Management of pregnancies complicated by severe cardiac disease – single centre experience in a resource-limited setting

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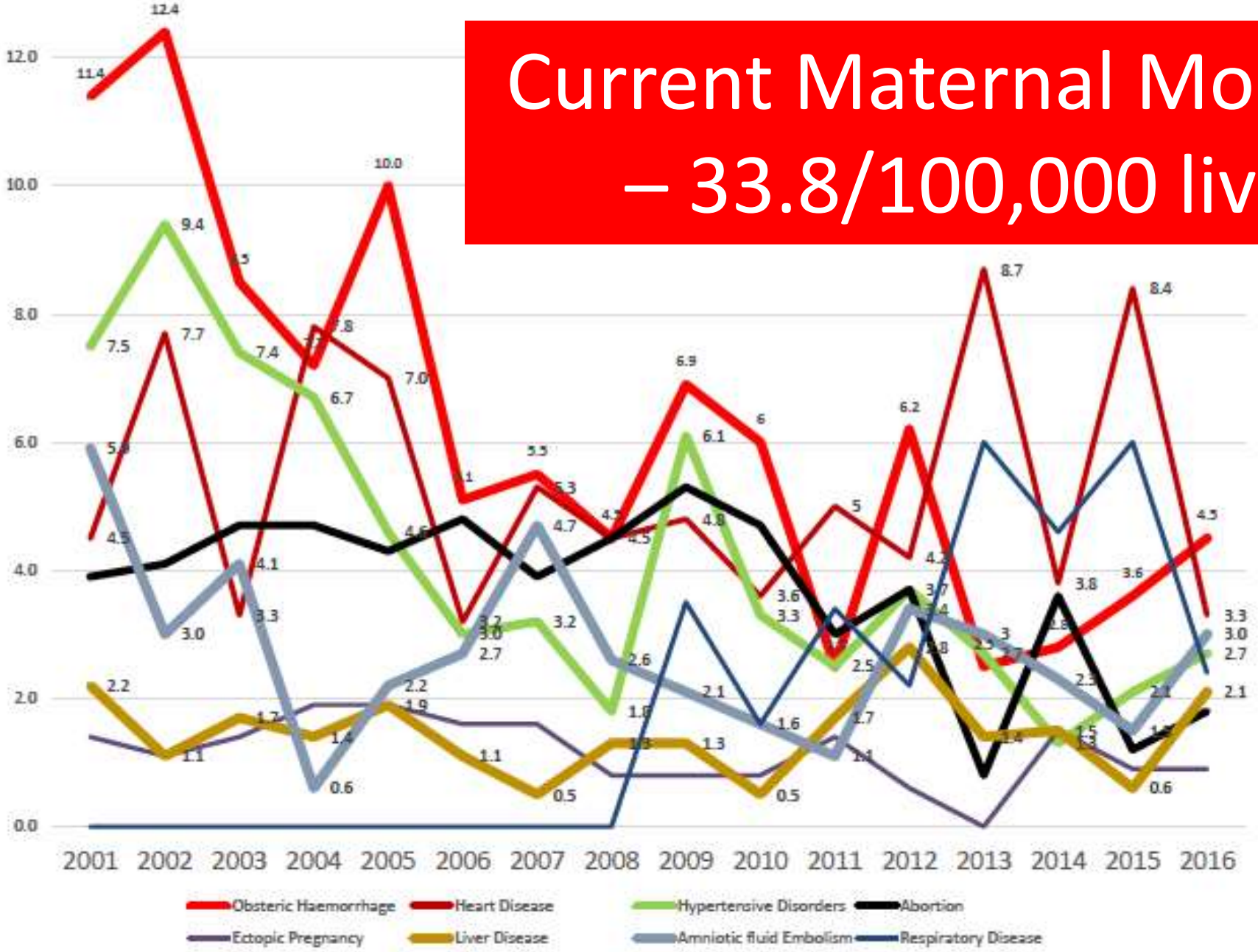
Population – 20.2 Million

