beds);
- Sultan Bin Abdulaziz Humanitarian City, Riyadh (300 rehabilitation beds).



Healthcare system in KSA

- **5) Private Facilities**

- Here are just a few of the private facilities in Saudi Arabia:
- For-Profit: Saudi German Hospital, Jeddah; Dr. Erfan & Bagedo Hospital, Jeddah; Kingdom Hospital, Riyadh
- Saudi ARAMCO Hospital, Dhahran (480 beds); serves employees of the oil company Saudi ARAMCO, and their family members
- Social Insurance Hospital, Riyadh (GOSI) (300 beds)
- Royal Commission Hospitals, which serve employees and their family members of the Industrial cities located at: Jubail, on the east coast of Saudi Arabia; Yanbu, on the west coast of Saudi Arabia
- SAAD Medical Centre, Al Khobar
- Soliman Fakeeh Hospital, Jeddah (800 beds, and the largest private hospital in Saudi Arabia; it is contracted to Saudi ARAMCO)



Health Care Systems' Rankings

Health Performance

1. Oman
2. Malta
3. Italy
4. France
5. San Marino
6. Spain
7. Andorra
8. Jamaica
9. Japan
10. Saudi Arabia
24. United Kingdom
72. United States

Overall Performance

1. France
2. Italy
3. San Marino
4. Andorra
5. Malta
6. Singapore
7. Spain
8. Oman
9. Austria
10. Japan
18. United Kingdom
37. United States

Overall Attainment

1. Japan
2. Switzerland
3. Norway
4. Sweden
5. Luxembourg
6. France
7. Canada
8. Netherlands
9. United Kingdom
10. Austria
15. United States

Source: World Health Report 2000

<http://www.staff.city.ac.uk/r.h.plumb/bolnick.pdf>

New Ministry of Health

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JEDDAH – Dr. Abdullah Al-Rabea, the newly-appointed Minister of Health, said he will do his best to boost the level of medical services in the Kingdom which have come under fire as of late. He called on all ministry staff to help him in his mission.

Al-Rabeah has replaced Dr. Hamad Al-Mane' in this position.

"I would like to thank Allah, then King Abdullah, Custodian of the Two Holy Mosques, for his unlimited support for health care services," the new minister said.

Having worked for 14 years in Medical Affairs at the National Guard, Dr. Rabea said that throughout this period, he has worked closely with King Abdullah, learning from his forward looking and well-organized planning. "I am confident that I will be working with responsible staff at the ministry to form a spirit of teamwork to address all the medical concerns of the nation," he said.



AFP/GETTY IMAGES

NSHR discusses Humaidan Al-Turki's case with US team

Teenagers set up fake checkpoint

Asian man bleeds to death

Man floods girl's phone with x-rated photos

Depot death a suicide

Internet | Protected Mode: C

2009-April 22 KOREA

Google نتائج بحث

Microsoft PowerPoi...

Statistics:

Total population: 74,166,000

Gross national income per capita

Egypt



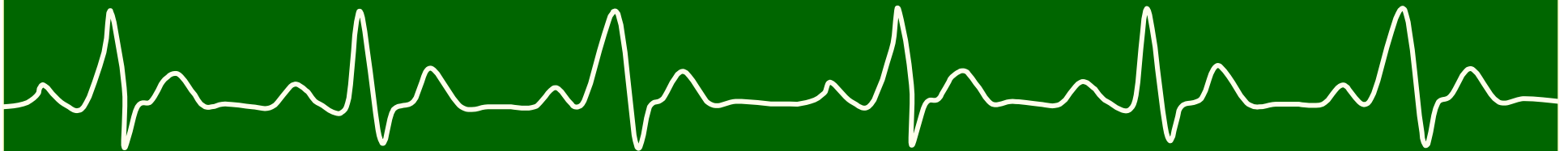
Egypt

Indicator	Value (year)
External resources for health as percentage of total expenditure on health ?	0.9 (2005)
General government expenditure on health as percentage of total expenditure on health ?	38.0 (2005)
General government expenditure on health as percentage of total government expenditure ?	7.3 (2005)
Out-of-pocket expenditure as percentage of private expenditure on health ?	94.90 (2005)
Per capita government expenditure on health at average exchange rate (US\$) ?	30.0 (2005)
Per capita government expenditure on health(PPP int. \$) ?	106.0 (2005)
Per capita total expenditure on health (PPP int. \$) ?	279.0 (2005)
Per capita total expenditure on health at average exchange rate (US\$) ?	78.0 (2005)
Private expenditure on health as percentage of total expenditure on health ?	62.0 (2005)
Private prepaid plans as percentage of private expenditure on health ?	0.2 (2005)
Social security expenditure on health as percentage of general government expenditure on health ?	26.3 (2005)
Total expenditure on health as percentage of gross domestic product ?	6.1 (2005)

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

Demographics in KSA

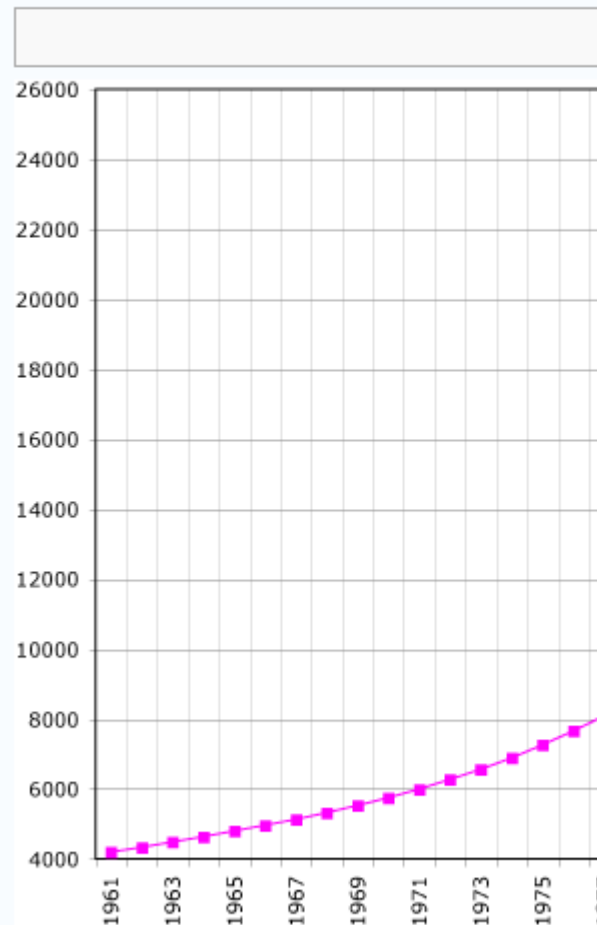
- 1- Total Population 26 Millions (6 Mio expatriates)
- 2- Large parts of Saudi Arabia deserts
- 3- Major cities in West, Center and East
- 4- Birth rate $> 3\%$ per year
- 5- GPD =
- 6- ...% are spent for health care
- 7- Few available studies on incidence of CHD
- 8- Interventional Cardiology available in large cities



Demography in KSA

www.populationaction.org/Publications/Reports...

From Wikipedia, the free encyclopedia



No higher resolution available.

[Saudi-Arabia-demography.png](#) (725 × 426 pixels, file size: 21 KB, MIME type: image/png)



In 1975, South Korea's age profile was beginning to show signs of its rapid progress through the demographic transition. Though the profile still retained a pyramidal shape from historically high fertility and mortality rates, the largest age groups were older children and adolescents, and declines in birthrates were evident in the smaller proportion of younger children. Thirty years

28,686,633

note: includes 5,576,076 non-nationals (July 2009 est.)

ure:  

0-14 years: 38% (male 5,557,453/female 5,340,614)

15-64 years: 59.5% (male 9,608,032/female 7,473,543)

65 years and over: 2.5% (male 363,241/female 343,750) (2009 est.)

age:  

total: 21.6 years

male: 22.9 years

female: 19.9 years (2008 est.)

with   

ate: 1.848% (2009 est.)

ate:   

28.85 births/1,000 population (2008 est.)

ate:   

2.49 deaths/1,000 population (2008 est.)

tion   

ate: -7.6 migrant(s)/1,000 population (2009 est.)

atio:  

at birth: 1.05 male(s)/female

under 15 years: 1.04 male(s)/female

15-64 years: 1.29 male(s)/female

65 years and over: 1.06 male(s)/female

total population: 1.18 male(s)/female (2009 est.)

ality   

ate: *total:* 11.57 deaths/1,000 live births
male: 13.15 deaths/1,000 live births
female: 9.91 deaths/1,000 live births (2009 est.)

y at   




irth: *total population:* 76.3 years
male: 74.23 years

rate:

total: 11.57 deaths/1,000 live births

male: 13.15 deaths/1,000 live births

female: 9.91 deaths/1,000 live births (2009 est.)

Life expectancy at   

birth: *total population:* 76.3 years

male: 74.23 years

female: 78.48 years (2009 est.)

Total fertility rate:   

3.83 children born/woman (2009 est.)

HIV/AIDS - adult   

prevalence rate: 0.01% (2001 est.)

HIV/AIDS - people   

living with

HIV/AIDS: NA

HIV/AIDS - deaths:   

NA

Nationality:  

noun: Saudi(s)

adjective: Saudi or Saudi Arabian

Ethnic groups:  



Arab 90%, Afro-Asian 10%

Religions:  

Muslim 100%

Languages:  

Arabic

Literacy:  

definition: age 15 and over can read and write

total population: 78.8%

male: 84.7%

female: 70.8% (2003 est.)

MMM images:

[By year.](#)

[Photo gallery.](#)

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[Photo forum.](#)

[2004 Rosario.](#)

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[2004. 165.](#)

[2003. 235.](#)

[2002. 199.](#)

[2002. More.](#)

MMM forums.

[Cannabis Action](#)

[Forums. World](#)

[Spanish events.](#)

MMM cities.

[London, UK.](#)

[Nimbin Australia](#)

[Slovenia photos](#)

[Japan 2001-4.](#)

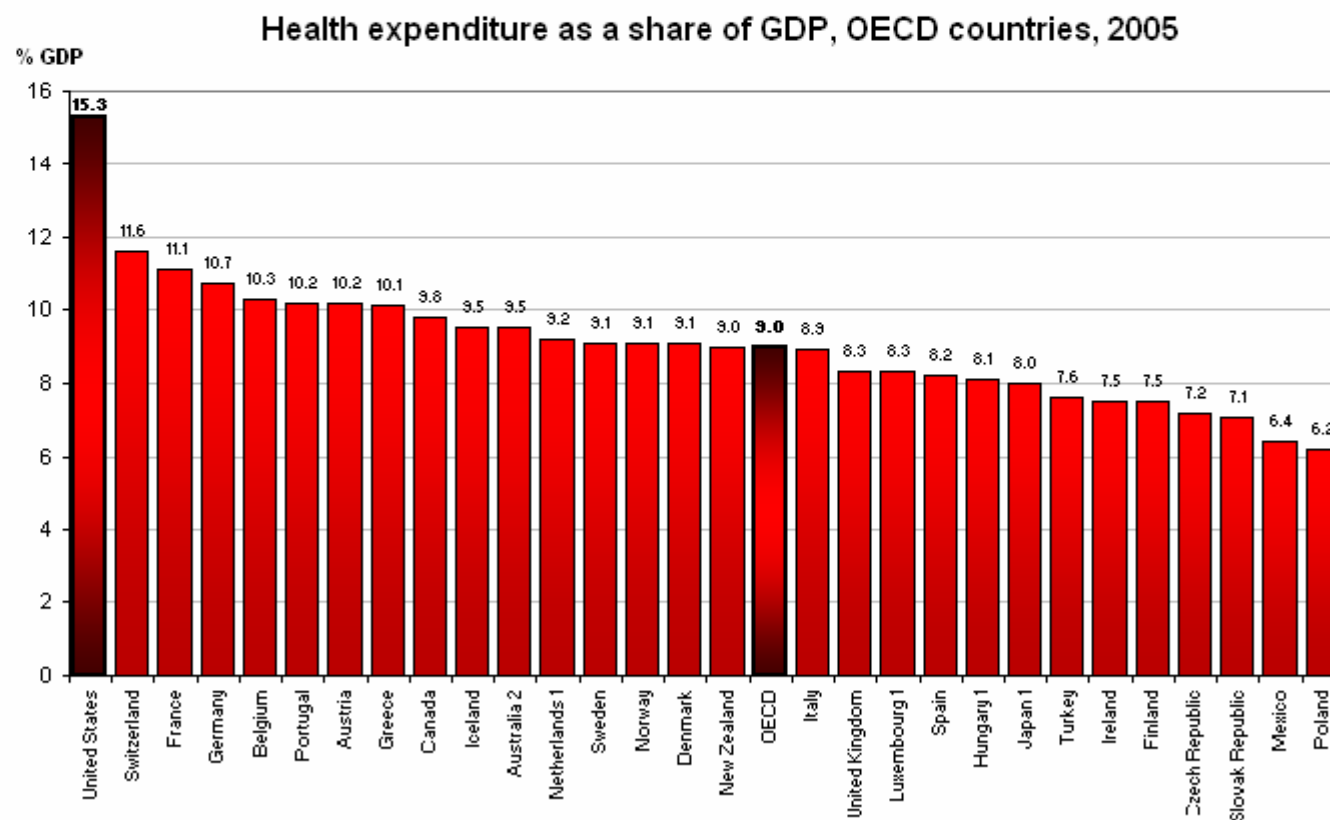
2004 MMM:

