Update on abortion care

Nathalie Kapp, MD, MPH
Department of Reproductive Health and Research
World Health Organization

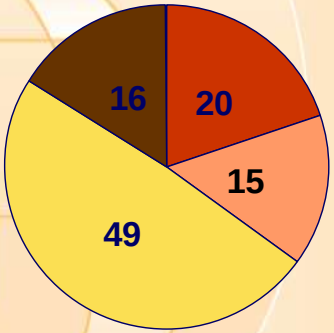
Training Course in Sexual and Reproductive Health Research
Geneva, February 2009

Outline

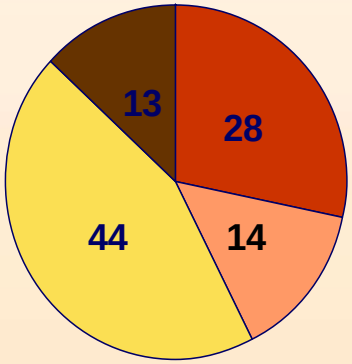
1. Introduction
2. Updates for first trimester procedures
3. Updates for second trimester procedures
4. The case for family planning
5. Future directions

Worldwide 1 in 5 pregnancies ends in induced abortion

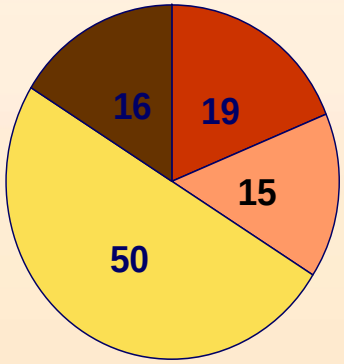
- Induced abortions
- Unwanted or mistimed births
- Wanted births
- Spontaneous abortions



World

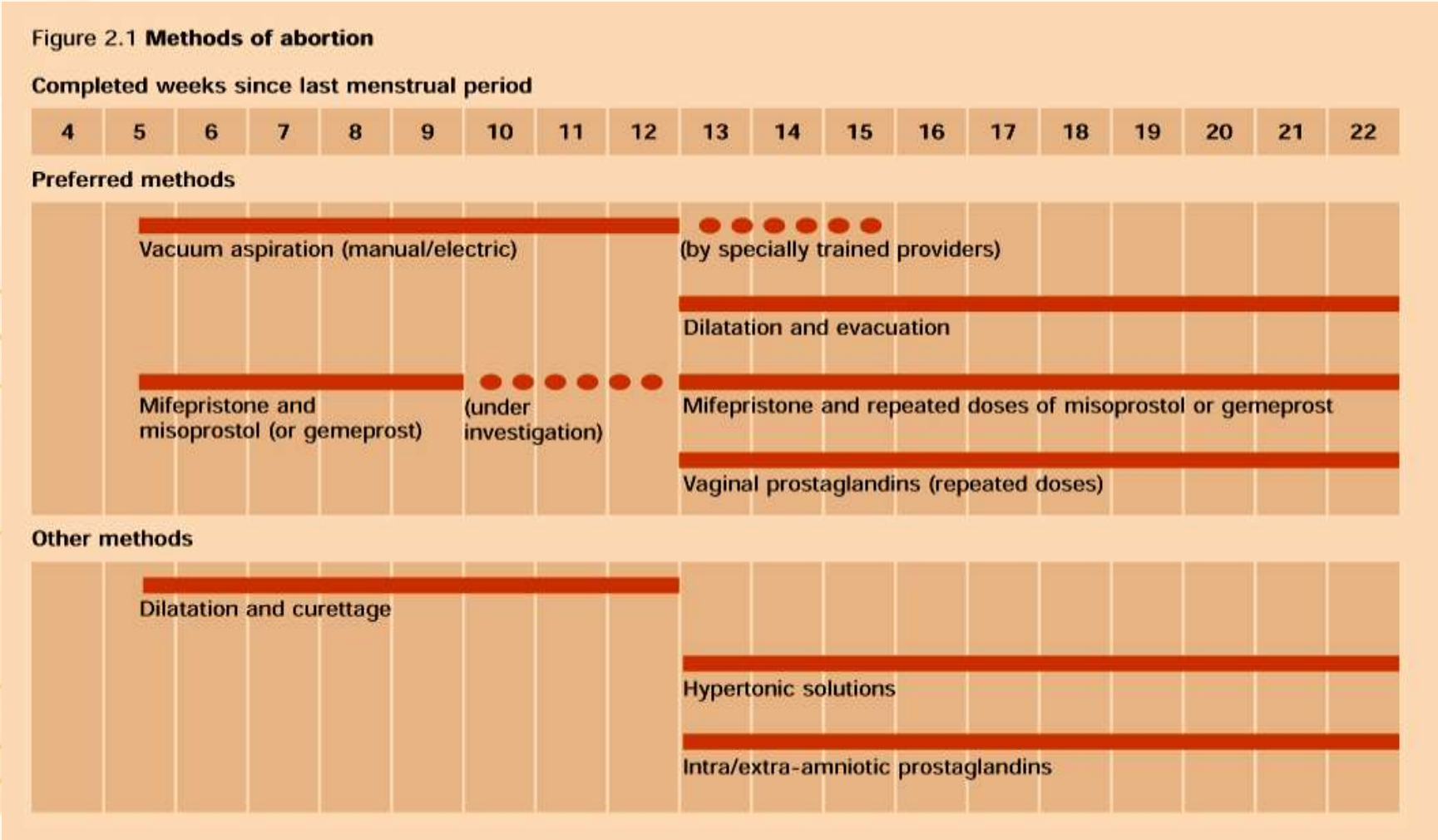


More developed countries



Less developed countries

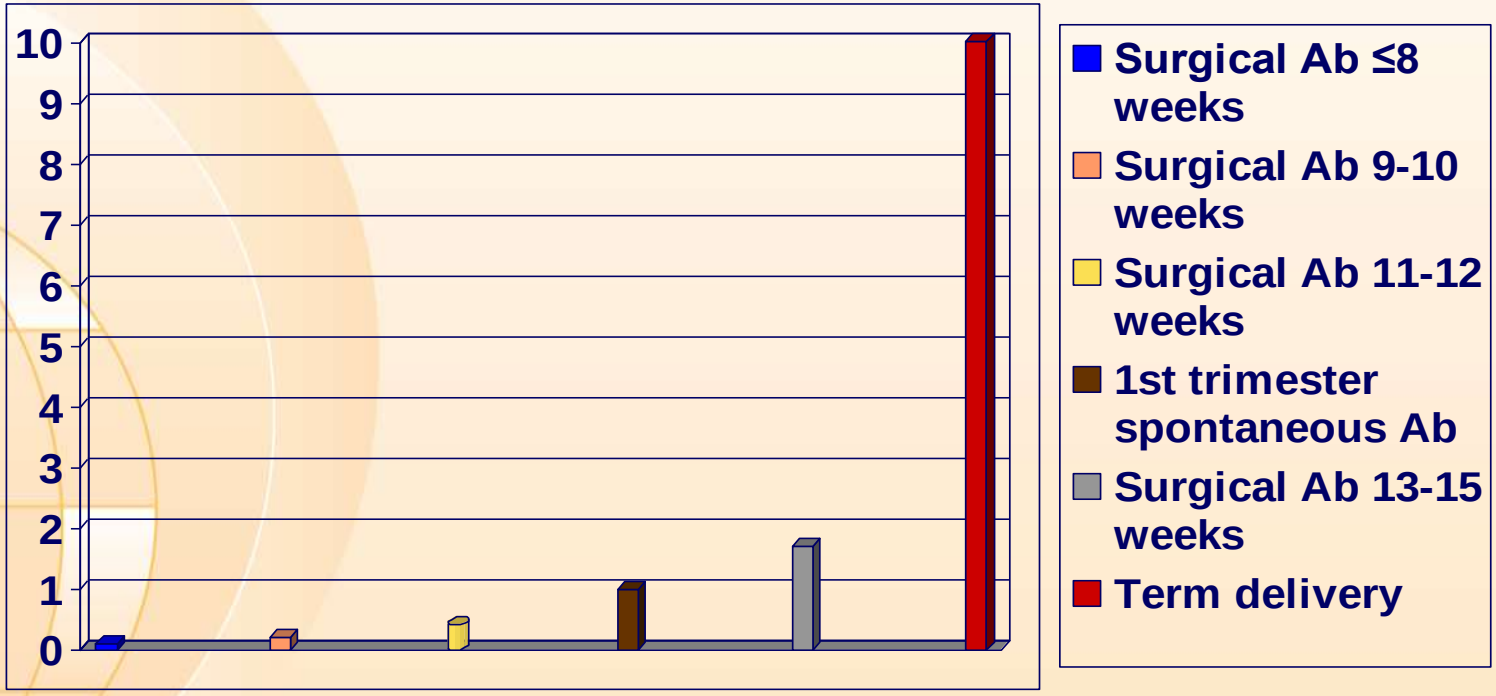
Methods of abortion



Outline

1. Introduction
2. Updates for first trimester procedures
3. Updates for second trimester procedures
4. The case for family planning
5. Future directions

USA mortality rates (deaths per 100,000)



Surgical methods of first trimester abortion

- Surgical methods
  - Aspiration; D&C not recommended
- Manual vacuum aspiration (MVA)
  - Small, easy to transport, don't require electricity
  - May be used throughout first trimester
  - Compared to electric (EVA)
    - Less blood loss and pain <50 days gestation, but prolonged procedure
    - Quieter procedure
    - No differences in complete abortion rate (effectiveness) or patient satisfaction (Wen, 2007)

Cervical preparation

- Recommendations differ:
  - WHO: all <18 years, nulliparas >10 weeks gestation, all > 12 weeks
  - RCOG: all < 18 years, all >10 weeks gestation
  - SFP: all 12-14 weeks, consider for all adolescents
- Discomfort, cost and inconvenience to patients should be balanced with very low risks of injury
  - Perforation rare
  - Cervical lacerations occur 1/1000 cases (Hakim-Elahi, 1990)

Cervical dilation methods

- Mechanical dilation usually with Pratt or Denniston dilators
- Pharmacologic preparation: misoprostol
  - Optimal regimen: 400 mcg vaginally, 3-4 hours prior to procedure
    - Oral administration associated with higher rates of side-effects
  - Preferable to women over osmotic dilators
    - No differences in complication rates
    - Prefer 1-day procedures (MacIsaac, 1999; Goldberg, 2005)

Antibiotic prophylaxis

- Periabortal antibiotic prophylaxis reduces risk of infection
  - Meta-analysis demonstrates 45% decrease in infectious complications (Sawaya, 1996)
  - Universal prophylaxis costs less and is as effective as screen-and-treat
  - Regimens vary:
    - ACOG: doxycycline, 300 mg
    - RCOG: metronidazole 1 gm rectally at time of abortion, followed by 1-gm azithromycin or 7 days of doxycycline

Medical abortion in the first trimester

- Allows abortion without surgical procedure
- Multiple safe, effective regimens available:
  - Mifepristone/ misoprostol: 93-99%
  - Methotrexate/ misoprostol: 88-95%
  - Misoprostol alone: 83-95%
- Few contraindications to use
- Extensive research into optimal, cost-effective regimens
  - Maximise access, acceptability
- Varied use of medical methods
  - France, Sweden >50% of first trimester abortions
  - UK only 18%
  - USA varies from 0-32% depending on the state

