

How old is old?



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World's oldest mother: news byte 2008

- 70 year old Omkari Panwar gave birth to twins, a boy and a girl, in India via emergency cesarean section
- The babies weighed 2 pounds each
- Omkari became pregnant through IVF treatment, which she and her husband pursued in order to produce a male heir
- Omkari has two adult daughters and five grandchildren.



Effect of age on female fertility

Age group	Rate of conception
25-29	113/1000women/ year
30-34	71.4/1000women/year
35-39	41/1000women/year
40-44	8/1000women/year
45-49	0.5/1000women/year

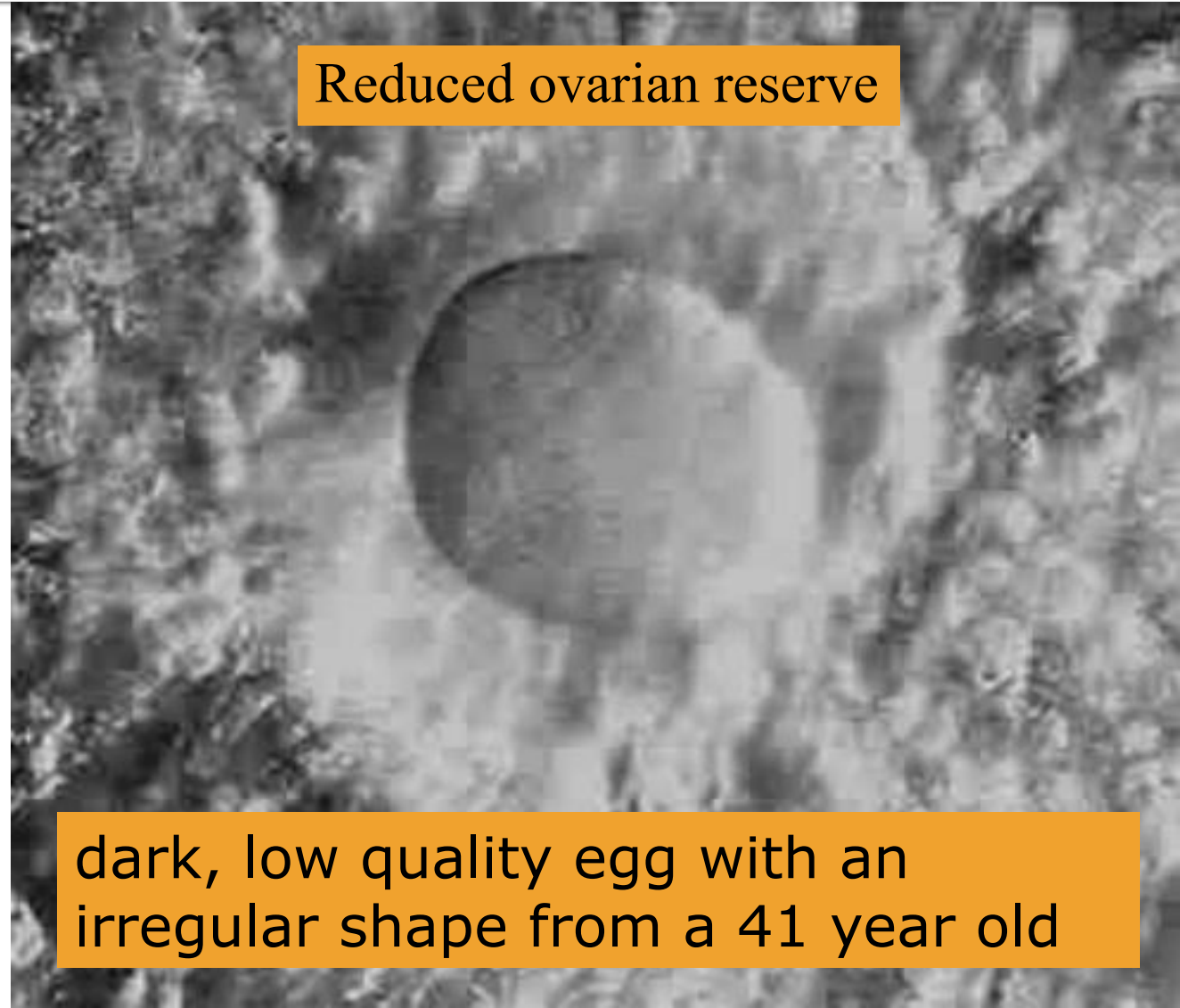
Fertility rate by age in women

The study was on a large population that never used birth control (A 1957 study)

