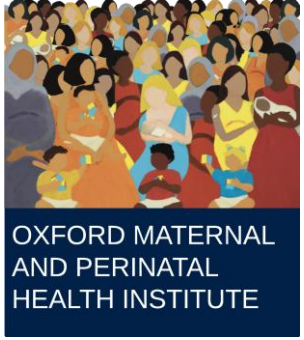


Obstetric Fistula

Module 1
Definition, Epidemiology, Pathogenesis, Causes, Risk Factors, and Prevention of Obstetric Fistula

2024 update

Acknowledgment

Principle author and coordinator:

Charles-Henry Rochat, MD, FMH Specialist in Operative Urology
Visiting Associate Professor, Department of Obstetrics & Gynecology and Women's Health of Albert Einstein College of Medicine of Yeshiva University, New-York / Associate Professor of Public Health at CIESPAC, Brazzaville / Codirector of the Executive Committee of the GFMER / GFMER Director of "Obstetric Fistula Program" / Member of Fistula Committee of FIGO (Fédération Internationale de Gynécologie et d'Obstétrique) / Member of OFWG (International Obstetric Fistula Working Group)

Advisory group:

José Villar, MD, MPH, MSc, FRCOG
Professor of Perinatal Medicine, Nuffield Department of Obstetrics and Gynaecology, John Radcliffe Hospital, University of Oxford, UK

Aldo Campana, MD
Emeritus Professor, Obstetrics and Gynaecology, Faculty of Medicine, University of Geneva / Director, Geneva Foundation for Medical Education and Research, Switzerland

Editorial team:

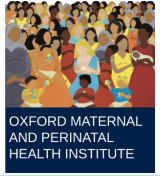
Bonventure Ameyo Masakhwe, MBChB, MSc
Geneva Foundation for Medical Education and Research, Kenya

Raqibat Idris, MBBS, DO, MPH
Technical Officer, Geneva Foundation for Medical Education and Research, Switzerland

Fariza Rahman, MBBS, MSc
Technical Officer, Geneva Foundation for Medical Education and Research, Switzerland

Reviewers:

Elizabeth Goodall, MD
Clinical Fellow - Obstetric Fistula Surgery & Urogynaecology Aberdeen Women's Centre, Freetown



Course Outline:

Module 1. Definition, Epidemiology, Pathogenesis, Causes, Risk Factors, and Prevention of Obstetric Fistula

Module 2. Diagnosis and Classification of Obstetric Fistula

Module 3. Management of Obstetric Fistula

Module 4. Social Reintegration

Module 5. Sexual Health and Obstetric Fistula

By the end of this module, the learner should be able to:

- Define an obstetric fistula.
- Understand the sufferings and tragedy of women caused by fistula.
- Describe the burden of obstetric fistula globally and regionally and understand the difficulties in generating the epidemiological estimates.
- Understand the processes that lead to obstetric fistula.
- Describe the causes and the risk factors for obstetric fistula.
- Describe the rising trend of iatrogenic fistula.
- Describe the physical and social consequences of obstetric fistula.
- Understand the primary, secondary and tertiary strategies of preventing obstetric fistula.
- Describe the key elements of national programme to end fistula.

Definition

A fistula is an abnormal communication between two epithelial surfaces, which can occur between two hollow or tubular internal organs or between an internal hollow organ and the outer epithelial layer of the body.

A genital fistula is a communication of the urethra, bladder, ureter and/or rectum with the uterus, cervix and/or vagina. Such communications are therefore genitourinary and/or rectovaginal.

Obstetric fistula is an abnormal connection between the vagina, rectum and/or bladder which may develop after prolonged and obstructed labour and lead to continuous urinary or faecal incontinence.

- A hole between the urinary bladder and the vagina is regarded as **vesicovaginal fistula (VVF).**
- A hole between the rectum and the vagina is known as **rectovaginal fistula (RVF)**.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Obstetric fistula: A great tragedy

Obstructed labour is one of the leading causes of maternal mortality and morbidity in developing countries, the most devastating being obstetric fistula.

Women in neglected obstructed labour are at risk of dying themselves, from complications such as uterine rupture, sepsis or postpartum haemorrhage.

When a woman survives, the impact of unrelieved obstructed labour can lead to the development of an obstetric fistula. Overwhelmingly, most babies in this situation are stillborn.

If untreated, the injury will remain for the rest of a woman's life, causing immense suffering and isolation. These women are embarrassed by their inability to control their bodily functions, that they are constantly soiled and wet, and that they smell.

Their pain and shame may be further complicated by recurring infections, infertility, damage to their vaginal tissue that makes sexual activity impossible and paralysis of the muscles in their lower legs which may require the use of crutches, if any are available.

Affected women may be abandoned by their husbands or have to return to their parents' home. Many are neglected and ill-treated, having brought "shame" to the family. They usually live in abject poverty and are unable to make a living for themselves as they are ostracised, shunned and blamed by their families and communities because of their smell and uncleanliness, falling deeper into poverty and further despair. Serious mental health comorbidities exist in these women, with significant risks of depression and even suicide.

United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.
World Health Organization. Obstetric Fistula Guiding principles for clinical management and programme development. WHO, 2006.

Obstetric fistula: A neglected condition of poverty

It is argued that obstetric fistula should be considered as a neglected tropical disorder. It shares many properties with other neglected tropical conditions: majority of cases occur in developing countries; it affects the poor and even exacerbates or compounds the level of poverty; it is underestimated as a major cause of morbidity and mortality; it is often highly stigmatizing; it is both preventable and treatable using proven, cost-effective approaches but the resources to do this have not been mobilized.

It differs from other neglected conditions of poverty because it is not infectious in aetiology and it exclusively affects women. Moreover, its prevention and treatment are both surgical. Surgical care has traditionally fallen outside the paradigm of public health and this, consequently, may complicate access to the surgical intervention needed (such as caesarean section or fistula repair). Even where surgical care is accessible, obstetric fistula, considered a dirty procedure, will often be found at the bottom of the theatre list. Also, women often have to pay for the surgery, or towards it, greatly restricting access to care, since sufferers often have minimal funds and live hand to mouth.

Therefore, as an example, while improving nutrition through primary care will go a long way in preventing stunting and subsequently short stature and consequently obstructed labour, surgical interventions at secondary and tertiary levels will prevent fistula formation and treat established cases.

Wall LL. Obstetric Fistula Is a “Neglected Tropical Disease.” PLoS Negl Trop Dis. 2012 Aug 28;6(8).