Medical abortion regimens

- **Classic regimen**
  - Mifepristone 600 mg followed 36- 48 hours later by misoprostol 400 mcg orally (or gemeprost) for <49 day gestations
- **Evidence-based regimens:**
  - Mifepristone at lower doses
    - 200mg is equivalent to 600 mg
  - Misoprostol by other routes
    - Vaginal routes more effective, less side-effects and extend gestational age to 63 days
    - Buccal/ sublingual may be similar to vaginal, but less studied
  - Home administration of misoprostol
  - Earlier follow-up
    - High predictability of sonography at 1 week
  - Interval between mifepristone and misoprostol
    - 24 hour interval is as effective; with vaginal, may use 6-8 hours (or earlier) apart

Evidence-based regimens

	Mifepristone-misoprostol	Methotrexate-misoprostol	Misoprostol-only
Gestational age	63 days	49 days	63 days
Mifepristone or MTX dose	200 mg	50 mg/m2 IM or 25-50 mg oral	N/A
Misoprostol dose	800 mcg vaginal	800 mcg vaginal	800 mcg vaginal
Misoprostol timing	24 hours after mifepristone	3-7 days after MTX	Every 6, 8, 12 or 24 hours for 3 doses

Side-effects and complications after first trimester medical abortion

- **Vaginal bleeding**
  - Mean duration is 9 day with a range 1-45
  - Average drop in Hgb 0.7%
- **Abdominal pain and cramping**
  - Majority of women
  - NSAIDs with or without narcotics generally offered to women
    - In UK, 60% women used narcotics during medical abortion
- **Gastrointestinal distress**
  - Many experience nausea, vomiting
    - Resolve in 2-6 hours after misoprostol
    - Diarrhoea rare with vaginal misoprostol
- **Infection**
  - Endometritis is rare (0.1-0.9%)
  - No data to suggest use of prophylactic antibiotics

Outline

1. Introduction
2. Updates for first trimester procedures
3. Updates for second trimester procedures
4. The case for family planning
5. Future directions

Beyond the first trimester….

- 42 million abortions globally
  - 10-15% in the second trimester
  - USA data: (CDC, 2005)
    - 6.2% at 13-15 weeks, 3.8% at 16-20 weeks and 1.4% at ≥21 weeks
  - At ≥16 weeks' gestation, medical abortions (n = 847) made up 2.2% of abortions in the US
    - More common with increasing gestational age: 7% of abortions greater than 21 weeks

Medical versus surgical abortion in the midtrimester

- Which is superior?
  - Both have improved over last 30 years
    - D&E safer than intra-amniotic instillation methods
  - Cochrane review included 2 RCTs (Lohr, 2008)
    - D&E compared to prostaglandin F2a
    - D&E compared to mifepristone/ misoprostol
  - Conclusion: D&E superior to prostaglandin F2a, further trials are needed to determine superiority for modern medical methods
- Ethical stance
  - Principles of autonomy, beneficience, justice
    - Women should be offered a choice (Grimes, 2008)

Surgical methods: D&E

- D&E preferred surgical technique
  - Hysterotomy, D&C, hysterectomy are less safe
- Safety of D&E:
  - Low rate of complications
    - In the range of 4% (includes haemorrhage, retained products, etc)
  - Safety depends on trained, experienced providers
  - Can be performed on outpatient basis
- Availability can be regional

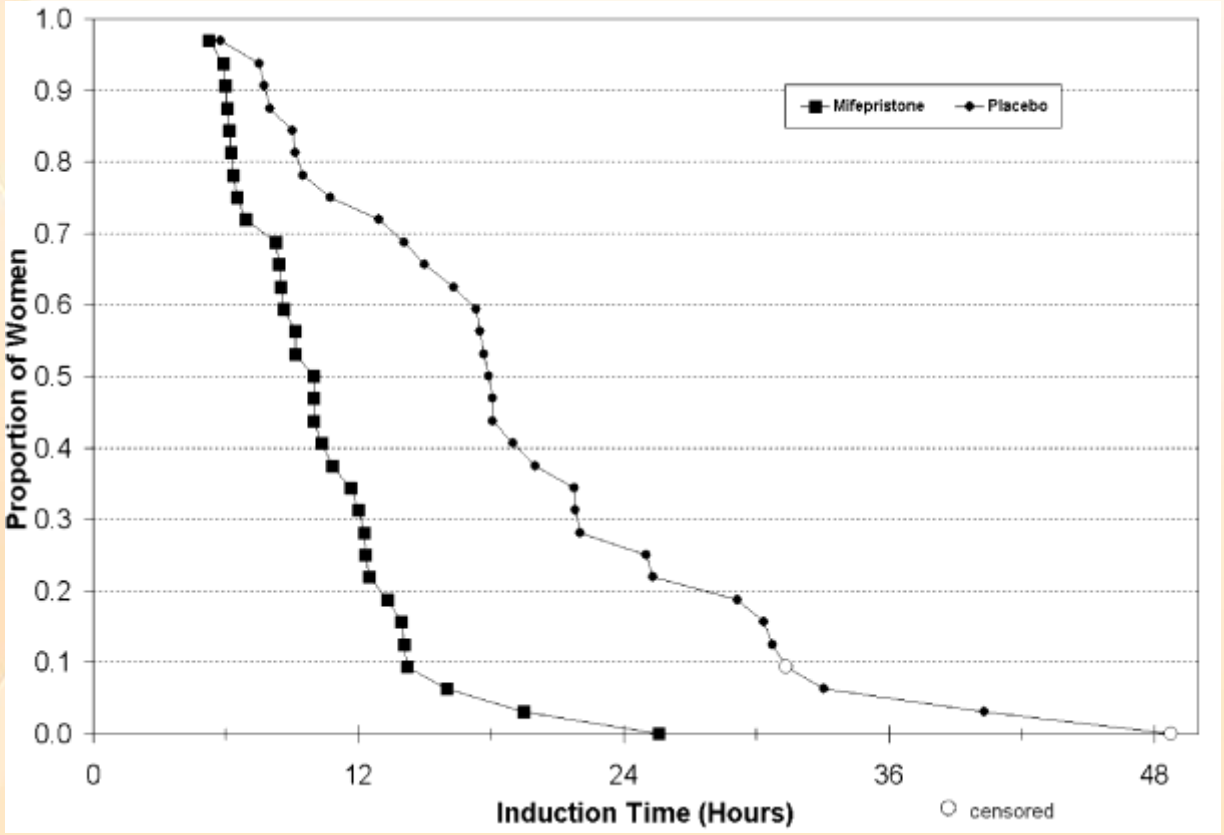
Medical versus surgical abortion in the midtrimester

- Medical abortions preferable for:
  - Complete anatomical evaluation of foetus
  - Woman is a poor surgical candidate
  - May be dictated by facility
  - Absence of trained surgeons
- Negatives aspect of medical procedures:
  - Time consuming
  - More painful
  - May be more costly
  - Local practice has large effect on outcomes

Medical regimens: combination mifepristone and misoprostol

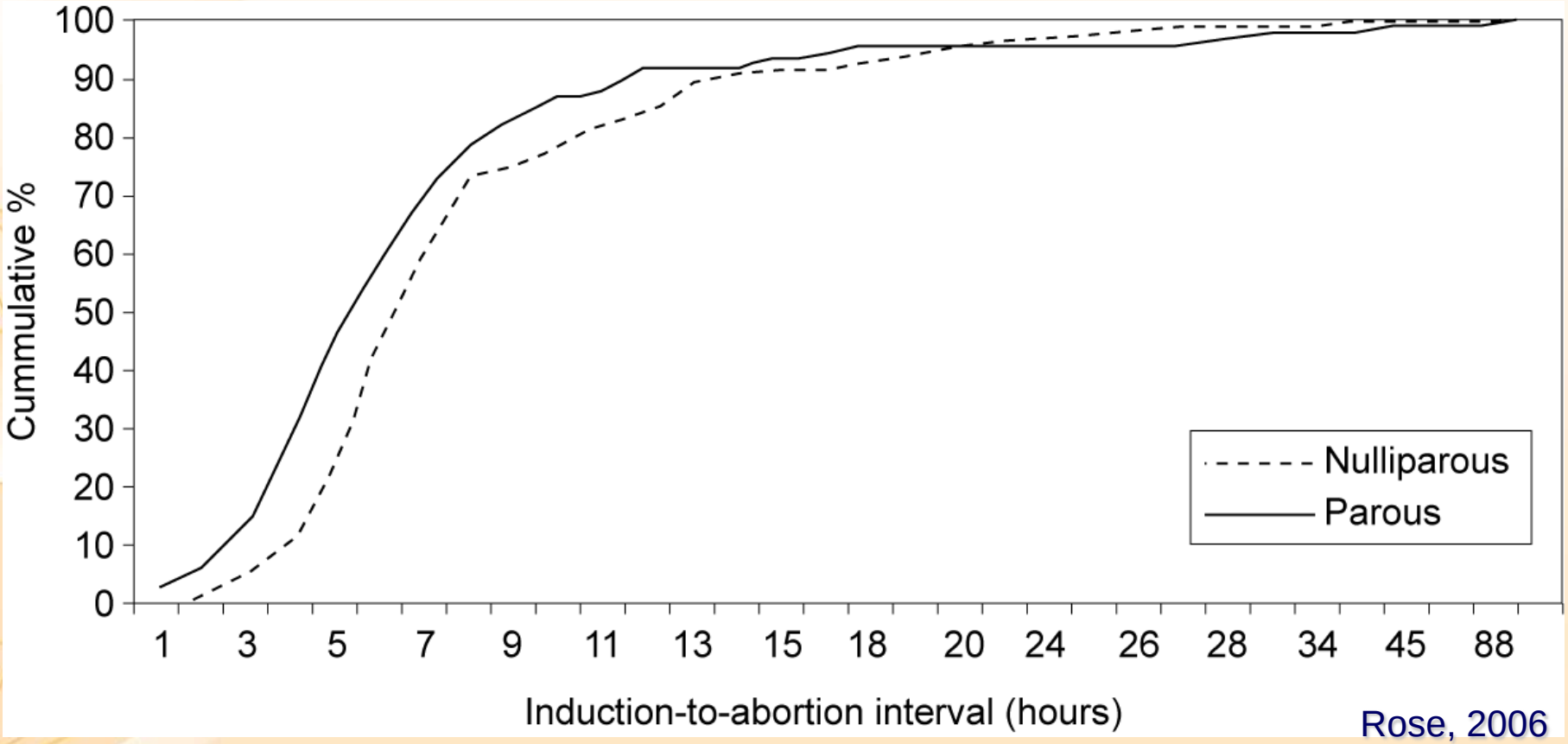
- **Mifepristone dose 200 mg followed 36-48 hours later by misoprostol**
  - 24-hour interval prolongs abortion time, but may be more convenient (Heikinheimo, 2007)
  - Misoprostol dosing varies:
    - RCOG/ WHO: 800 mcg vaginally, followed by 400 mcg orally every 3 hours up to 4 doses
    - Vaginal dosing superior, but similar efficacy for repeat sublingual after loading dose
    - Abortion times are within 6-11 hours (varies by gestational age and parity)
- **General principles:**
  - Combination regimen decreases abortion time (from misoprostol-only) by about 45%
  - Total misoprostol dose is lower with mifepristone, thus side-effect rates are also lower
  - Shortened time-to-abortion allows transient foetal survival more commonly and accentuates biologic differences