[Cape Town, SA](#)

[San Francisco](#)

OECD (Organisation for Economic Co-operation and Development) Health Data 2007. How Does the <http://www.oecd.org/dataoecd/46/2/38980580.pdf> - Source for first chart below.

[OECD publishing. Rights and Permissions.](#) Allows use of 2 tables or graphs.



1. 2004. 2. 2004/5. Source: *OECD Health Data 2007*, July 2007.

Public share of health expenditure. OECD countries. 2005. By percentage of total health expenditure

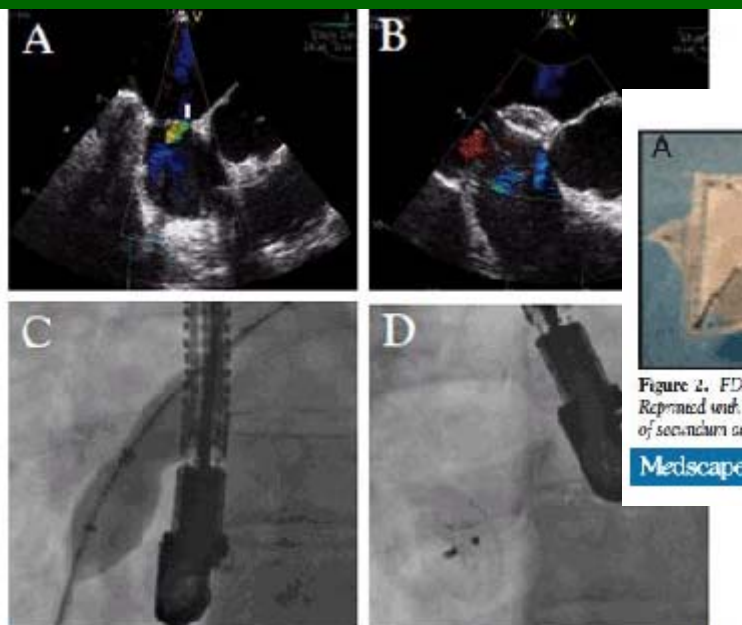


Figure 1. Percutaneous atrial septal defect (ASD) closure. (A and B) Transesophageal echocardiographic image of an ASD before and after the deployment of an Amplatzer Septal Occluder (ASO). (C) Fluoroscopic image of the sizing balloon across the interatrial septum. (D) Fluoroscopic image of the ASO after deployment.

Source: J Invasive Cardiol © 2008 Health Management Publications, Inc.

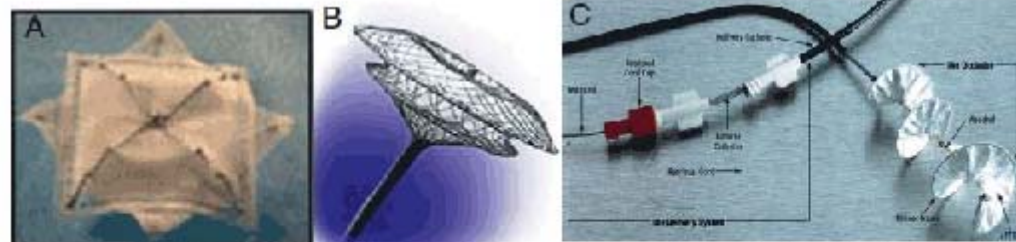
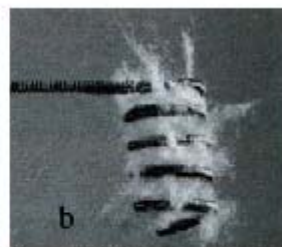


Figure 2. FDA-approved atrial septal defect occluders (A) CardioSEAL/StarFlex, (B) Amplatzer septal occluder, (C) Helex septal occluder.¹⁶ Reprinted with permission from Jones TK, et al, Results of the U.S. multicenter pivotal study of the Helex septal occluder for percutaneous closure of secundum atrial septal defects. J Am Coll Cardiol 2007;49:2215-2221.

Medscape

Source: J Invasive Cardiol © 2008 Health Management Publications, Inc.



Medscape

Figure with for p Me

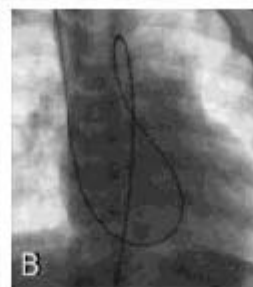
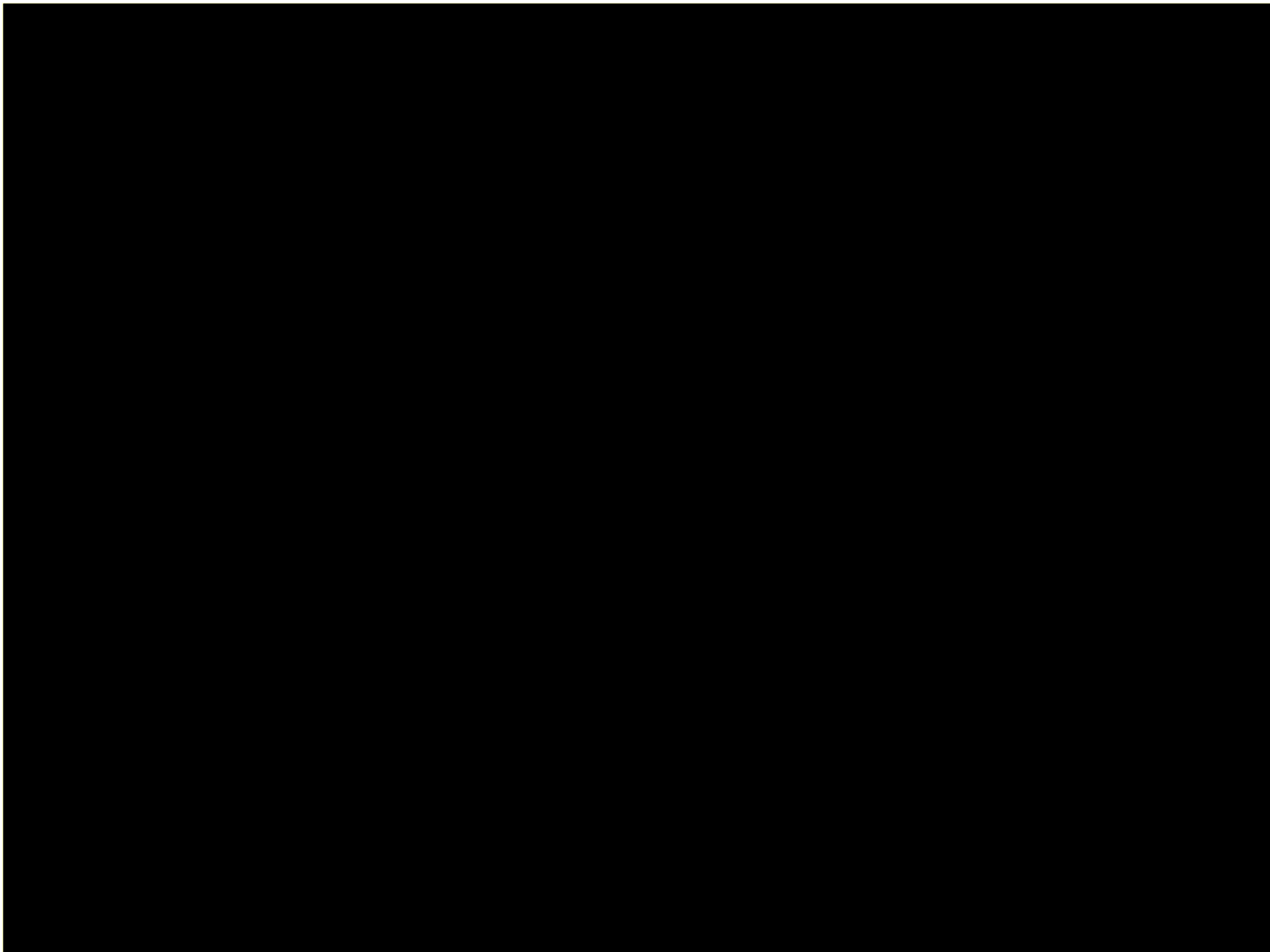


Figure 3. (A) Left ventricular (LV) angiogram in the four-chamber view demonstrating a mid-muscular ventricular septal defect (VSD) (arrow). (B) Cine image demonstrating an arteriovenous wire loop from the femoral artery through the VSD and out the right internal jugular vein. (C) The LV disk is deployed (arrow) in the LV. Note that there is a pigtail in the LV for angiography. (D) Angiogram in the LV while the LV disk (arrow) and connecting waist were positioned in place. (E) Cine image immediately after the device (arrow) was released, demonstrating good device position. (F) Repeat LV angiogram 10 minutes after the device was released, demonstrating the device to be straddling the ventricular septum (arrow) and minimal residual flow through the device.³⁶

Source: J Invasive Cardiol © 2008 Health Management Publications Inc.



5. Percutaneous pulmonic valves: (A) Medtronic Melody (Medtronic Inc., Minneapolis, Minnesota); (B) Edwards-Sapien Valve (the same as aortic valve).