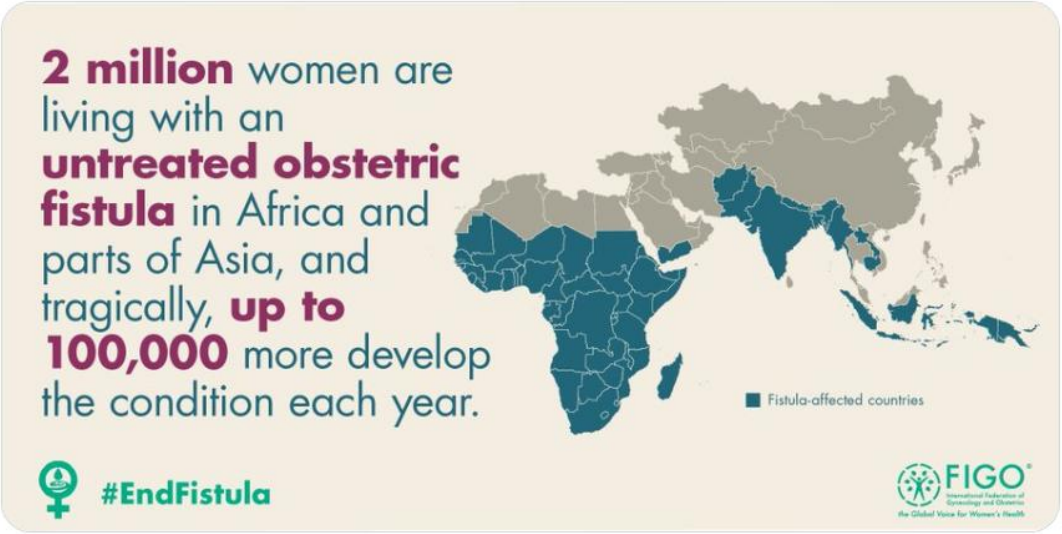
Epidemiology obstetric fistula: Prevalence / Incidence

Obstetric fistula is an indicator of maternal mortality and morbidity (Gresty 2023).

More than 2 million young women are estimated living with untreated obstetric fistula in Asia and sub-Saharan Africa.

Around 50,000 to 100,000 women worldwide are newly affected by obstetric fistula each year (WHO 2018).

Recent estimates of the prevalence of untreated obstetric fistula globally, and mainly from countries like Uganda, Malawi, Nigeria, Benin, Sierra Leone, and Ethiopia vary from 654,000 to 3,500,000 (Gresty 2023).



FIGO 2021.

Gresty H, Ndoye M, Greenwell T. Overview, Epidemiology, and Etiopathogenetic Differences in Urogenital Fistulae in the Resourced and Resource-Limited Worlds. In: Martins FE, Holm HV, Sandhu JS, McCammon KA, eds. Female Genitourinary and Pelvic Floor Reconstruction. Cham: Springer International Publishing; 2023:677-91.
World Health Organization. Obstetric Fistula. WHO, 2018 Feb.
@FIGO HQ. #ObstetricFistula was once a world-wide problem. Today, it occurs mostly in Sub-Saharan Africa and some parts of Asia. 2 million women live with an untreated obstetric fistula. (4/6). [Twitter]. 2021 May 21 [cited 2024 May 15].

Epidemiology obstetric fistula: Magnitude of the burden

By using data from the demographic and health surveys (DHS) in 14 African countries, Alie (2021) **estimated a prevalence of obstetric fistula of 0.84%** among women of childbearing age.

A systematic review (Neogi et al. 2020) estimated the burden of obstetric fistula in South-East Asian region:

- **The pooled prevalence according to self-reports was 1.11** (95% confidence interval (CI) 1.09, 1.14) per 100 women.
- **The pooled prevalence of obstetric fistula based on the clinical examination was 0.10** (95% CI 0.01, 0.20) per 100 women.

In another systematic review, the prevalence of obstetric fistula was found to be **1/1000 in low- and middle-income countries and 1.57/1000 in sub-Saharan Africa and South-Asia only** (Cardozo 2020).

Alie M. “Counting Those Never Bubble over” Estimated Prevalence and Its Determinants of Obstetric Fistula among Childbearing Women in 14 African Countries: Multilevel Analysis. 2021 Nov 12. http://dx.doi.org/10.21203/rs.3.rs-1074592/v1

Cardozo L, Rovner E, Wagg A, Wein A, Abrams P. Incontinence: 7th International Consultation on Incontinence. ICUD ICS, 2023. 7th ed.

Neogi SB, Negandhi H, Bharti P, Zodpey S, Mathur A. Burden and management of obstetric fistula in South-East Asian region countries: A systematic review and meta-analysis. Indian J Public Health. 2020 Oct-Dec;64(4):386-392.

Epidemiology obstetric fistula: Does the statistics show the real picture?

WHO, UNFPA, FIGO suggest that:

- Available figures are a rough estimate, and few data exist about the epidemiology of obstetric fistula.
- Unlike other public health issues, fistula is uncommon and may be considered a rare condition. The scarcity of cases makes detection difficult.
- Since the obstetric fistula patient population is hard to reach and as the condition tends to occur mostly in countries where there is a scarcity of health facilities, many cases will remain undiagnosed and under-reported
- These figures are not robust, recent, reliable and therefore underestimated as it has been notoriously difficult to determine the true burden of fistula to date.
- Estimates are mainly based on the number of women presenting for care and self-reported data from surveys have low diagnostic value.
- Researchers often identify cases of obstetric fistula simply by interviewing women. Some interviewees may report incontinence caused by other conditions while others may be too embarrassed to report incontinence – potentially leading to overestimation and underestimation respectively.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.
World Health Organization. Obstetric Fistula. WHO, 2018 Feb.

Epidemiology obstetric fistula: Challenges of estimation

- Women with fistula often reside in rural areas in countries with bad roads or no roads. Many are in conflict areas where travel of any sort is dangerous.
- Many live under cultural circumstances that shield them from public view.
- Women with fistula may be desperately poor, isolated and not likely to receive queries sent out by electronic media.
- Stigma is an overpowering influence on many, who might prefer to go uncounted.
- Many women with fistula have little or no education, so that they have little natural voice in the affairs of their local communities.
- Some women have impaired mobility as a result of co- morbidities from obstructed labour and cannot present themselves for counting.
- Lack of national level large scale of data.
- Lack of integration of fistula into national health management information systems.
- Many surveys that address reproductive health issues restrict their samples to women of reproductive age – generally defined as females aged 15–49 years but obstetric fistula can be found in both younger and older females.

United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.

Epidemiology obstetric fistula: Addressing the challenges of estimation (1)

Instead of sporadic information gathered by individual studies, data need to be collected through routine surveillance and monitoring which is integrated in health systems and national programmes.

At the population level, countries that are conducting Demographic Health Surveys and where home delivery is common should include the questions relating to obstetric fistula in their survey.