Time to abortion: combination mifepristone and misoprostol versus singular misoprostol



Kapp, 2007

Accentuating biologic differences



Rose, 2006

Medical regimens: misoprostol alone

- Alternative to mifepristone combination
  - Less effective, prolonged duration, higher rate of side-effects
- Range of effective doses
  - Loading dose is useful
  - Vaginal dosing superior to other routes
    - Includes sublingual/ buccal administration
  - Side- effects misoprostol route and dose related
  - Recent recommendations (WHO endorsed): 400 mcg vaginal every 3 hours up to 5 doses

Adjunctive procedures: osmotic dilators

- Osmotic dilators decreased time to abortion with older induction methods
  - 14-24 hours prior to induction with prostaglandins E2 or F2a
- 2 RCTs of placement with misoprostol-induced abortions (Borgatta, Jain)
  - Did not shorten abortion interval or decrease complication rates
  - Increased analgesic need
- Compared to mifepristone
  - 12 and 24 hours prior to induction, mifepristone is superior (Prairie, Ho)
  - No benefit when placed 6 hours prior to gemeprost (Thong, 1992)
- No benefit to dilator placement at initiation of inductive agent for combination mifepristone/ misoprostol
  - Whether advance placement (12-24 hours) is of benefit has not been studied

Complications: retained placenta

- Older medical regimens
  - Increase in complications after 30 minutes to 2 hours after foetal expulsion warranted routine surgical intervention
- Expectant management for misoprostol alone or in combination with mifepristone
  - No increase in complication rates including transfusion
  - Intervention rates after abortion using combination method range from 2.5-10% in multiple studies
- Interventions should be only for excessive bleeding or fever

Outline

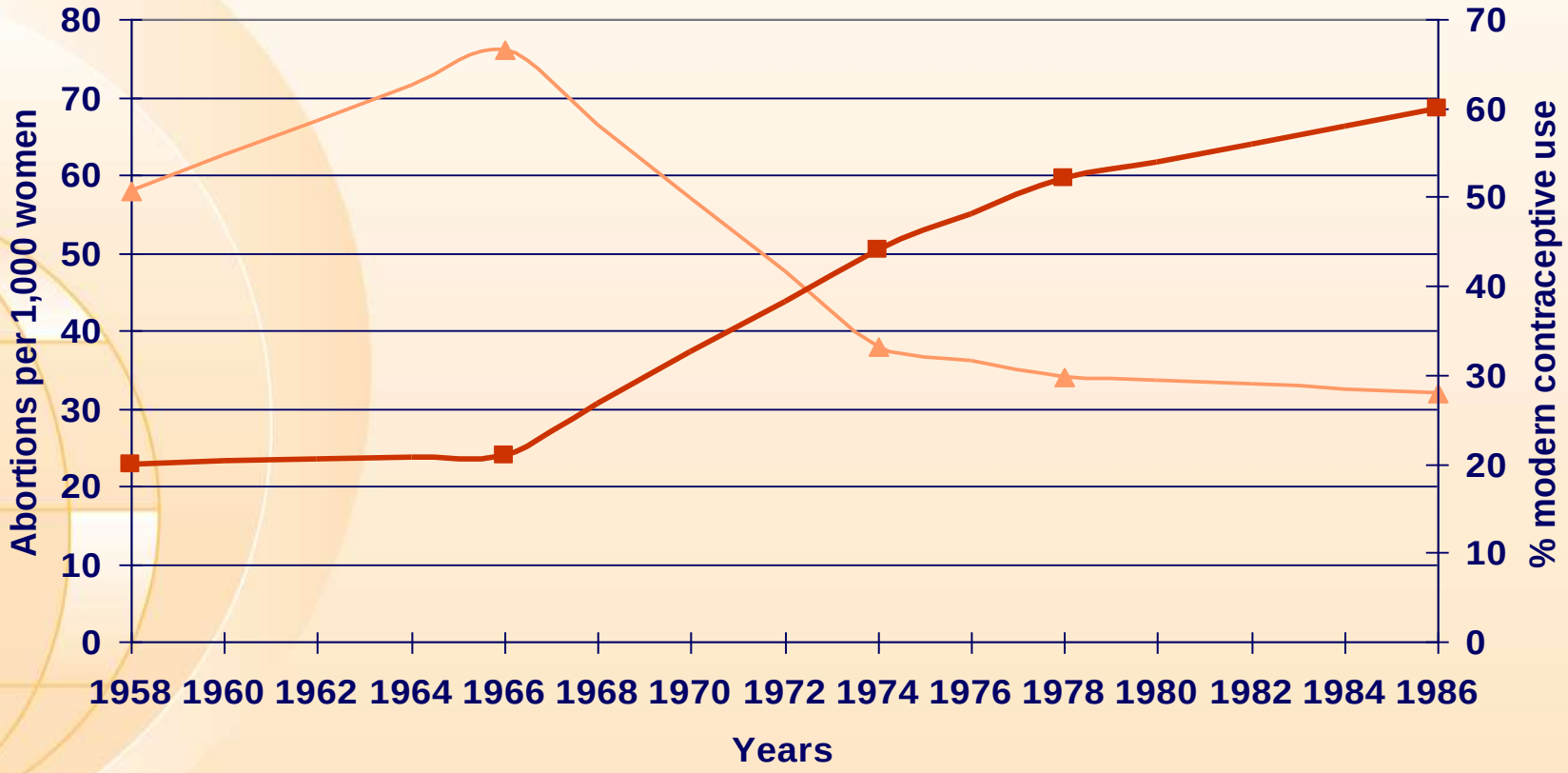
1. Introduction
2. Updates for first trimester procedures
3. Updates for second trimester procedures
4. The case for family planning
5. Future directions

Preventing unwanted pregnancies

"*It is estimated that 100,000 maternal deaths each year could be prevented if women who didn't want children used effective contraception*."