- By age 30, 7% of couples were infertile
- By age 35, 11% of couples were infertile
- By age 40, 33% of couples were infertile
- At age 45, 87% of couples were infertile

Factors responsible for lowered fertility in women

- ❑ Fixed quantity of eggs at birth
- ❑ Numbers reduce thereon with accelerated decline after age 37 years
- ❑ Remaining pool of oocytes generally belong to a poor quality cohort



Reduced ovarian reserve

dark, low quality egg with an irregular shape from a 41 year old

Other factors responsible for lowered fertility in women

Pathological factors:

- ☐ Tubal pathology worsens with time due to subclinical episodes of PID in sexually active women
- ☐ Pelvic endometriosis
- ☐ Uterine pathology increases with age
 - ☐ fibroids
 - ☐ adenomyosis

Effect of age on male fertility

The age of the male partner does not appear to matter much when it comes to fertility

- ❑ Sperms are produced constantly after puberty in men
- ❑ Eggs age over time, while new sperm are constantly coming off the production line

Increased shift towards delayed child bearing

- Better female literacy and changing role of women at work: better career opportunities
- Free choice of partner: wait till the right man comes along
- More and more women above 35years are seeking to bear children
- Better contraceptive options / availability of ART

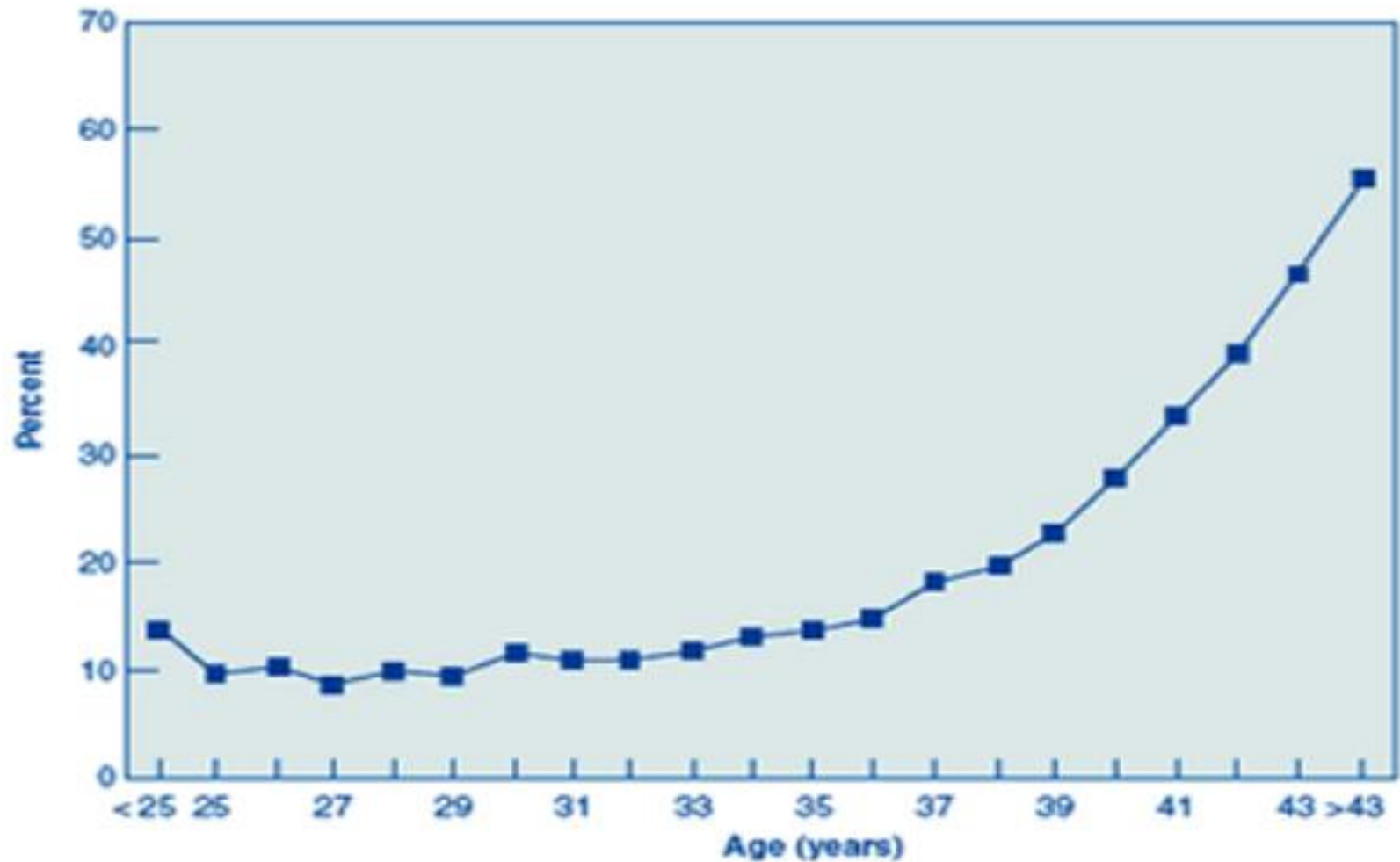
**As women delay childbearing, there
is now an unrealistic expectation
that
medical science can undo the
effects of ageing**