Democratic People's Republic of Korea



Statistics:

Total population: 23,708,000

Gross national income per capita (PPP international \$): not available

Life expectancy at birth m/f (years): 64/68

Healthy life expectancy at birth m/f (years, 2003): 58/60

Probability of dying under five (per 1 000 live births): 55

Probability of dying between 15 and 60 years m/f (per 1 000 population): 233/166

Total expenditure on health per capita (Intl \$, 2006): 49

Total expenditure on health as % of GDP (2006): 3.5

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](http://www.who.int/countries/prk/en/whs.html)

<http://www.justforeignpolicy.org/iraq/iraqde>

<http://www.who.int/countries/prk/en/whs.html>

Republic of K Saudi Arabia



This map is an approximation of actual country borders.
This map is an approximation of actual country borders.

is national income per capita
(international \$): 33,650

expectancy at birth m/f
(years): 77/81

thy life expectancy at birth
(years, 2003): 69/72

ability of dying under five
(per 1 000 live births): 6

ability of dying between 15
60 years m/f (per 1 000
population): 98/61

Total expenditure on health per
capita (Intl \$, 2006): 2,784

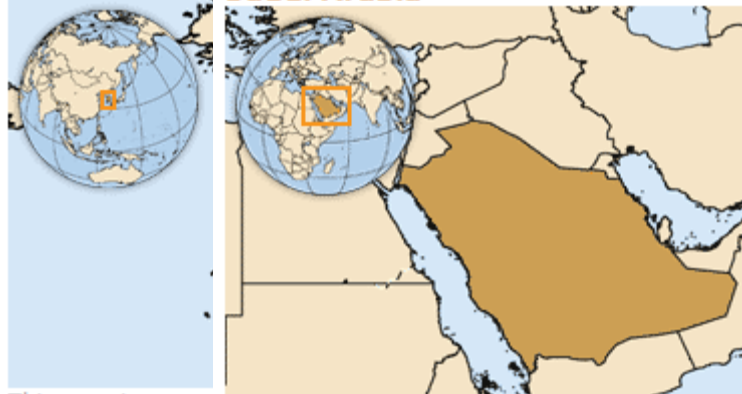
Total expenditure on health as %
of GDP (2006): 8.4

Figures are for 2006 unless
indicated. Source: [World Health
Statistics 2008](#)

United Kingdom

Indicator	Value (year)
External resources for health as percentage of total expenditure on health ?	0.0 (2005)
General government expenditure on health as percentage of total expenditure on health ?	87.1 (2005)
General government expenditure on health as percentage of total government expenditure ?	16.2 (2005)
Out-of-pocket expenditure as percentage of private expenditure on health ?	92.10 (2005)
Per capita government expenditure on health at average exchange rate (US\$) ?	2668.0 (2005)
Per capita government expenditure on health(PPP int. \$) ?	2261.0 (2005)
Per capita total expenditure on health (PPP int. \$) ?	2597.0 (2005)
Per capita total expenditure on health at average exchange rate (US\$) ?	3064.0 (2005)
Private expenditure on health as percentage of total expenditure on health ?	12.9 (2005)
Private prepaid plans as percentage of private expenditure on health ?	7.9 (2005)
Social security expenditure on health as percentage of general government expenditure on health ?	0.0 (2005)
Total expenditure on health as percentage of gross domestic product ?	8.2 (2005)

Republic of Korea Saudi Arabia



This map is an approximation of actual country borders.

Statistics:

Total population: 48,050,000

Gross national income per capita (PPP international \$): 22,990

Life expectancy at birth m/f (years): 75/82

Healthy life expectancy at birth m/f (years, 2003): 65/71

Probability of dying under five (per 1 000 live births): 5

Probability of dying between 15 and 60 years m/f (per 1 000 population): 119/47

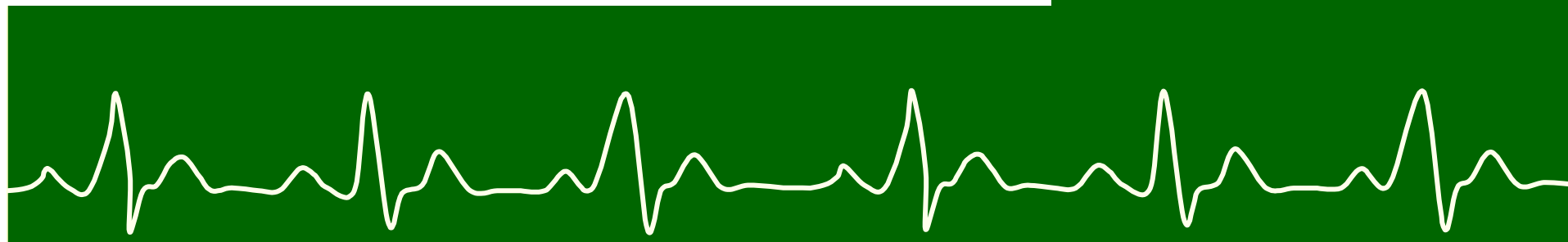
Total expenditure on health per capita (Intl \$, 2006): 1,487

Total expenditure on health as % of GDP (2006): 6.5

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

Republic of Korea

	Value (year)
Government expenditure on health as percentage of total expenditure on health	0.0 (2005)
Government expenditure on health as percentage of total expenditure on health	53.0 (2005)
Government expenditure on health as percentage of total government expenditure	10.9 (2005)
Government expenditure on health as percentage of private expenditure on health	80.10 (2005)
Government expenditure on health at average exchange rate (US\$)	515.0 (2005)
Government expenditure on health (PPP int. \$)	669.0 (2005)
Government expenditure on health (PPP int. \$)	1263.0 (2005)
Government expenditure on health at average exchange rate (US\$)	973.0 (2005)
Government expenditure on health as percentage of total expenditure on health	47.0 (2005)
Government expenditure on health as percentage of private expenditure on health	7.3 (2005)
Government expenditure on health as percentage of general government expenditure on health	77.5 (2005)
Government expenditure on health as percentage of gross domestic product	5.9 (2005)



Saudi Arabia



Saudi Arabia

Indicator	Value (year)
External resources for health as percentage of total expenditure on health ?	0.0 (2005)
General government expenditure on health as percentage of total expenditure on health ?	76.2 (2005)
General government expenditure on health as percentage of total government expenditure ?	8.7 (2005)
Out-of-pocket expenditure as percentage of private expenditure on health ?	16.50 (2005)
Per capita government expenditure on health at average exchange rate (US\$) ?	341.0 (2005)
Per capita government expenditure on health(PPP int. \$) ?	434.0 (2005)
Per capita total expenditure on health (PPP int. \$) ?	570.0 (2005)
Per capita total expenditure on health at average exchange rate (US\$) ?	448.0 (2005)
Private expenditure on health as percentage of total expenditure on health ?	23.8 (2005)
Private prepaid plans as percentage of private expenditure on health ?	50.1 (2005)
Total expenditure on health as percentage of gross domestic product ?	3.4 (2005)

Statistics:

Total population: 24,175,000

Gross national income per capita (PPP international \$): 22,300

Life expectancy at birth m/f (years): 68/73

Healthy life expectancy at birth m/f (years, 2003): 60/63

Probability of dying under five (per 1 000 live births): 26

Probability of dying between 15 and 60 years m/f (per 1 000 population): 205/136

Total expenditure on health per capita (Intl \$, 2006): 607

Total expenditure on health as % of GDP (2006): 3.4

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

Table 1. Generally Accepted Criteria for Percutaneous Intervention of Secundum Atrial Septal Defects Include

Medscape
<ul style="list-style-type: none"> (a) Evidence of shunting ($Q_p/Q_s > 1.5$) and/or symptoms; (b) Single defect; (c) Defect smaller than 40 mm; (d) Septal rims that are wide enough to hold the occlusion device (at least 4 mm); (e) Pulmonary veins that drain back normally to the left atrium; (f) Absence of any other defect(s) that require surgery (e.g., significant tricuspid regurgitation, etc.).
Source: J Invasive Cardiol © 2008 Health Management Publications, Inc.

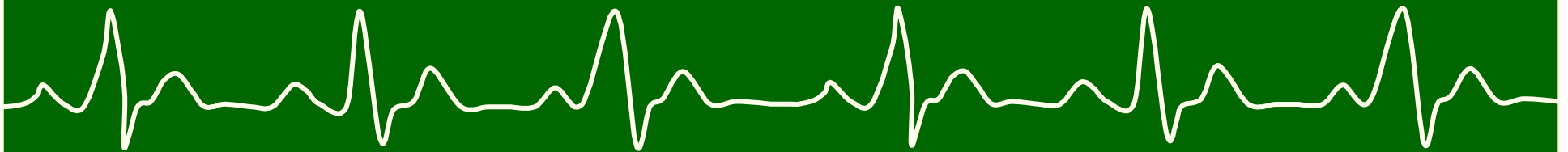
Table 2. Summary of Published Studies in Percutaneous Closure of Secundum Atrial Septal Defects (ASDs) w
Complication Rates

Study	No. of Pts	Mean Age (years)	Device(s) Used	Average Diameter (Maximum Diameter)	Procedural Success Rates	Complication Rates	Follow Up
Butera et al 2004 ¹⁵	274	20.3 ± 17	ASO 55.8% CS/SF 44.2%	ASO 15.5 ± 3.2 CS/SF 13.6 ± 3.5	ASO 92.8% CS/SF 60.3%	ASO 3.9% CS/SF 3.3% (major)	ASO 100% CS/SF 96% with no shunt (24 months)
Masura et al 2005 ¹⁶	151	11.9 ± 11.6	ASO 100%	15.9 ± 4.8	96.0%	0% (major)	100% with no shunt (median, 78 months)
Hein et al 2005 ¹⁴	572	47.5	ASO 76.2% CS/SF 10.8% HSO 9.1%	20 ± 6 mm (37 mm)	98.6%	1.4% (major) 12% (minor)	89.7% with no shunt (1 year)
Post et al 2005 ²⁰	65	45.7 ± 18	ASO 55.4% CS/SF 40%	16 mm (34 mm)	100% (76.5% with residual shunt)	6.2% (major) 16.0% (minor)	79.6% with no shunt (1.2 years)
De Ridder et al 2005 ¹⁵	32	45.1	Not specified	19.3 (24 mm)	92.3%	15.3% (major) 11.5% (minor)	88.4% did not require surgery (Avg, 16 mos)
Egred et al 2007 ¹⁶	76	48 ± 16	ASO 92.7% CS/SF 7.3%	19.6 ± 7 mm (34 mm)	96.8% (PFO + ASD)	1.5% (major) 5.4% (minor)	94.5% with no shunt (Avg, 19 months)
Jones et al 2007 ¹⁷	119	12.4 (1.4–72.4)	HSO 100%	10.7 mm (25 mm)	98.1%	5.9% (major)	98.1% no shunt (12 months)

PFO = patent foramen ovale; ASO = Amplatzer septal occluder; CS/SF = CardioSEAL/STARFlex; HSO = Helex septal occluder; Avg = average; No. = number