Marston and Cleland, 2003 *World Health Report*

In Hungary, abortion rates declined as contraceptive use increased

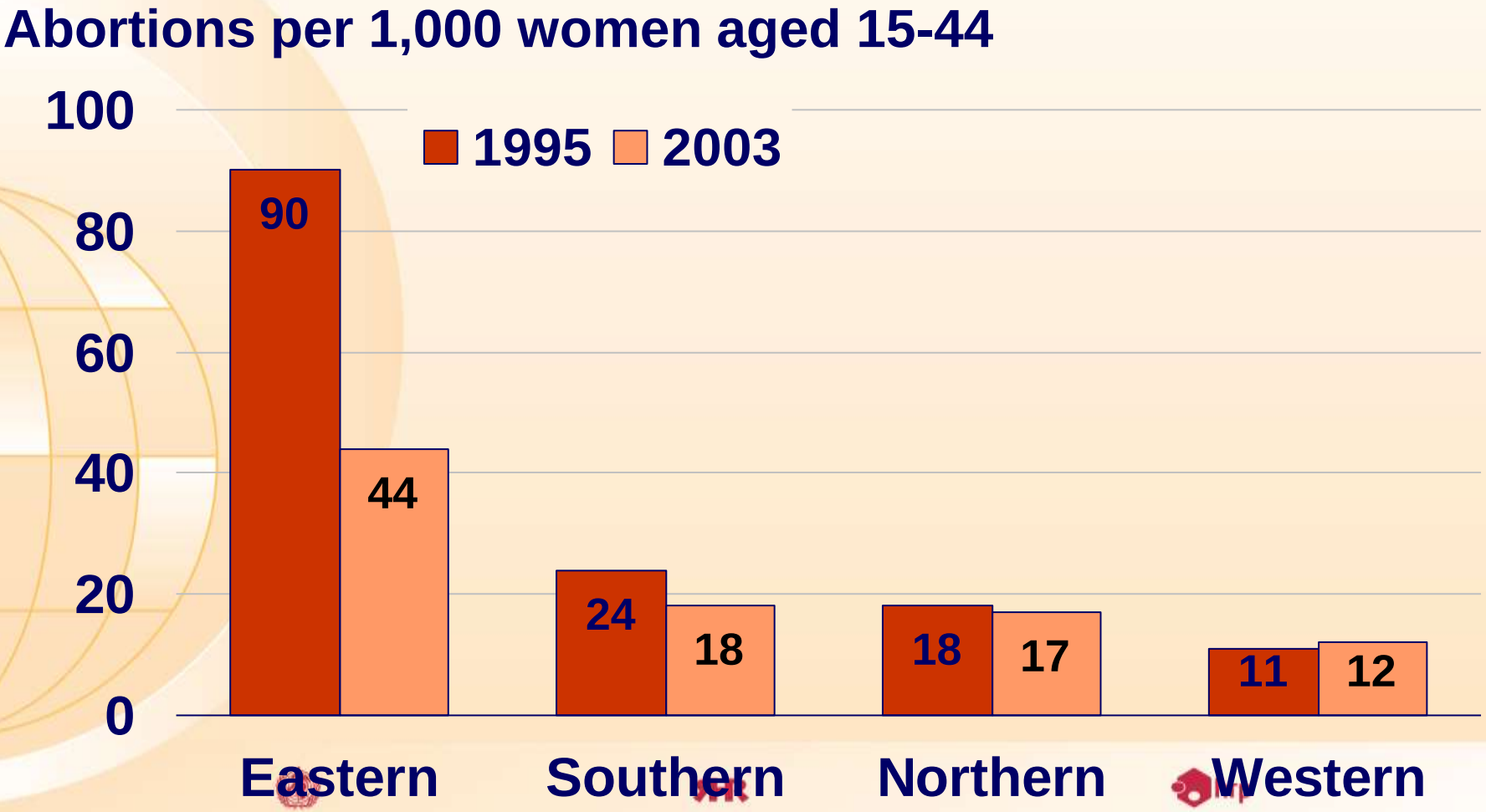


World Health Organization

Reproductive Health and Research

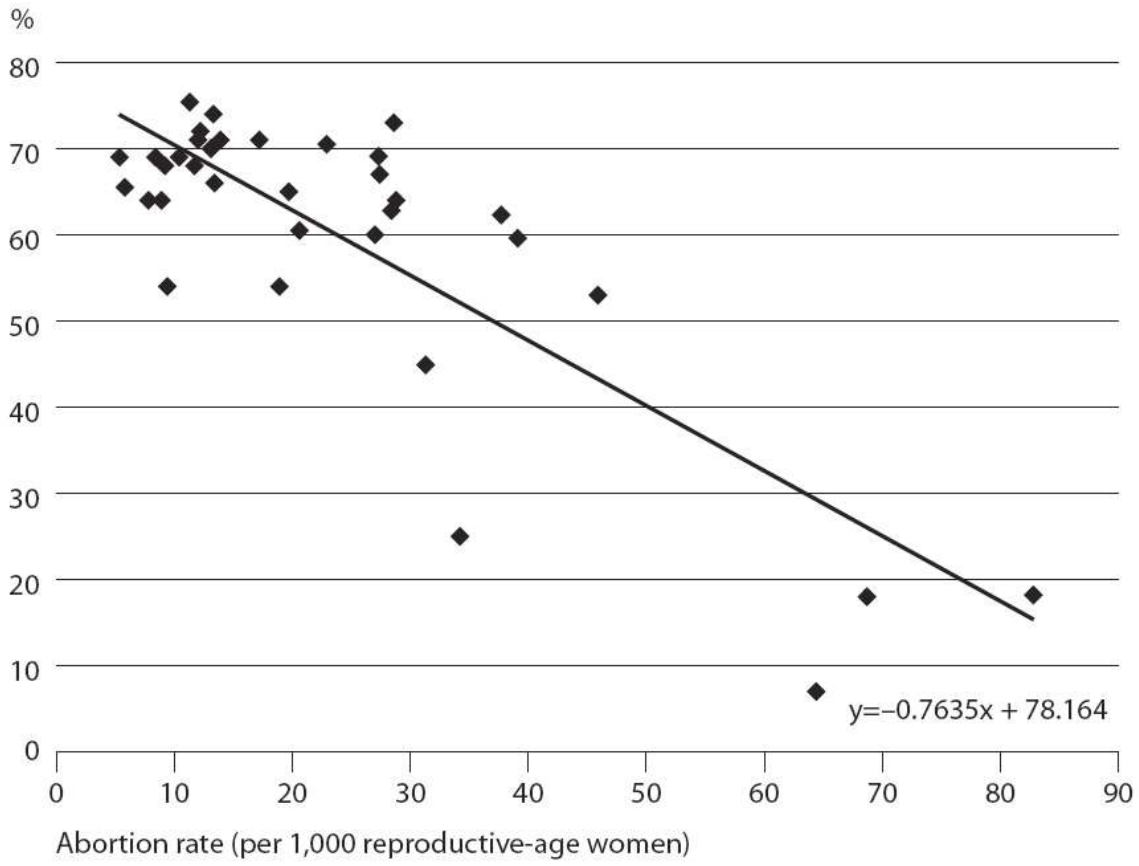
UNDP • UNFPA • WHO • World Bank
Special Programme of Research, Development and Research Training in Human Reproduction

In Europe, abortion rates have declined most in Eastern Europe



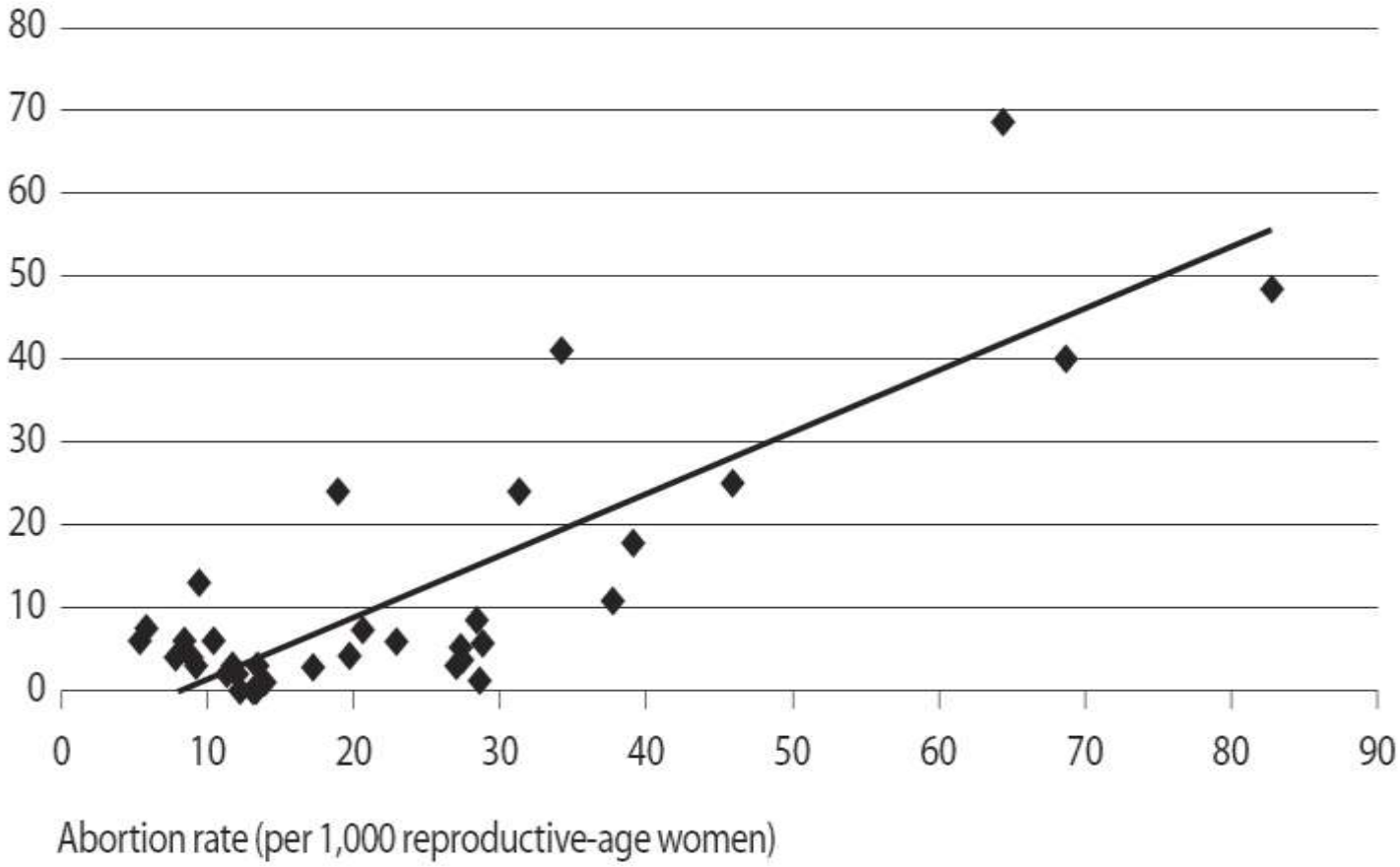
World Health Organization
Reproductive Health and Research
UNDP • UNFPA • WHO • World Bank
Special Programme of Research, Development and Research Training in Human Reproduction

Effect of family planning on abortion rates



Source: Marston & Cleland, *Relationships between contraception and abortion: a review of the evidence. 2003*

Modern versus traditional methods



Source: Marston & Cleland, *Relationships between contraception and abortion: a review of the evidence. 2003*

Modern versus traditional contraceptive methods

- In Armenia
  - Withdrawal most common contraceptive method
  - 25-33% of traditional method users experienced method failure in 1 year
    - 88% pregnancies were terminated
  - Traditional method use accounts for 51% of abortions in Armenia

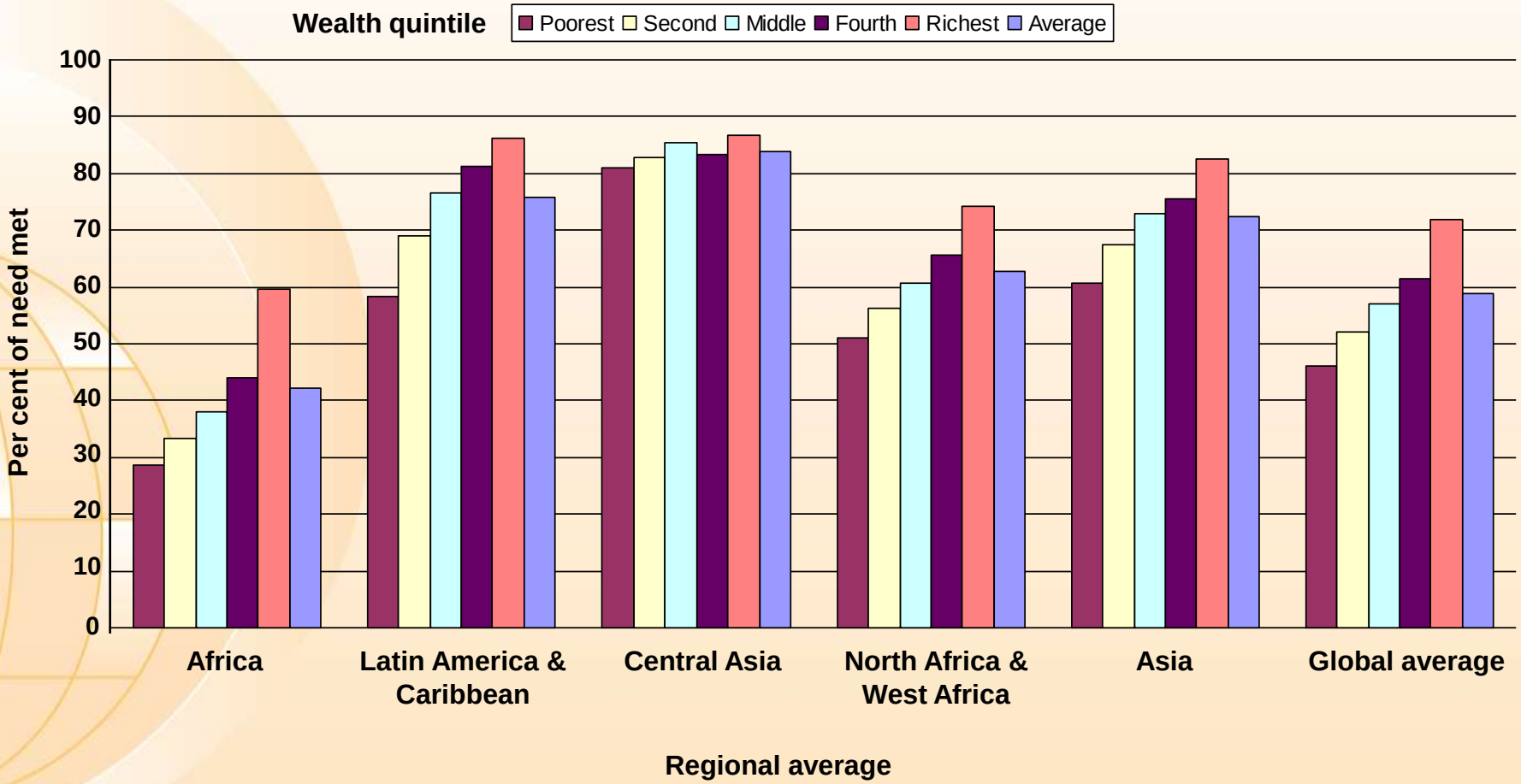
Source: Ali & Shah. *The impact of inducted abortion on uptake and continuation of contraceptive use in Armenia.* 2004

Contraception post-abortion

- Critical element of comprehensive post-abortion care
- Provision in combination with family planning counselling results in an increased contraceptive uptake
  - Reduces repeat pregnancy and abortion