Approaches should focus on care providers that include training them to diagnose fistula during postpartum visits, to recognize iatrogenic fistula, urinary incontinence of other causes and surveying them on their referral practice for women with fistula-like symptoms. (Tunçalp 2015)

It has also been thought that obstetric fistula closely follows maternal mortality, an equally rare event, whose estimation is equally problematic and in which Sisterhood Studies have been found appropriate. The Sisterhood Method would also be very useful in estimating prevalence of obstetric fistula. Given the ostracization associated with the condition in many places, sufferers would be less willing to confide in the interviewer, especially if they feel that this is a routine process that is not aimed at solving their concerns (Stanton 2007).

Stanton C, Holtz SA, Ahmed S. Challenges in measuring obstetric fistula. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S4-9.
Tunçalp Ö, Tripathi V, Landry E, Stanton CK, Ahmed S. Measuring the incidence and prevalence of obstetric fistula: approaches, needs and recommendations. Bull World Health Organ. 2015 Jan 1;93(1):60-2

Epidemiology obstetric fistula: Addressing the challenges of estimation (2)

Ostracization also means that the affected women might not be in the household at the time of survey if they are currently suffering from the condition, as demographic health surveys do not include institutionalized or homeless individuals. Questions included in the fistula module in the DHS are aimed at the interviewee and may therefore give us a better lifetime prevalence than point prevalence (Ahmed 2015).

In conclusion, there is no perfect measurement to accurately capture the number of women with fistula. Although household and mixed method surveys, key informant interviews, health management information systems, and modelling all offer insight, none of these alone adequately captures the scope of fistula prevalence. Consequently, measuring incidence and prevalence of this maternal morbidity is difficult. Additionally, fistula often affects the poorest, most vulnerable, and powerless women and, because they are frequently so marginalized, they can be hard for a “system” to find (Fistula Care Plus/Maternal Health Task Force 2014).

However, data on incidence and prevalence of obstetric fistula are needed for planning, including sustained interest in – and funding for – prevention and treatment but this data needs not just to be transparent, but accurate (Ahmed 2015, Fistula Care Plus/Maternal Health Task Force 2014).

Ahmed S, Tunçalp Ö. Burden of obstetric fistula: from measurement to action. Lancet Glob Health. 2015 May;3(5):e243-4.
Fistula Care Plus/Maternal Health Task Force. Fistula Care Plus: International Research Advisory Group Meeting Report, July 8-9, 2014. New York: EngenderHealth/Fistula Care Plus, 2014.

Pathogenesis of obstetric fistula (1)

Prolonged obstructed labour is the main aetiological factor for the development of genital fistula. The uterine contractions cause the foetal head or presenting part to increasingly compress the soft maternal tissues of the genital tract against the bony pelvis, mainly against the back of the pubic bones.

As the tissues are compressed between the foetal head and posterior aspect of the symphysis pubis, it leads to ischemic necrosis of soft tissues between the vagina and the urinary bladder or the rectum. After the delivery, which usually results in a stillbirth, the necrotic tissue sloughs off, forming a direct communication between two or more anatomical structures. The process takes place over days or weeks and results in an obstetric fistula (Fig. 1.1).

The most common site of injury is at the urethro-vesical junction, resulting from the foetal head being deeply impacted and stuck in the maternal pelvis during cephalo-pelvic disproportion or malposition of the foetal head.

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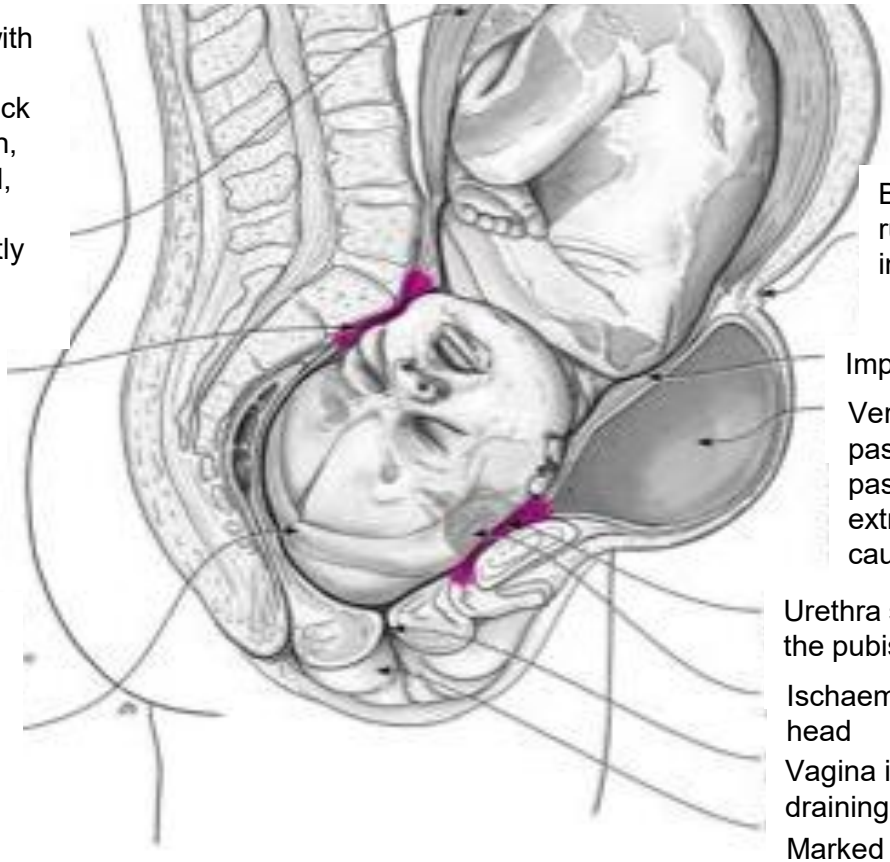
Figure 1.1 Maternal and foetal sequelae of prolonged obstructed labour

Erratic uterine contractions with few resting phases between contractions. Because of a lack of urgent medical intervention, the situation has deteriorated, and the uterus is staying contracted and moulded tightly round the foetus

Colon compressed between the sacrum and foetal head

Severe foetal distress has resulted in foetal death. There is excessive moulding, pronounced caput succedaneum, Spalding's sign and macerated skin.



Bandl's ring, indicating an imminent rupture of the uterus and requiring immediate medical intervention

Impending uterine rupture

Very distended bladder. Patient is unable to pass urine and it is difficult or impossible to pass a urethral catheter because of the extreme compression of maternal tissues, caused by the foetal head

Urethra stretched and compressed between the pubis and the foetal head

Ischaemic pressure necrosis lesion on foetal head

Vagina is hot with little or no amniotic fluid draining

Marked vulval oedema

Purple shading represents ischaemic necrosis of maternal tissues from the pressure of the foetal head during unrelieved obstructed labour. These purple areas are at high risk of becoming obstetric fistula.

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Pathogenesis of obstetric fistula (2)

The extent of the damage will depend on the duration of obstructed labour and the position of the foetal head or corresponding presenting part.

The more pronounced the obstruction of labour, the more extensive the resulting injuries that affect the soft tissues of the maternal genital tract and associated nerves.