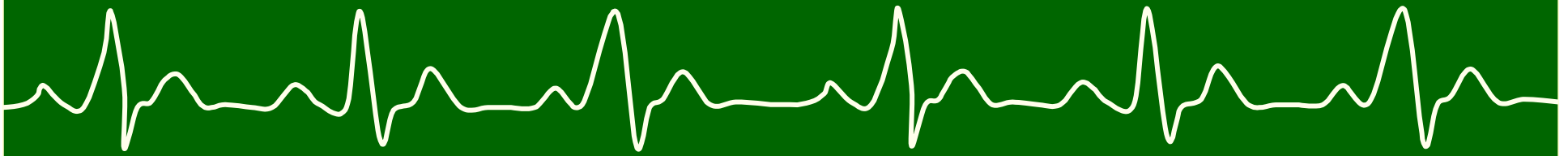
Example for Manuscripts from KSA

- ME Fawzy
- A Khan
- M Joufan
- T Momenah
- J Ata
- A Hussain
- MO Galal

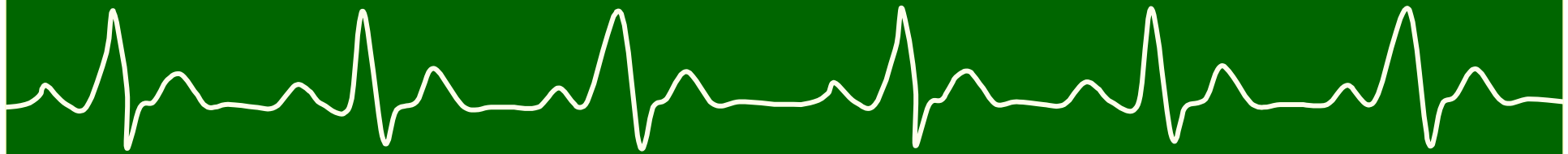
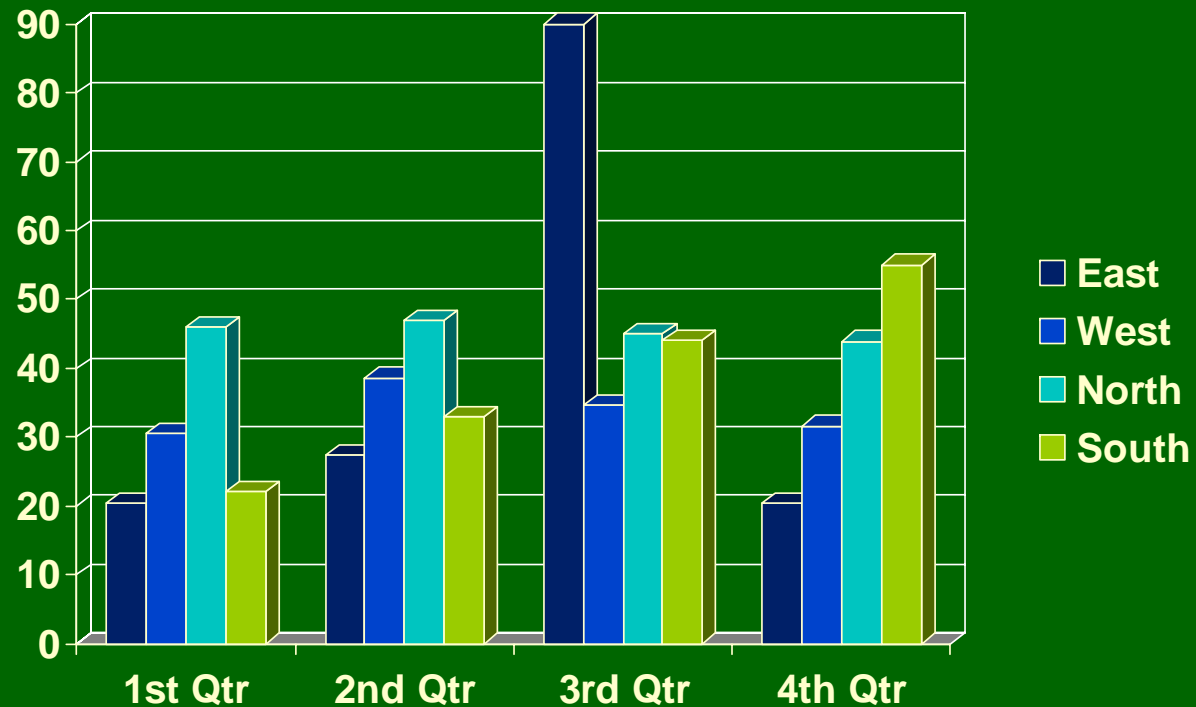


Example of a Bullet Point Slide

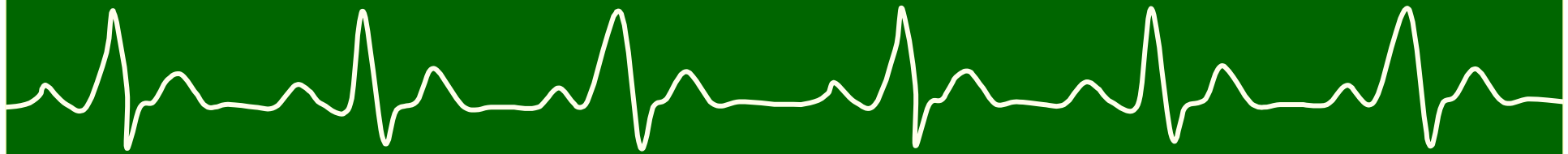
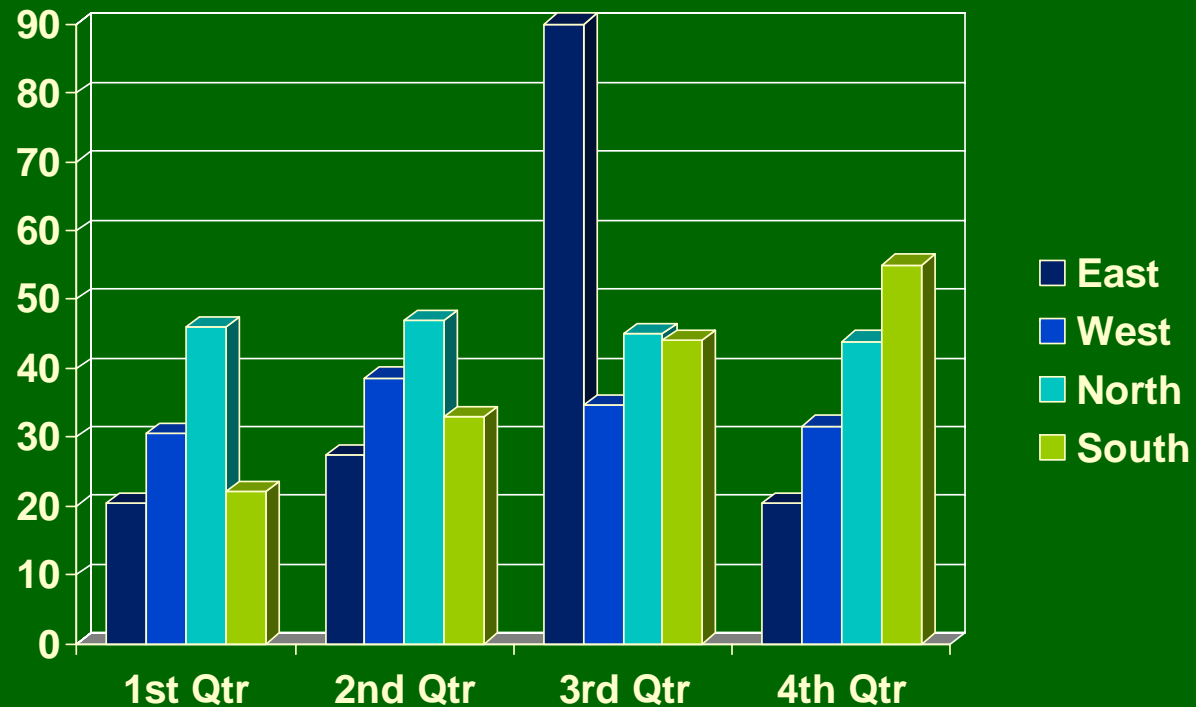
- Bullet Point
- Bullet Point
 - Sub Bullet



Example of a chart



Example of a chart



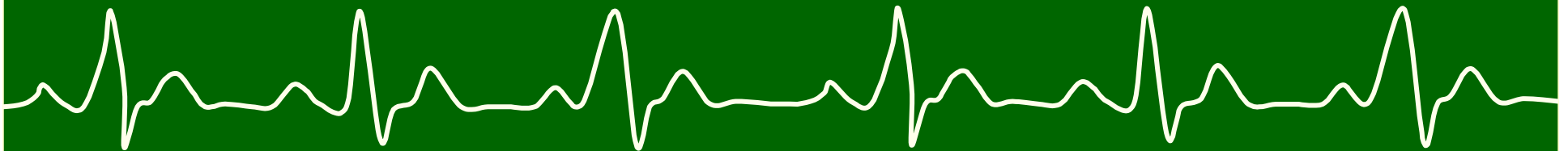
Picture slide

- Bullet 1
- Bullet 1



Picture slide

- Bullet 1
- Bullet 1



Examples of default styles

- Text and lines are like this
- [Hyperlinks like this](#)
- [Visited hyperlinks like this](#)

Table	

Text box

Text box
With shadow



Examples of default styles

- Text and lines are like this
- [Hyperlinks like this](#)
- [Visited hyperlinks like this](#)

Table	

Text box

Text box
With shadow



For advice on the ten minute presentation, I would suggest that you follow the section [How to structure a presentation](#). The key part is to get the middle section working well. Use the [rule of three](#) to get the middle section working well, and present three points that you want to make. You may want to spend the bulk of the time illustrating one or two of these points. Think if there are only three points that I would like to leave my audience with, what would they be? There you have the middle of the presentation. All you now have to do is to think of ways of illustrating these points and then you have the bulk of the structure of the presentation. related articles

Starting a presentation

most important part

serves two main purposes

attention grabber for the audience

settle down,

A funny story (if humour is your thing - no religious, sexual, sexist or racist jokes)

A video clip, but if you use one, make sure that it is less than 60 seconds

Unusual statistics about your industry or about your audience

A cartoon. I personally use the cartoons from Ted Goff

Suspense (e.g. walk on with a cardboard box and place it in the middle of the stage - but don't tell people what it is there for)

The middle of a presentation rule of three.

the technique that people tend to remember three things.

Here are some examples:

"Friends, Romans, countrymen"

"The good, the bad and the ugly"

"Blood, sweat and tears"

only three points I would like to leave my audience with,
what would they be?

There you have the middle of the presentation.

ways of illustrating these points

you have the bulk of the structure of the presentation.

The end of the presentation
The end is more important than the beginning.
There is a psychological factor called recency.
This is where people remember most the last thing that they are told.

So the ending of the presentation is key.

There are a number of techniques
all related to the main structure

Ideas include

A funny story (one that encapsulates at least one of
the main themes of the presentation,

A high energy video clip,

Relieving the suspense (you may be wondering why I brought
this cardboard box onto the the stage...)

If you are really struggling for ideas,
and want to play it safe, you could

simply recap on the
three main concepts

that you have put forward in the middle section.

PACHDA

Founded February 2002, Alexandria, Egypt



**3rd Annual Meeting in Alexandria, 23
February 2004**

Next Meeting in February 2005, in conjunction with the Egyptian Heart Meeting

Opportunities

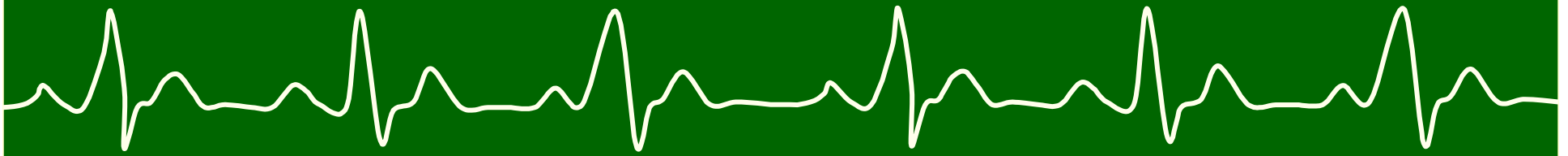
Picture of the CVD doctors 2003





The Cardiovascular Department

Cardiac Centers in KSA



Example for Manuscripts from KSA

1: [Z Kardiol](#). 1993 Jul;82(7):432-5.

[Transcatheter obliteration of patent ductus arteriosus in young adults with the Rashkind occluder]

[Article in German]

[Galal O](#), [Schmaltz AA](#), [Fadely E](#), [Fawzy ME](#), [Wilson N](#), [Mimish L](#).

King Faisal Specialist Hospital and Research Center, Riyadh, Saudi-Arabien.

Fourteen young adult patients between 14 and 29 years of age underwent 15 procedures of transcatheter occlusion of patent ductus arteriosus. In all patients but one, the attempt to implant the device was successful (92%). In one patient the ductus was judged to be too large for occlusion and the patient was sent for surgery. In no patient did the device embolize. A total of 6/13 (46%) patients was discharged home with no residual shunt. Follow-up data (between 3 and 18 months) are available in 10/13 patients. To date, 9/13 (70%) had total occlusion of their duct, in one patient after reocclusion.