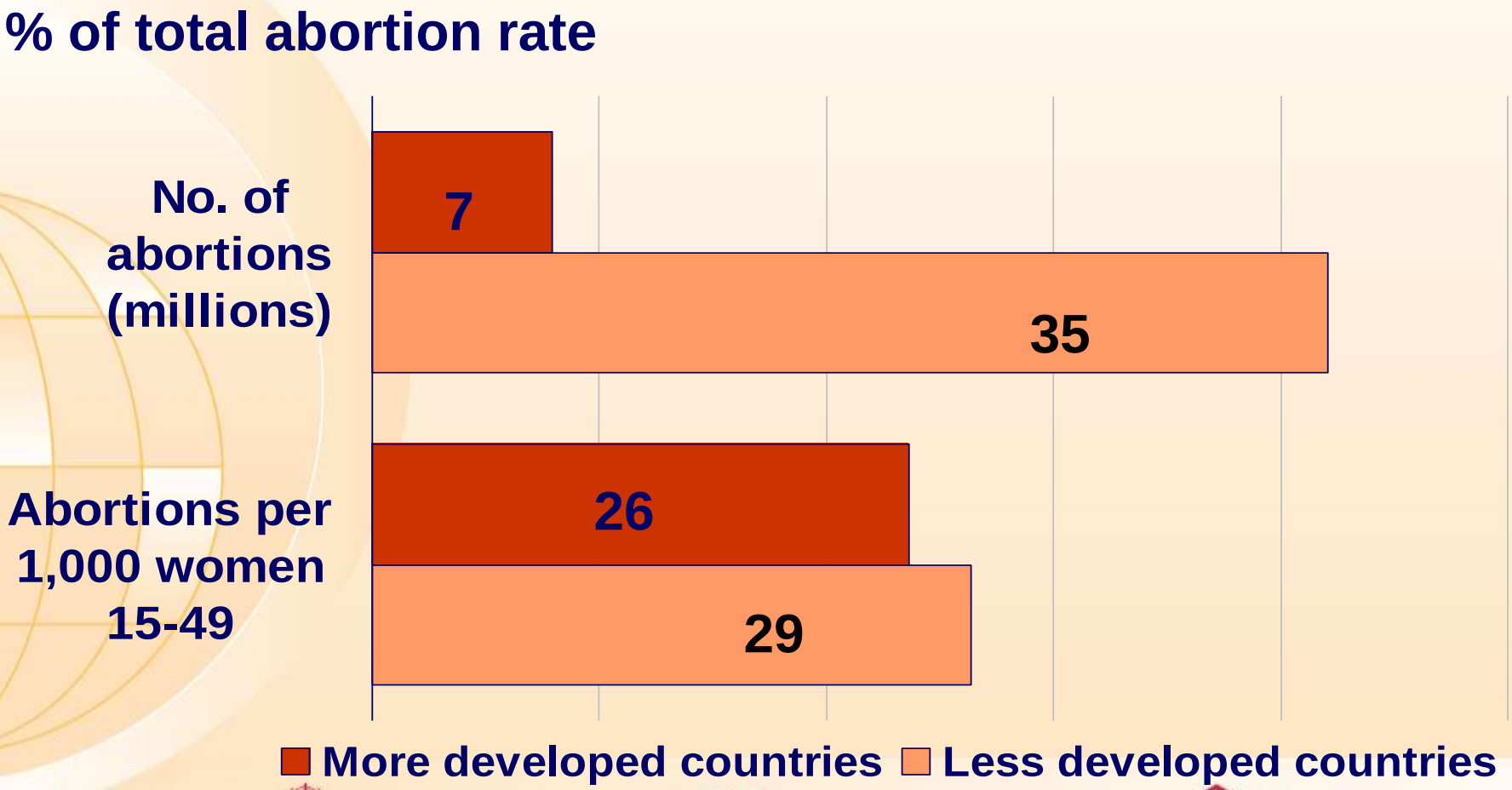
Source: Kero, et al. ***Increased contraceptive use on year post-abortion.*** **2005**
Masch, et al.***The effect of consolidation of abortion services on patient outcomes. 2008***

The richer a woman is, the more likely her contraceptive need is met ...



(Source: UN Millennium Project, 2006)

Most abortions occur in less developed countries

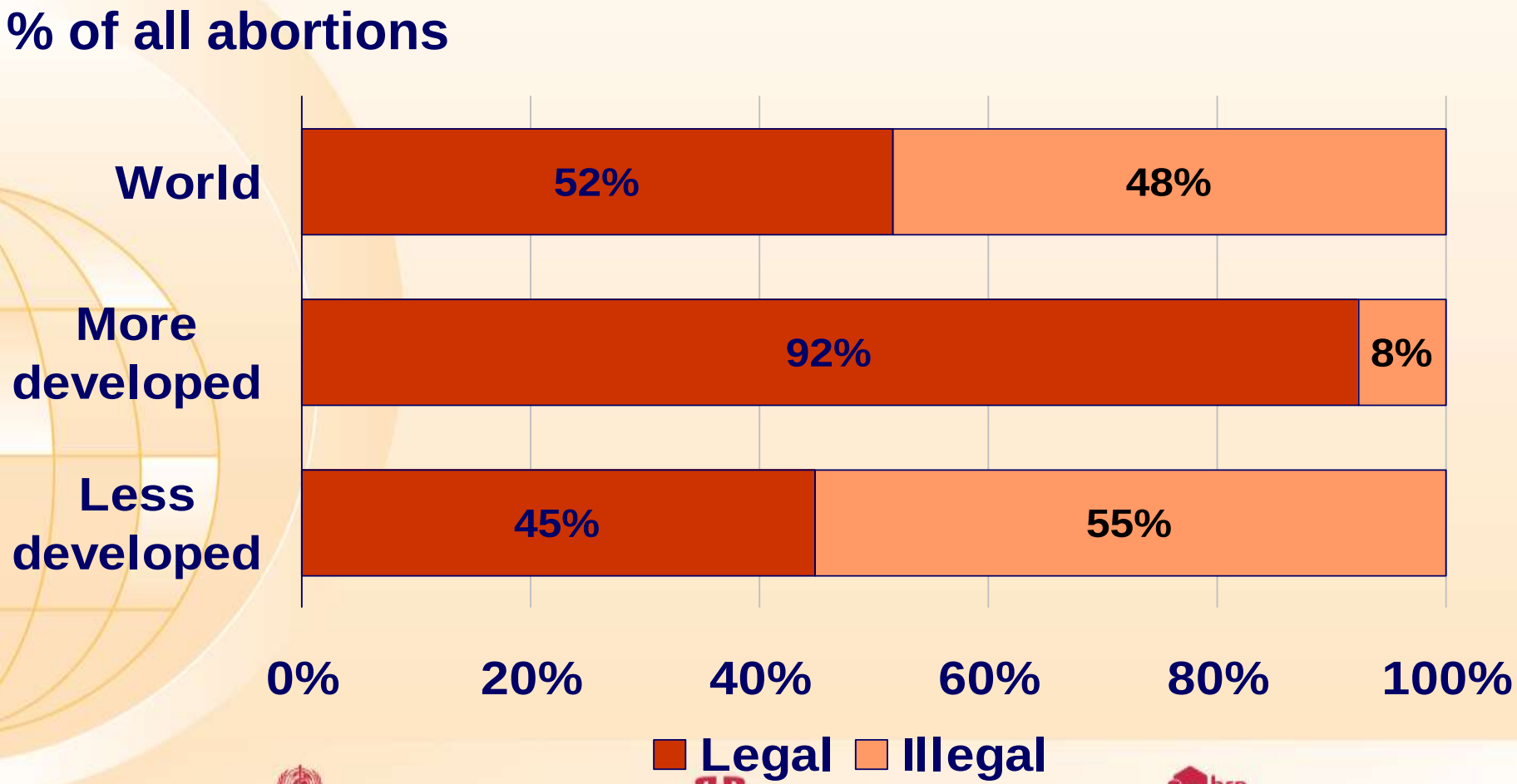


World Health Organization

Reproductive Health and Research

UNDP • UNFPA • WHO • World Bank
Special Programme of Research, Development and Research Training in Human Reproduction

Most abortions in developed countries are legal and safe, compared to less than half in less developed countries



World Health Organization

Reproductive Health and Research

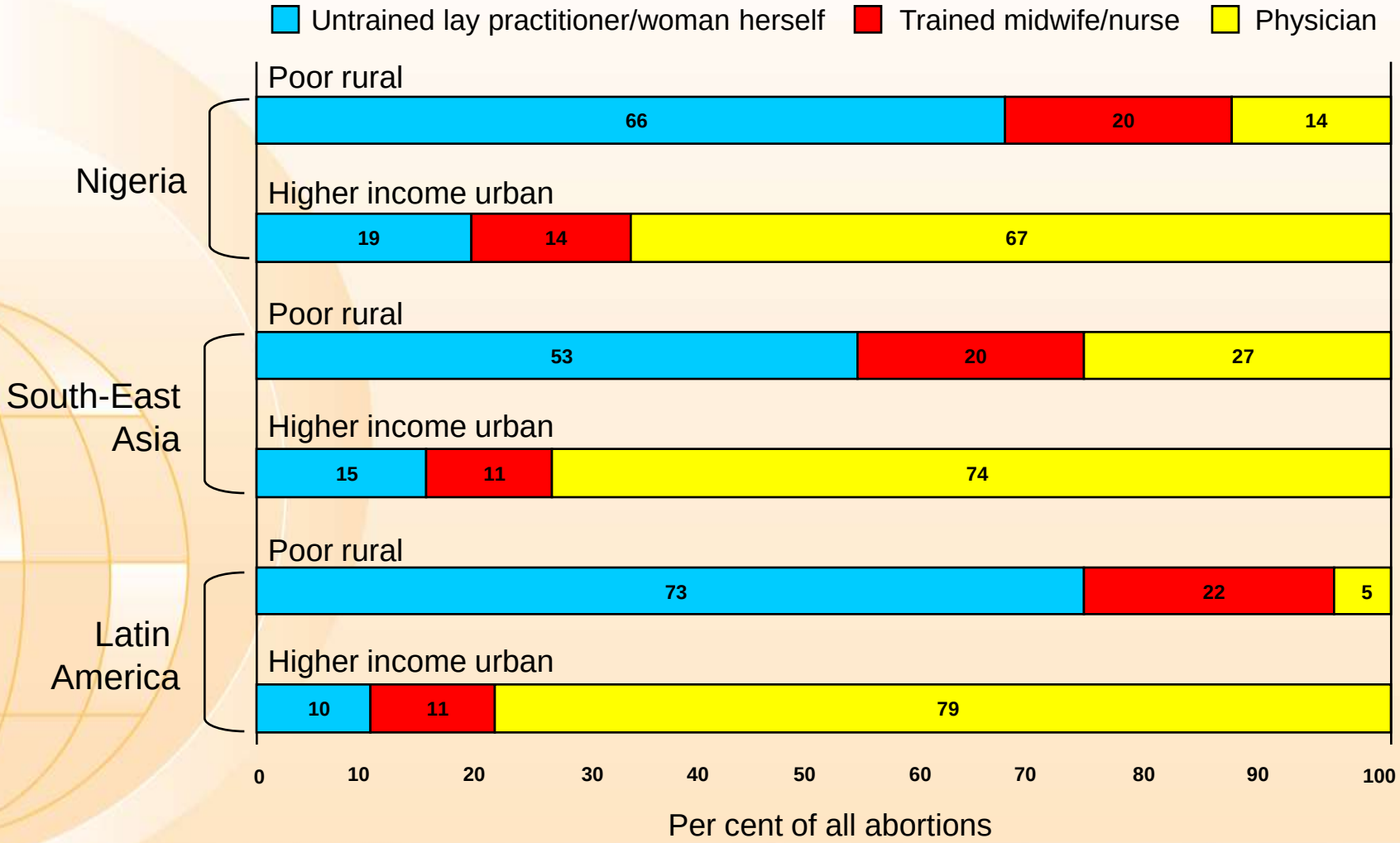
UNDP • UNFPA • WHO • World Bank
Special Programme of Research, Development and Research Training in Human Reproduction