Fistulas can involve the bladder base, the whole of the anterior vaginal wall and/or much of the urethra, with rectal involvement leading to a concomitant recto-vaginal fistula in more severe cases (Fig. 1.2).

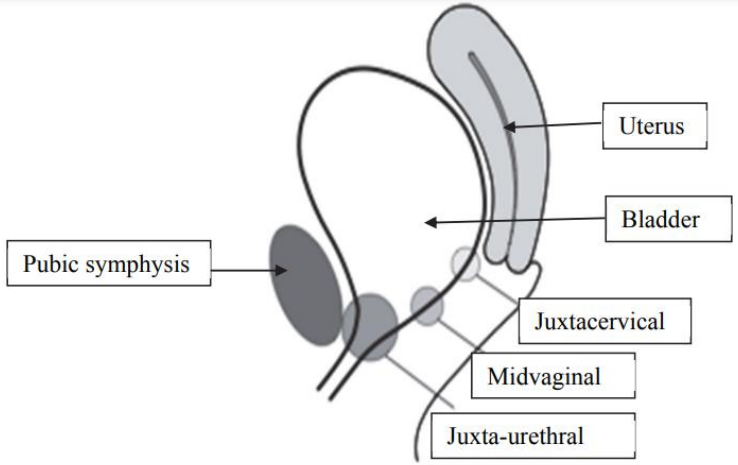

Figure 1.2: The various positions of ischemic injury and subsequent fistula
Source: Management of Obstetric Fistula for Health Care Providers – On-the-Job Training: Reference Manual March 2014.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Management of Obstetric Fistula for Health Care Providers – On-the-Job Training: Reference Manual March 2014. Government of Nepal Ministry of Health and Population National Health Training Center.

Causes of fistula: Obstetric causes

It is estimated that 90.4%–92.2% of female genital fistulas are related to childbirth:

1. **Prolonged obstructed labour** (most common) which last several days, or even a week or more before the women receives obstetric care.
2. **Perineal tears:** Factors associated with an increased risk of developing perineal tears include:
   - Rapid uncontrolled vaginal delivery
   - Instrumental or assisted vaginal delivery
   - Foetal macrosomia (potential shoulder dystocia during vaginal delivery)
3. **Iatrogenic Fistula:**
   - Caesarean section, with or without hysterectomy (more common in patients who suffer delays, for example in accessing an appropriate health facility and/or in receiving an emergency caesarean section after arrival)
   - Instrumental or assisted, e.g. vacuum or forceps delivery
   - Destructive vaginal delivery procedures
   - Manual removal of placenta
   - Defibulation in preparation for childbirth
   - Episiotomy
   - Symphysiotomy
   - Curettage (rarely)

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Causes of fistula: Non obstetric causes

1. **Iatrogenic**, e.g. caused surgically during elective gynaecological operations such as hysterectomy or through traumatic injury, e.g. in dilatation and curettage
2. **Traumatic**
   - Coital/sexual violence
   - As a result of an accident such as road traffic accidents and falls.
   - Female genital mutilation/cutting (FGM/C)
   - Insertion of foreign bodies
3. **Malignancy**, e.g. advanced cervical cancers
4. **Radiotherapy**
5. **Traditional intravaginal practices** like gishiri cutting, hot iron metal, insertion of products or items
6. **Inflammatory conditions**, e.g. irritable bowel syndrome, Crohn's disease
7. **Infection**
   - Tuberculosis
   - Lymphogranuloma venereum
   - HIV
   - Schistosomiasis
8. **Congenital** (rare), including exstrophy of the bladder (ectopia vesicae), epispadias, ectopic ureters
9. **Lack of knowledge or facilities for fistula repair**

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Ngongo CJ, Raassen TJIP, Mahendeka M, Lombard L, van Roosmalen J, Temmerman M. Rare causes of genital fistula in nine African countries: a retrospective review. BMC Womens Health. 2022 Dec 6;22:497.

Risk factors for obstetric fistula (1)

Thaddeus and Maine described 3 delays that contribute towards bad obstetric outcomes including obstructed labour. These delays are synergistic.

***The first delay*:**
The decision to seek care may be delayed by the socio-economic and cultural factors in a woman's environment. For example, husband or other family members not allowing them to go to a facility or the perception that women who deliver at a health facility are weak by the community.

The second delay:
Delayed arrival at the health facility may be influenced by poor road conditions, transportation or communication. Insecurity may deter a woman from going to the facility at night and waiting until morning, or the facilities may simply just be too far, which is not uncommon.

Landry E, Frajzyngier V, Ruminjo J, Asiimwe F, Barry TH, Bello A, Danladi D, Ganda SO, Idris S, Inoussa M, Kanoma B, Lynch M, Mussell F, Podder DC, Wali A, Mielke E, Barone MA. Profiles and experiences of women undergoing genital fistula repair: findings from five countries. Glob Public Health. 2013;8(8):926-42.
Thaddeus S, Maine D. Too far to walk: maternal mortality in context. Soc Sci Med. 1994 Apr;38(8):1091-110.

Risk factors for obstetric fistula (2)

The third delay

Once a woman arrives at the facility, she may not access adequate care, due to a lack of staff or unfriendly staff, supplies, or electricity (Abrams 2013). Insufficiently skilled staff may mean that the woman may not get the care that is needed or when provided, results in complications (Raassen 2014).