PMID: 8379243 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [Cardiol Young](#). 1999 Nov;9(6):602-5.

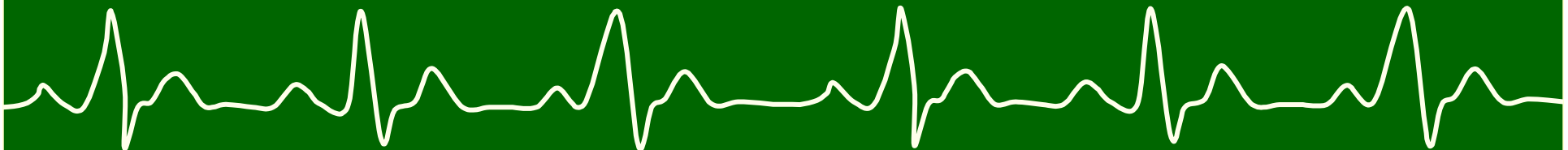
Changes of management in a patient with double outlet left ventricle.

[Galal O](#), [Hatle L](#), [Al Halees Z](#).

Department of Cardiovascular Diseases, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia.
Galal@kfshrc.edu.sa

Double outlet left ventricle is an extremely rare anomaly. Until recently, the diagnosis was usually established by angiography or at postmortem. There are only a few reports describing the echocardiographic findings in this lesion, and as far as we know, no report showing the anatomy as well as the velocity and pattern of flow by color Doppler echocardiography. The patient reported here underwent surgery at the age of four years, when an aortic homograft was placed between the right ventricle and the pulmonary trunk. This biventricular repair had to be changed into a Fontan-type procedure, 15 years later since the hypoplastic right ventricle did not grow adequately.

PMID: 10593271 [PubMed - indexed for MEDLINE]



[Interventions in congenital heart disease and their sequelae in adults]

[Article in German]

[Schmaltz AA](#), [Neudorf U](#), [Sack S](#), [Galal O](#).

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achim.schmaltz@uni-essen.de

The advancements of cardiac surgery over the last decades led to larger numbers of patients with operated congenital heart diseases surviving into adulthood. In Germany it is estimated that over 120,000 adults have operated congenital heart diseases. Five to 7% of them will need yearly hospital admissions. Interventional procedures are additional tools used to treat these patients with various sequelae or residua (Table 1). In the following review we concentrate on 2 different interventional procedures: dilatation and stent implantations for treatment of stenosis and the different devices used for the closure of shunt lesions. For congenital valvular pulmonary stenosis, balloon dilatation is the therapy of choice regardless the age of the patient. Stent implantation for the treatment of peripheral pulmonary stenosis (e.g., after previous systemic pulmonary shunts) can decrease the need for redo surgery, which is accompanied with increased risk. Stent implantations proved also to be useful to treat stenoses after Mustard patch in patients with transposition of the great arteries, after Fontan procedures or dealing with the rare pulmonary venous stenosis. In contrast, dilatation of bioprosthesis and conduit stenosis are not promising. Balloon dilatation of valvular aortic stenosis is an accepted therapy in childhood up to adolescents. Table 2 compares a surgical series including many infants with critical aortic stenosis with a series of balloon dilatation in children and another one in adults regarding lethality, complications, and results. Table 3 illustrates the immediate and late results of balloon dilatation of aortic coarctation in 3 different studies. The high recurrence rate in infants made clinicians refrain from taking this age group for balloon dilatation. In children and adult patients, good results are reported (75% reduction of gradients). The complication rate is low (2.3 to 3.3%) and aneurysm formation rate seldom (1 to 7%). Stenosed aorto-pulmonary collaterals will rarely need balloon dilatation. Surgical closure of atrial septal defect is a low risk procedure with a very low rate of residual shunts (2%). Of the 5 available devices for transcatheter closure of atrial septal defect Type II, only 2 occluders are in use in Germany, the Clamshell and the Amplatzer device. The largest clinical studies of the different systems, their efficacy, complications and residual shunt rate are presented in Table 4. For the deployment of these occluders a TEE is always needed. There are many more systems in clinical use to close the patent arterial duct (PDA) (Table 5). The Ivalon plug as well as the Rashkind device have probably only historical value. Different types of coils (Gianturco, Cook detachable, PFM) are now in use worldwide. The reason for their widespread use, besides their easy application, is the fact that most coils are relatively cheap and need only small sheaths for deployment. Their further evaluation identified a residual shunt rate of 5% as well as a number of complications (embolization, hemolysis, stenosis of the left pulmonary artery) in 0 to 6%. For the large PDA the Amplatzer device has recently been introduced. An additional indication for the use of the different occluding devices are aorto-pulmonary collaterals, venovenous fistulae, pulmonary or coronary artery fistulae. Aorto-pulmonary collaterals are often associated with complex cardiac lesions and occasionally appear after palliative procedures. An excellent cooperation between adult and pediatric cardiologists is needed in order to offer the group of adults with congenital heart diseases an adequate and comprehensive management.

Example for Manuscripts from KSA

□ 1: [Can J Cardiol](#). 2000 Feb;16(2):167-74.

Double-chambered right ventricle in 73 patients: spectrum of the disease and surgical results of transatrial repair.

[Galal O](#), [Al-Halees Z](#), [Solymar L](#), [Hatle L](#), [Mieles A](#), [Darwish A](#), [Fawzy ME](#), [Al Fadley F](#), [de Vol E](#), [Schmaltz AA](#).

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OBJECTIVE: To review the spectrum of double-chambered right ventricle (DCRV) and the outcome of surgical repair in patients diagnosed between February 1988 and March 1999. **DESIGN:** The charts of patients with DCRV were studied. **SETTING:** Tertiary care hospital. **PATIENTS AND METHODS:** A total of 73 patients were identified. Sixty-nine underwent surgical repair, while four are awaiting surgery. The repair was through a transatrial approach in 61 patients, while in eight an additional ventriculotomy was performed. **MAIN RESULTS:** An associated ventricular septal defect (VSD) was present in 56 of 73 patients (77%). These patients were significantly younger ($P < 0.05$) than the 17 patients without a VSD. Among patients with a VSD, the 31 requiring patch closure were significantly younger than the 25 patients having direct closure. Five older patients among those with intact septum had impaired right ventricular (RV) function as well as higher intraventricular gradients. At surgery the intraventricular obstruction was relieved by myomectomy. There was no hospital or late mortality. Following surgery, at a mean follow-up of 13.6 months, no increase in the intraventricular gradient was detected by Doppler echocardiography. **CONCLUSIONS:** The development of DCRV is associated with VSD in early life. The probability of the presence of a VSD decreases with age. The disease is progressive, resulting in increased intracavitary gradient within the RV and in RV impairment if it is not treated in a timely fashion. Transatrial repair is safe with excellent midterm results. In the presence of high gradients within the RV, a ventriculotomy may be necessary to obtain acceptable results.

PMID: 10694587 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [J Heart Valve Dis.](#) 2001 Nov;10(6):812-8.

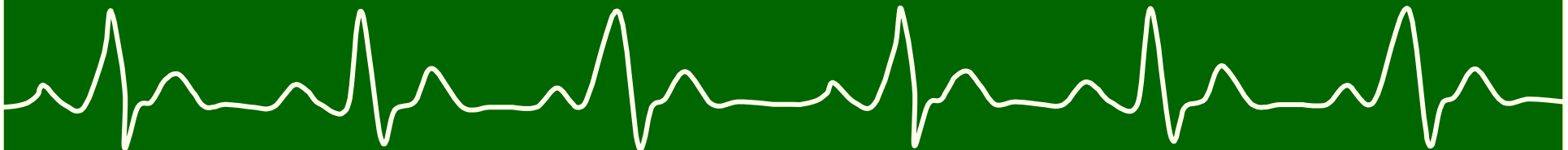
Long-term results of pulmonary balloon valvulotomy in adult patients.

[Fawzy ME](#), [Awad M](#), [Galal O](#), [Shoukri M](#), [Hegazy H](#), [Dunn B](#), [Mimish L](#), [Al Halees Z](#).

Department of Cardiovascular Diseases, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia.

BACKGROUND AND AIM OF THE STUDY: The study aim was to define the long-term outcome of pulmonary balloon valvulotomy (PBV) in adult patients. **METHODS:** PBV was performed in 87 patients (46 females, 41 males; mean age 23+/-9 years; range: 15-54 years) with congenital pulmonary valve stenosis (PS). Intermediate follow up catheterization (mean 14.6+/-5.0; range: 6-24 months) was performed after PBV in 53 patients. Clinical and Doppler echocardiography examinations were carried out annually in 82 patients (mean 8.0+/-3.9; range: 2-15 years). **RESULTS:** There were no immediate or late deaths. The mean catheter peak pulmonary gradient (PG) before and immediately after PBV, and at intermediate follow up was 105+/-39, 34+/-26 ($p < 0.0001$) and 17+/-14 ($p < 0.0001$) mmHg, respectively. The corresponding values for right ventricular (RV) pressure were 125+/-38, 59+/-21 ($p < 0.0001$) and 42+/-12 ($p < 0.0001$) mmHg, respectively. The infundibular gradients immediately after PBV and at intermediate follow up were 31+/-23 and 14+/-9 mmHg ($p < 0.0001$), whilst cardiac index improved from 2.68+/-0.73 to 3.1+/-0.4 l/min/m² ($p < 0.05$) at intermediate follow up. Doppler PG before PBV and at intermediate and long-term follow up were 91+/-33 (range 36-200) mmHg, 28+/-12 (range 10-60) mmHg ($p < 0.0001$) and 26+/-11 mmHg ($p = 0.2$), respectively. New pulmonary regurgitation (PR) was noted in 21 patients (25%) after PBV. Five patients (6%) with a suboptimal result (immediate valve gradient ≥ 30 mmHg) developed restenosis and underwent repeat valvulotomy 6-12 months later using a larger balloon, and with satisfactory outcome. Moderate to severe tricuspid regurgitation (TR) in seven patients regressed after PBV. **CONCLUSION:** The long-term results of PBV in adults are excellent, with regression of concomitant, severe infundibular stenosis and/or severe TR. Hence, PBV should be considered as the treatment of choice for adult patients with PS.

PMID: 11767191 [PubMed - indexed for MEDLINE]



1: [J Am Coll Cardiol.](#) 2004 Jan 21;43(2):302-9.

Comment in:

[J Am Coll Cardiol.](#) 2004 Jan 21;43(2):310-2.
[J Am Coll Cardiol.](#) 2004 Oct 19;44(8):1712-3; author reply 1714-6.
[J Am Coll Cardiol.](#) 2004 Oct 19;44(8):1712; author reply 1714-6.
[J Am Coll Cardiol.](#) 2004 Oct 19;44(8):1713-4; author reply 1714-6.
[J Am Coll Cardiol.](#) 2004 Oct 19;44(8):1714; author reply 1714-6.

Incidence and clinical course of thrombus formation on atrial septal defect and patient foramen ovale closure devices in 1,000 consecutive patients.

[Krumsdorf U](#), [Ostermayer S](#), [Billinger K](#), [Trepels T](#), [Zadan E](#), [Horvath K](#), [Sievert H](#).

Cardiovascular Center Frankfurt, Sankt Katharinen, Frankfurt, Germany.