Safe vs. unsafe abortion

- 97% of unsafe abortions occur in developing countries
- Faster population growth in developing world
  - Proportion of abortions that are unsafe vs. safe is *increasing*

    44% in 1995 to 48% in 2003
- Cost of unsafe abortion is high
  - Maternal mortality
  - Financial costs

In circumstances where abortion is illegal, the rich are more likely than the poor to have access to a safe procedure



(Source: Alan Guttmacher Institute, 1991)

World Health Organization
Reproductive Health and Research
UNDP • UNFPA • WHO • World Bank
Special Programme of Research, Development and Research Training in Human Reproduction

Stating the obvious

- *Prevention works*
  - Abortion rates are lowest in those countries where contraception and safe legal abortion are universally available.
- *Prohibition does not*
  - Major abortion declines have occurred in countries with legal abortion, but NOT in countries where abortion is restricted.

Global trend toward liberalization

Liberalized

- Albania (1996)
- Benin (2003)
- Bhutan (2004)
- Burkina Faso (1996)
- Cambodia (1997)
- Chad (2002)
- Colombia (2006)
- Ethiopia (2004)
- Guinea (2000)
- Mali (2002)
- Nepal (2002)
- Portugal (2007)
- Saint Lucia (2004)
- South Africa (1996)
- Swaziland (2005)
- Switzerland (2002)
- Togo (2007)

Restricted

El Salvador (1998)
Nicaragua (2006)
Poland (1997)

Source: Center for Reproductive Rights, 2007.

Key findings from recent global abortion statistics

- The availability of abortion on broad grounds or on request, as in developed regions, *does not* lead to high abortion rates

- When modern contraceptives are widely available and prevalence is high, induced abortion rates are low (Western Europe) or decline (Eastern Europe)
  - Contraceptive provision is a critical element of post-abortion care

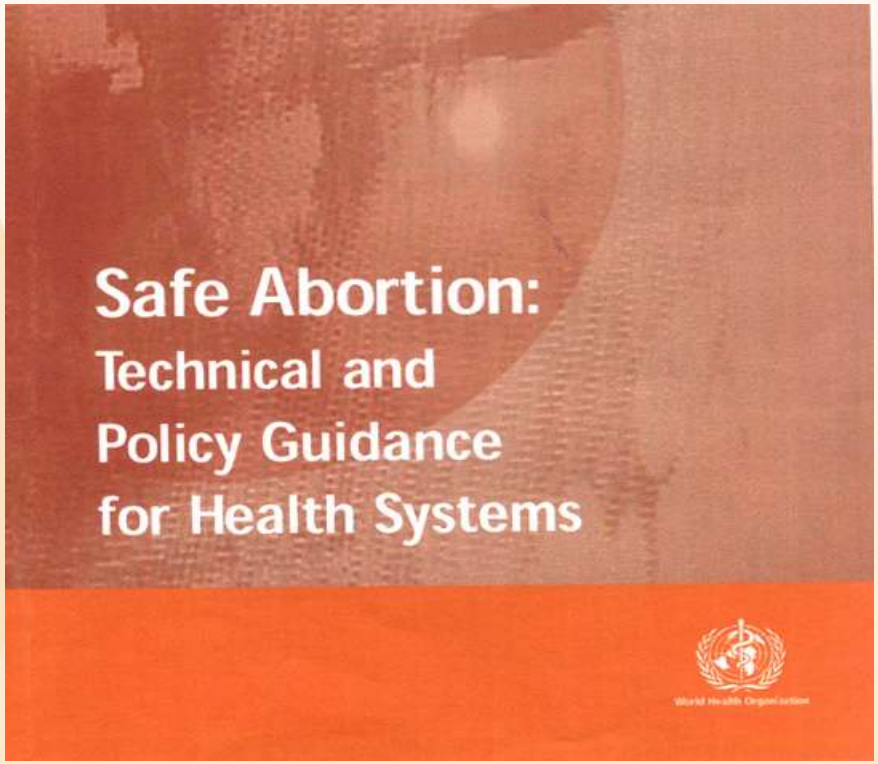
Outline

1. Introduction
2. Updates for first trimester procedures
3. Updates for second trimester procedures
4. The case for family planning
5. Future directions

Future directions

- Research is likely to focus on:
  - Minimizing side-effects and pain
  - Assessing medical regimens in special populations
  - Expanding levels of providers and services
  - Social science research: understanding barriers to safe abortion; linking safe abortion reproductive health services; integration with maternal health

WHO guidance on safe abortion



Available for downloading at

http://www.who.int/reproductive-health/publications/safe_abortion/index.html

Useful websites

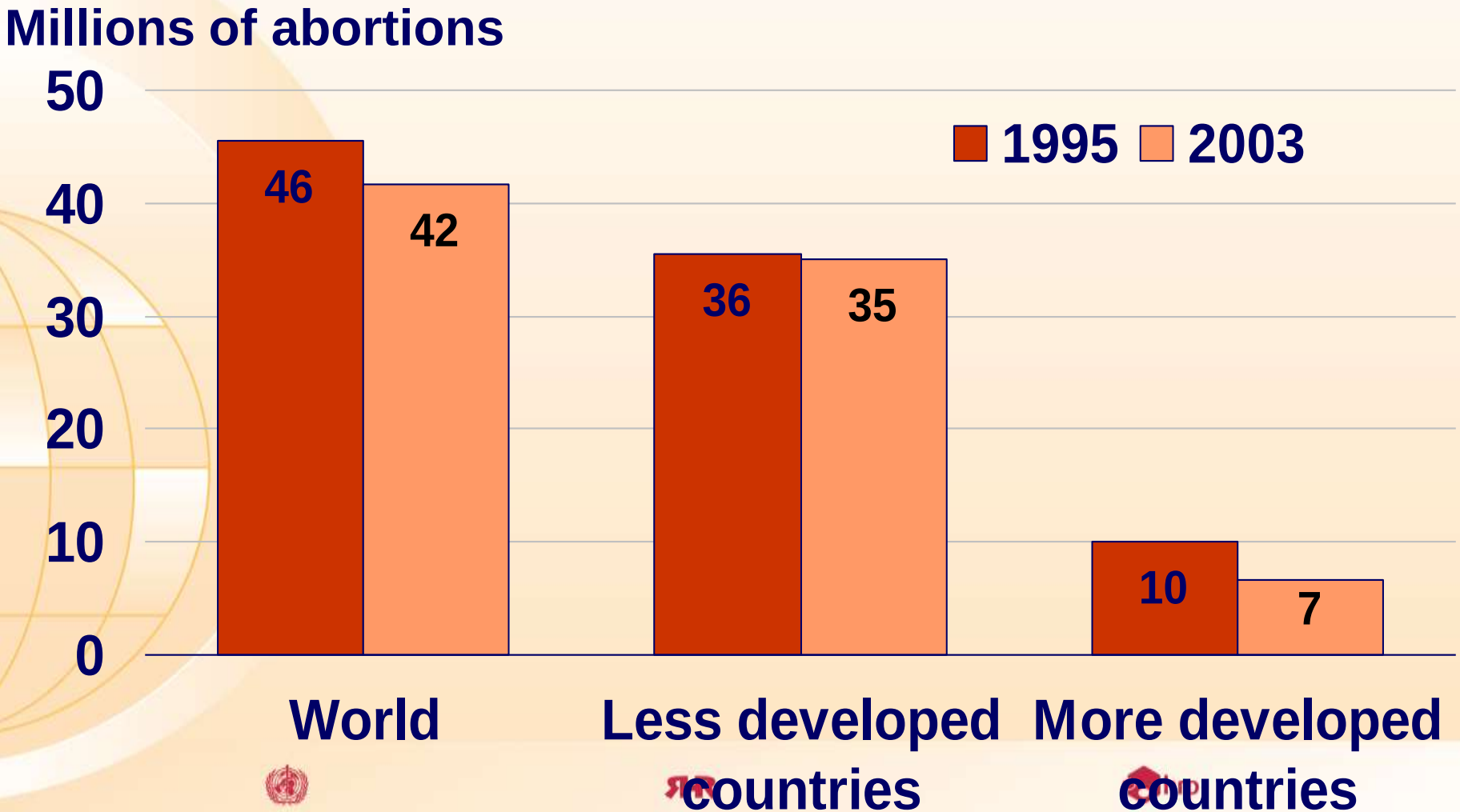
- www.guttmacher.org
- www.gynuity.org
- www.ipas.org
- www.ippf.org
- www.mariestopes.org.uk
- www.medicalabortionconsortium.org
- www.prochoice.org
- www.who.int/reproductive-health


Thank you

Future work in prevention of unsafe abortion

- Reduce the cost of medical abortion
- De-medicalise provision of safe abortion (mid-level providers)
- Better integrate abortion into maternal health and emergency services
- Better understand socio-cultural, political, economic and legal barriers to safe abortion
- Link safe abortion to other sexual and reproductive health services