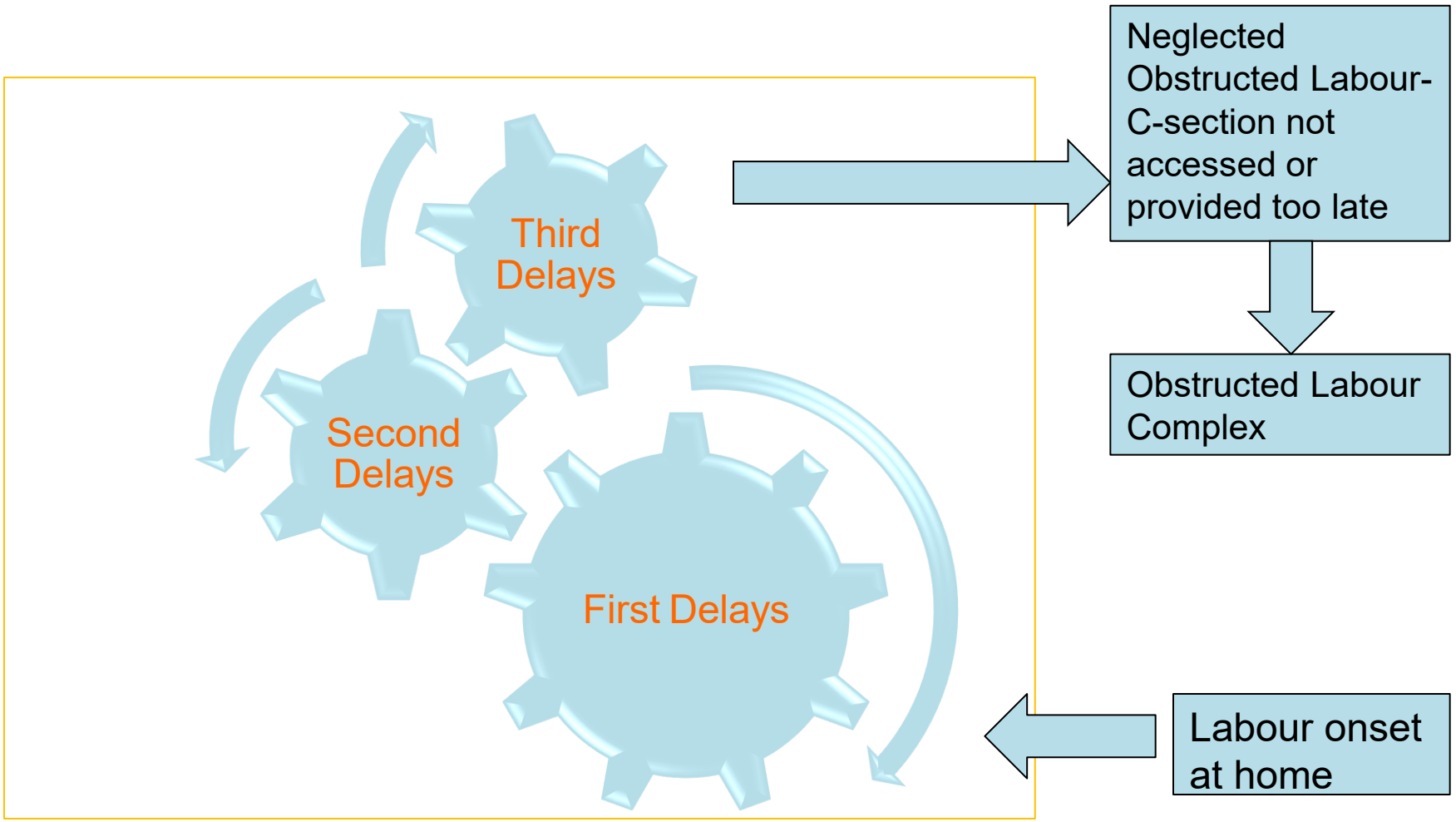
These delays may, other than synergy, trigger a vicious cycle (see Fig. 1.3). For example, if a woman reaches the facility, workers with poor attitude may quarrel why she came late, or embarrass her if she is too young. Where maternity care is not free, extra costs for caesarean section or costs of fistula repair may push the family further into poverty. Eventually, the woman may be discouraged to seek care from the facility next time she is in labour (Abrams 2013).

Abrams P, De Ridder D, De Vries C, Elneil S, Emasu A, Esegbono G, Gueye S, Hilton P, Mohammad R, Mourad S, Muleta M, Pickard R, Rovner E, Stanford E. Fistula. In: Incontinence: 5th International Consultation on Incontinence, Paris February, 2012. Paris: ICUD-EAU; 2013. 5th Ed. p. 1529-82.

Raassen TJIP, Ngongo CJ, Mahendeka MM. Iatrogenic genitourinary fistula: an 18-year retrospective review of 805 injuries. Int Urogynecol J. 2014 Dec;25(12):1699-706.

Thaddeus S, Maine D. Too far to walk: maternal mortality in context. Soc Sci Med. 1994 Apr;38(8):1091-110.

Figure 1.3: Thaddeus' and Maine's Three Delays



Risk factors for obstetric fistula (3)

Obstructed labour that is not attended to in time or totally unattended is the most common final pathway that begets obstetric fistula. However, a variety of risk factors come into play. These factors, acting separately or in synergy, have come to be known as the "**obstetric fistula pathway**" (see Fig. 1.4). These risk factors are largely preventable and knowledge of them should inform targeting of preventive measures.

The factors that put women and girls at increased risk of developing an obstetric fistula, both directly and indirectly are:

- **Lack of access to maternity care**
  - Lack of availability or access to safe delivery services and emergency obstetric care with trained, skilled birth attendants and medical teams.
  - Home delivery with unskilled birth attendants and rural geographic location.
  - Barriers to accessing family planning and antenatal, delivery and postnatal care.

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World Health Organization. Obstetric Fistula Guiding principles for clinical management and programme development. WHO, 2006.

Risk factors for obstetric fistula (4)

- **Maternal factors**
  - Small, short or stunted stature of mother.
  - Rachitic maternal pelvis. (FIGO 2022)

- **Social factors –** Obstetric fistula is a condition exclusive to women and gender has a big role in its genesis:
  - Poverty, illiteracy, lack of formal education due to low education levels for girls and male control of money.
  - Early marriage and childbirth.
  - Gender inequality and oppression of women are known to persist in regions where obstetric fistula occurs. The need for women in obstructed labour to get the permission of their husband or mother-in-law to seek care are common findings.
  - Gender power imbalance has been implicated in food insecurity for women, higher rates of malnutrition, unsafe abortion and sexual violence, factors that have been associated with obstetric fistula (Roush 2012). Malnutrition can cause a short stature and contracted pelvis (Miller 2005).
  - Some women are denied access to care due to cultural beliefs and traditional practices (WHO 2006).