Percentages of Transfers That Resulted in Live Births for ART Cycles Using Fresh Embryos from Own and Donor Eggs, by ART Patient's Age, 2006



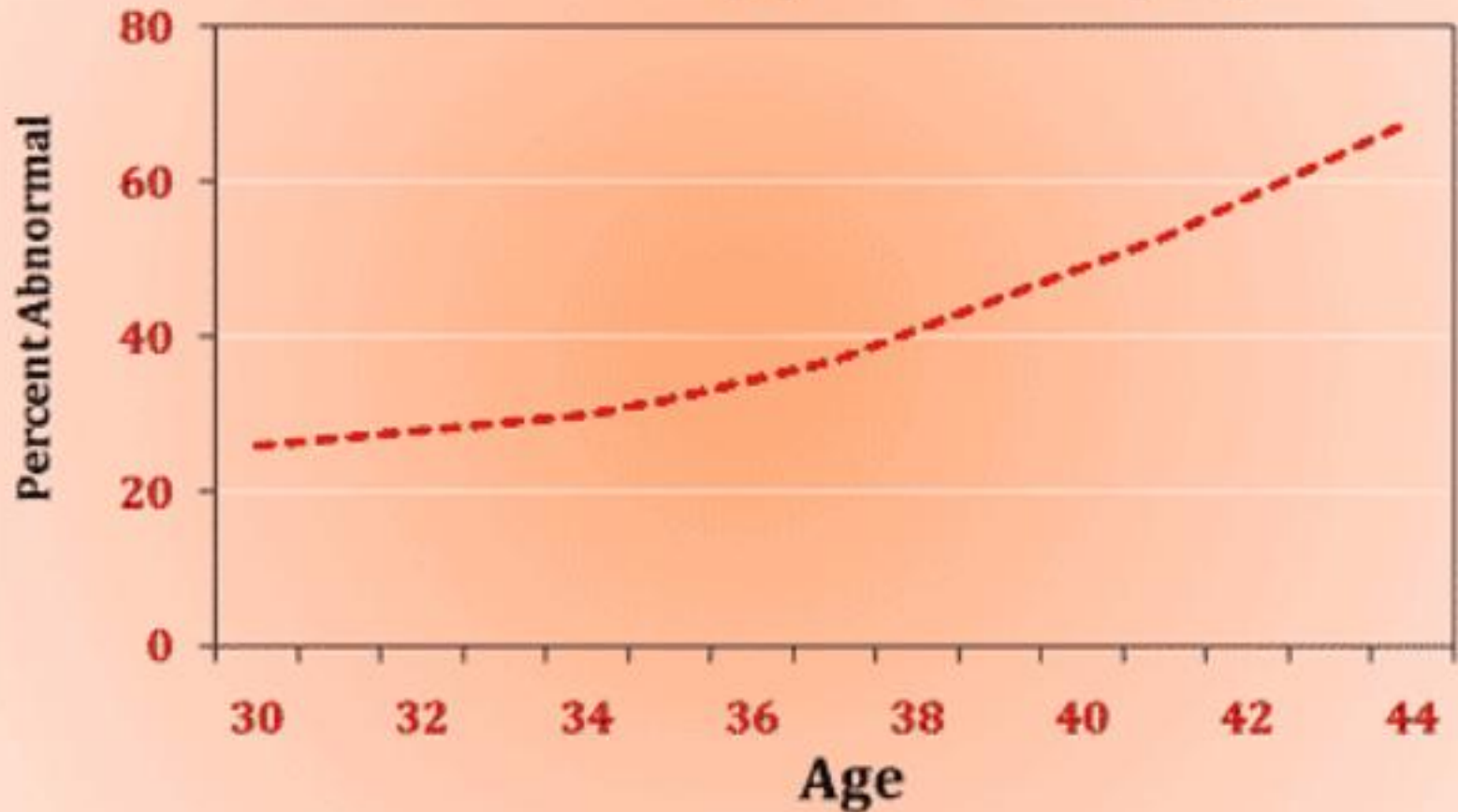
The age of the egg matters, but the age of the uterus carrying the embryo does not.