Abortion *numbers* have declined least in less developed countries

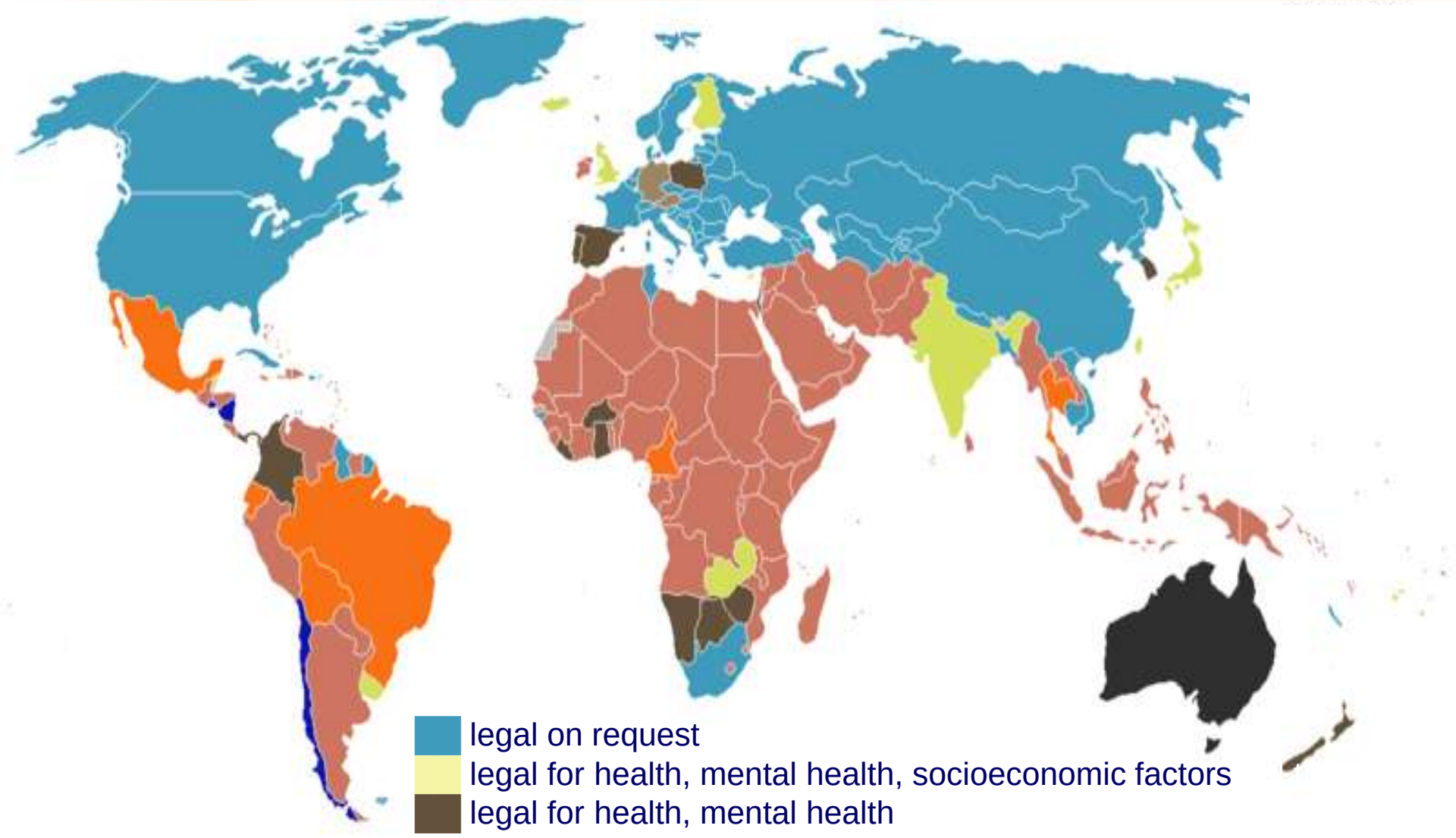


World Health Organization

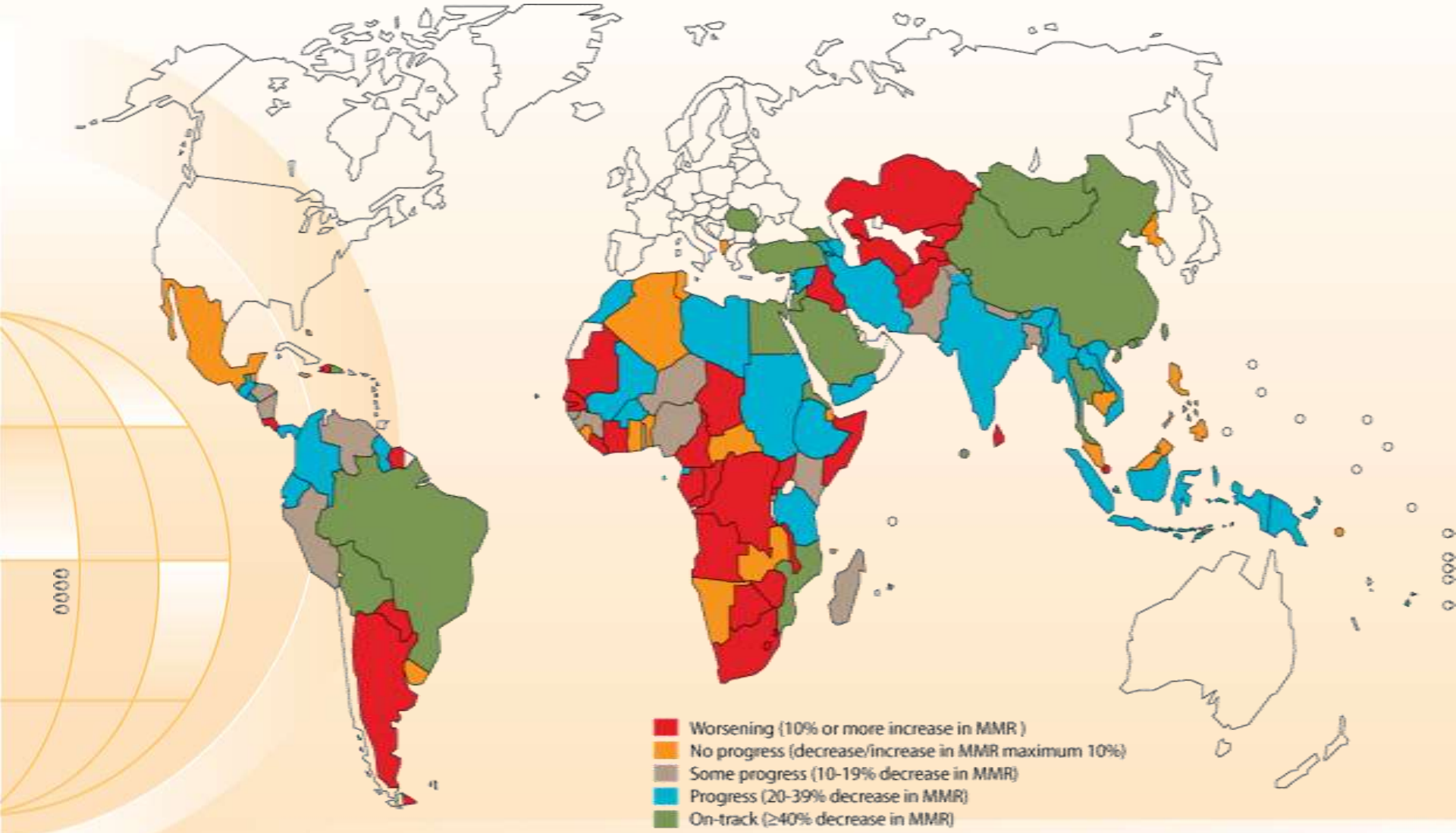
Reproductive Health and Research

UNDP • UNFPA • WHO • World Bank
Special Programme of Research, Development and Research Training in Human Reproduction

Abortion is legal in most of the North, and increasing in the South



Progress (or lack of it) in maternal mortality reduction



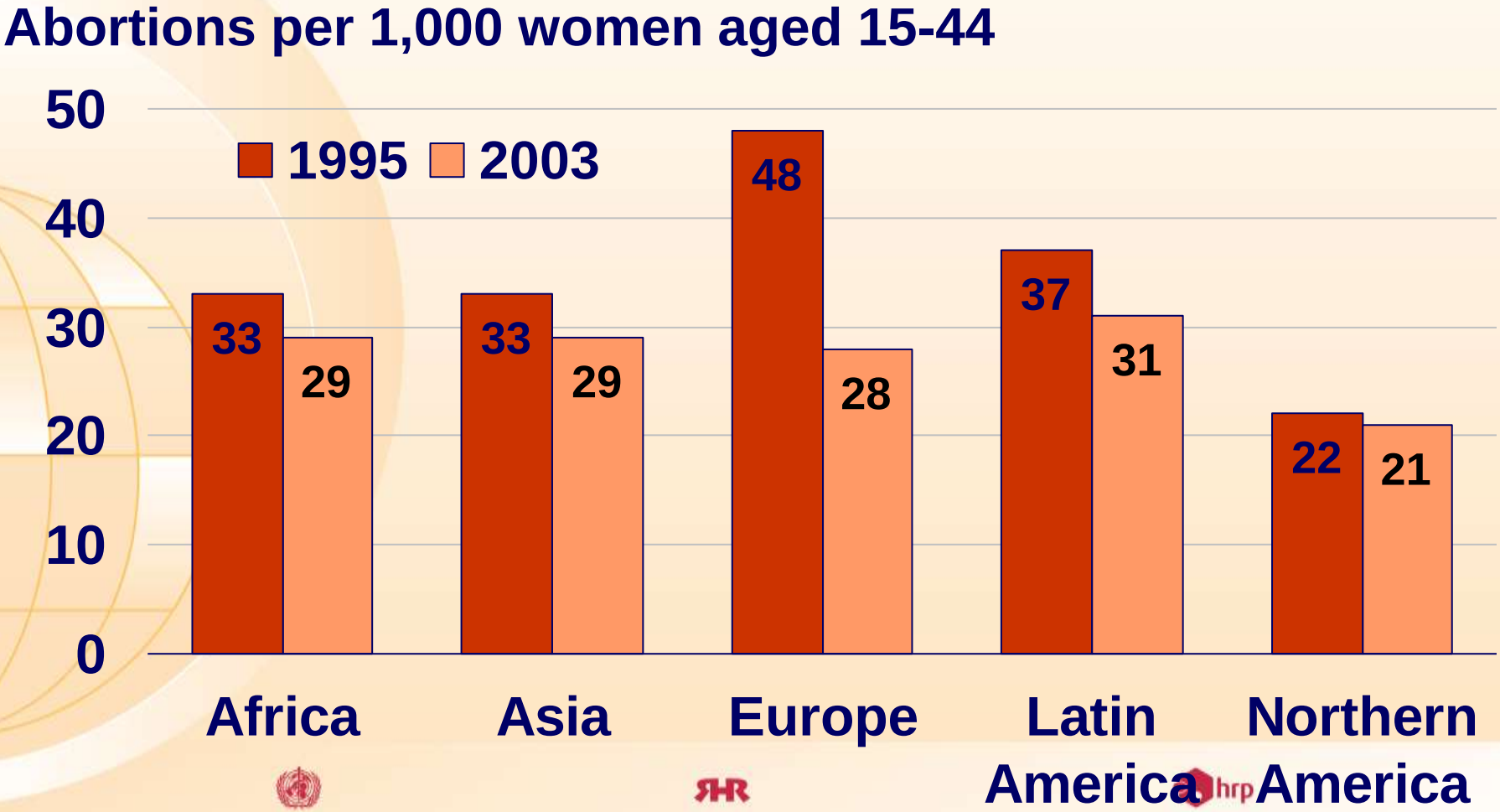
Note: Developed countries and developing countries with baseline MMR<50 and decrease in MMR between 1990-2005 are excluded from this categorization.