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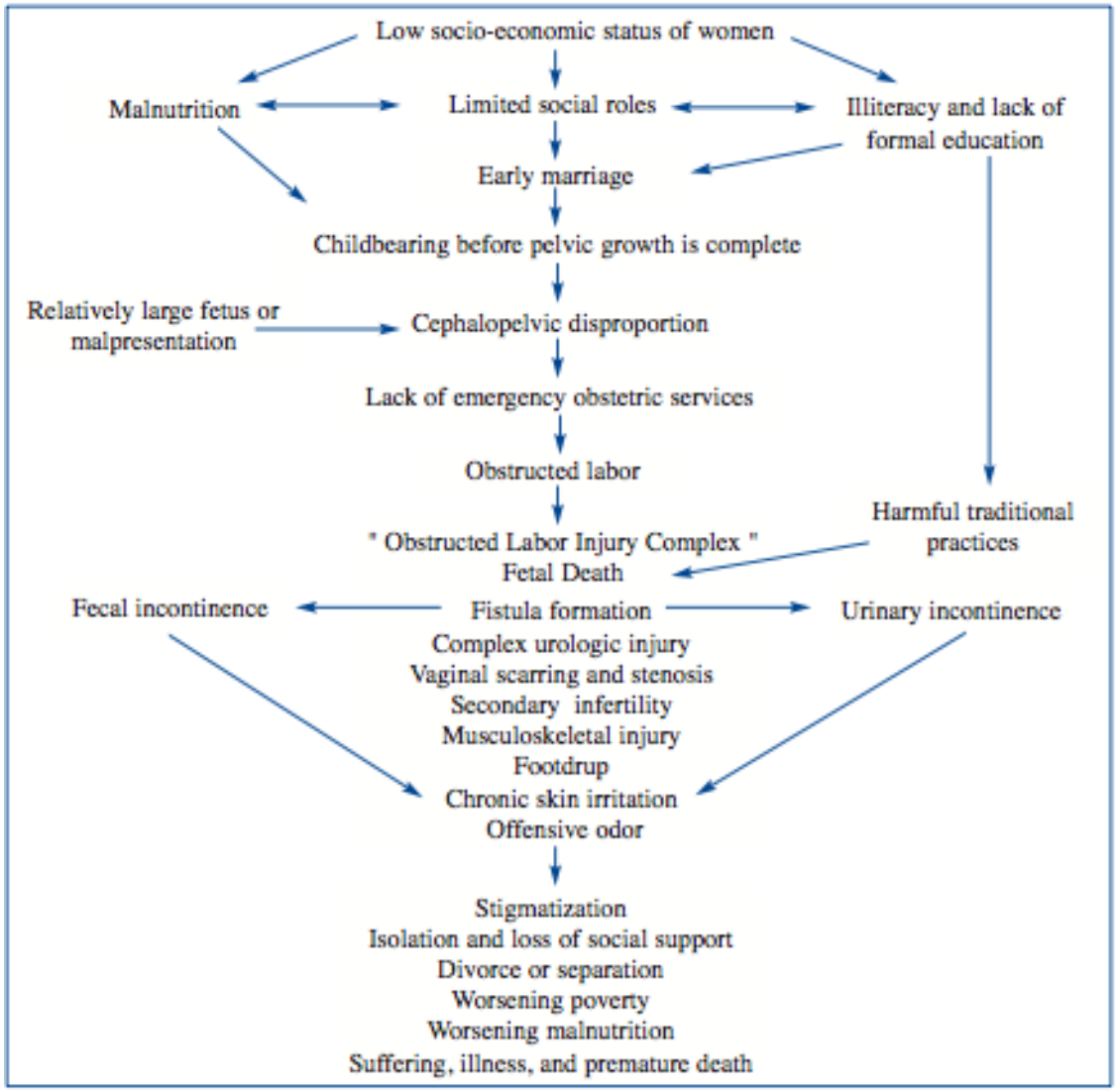
Miller S, Lester F, Webster M, Cowan B. Obstetric fistula: a preventable tragedy. J Midwifery Womens Health. 2005;50(4):286-94.
Roush K, Kurth A, Hutchinson MK, Van Devanter N. Obstetric fistula: what about gender power? Health Care Women Int. 2012;33(9):787-98.
World Health Organization. Obstetric Fistula Guiding principles for clinical management and programme development. WHO, 2006

Figure 1.4: The Obstetric Fistula Pathway Reused with permission



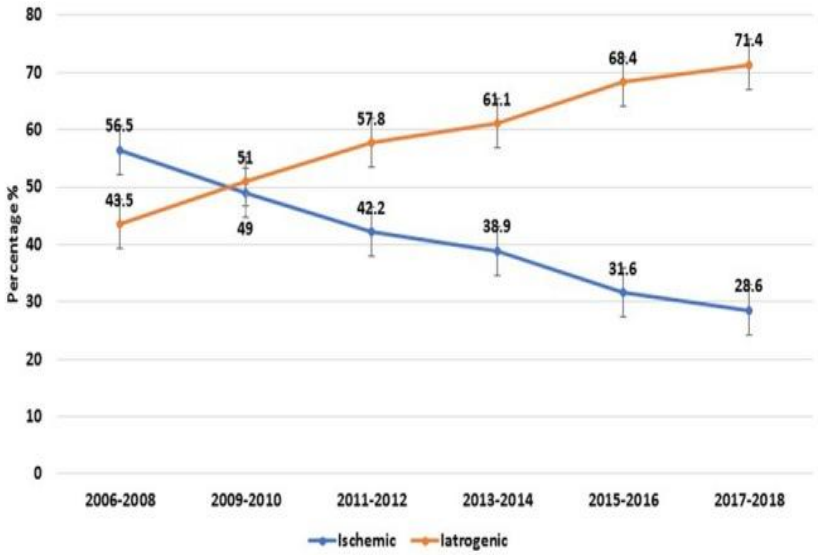
Wall LL, Arrowsmith SD, Briggs ND, Lassey A. Urinary incontinence in the developing world: The obstetric fistula. Proceedings of the Second International Consultation on Urinary Incontinence, Paris. 2001:1-67.

Iatrogenic fistula: A new challenge (1)

In high-income countries, female genital tract fistulas are mostly due to iatrogenic injuries, and less often the sequelae of obstetric injury.

However, recent studies have shown a growing incidence of iatrogenic fistula in Sub-Saharan Africa and Southeast Asia.

Tasnim et al. (2020) found a rising trend in iatrogenic fistula in Pakistan over the study period (2006–2018) from 43.5% to 71.4% and a decreasing trend in ischemic fistula, from 56.5% to 28.6% (Fig. 1.5).



	2006-2008 N=115	2009-2010 N=110	2011-2012 N=102	2013-2014 N=108	2015-2016 N=101	2017-2018 N=98
Ischemic	56.5% (65)	49.0% (53)	42.2% (43)	38.9% (42)	31.6% (31)	28.6% (29)
Iatrogenic	43.5% (50)	51.0% (56)	57.8% (59)	61.1% (66)	68.4% (70)	71.4% (70)

Figure 1.5: Trend of iatrogenic fistula in Pakistan. Tasnim et al. (2020)

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Tasnim N, Bangash K, Amin O, Luqman S, Hina H. Rising trends in iatrogenic urogenital fistula: A new challenge. Int J Gynaecol Obstet. 2020 Jan;148 Suppl 1(Suppl 1):33-36

Iatrogenic fistula: A new challenge (2)

Ambaw et al. (2022) also found a rising trend of iatrogenic fistula in Addis Ababa, Ethiopia. The average annual percent change from 2005 to 2019 was 13.2% (95% CI: 7.7, 18.9). However, the ischemic obstetric fistula (93.03%) was found still high in the study than the iatrogenic fistula (6.96%).

Raassen et al. (2014) showed by a systematic review in 11 countries over the period of 1994-2012, that 13.2% of the genitourinary fistula were due to provider error.

Most of the iatrogenic fistulas developed following surgery for obstetric complications: caesarean section (CS), ruptured uterus repair, or hysterectomy for ruptured uterus. Others developed during gynaecological procedures, most commonly hysterectomy.