Percentages of ART Cycles Using Fresh Nondonor Eggs or Embryos That Resulted in Miscarriage, by Age of Woman, 2006



Miscarriage rates with respect to age in ART cycles

Percent of IVF Eggs Aneuploid by Age




Older eggs are significantly more likely to have abnormal spindles predisposing to development of chromosomally abnormal eggs leading to higher abortion rates

Other issues with delayed child-bearing

- Chronic diseases with advanced age
- Increased risk of obstetric complications
- Effect on perinatal mortality and morbidity

Chronic diseases with advance age

- Hypertension
- Diabetes
- Autoimmune disorders
- Arthritis



Pregnancy
may worsens
these
complications

Increased risks of obstetric complications

Spontaneous abortions	33%
Pre-eclampsia	10.2%
GDM	12.7%
Prematurity	15.2%
Dysfunctional labour	20%
Cesarean rates	32%
PPH, sepsis, psychosis	13%

Am J Obstet Gynecol. 1996 Sep;175(3 Pt 1):668-74.

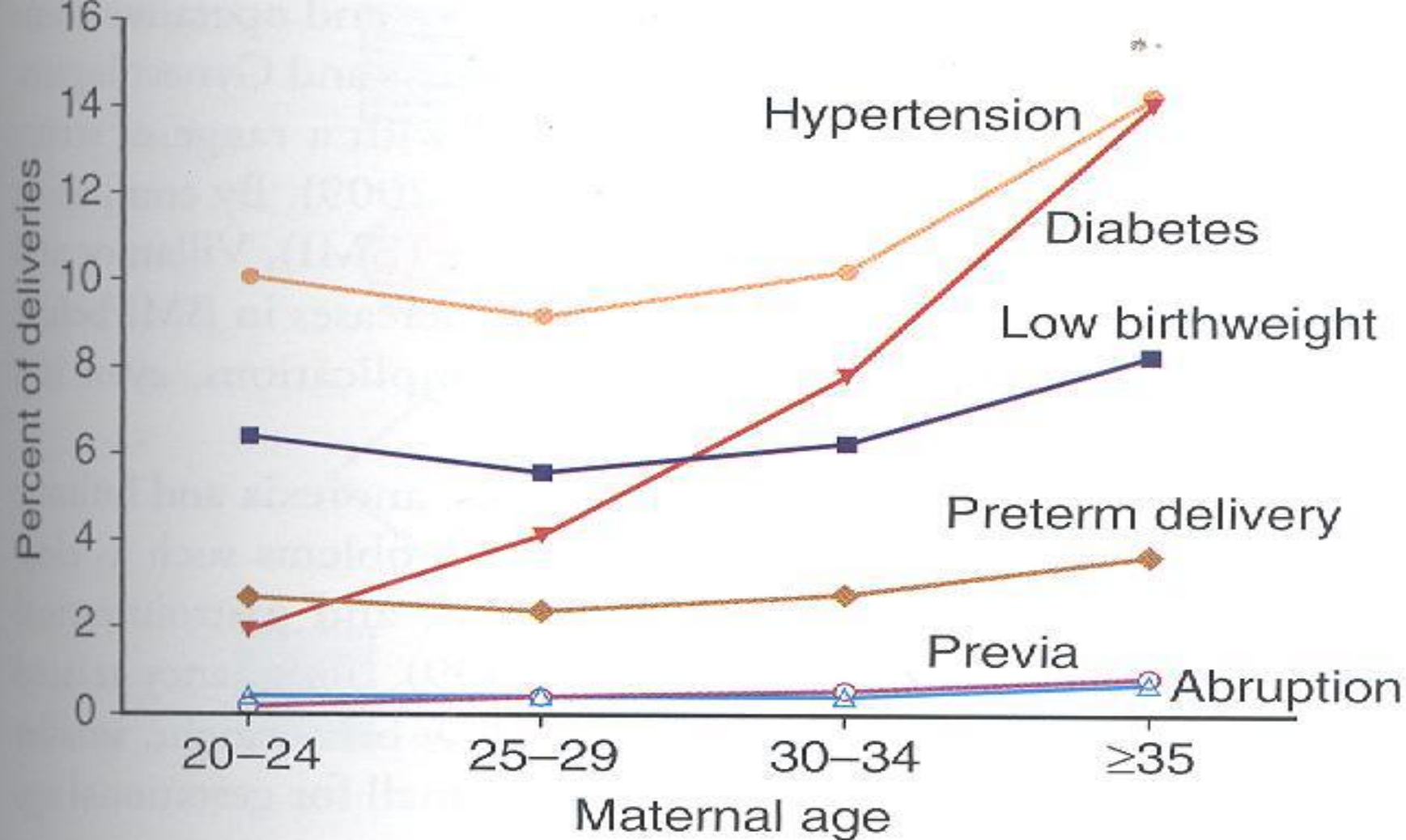


FIGURE 7-2. Incidence of selected pregnancy complications in relation to maternal age among 235,329 women delivered at Parkland Hospital, 1988–2007. (Used with permission from Dr. Donald McIntire.)

Risks with advanced maternal age

- Maternal age and risk of still births

Increase risk of stillbirth; relative risks 1.20 to 4.53 for younger vs older women.

CMAJ • January 15, 2008; 178 (2). Maternal age and risk of stillbirth: a systematic review; Ling Huang and colleagues.

- Maternal age and maternal mortality

Women ≥ 35 yrs 2.5 times more likely
Women ≥ 40 yrs 5.3 times more likely } Women in their 20's
for pregnancy related mortality.

Improved medical therapy ameliorates these risks

- *Geller SE womens health issues 16: 176, 2006*

Effect on perinatal outcome

- Nulliparous women >35 years higher risk of ante-intrapartum and neonatal complications compared to women 25-29 years
- Risks are fairly manageable with modern obstetrics
- Peri-natal death rate of both groups was similar
- No maternal deaths

Gynecol Obstet Invest. 2002;54(1):6-10.

Births by <19 & >40 year old mothers with late and regulated childbearing

WOMEN <19 YEARS