OBJECTIVES: The purpose of this study was to investigate the incidence, morphology, and clinical course of thrombus formation after catheter closure of intra-atrial shunts. **BACKGROUND:** Post-procedure detailed information about thrombotic material on different devices for transcatheter closure is missing. **METHOD:** A total of 1,000 consecutive patients were investigated after patent foramen ovale (PFO) (n = 593) or atrial septal defect (ASD) (n = 407) closure. Transesophageal echocardiography (TEE) was scheduled after four weeks and six months. Additional TEEs were performed as clinically indicated. **RESULTS:** Thrombus formation in the left atrium (n = 11), right atrium (n = 6), or both (n = 3) was found in 5 of the 407 (1.2%) ASD patients and in 15 of the 593 (2.5%) PFO patients (p = NS). The thrombus was diagnosed in 14 of 20 patients after four weeks and in 6 of 20 patients later on. The incidence was: 7.1% in the CardioSEAL device (NMT Medical, Boston, Massachusetts); 5.7% in the StarFLEX device (NMT Medical); 6.6% in the PFO-Star device (Applied Biometrics Inc., Burnsville, Minnesota); 3.6% in the ASDOS device (Dr. Ing. Osypka Corp., Grenzach-Wyhlen, Germany); 0.8% in the Helex device (W.L. Gore and Associates, Flagstaff, Arizona); and 0% in the Amplatzer device (AGA Medical Corp., Golden Valley, Minnesota). The difference between the Amplatzer device on one hand and the CardioSEAL device, the StarFLEX device, and the PFO-Star device on the other hand was significant (p < 0.05). A pre-thrombotic disorder as a possible cause of the thrombus was found in two PFO patients. Post-procedure atrial fibrillation (n = 4) and persistent atrial septal aneurysm (n = 4) had been found as significant predictors for thrombus formation (p < 0.05). In 17 of the 20 patients, the thrombus resolved under anticoagulation therapy with heparin or warfarin. In three patients, the thrombus was removed surgically. **CONCLUSIONS:** The incidence of thrombus formation on closure devices is low. The thrombus usually resolves under anticoagulation therapy.

PMID: 14736453 [PubMed - indexed for MEDLINE]

Example for Manuscripts from KSA

1: [Catheter Cardiovasc Interv.](#) 2005 Dec;66(4):580-4.

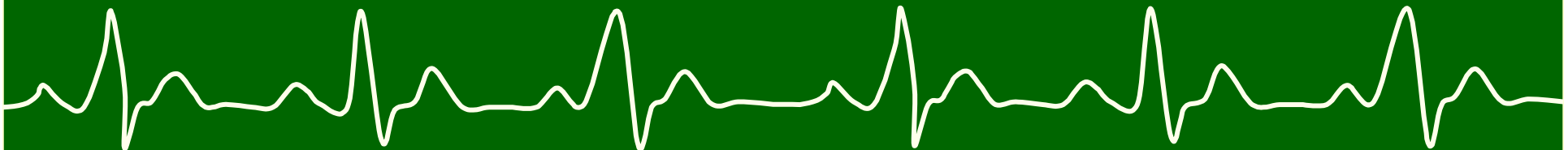
Transcatheter closure of large secundum atrial septal defects using the 40 mm Amplatzer septal occluder: results of an international registry.

[Lopez K](#), [Dalvi BV](#), [Balzer D](#), [Bass JL](#), [Momenah T](#), [Cao QL](#), [Hijazi ZM](#).

University of Chicago Comer Children's Hospital, Pritzker School of Medicine, Chicago, Illinois 60637, USA.

Little is known about the efficacy and safety of the 40 mm Amplatzer septal occluder (ASO). Thirty-three patients (22 female, 11 male) with a large secundum atrial septal defect (ASD) underwent attempted device closure using the 40 mm ASO at a median age of 40 years (range, 14-81 years) and median weight of 65 kg (range, 48-98 kg). The median size of the ASD measured on 2D transesophageal echocardiography (27 patients) or intracardiac echocardiography (6 patients) was 30.5 mm (range, 24-39 mm) and the median balloon-stretched diameter was 37.7 mm (range, 32-43.7 mm). The median Qp:Qs ratio was 3.2:1 (range, 1.4-6.2). The attempt was unsuccessful in five patients; two had device embolization and one had left atrial wall perforation due to the sheath; all three required emergent surgery. The attempt was successful in the 28 remaining patients, resulting in complete immediate closure in 14 and a trivial residual shunt in 14. Fluoroscopy time ranged from 8.6 to 37.8 min (median, 12.2 min). At 24-hr follow-up, 2D transthoracic echocardiography with color flow Doppler revealed complete closure in 23 patients, and 5 had a trivial residual shunt. There were no complications encountered in patients who received the device. On follow-up, all patients are doing well. We conclude that the 40 mm ASO is safe and effective in most patients with a large ASD up to a diameter of 39 mm. However, the use of this device requires careful attention as the procedure may be unsuccessful or the device may embolize. Copyright (c) 2005 Wiley-Liss, Inc.

PMID: 16216021 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [J Heart Valve Dis.](#) 2005 Jul;14(4):481-5.

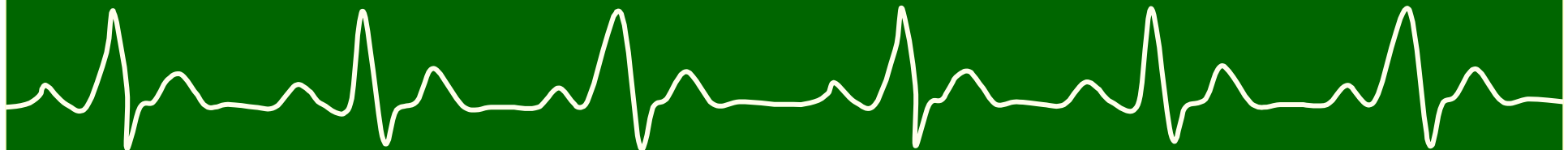
Pregnancy has no effect on the rate of structural deterioration of bioprosthetic valves: long-term 18-year follow up results.

[El SF](#), [Hassan W](#), [Latroche B](#), [Helaly S](#), [Hegazy H](#), [Shahid M](#), [Mohamed G](#), [Al-Halees Z](#).

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BACKGROUND AND AIM OF THE STUDY: Should cardiac valve replacement be required, a bioprosthetic valve (BPV) is generally recommended for female patients of childbearing age to avoid anticoagulation hazards. Whether pregnancy accelerates BPV degeneration, or not, remains the subject of debate. The study aim was to determine the long-term effects of repeat pregnancy on the rate of structural deterioration of BPVs. **METHODS:** Eighty-five female patients of childbearing age who underwent BPV replacement between 1986 and 2000 were allocated to two groups: group P (n = 49; mean age 25 +/- 6 years) who became pregnant (144 pregnancies), and group NP (n = 36; mean age 27 +/- 7 years) who never became pregnant. The general characteristics of both groups were comparable. Clinical and echocardiographic data were obtained annually for all subjects; the mean follow up for all patients was 8.5 +/- 3.8 years (range: 4.6-18.4 years). Group P received 59 (68% mitral) BPVs, while group NP received 45 (60% mitral). The majority of BPVs were Hancock II porcine bioprostheses. The end-point was freedom from redo valve replacement due to structural valve deterioration (SVD). **RESULTS:** No major maternal complications were encountered. A total of 144 pregnancies resulted in 114 live deliveries (79%). During the follow up period, 30 patients required reoperation for SVD (23 (46.9%) in group P; seven (19.4%) in group NP). The mean valve survival time for groups P and NP was 11.5 +/- 7 years and 13 +/- 9 years, respectively. A test of freedom from redo surgery for SVD in both groups demonstrated no significant differences between the P and NP groups (RR 1.8; 95% CI = 0.761-4.256; p = 0.18). Further analysis testing the potential effect of increased number of pregnancies on the duration to redo surgery among P group showed no effect. **CONCLUSION:** Up to 18 years' follow up of patients with a BPV and repeated pregnancy showed there to be no pregnancy-related accelerated degeneration of BPVs. In addition, fetal loss rates were most likely lower with the use of BPVs.

PMID: 16116874 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [Asian Cardiovasc Thorac Ann](#), 2005 Sep;13(3):274-6.

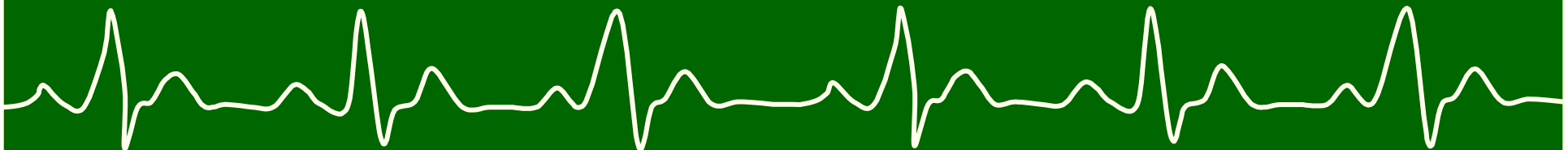
Stent implantation to maintain patency of a stenosed Blalock Taussig shunt.

[Kouatli A](#), [Al-Ata J](#), [Galal MO](#), [Amin MA](#), [Hussain A](#).

Section of Pediatric Cardiology, Department of Cardiovascular Diseases, King Faisal Specialist Hospital and Research Centre, P.O. Box 40047, Jeddah 21499, Saudi Arabia.

A 14-year-old female with complex congenital heart disease underwent a left-sided classical Blalock Taussig (BT) shunt 15 days after birth. Ten years after the operation her oxygen saturation had decreased significantly. An angiography revealed a severely stenosed BT shunt. Balloon dilation including implantation of a 6 x 13 mm stent was performed successfully. Immediately after intervention, oxygen saturation rose from 55% to 80-84% in room air. Follow-up at a year and a half later showed the classical BT shunt was still patent.

PMID: 16113004 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [J Heart Valve Dis.](#) 2006 Mar;15(2):230-7; discussion 237.

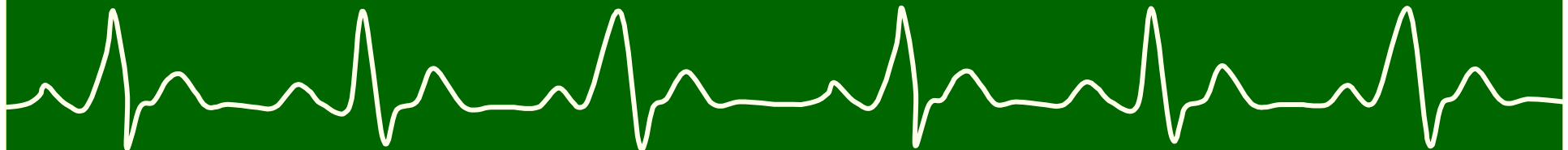
Quattro valve trial at mid-term: December 1996 to November 2004.

[Frater RW](#), [Sussman M](#), [Middlemost S](#), [Walther T](#), [Mohr F](#), [Al Halees Z](#), [Shahid M](#).

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BACKGROUND AND AIM OF THE STUDY: The Quattro valve is a stentless pericardial mitral bioprosthesis that is treated with a post-tanning aldehyde capping designed to reduce calcification. A prospective trial was started in December 1996; herein are reported the results of the three centers that performed the surgery and followed up patients in the majority of cases. Young patients were deliberately included in the trial. **METHODS:** Follow up data from 175 patients (mean age 46 years; range: 12-87 years) were collected and analyzed. Among patients, 44% were aged < 40 years. Follow up was 91% complete; mean follow up was 3.4 years (range: 0-7.5 years); total follow up was 465 patient-years (pt-yr). Clinical outcome was assessed according to the AATS/STS guidelines, and results analyzed according to Kaplan-Meier product limit calculation and by FDA Optimal Performance Criteria (OPC). **RESULTS:** Early mortality was 1.7% (all non-valve related). At 60 months after surgery, mean overall survival was 84.8 +/- 3.6%, mean overall freedom from valve-related death was 99.2 +/- 0.9%, and mean overall freedom from calcification, pannus and tears was 96.1 +/- 2.2%. FDA OPC values (data for mechanical valve, tissue valve, Quattro valve in patients aged < 40 years and of all ages, respectively; expressed as %/pt-yr) were as follows: thromboembolism/stroke 3.0, 2.5, 0, 0.4; thrombosis 0.8, 0.2, 0, 0; major hemorrhage 1.5, 0.9, 0, 0.4; major perivalvular leak 0.6, 0.6, 0.4, 0.6; late endocarditis 1.2, 1.2, 1.8, 1.3; calcification/pannus 0, 0, 0.8, 0.6. Statistical analysis of these data showed there to be no difference between patients aged less or more than 40 years. **CONCLUSION:** Overall mid-term results with the Quattro valve were acceptable. The lack of early calcification in young patients shows promise. More young patient-years of follow up will be needed to establish a secure indication for use in young, rheumatic patients where anticoagulation control is deficient.