World Health Organization

Reproductive Health and Research

UNDP • UNFPA • WHO • World Bank
Special Programme of Research, Development and Research Training in Human Reproduction

Abortion rates have declined in all major world regions



World Health Organization
Reproductive Health and Research
UNDP • UNFPA • WHO • World Bank
Special Programme of Research, Development and Research Training in Human Reproduction

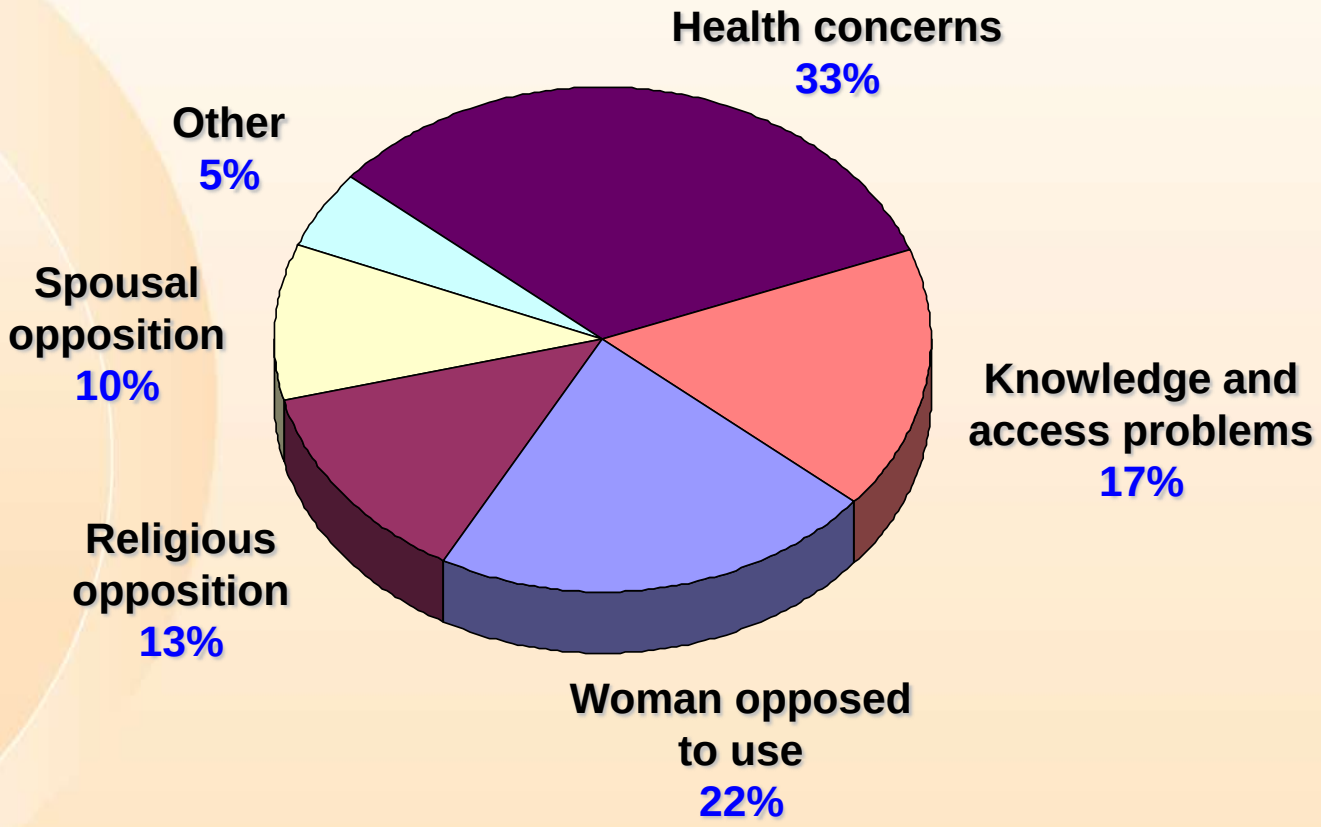
Q: Why do unwanted pregnancies occur?

A: Usually because contraception failed or was not used in the cycle of conception

(some 26 million of the estimated 76 million unplanned pregnancies each year are thought to be due to contraceptive failure)

Reasons women give for not using contraceptives even when at risk for unintended pregnancy

(data from sub-Saharan Africa)



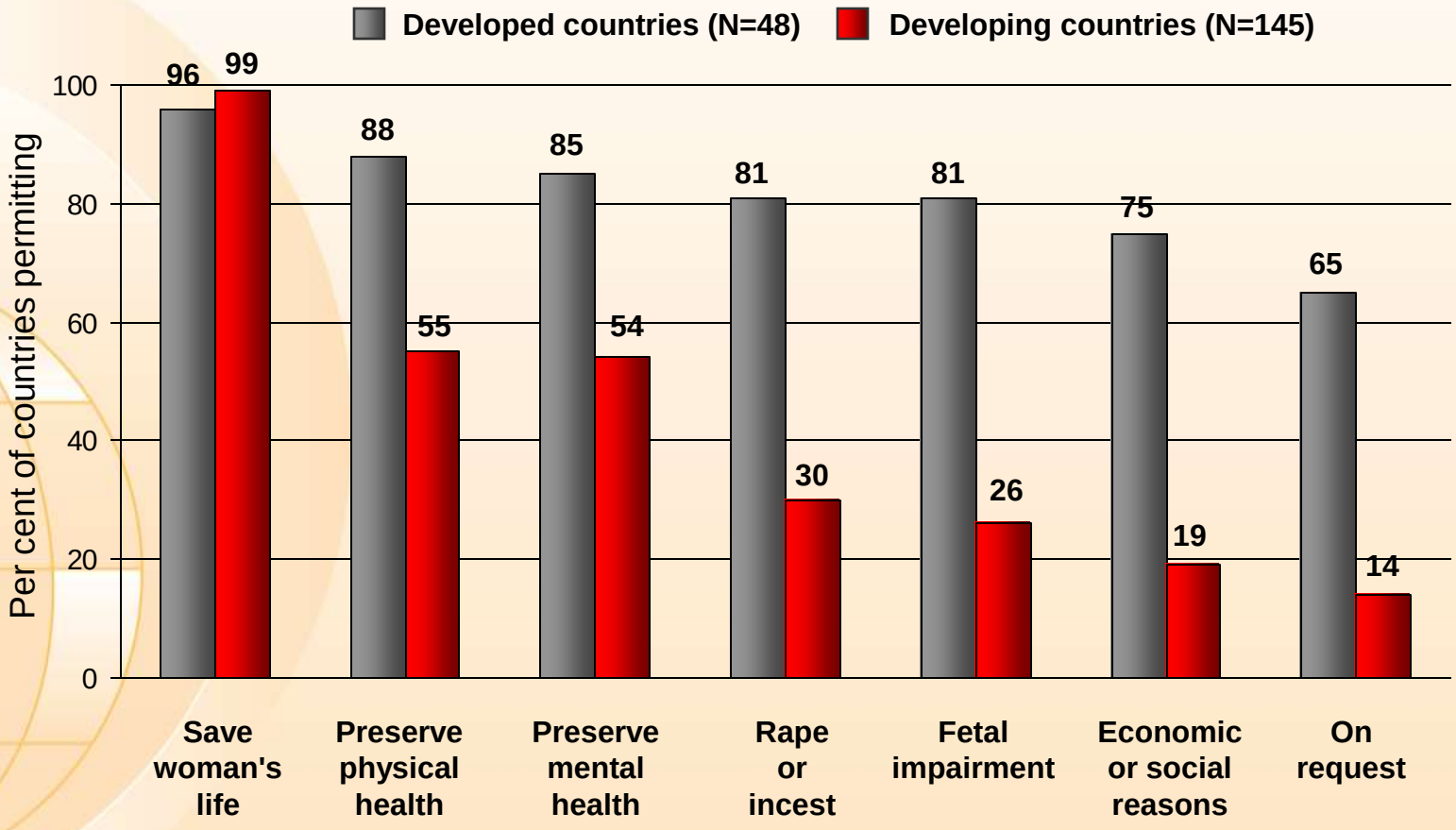
(Source: Measure DHS StatCompiler, 2006)

Abortion-related mortality in the USA

- Death rate for women obtaining legally induced abortion (1988-1997)
  - 0.7 per 100,000 legal induced abortions
- Increased risk of death for each additional week of gestational age
  - 38%
- Relative risk of abortion-related mortality (compared to abortions ≤8 weeks gestation)
  - 14.7 at 13-15 weeks gestational age
  - 29.5 at 16-20 weeks gestational age
  - 76.6 at or after 21 weeks gestational age

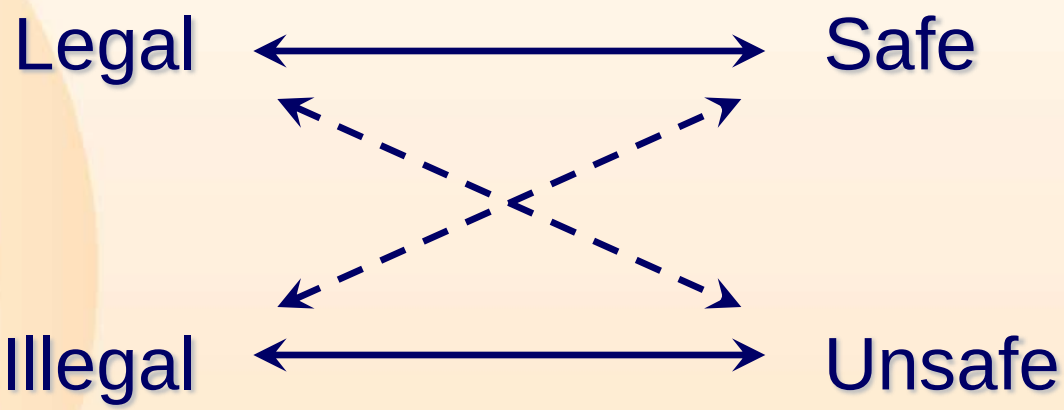
(Source: Bartlett et al., 2004)

The "Great Divide" in abortion legislation



(Source: United Nations, 2001)

Legality and safety are not always synonymous



Abortion rates are similar regardless of the law

Region	Rate
Africa	29
Asia	29
Europe	28
Latin America	31
North America	21
World	29

(Source: Sedgh G, et al. 2007)

Abortion rates are similar, but…

Region	Rate	Safe	Unsafe
Africa	29	<0.5	29
Asia	29	18	11
Europe	28	25	3
Latin America	31	1	29
North America	21	21	<0.5
World	29	15	14

(Source: Sedgh G, et al. 2007)

Abortion rates in Europe

Region	Rate	Safe	Unsafe
Europe	28	25	3
Eastern	44	39	5
Northern	17	17	<0.5
Southern	18	15	3
Western	12	12	<0.5

(Source: Sedgh G, et al. 2007)

Unsafe abortion costs health systems

- In some countries as much as 50% of hospital Ob/gyn budgets are spent treating complications of unsafe abortion
- A South Africa study (1997) estimated the national cost of treating complications of unsafe abortion at $1.274 million
- A Nigeria study (2005) estimated the national cost of treating abortion complications at $19 million

Conclusions

1. Unsafe abortion continues to be an important public health concern: each year, nearly half of all abortions are carried out using unsafe procedures.
2. Some 66,500 women die each year due to complications of unsafe abortions, and many more suffer important morbidity and injury, including long-term sequelae (chronic pelvic pain, PID, fistula, infertility).
3. At global scale, death due to complications of unsafe abortion is highly correlated with the degree of restrictiveness of abortion legislation.
4. Unmet need for contraception to enable couples to fulfil their family-size aspirations remains high in many regions of the world, and affects particularly the young and the poor.