- Young mothers giving birth is a social rather than a medical problem
- Perinatal results may be affected by young age

WOMEN >40 YEARS

- Older women giving birth is a medical rather than a social problem
- Perinatal results for most older mothers are good

Finland 1991:Hemminki et al., Acta Obstet Gynecol Scand. 1996 Jan;75(1):19-27.

Ethical and social issues

- Is it justified to have children at an age where the parents need caring?
- What kind of individuals do such children and adults make?
- What happens to the child if the parents were to die early?

Government interventions to regulate late child bearing

- **France:** in 1990s France approved a bill which prohibited postmenopausal pregnancy, "...immoral as well as dangerous to the health of mother and child".
- **Italy:** the 'Association of Medical Practitioners and Dentists' prevented its members from providing women aged >50 with fertility treatment
- Donor eggs are commonly used until age 49 - few programs use it after age 50 also.....

Government interventions to regulate late child bearing

- Most **USA** IVF clinics have an upper age limit for allowing IVF treatment using "own eggs" of somewhere between 42 and 45 years of age and none for donor oocytes
- **Britain's** then-Secretary of State for Health, Virginia Bottomley, stated, "Women do not have the right to have a child; the child has a right to a suitable home". However, 2005, age restrictions on IVF officially withdrawn in UK

Argument to allow fertility treatment in older women

- Human right: Every individual has a right to be a parent
- Mature parents: Elderly couples make more mature parents
- Financial and social security: Financially and socially better secure position

Argument to allow fertility treatment in older women

- Many serious medical conditions in younger women are associated with infertility. Fertility for these women is considered most sympathetically precisely because of their lower life expectancy

WHY?

- In self funded treatment refusing treatment to elderly couple will not make space for the younger couple for fertility treatment

Whether women deserves to become mother or not?