PMID: 16607906 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [Eur J Cardiothorac Surg](#). 2007 Aug;32(2):195-200; discussion 201. Epub 2007 Apr 27.

Fontan completion without surgery.

[Sallehuddin A](#), [Mesned A](#), [Barakati M](#), [Fayyadh MA](#), [Fadley F](#), [Al-Halees Z](#).

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OBJECTIVE: There are several modifications introduced in the preparation for a subsequent non-surgical transcatheter completion of the Fontan procedure. We report our experience with one type of the modification and the short-term results following its implementation. **METHODS:** During bidirectional cavopulmonary connection (BCPC) an intra-atrial lateral tunnel is additionally created, as intended for a Fontan procedure but fenestrated with a 10-14 mm aperture. The cardiac end of the superior vena cava (SVC) is then patched to maintain the physiology of BCPC. During the interventional transcatheter completion procedure, the SVC patch is perforated using radio-frequency (RF) energy, balloon-dilated, and stented as well. The aperture is closed with a device when required. Paired t-test was used to compare data before and after the Fontan completion. **RESULTS:** From June 2003 to February 2006, 16 patients (9 boys and 7 girls, mean age 12 months) underwent the surgical procedure described. The mean bypass time was 137 min and the mean ischemic time was 77 min. There were no operative deaths. One patient with bilateral SVC required a take down due to recurrent effusions. Ten months later, nine patients underwent completion (mean age 20 months, mean weight 10.6 kg). The stents were dilated to a mean diameter of 14.4mm. All except one aperture was closed with a device. The mean fluoroscopy time was 41 min. Oxygen saturation increased from 85 to 94% ($p=0.001$). Pulmonary artery pressures remained normal (16 mmHg before and 19 mmHg after, $p=0.12$). No patients required mechanical ventilation and none developed pleural effusions or arrhythmias. All were discharged from hospital within 6 days of the Fontan completion. Twenty-two months after Fontan, all were well. Echocardiography revealed no gradients across the stents. Two patients had minor leaks across the aperture. One underwent further stent dilatation a year later. **CONCLUSIONS:** Fontan completion without surgery is suitable in patients with single ventricles with lower mortality and morbidity, avoids multiple surgical interventions while maintaining the staged approach and allows for successive dilatation of the Fontan pathway to accommodate for growth.

PMID: 17466533 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [Am Heart J](#). 2007 Mar;153(3):433-8.

Long-term results (up to 17 years) of pulmonary balloon valvuloplasty in adults and its effects on concomitant severe infundibular stenosis and tricuspid regurgitation.

[Fawzy ME](#), [Hassan W](#), [Fadel BM](#), [Sergani H](#), [El Shaer F](#), [El Widaa H](#), [Al Sanei A](#).

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BACKGROUND: Significant infundibular stenosis and significant tricuspid regurgitation (TR) occasionally result from severe pulmonary valve stenosis in adults, and these 2 conditions have an adverse impact on morbidity and mortality in patients who undergo corrective surgery. The goal of this study was (1) to evaluate the long-term (up to 17 years) outcome of pulmonary balloon valvuloplasty (PBV) in adults and (2) to determine the effect of successful PBV on severe infundibular stenosis and severe TR. **METHODS:** Pulmonary balloon valvuloplasty was performed in 90 consecutive patients (49 women, 41 men) of mean age 23 ± 9 years (range 15-54 years) with congenital pulmonary valve stenosis. Clinical and echocardiographic assessment was performed 2 to 17 years (mean 10 ± 3.9 years) after PBV. Repeat cardiac catheterization was performed 6 to 24 months after PBV in 43 patients who had concomitant moderate to severe infundibular stenosis (infundibular gradient ≥ 30 mm Hg). **RESULTS:** There were no immediate or late deaths. The mean catheter peak pulmonary gradient (gradient between pulmonary artery and right ventricular body) before and immediately after PBV was 105 ± 39 and 34 ± 26 ($P < .0001$), respectively. The corresponding values for right ventricular pressure were 125 ± 38 and 59 ± 21 mm Hg ($P < .0001$), respectively. The infundibular gradient (in 43 patients) immediately after PBV was 42.9 ± 24.8 (30-113) mm Hg, and it regressed at second catheterization to 13.5 ± 8.3 mm Hg ($P < .0001$), whereas cardiac index improved from 2.68 ± 0.73 to 3.1 ± 0.4 L min⁻¹ m⁻² ($P < .05$). Doppler pulmonary gradient before PBV and at 1-year and long-term follow-up were 91 ± 33 (range 36-200), 28 ± 12 (range 10-60) ($P < .0001$), and 26 ± 11 (range 7-60) mm Hg ($P = .2$), respectively. New mild pulmonary regurgitation was noted in 24 patients (28%) after PBV. Significant TR in 7 patients either regressed or disappeared after PBV. **CONCLUSIONS:** Long-term results of PBV in adults are excellent. Severe infundibular stenosis and severe TR regressed after successful PBV. Therefore, PBV should be considered as the treatment of choice for adult patients with valvular pulmonary stenosis even in the presence of severe infundibular stenosis or severe TR.

PMID: 17307424 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [Pediatr Cardiol](#). 2008 May;29(3):585-8. Epub 2007 Dec 11.

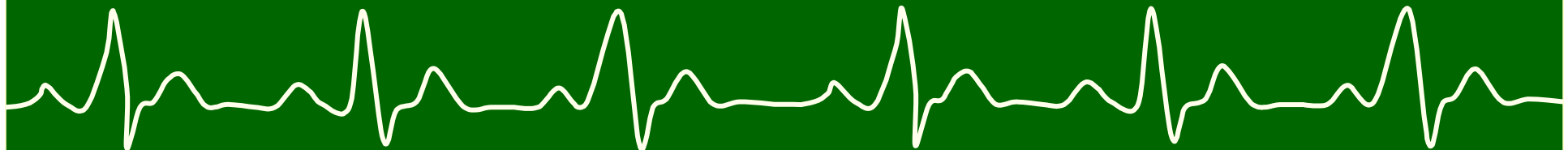
Effects of transcatheter closure of Fontan fenestration on exercise tolerance. kidecho@yahoo.com.

[Momenah TS](#), [Eltayb H](#), [Oakley RE](#), [Qethamy HA](#), [Faraidi YA](#).

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Baffle fenestration is associated with a significantly better outcome in standard and high-risk patients undergoing completion of Fontan. We report the effects of subsequent transcatheter closure of fenestration on exercise capacity and oxygen saturation. Sixteen patients with a mean age of 10.3 years underwent Amplatzer septal occluder (ASO) device transcatheter closure of Fontan fenestration. All had a fenestrated Fontan operation 6 month to 8 years prior to the procedure. A stress test was performed before and after device closure of fenestration in 14 patients (2 patients did not tolerate stress test before the procedure). The fenestrations in all patients were successfully occluded with the use of the Amplatzer device occluder. No complications occurred during or after the procedure. O₂ saturation increased from a mean 85.1 \pm 7.89% to 94.5 \pm 3.63% ($p < 0.01$) at rest and from 66.2 \pm 12.86% to 87.2 \pm 8.64% ($p < 0.01$) following exercise. Exercise duration has also increased from 8.22 \pm 2.74 min to 10.29 \pm 1.91 min ($p < 0.05$). Transcatheter closure of Fontan fenestration increases the duration of exercise capacity and increases O₂ saturation at rest and after exercise.

PMID: 18071783 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

❑ 1: [Am Heart J](#). 2008 Nov;156(5):910-7. Epub 2008 Sep 24.

Twenty-two years of follow-up results of balloon angioplasty for discrete native coarctation of the aorta in adolescents and adults.

[Fawzy ME](#), [Fathala A](#), [Osman A](#), [Badr A](#), [Mostafa MA](#), [Mohamed G](#), [Dunn B](#).

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BACKGROUND AND AIMS: Although the immediate and intermediate-term results of balloon angioplasty (BA) for patients with aortic coarctation (AC) have been encouraging, there is paucity of data on long-term follow-up results. This study evaluated the long-term (up to 22 years) follow-up results of BA in adolescent and adult patients with discrete (shelf-like) coarctation of the aorta. **METHODS:** Follow-up data of 58 patients (mean age 24+/-9 years) undergoing BA for discrete AC at median interval of 13.4 years including cardiac catheterization, magnetic resonance imaging, and Doppler echocardiography form the basis of this study. **RESULTS:** No early deaths occurred. Balloon angioplasty produced immediate reduction in peak AC gradient from 60+/-22 mm Hg to 8.5+/-8 mm Hg ($P<.0001$). Follow-up catheterization 12 months later revealed a residual gradient of 5+/-6.4 mm Hg ($P=.01$). Five patients (8%) with suboptimal initial outcome (peak gradient>20 mm Hg) developed restenosis, and 4 of these had successful repeat angioplasty. Aneurysm developed at the site of dilatation in 4 patients (7%). Magnetic resonance imaging follow-up results revealed no new aneurysm. In one patient, the aneurysm increased in size, but no recoarctation or appreciable changes in the Doppler gradient across the AC site was noted. The blood pressure had normalized without medical treatment in 29 (50%) of the 58 patients. **CONCLUSION:** Long-term results of BA for discrete AC are excellent and should be considered as first option for treatment of this disease.

PMID: 19061706 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [J Card Surg.](#) 2008 Jul-Aug;23(4):339-40.

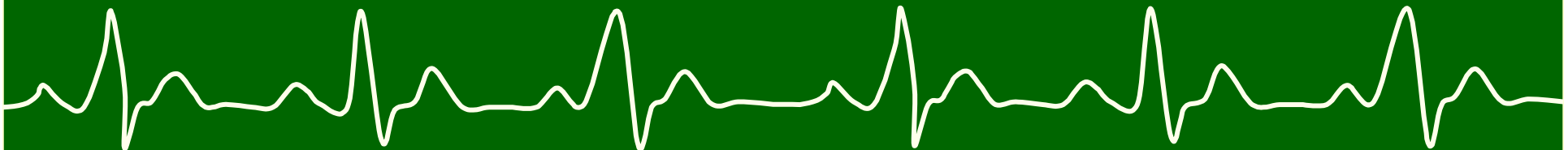
Minimally invasive transventricular implantation of pulmonary xenograft.

[Al Qethamy H](#), [Momenah T](#), [El Oakley R](#), [Al Redhyan A](#), [Tageldin M](#), [Al Faraidi Y](#).

Department of Cardiac Surgery, Prince Sultan Cardiac Center, Riyadh, Kingdom of Saudi Arabia. halqethamy26@hotmail.com

Minimally invasive valve replacement is now a clinical reality. A number of ingenious techniques have been described for percutaneous aortic and pulmonary valve replacement as well as transventricular aortic valve replacement. We describe a technique for transventricular pulmonary valve replacement utilizing off-the-shelf bovine tissue valve, vascular stents, and simplified delivery system. After median sternotomy with limited exposure of the right ventricle, Contegra 200 pulmonary valve (Medtronic, Inc., Minneapolis, MN, USA) is transfixed inside a CP stent (NuMed, Inc., Hopkinton, NY, USA) using multiple 5/0 prolene sutures. The valve/stent composite is crimped on a Cristal balloon catheter (Balt, Montmorency, France). The valve/stent and the balloon are then introduced via a small purse-string placed at the RVOT. The stent/valve composite is then expanded in the pulmonary valve position.