In the review, they categorized iatrogenic fistulas into:

- **Definitely iatrogenic** (all ureteric injuries, vesico-vaginal vault fistulas appearing after hysterectomy for gynaecological reasons, vesico-[utero]/-cervico-vaginal fistula (VCVF) located between the lower segment of the uterus/cervix and the bladder following the delivery of a live baby by CS),
- **Probably iatrogenic** (vault fistulas following emergency hysterectomy for a ruptured uterus or CS/hysterectomy) and
- **Likely iatrogenic** (VCVF following CS for a stillborn baby) - A history of previous CS or live birth increases the likelihood that the injury is iatrogenic).

Ambaw MD. The Trend of Iatrogenic Genitourinary Fistula from 2005 to 2019 and Its Risk Factors at Addis Ababa Fistula Hospital, Addis Ababa, Ethiopia: A retrospective study. Research Square, 2022.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Raassen TJIP, Ngongo CJ, Mahendeka MM. Iatrogenic genitourinary fistula: an 18-year retrospective review of 805 injuries. Int Urogynecol J. 2014 Dec;25(12):1699-706.

Iatrogenic fistula: A new challenge (3)

The increase in iatrogenic fistulas is likely to be the result of a combination of factors:

- Insufficient medical and obstetric training and supervision
- Inappropriate labour management and decision-making
- Increased caesarean sections
- More accurate reporting of iatrogenic injuries
- Women presenting late at health facilities are also more prone to iatrogenic injury because maternal reproductive tract tissues are much more fragile from the prolonged, obstructed labour

Therefore, emphasizes should be on the need for optimization of surgical approaches and surgical skills and, gynaecologic surgeries should be restricted to authorized gynaecologic surgeons.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Consequence of obstetric fistula: The 'Tears and Tears' of obstetric fistula

It is logical to think of obstetric fistula as a condition of "tears" and "tears" (Fig. 1.6). The compromised tissues are likable to a torn leaking container and besides the physical leakage of urine and faecal material, this brings untold suffering (tearing) to victims, wearing down their reproductive and productive capacity and mentally.

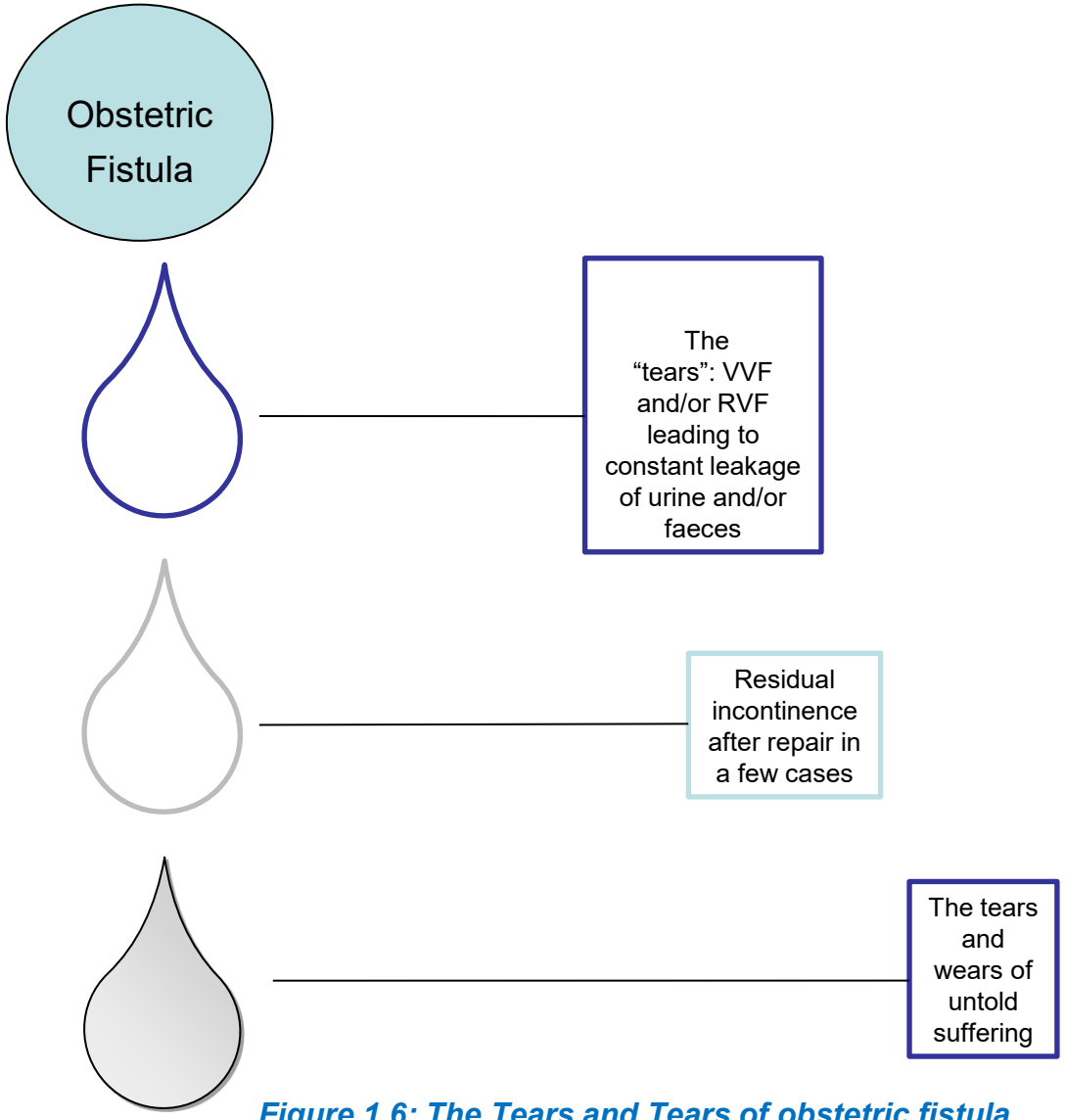


Figure 1.6: The Tears and Tears of obstetric fistula

Consequence of obstetric fistula: The obstructed labour complex (1)

Obstetric fistula is best understood in the context of the obstructed labour complex. Many other systems are afflicted and therefore this should be kept in mind when assessing a patient with fistula (see summary Table 1.1).

Urinary Tract Injuries

Bladder: Apart from vesicovaginal fistula, tissue loss from necrosis reduces bladder volume complicating repair with minimal tissue to work with, or leading to reduced bladder compliance thereafter.

Urethra: A fibrotic or shortened urethra may be the reason for urine incontinence even after closure of the bladder fistula.

Ureters: Substantial damage to the bladder neck may also affect the ureteral orifices. Damage to the ureters may also be the reason for residual incontinence if a uretero-vaginal fistula is missed at the time of the repair. Protection of the ureters is mandatory during fistula repair but instruments, such as stents, may not be available in some settings in developing countries.