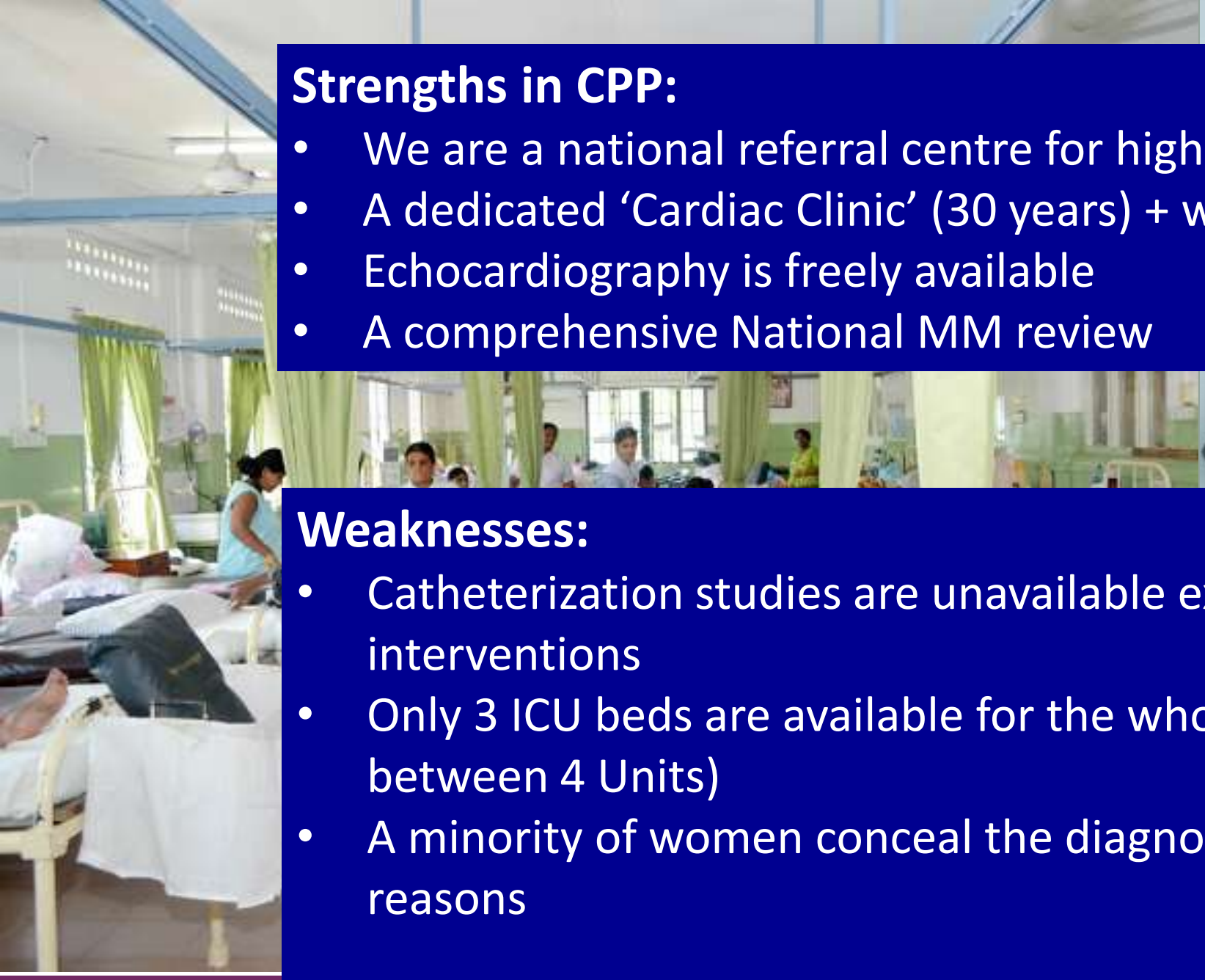
Per capita GDP = 3760 USD

Universal free education

Free healthcare

Current Maternal Mortality Rate – 33.8/100,000 live births





Strengths in CPP:

- We are a national referral centre for high risk pregnancies
- A dedicated 'Cardiac Clinic' (30 years) + weekly MDT
- Echocardiography is freely available
- A comprehensive National MM review

Weaknesses:

- Catheterization studies are unavailable except for interventions
- Only 3 ICU beds are available for the whole hospital (Shared between 4 Units)
- A minority of women conceal the diagnosis for social reasons

Our management protocol

- Kept in ward until delivery (*Subject to conditions)
- At least two visits to MDT meeting
- Limited exertion
- Thromboprophylaxis
- Weight & NYHA Class assessed daily
- Intermittent or night-time O_2 for severe PH patients

Mode of delivery

We aim for vaginal delivery in an ICU setting

Assisted delivery under epidural

Due to limited availability of ICU beds, induction of labor is resorted to often

Table 6 Modified WHO classification of maternal cardiovascular risk: principles

Risk class	Risk of pregnancy by medical condition
	No detectable increased risk of maternal mortality and
	continues; care as for class III.

Total = 113

Class III – 20

Class IV – 88

IHD - 05

Modified from Thorne *et al*[72]
WHO = World Health Organization

Table 7 Modified WHO classification of maternal cardiovascular risk: application

Conditions in which pregnancy risk is WHO I
• Uncomplicated, small or mild - pulmonary stenosis - patent - mitral
• Successf defect, p drainage
• Atrial or
Conditio
WHO II
• Unopera
• Repaired
• Most arr
WHO II-
• Mild left
• Hypertr
• Native or tissue valvular heart disease not considered WHO I or IV
• Marfan syndrome without aortic dilatation • Aorta <45 mm in aortic disease associated with bicuspid aortic valve
• Repaired coarctation

WHO III
• Mechanical valve
• Systemic right ventricle
• Fontan circulation
• Cyanotic heart disease (unrepaired)
with bicuspid
HA III–IV)
pairment of
s
h bicuspid
• Native severe coarctation

Congenital 41 (36.3%) (16 ASD with PHT)

Acquired – 72 (63.7%) (28 tight MS)

Rheumatic – 58

IHD - 05

PPCM - 05

Cardiomyopathy (Other) – 04

Severe PH in 29

Adapted from Thorne *et al.*[73]
LVEF = left ventricular ejection fraction; NYHA = New York Heart Association; WHO = World Health Organization.

Outcome of pregnancy

Outcome	Frequency	Percentage
Medical terminations	15	13.8
Miscarriages	2	1.8
IUFD	4	3.6
Live births	90	79.6
Neonatal Deaths	2	1.8
Total	113	100

Gestation at Delivery

Gestation (weeks	Frequency
<12	1
<24	1
24-36	30
37	23
Total	98

53.5% Preterm deliveries

Mode of Delivery

Mode of Delivery	Frequency	Percentage	
Spontaneous vaginal	9	9.5	
Assisted vaginal Delivery	21	22.1	
Intrapartum LSCS	12	12.6	68.4%
Elective LSCS	54	55.8	
Total	96	100	

Three Maternal deaths – all had severe PH + comorbidity

1. Primigravida with double outlet single ventricle with severe PH with superimposed H_1N_1 infection. Decided to continued despite advice to terminate in early pregnancy

2. Primigravida with large VSD with Eisenmenger's with severe PH and superimposed severe preeclampsia. Concealed the diagnosis of HD and the care provider missed the diagnosis

3. Primigravida with perimembranous VSD and severe PH with gestational hypertension and bronchial asthma. Delivered by CS at 33 weeks. Developed heart failure

Conclusions

- With appropriate adjustments, mortality rates for severe heart disease could be brought down, even with limited resources
- We are making life-changing recommendations (e.g. terminations, sterilization etc.) without catheterization studies – is this correct?
- Managing severe heart disease in specialized centres will lead to improved outcomes

Thank you!!