PMID: 18598324 [PubMed - indexed for MEDLINE]



Example for Manuscripts from KSA

1: [Cardiology](#). 2009 Feb 14;113(3):213-221. [Epub ahead of print]

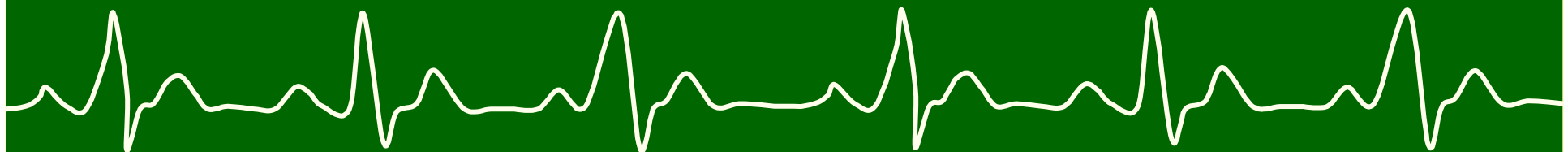
Long-Term (up to 18 Years) Clinical and Echocardiographic Results of Mitral Balloon Valvuloplasty in 531 Consecutive Patients and Predictors of Outcome.

[Fawzy ME](#), [Shoukri M](#), [Fadel B](#), [Badr A](#), [Al Ghamdi A](#), [Canver C](#).

King Faisal Heart Institute, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia.

Objectives: The study aim was to assess the long-term results (up to 18 years) of mitral balloon valvuloplasty (MBV) and to identify predictors of restenosis and event-free survival. **Methods:** The immediate and long-term results for 531 consecutive patients (mean age 31 +/- 11 years) who underwent successful MBV and were followed up for a mean of 8.5 +/- 4.8 years (range: 1.5-18 years) are reported. **Results:** The mitral valve area (MVA) increased from 0.92 +/- 0.17 to 1.95 +/- 0.29 cm(2) ($p < 0.0001$). Restenosis was 31 and 19% in patients with mitral echocardiographic score (MES) ≤ 8 . Actuarial freedom from restenosis at 10, 15 and 18 years was 77 +/- 2, 46 +/- 3 and 18 +/- 4% and 86 +/- 2, 62 +/- 4 and 31 +/- 7% for MES ≤ 8 , respectively ($p < 0.001$). Event-free survival (death, redo MBV, mitral valve replacement, NYHA class III or IV) at 10, 15 and 18 years was 88 +/- 1, 53 +/- 4, and 21 +/- 5% and 93 +/- 2, 65 +/- 5 and 38 +/- 8% for MES ≤ 8 , respectively ($p < 0.001$). Multivariable Cox regression analysis identified MES > 8 ($p < 0.0001$) and previous surgery ($p = 0.043$) as predictors of restenosis, and MES > 8 ($p < 0.0001$) and baseline atrial fibrillation ($p = 0.03$) as predictors of combined events. **Conclusion:** MBV provides excellent long-term results. The baseline clinical and MES characteristics are predictors of outcome. Copyright © 2009 S. Karger AG, Basel.

PMID: 19218805 [PubMed - as supplied by publisher]



Example for Manuscripts from KSA

1: [Pediatr Cardiol.](#) 2009 Jan 30. [Epub ahead of print]

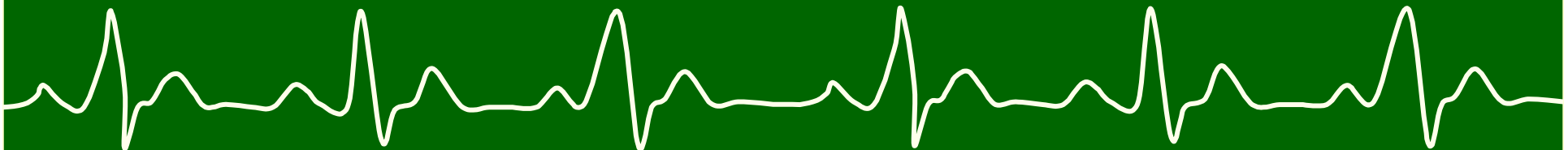
Clinical and Genetic Analysis of Long QT Syndrome in Children from Six Families in Saudi Arabia: Are They Different?

[Bhuiyan ZA](#), [Al-Shahrani S](#), [Al-Khadra AS](#), [Al-Ghamdi S](#), [Al-Khalaf K](#), [Mannens MM](#), [Wilde AA](#), [Momenah TS](#).

Department of Clinical Genetics, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands, z.a.bhuiyan@amc.uva.nl.

Congenital long QT syndrome (LQTS) is an inherited cardiac arrhythmia disorder characterized by prolongation of the QT interval; patients are predisposed to ventricular tachyarrhythmias and fibrillation leading to recurrent syncope or sudden cardiac death. We performed clinical and genetic studies in six Saudi Arabian families with a history of sudden unexplained death of children. Clinical symptoms, ECG phenotypes, and genetic findings led to the diagnosis of LQT1 in two families (recessive) and LQT2 in four families (three recessive and one dominant). Onset of arrhythmia was more severe in the recessive carriers and occurred during early childhood in all recessive LQT1 patients. Arrhythmia originated at the intrauterine stages of life in the recessive LQT2 patients. LQT1, causing mutation c.387-5 T > A in the KCNQ1 gene, and LQT2, causing mutation c.3208 C > T in the KCNH2 gene, are presumably founder mutations in the Assir province of Saudi Arabia. Further, all LQTS causing mutations detected in this study are novel and have not been reported in other populations.

PMID: 19184172 [PubMed - as supplied by publisher]



Heartbeat Medical template (animated)



Presenter Name

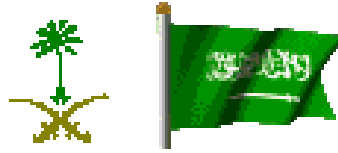
Interventional Cardiology in ACHD in Saudi Arabia



MO Galal, MD, PhD, MBA
Prince Salman Heart Center, Riyadh,
Saudi Arabia



King Fahd Medical City in Riyadh.

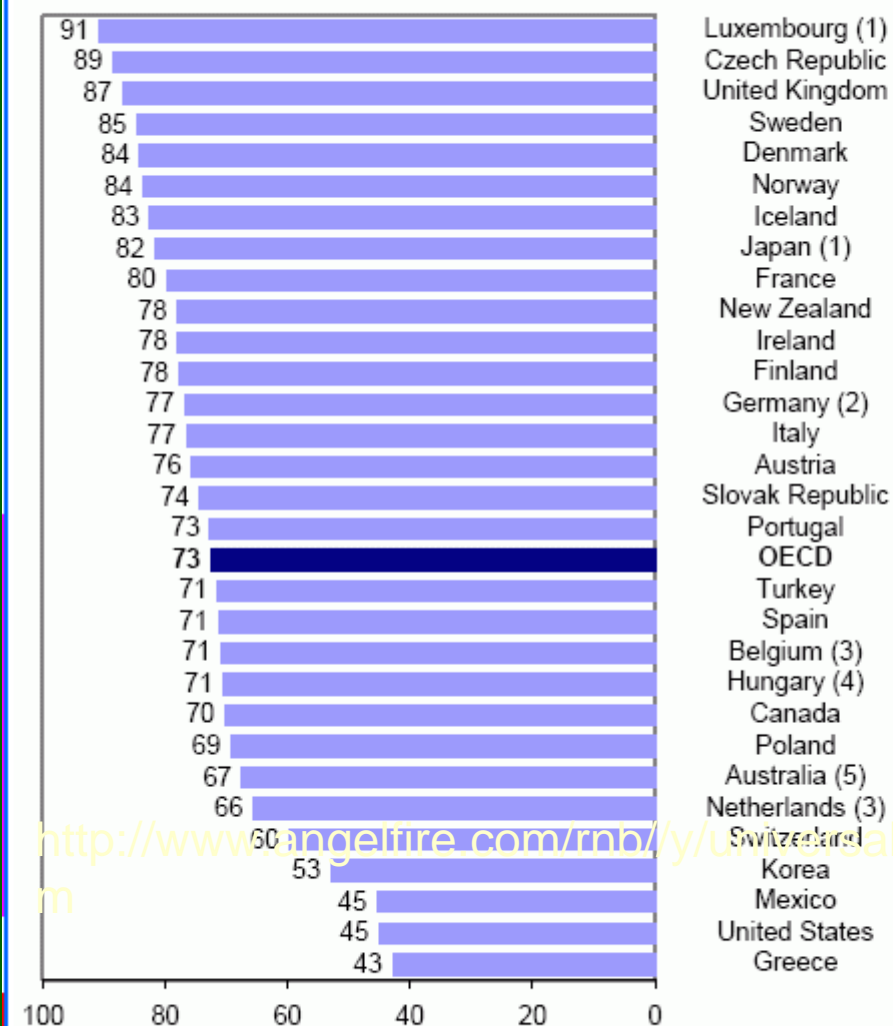


المملكة العربية السعودية

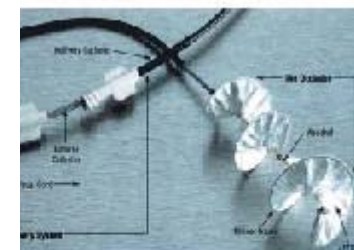


Public share of health expenditure, OECD countries, 2005. By percentage of total health expenditures.

<http://www.oecd.org/dataoecd/52/33/38976604.pdf> - Source for chart below.



<http://www.angelfire.com/rnh/y/y/universal.htm>



septal occluder, (C) Helex septal occluder.¹⁶
the Helex septal occluder for percutaneous closure

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(1) 2004. (2) 1992. (3) Share of current expenditure rather than total. (4) 1991 and 2004. (5) 1990/91 and 2004

Table 1 Frequency of cardiac lesions in 2604 patients with congenital heart disease in 4 regions of Saudi Arabia [3–6]

Lesion	Al Hassa		South east		North central		West		Overall	
	No.	%	No.	%	No.	%	No.	%	No.	%
VSD	292	39.5	109	32.5	123	38.4	359	29.7	883	33.9
ASD	85	11.5	35	10.4	37	11.6	314	26.0	471	18.1
PS	66	8.9	34	10.1	29	9.1	195	16.1	324	12.4
PDA	64	8.6	53	15.8	25	7.8	159	13.2	301	11.6
AVSD	26	3.5	12	3.6	16	5.0	38	3.1	92	3.5
TOF	31	4.2	18	5.4	15	4.7	26	2.2	90	3.5
AS	26	3.5	9	2.7	9	2.8	20	1.6	64	2.5
COA	20	2.7	11	3.3	6	1.9	23	1.9	60	2.3
D-TGA	14	1.9	5	1.5	14	4.4	22	1.8	55	2.1
Other	116	15.7	49	14.6	46	14.4	53	4.4	264	10.1
Total	740	100.0	335	100.0	320	100.0	1209	100.0	2604	100.0

VSD = ventricular septal defect; ASD = atrial septal defect; PS = pulmonary stenosis; PDA = patent ductus arteriosus; AVSD = atrioventricular septal defect; TOF = tetralogy of Fallot; AS = aortic stenosis; COA = coarctation of aorta; D-TGA = dextro-transposition of great arteries.

A.A.A. Alabdulgader

Interventional Cardiology in ACHD

- All centers perform Interventions in ACHD