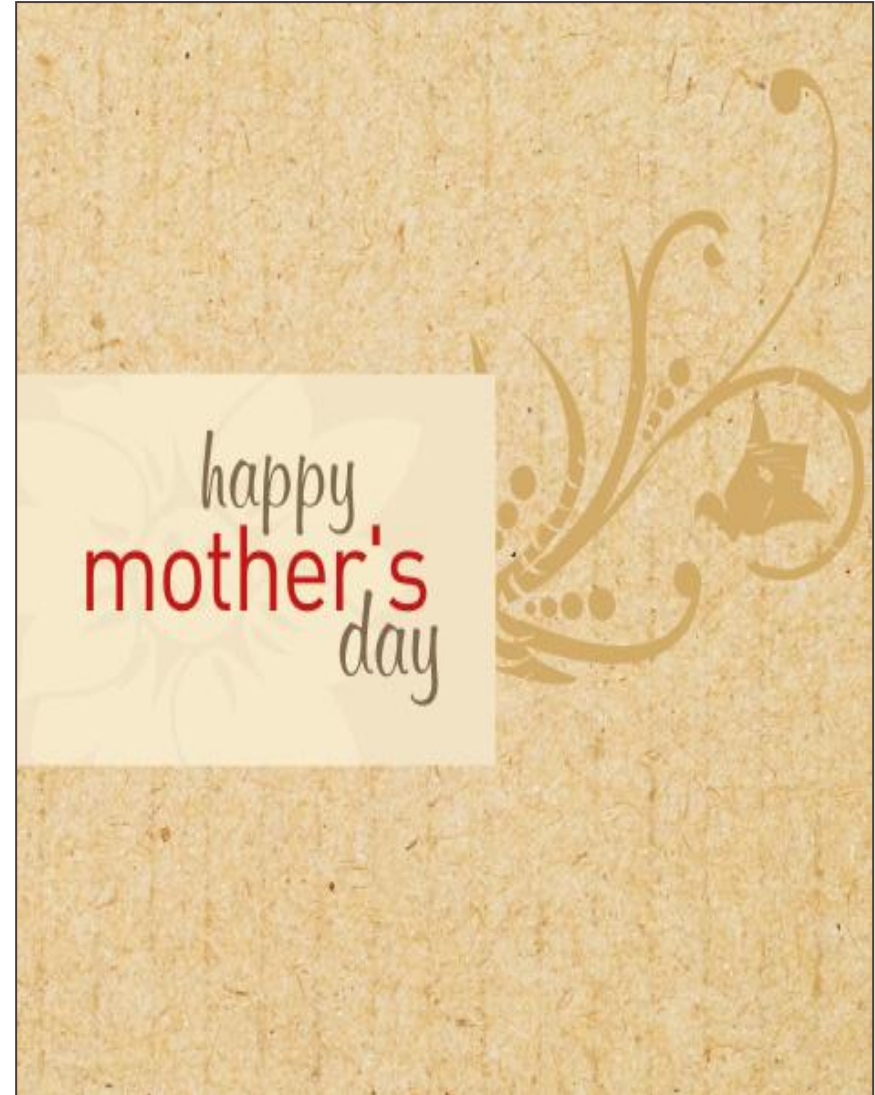
- ❑ Doubts on older women about ability to cope with motherhood while women pregnant spontaneously are not vetted by doctors regarding fitness for motherhood
- ❑ If we are happy about older fathers why so much of furor for older mothers
- ❑ A century ago life expectancy in women was 48 and now 78, if women could bear children at 25 then now why not at 55 now

How old is old! 45, 50, 55...

- 51 year old are turned down from treatment - is that because they have just passed the watershed of 50, as if this figure provides some magical degree of comfort?
- Is it inherently wrong treating a 51 year old when natural conception has resulted in live births in 55 year old women

conclusion

- Every case needs to be considered on personal representation, or recourse when their request is rejected – even our courts of law allow appeals
- Strict ethical lines appear unjustified as clinicians need to give patients valid reasons for refusing treatment.



Neonatal outcome & relationship with maternal age

22,689 pregnancies into 3 groups by age

- Significant increase in the Caesarean rate
- No effect on the incidence of fetal distress, Apgar score, RDS, ventilation nor subsequent neonatal CNS complications
- No association of age with perinatal mortality or incidence of congenital malformations

The favourable outcome in the mature age women was likely to have reflected the recognition of risk and its appropriate management.