Kidneys are affected secondarily in a fistula patient. Ascending infection, hydronephrosis due to distal obstruction- stricture, stones- may lead to renal failure.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Wall LL, Arrowsmith SD, Briggs ND, Lassey A. Urinary incontinence in the developing world: The obstetric fistula. Proceedings of the Second International Consultation on Urinary Incontinence, Paris. 2001:1-67.

Consequence of obstetric fistula: The obstructed labour complex (2)

Genital tract injuries

The vagina, cervix and even the uterus may be damaged. Fibrosis and subsequent vaginal stenosis may lead to problematic sexual intercourse and infertility which may contribute to the likelihood that an intimate relationship will end, leading to separation or divorce. Cervical injury may lead to cervical incompetence due to cervical shortening, and haematometra due to severe cervical stenosis as a result of fibrosis (FIGO 2022, Hancock 2009, Wall 2001).

A sizeable proportion of women develop amenorrhea which is attributable to factors such as severe malnutrition and anaemia, hypothalamic dysfunction, panhypopituitarism, intrauterine scarring and psychological stress. These factors may lead to secondary infertility. In the review by Ahmed and Holtz (2007), amenorrhea was present amongst 41%-84% of women in the studies included.

Though no study differentiated between postpartum and secondary amenorrhea, the reviewers argue that because of the high rate of foetal loss with obstructed labour, postpartum amenorrhea is likely to be shortened, subsequently pointing to fistula as a major contributor (Ahmed 2007).

Ahmed S, Holtz SA. Social and economic consequences of obstetric fistula: life changed forever? Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S10-5.
Hancock B, Browning A. Practical Obstetric Fistula Surgery. London; Ashland, Ohio: Royal Society of Medicine Press; 2009.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Wall LL, Arrowsmith SD, Briggs ND, Lassey A. Urinary incontinence in the developing world: The obstetric fistula. Proceedings of the Second International Consultation on Urinary Incontinence, Paris. 2001:1-67.

Consequence of obstetric fistula: The obstructed labour complex (3)

Neurologic Injury

Many fistula patients suffer damage to the peroneal nerve due to direct compression of the nerve caused by pressure of the foetal head on the lumbo-sacral plexus in the pelvis. Prolonged squatting and pushing during the second stage of labour may also compress the peroneal nerve leading to common peroneal nerve palsy. Commonly, the patient may end up with foot drop and loss of sensation on the dorsum and lateral aspects of the foot (Hancock 2009; Wall 2001). Tinel's sign is useful in eliciting nerve injury and in this case, by tapping over the fibro-osseus tunnel over the fibula head.

Dermatologic Injury

In a meta-analysis of the consequences of obstetric fistula, almost 80% of women develop chronic excoriation of the skin from the direct irritation caused by urine.

Tennfjord MK, Muleta M, Kiserud T. Musculoskeletal sequelae in patients with obstetric fistula – a case–control study. BMC Women's Health. 2014 Nov 8;14(1):136.

Wall LL, Arrowsmith SD, Briggs ND, Lassey A. Urinary incontinence in the developing world: The obstetric fistula. Proceedings of the Second International Consultation on Urinary Incontinence, Paris. 2001:1-67.

Consequence of obstetric fistula: The obstructed labour complex (4)

Musculoskeletal Injury

Perineal support structures may undergo ischaemic damage when they are crushed against the inferior pubic rami. Levator ani avulsion may also be present (Dietz 2012).

Nutritional deficiency has been identified as a cause and consequence of obstetric fistula. Nutritional deficiency causes stunting and arrested development of the pelvis, a precursor to cephalo-pelvic disproportion and obstructed labour (Ahmed 2007).

Likewise, the mental anguish and isolation as a result of fistula, immobility and economic deprivation during puerperium, leads to poor nutritional intake. In one study, marked weight loss and malnutrition were evident in 36.6% of the women with fistulae and limb contractures were present in 8.5% (Ahmed 2007).

Tennfjord and colleagues (2014) observed that patients with obstetric fistula had reduced function in the ankle and knee joints and increased motion and strength in the hip, compared to the controls. Increased degree of movement and strength in the hip is thought to have been compensatory.

In about 30% of cases of obstetric fistula, a pelvic X-ray will reveal damage to the region of the pubic symphysis (Hancock 2009).

Ahmed S, Holtz SA. Social and economic consequences of obstetric fistula: life changed forever? Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S10-5.
Dietz HP, Tekle H, Williams G. Pelvic floor structure and function in women with vesicovaginal fistula. J Urol. 2012 Nov;188(5):1772-7.
Hancock B, Browning A. Practical Obstetric Fistula Surgery. London; Ashland, Ohio: Royal Society of Medicine Press; 2009.
Tennfjord MK, Muleta M, Kiserud T. Musculoskeletal sequelae in patients with obstetric fistula – a case–control study. BMC Women's Health. 2014 Nov 8;14(1):136.

Consequence of obstetric fistula: The obstructed labour complex (5)

Socio-economic consequences

Women with fistula are often ostracized by their husbands, families and the community. In one study in Nigeria, more than half of the women considered themselves rejected. Many women become divorced because of their situation. In the meta-analysis by Ahmed and Holtz (2007), random-effect estimate showed a 36% (95% CI, 27%-46%) (47% with fixed-effect estimate) rate of divorce or separation amongst women with fistula.

In a prospective study from a number of countries, living with fistula significantly interfered with women's daily lives: inability to attend community gatherings (85.3%), have sexual relations (85.2%), attend religious gatherings (83.6%), earn money (80.0%), work (72.1%), and eat with others (68.7%). Women who had lived with fistula for over a year were more likely to say that their condition interfered with their ability to work and earn money (Landry 2013).

Carrying a foetus to term only to lose it while delivering has long term psychological impact on the mother, which is complicated by the fistula that follows. Depression, anger, and disappointment with life have been reported (Ahmed 2007).

In Addis Ababa, one study found that 39% of women depended on relatives for food, while 22% lived off begging (Farid 2013).

Some women may die prematurely from poor general health and nutritional status or renal failure (FIGO 2022).

Ahmed S, Holtz SA. Social and economic consequences of obstetric fistula: life changed forever? Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S10-5

Farid FN, Azhar M, Samnani SS, Allana S, Naz A, Bohar F, Shamim null, Syed S. Psychosocial experiences of women with vesicovaginal fistula: a qualitative approach. J Coll Physicians Surg Pak. 2013 Nov;23(10):828-9.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Landry E, Frajzyngier V, Ruminjo J, Asiimwe F, Barry TH, Bello A, Danladi D, Ganda SO, Idris S, Inoussa M, Kanoma B, Lynch M, Mussell F, Podder DC, Wali A, Mielke E, Barone MA. Profiles and experiences of women undergoing genital fistula repair: findings from five countries. Glob Public Health. 2013;8(8):926-42.

Table 1.1: The obstructed labour injury complex

Urological injury	Vesicovaginal fistula Urethrovaginal fistula Ureterovaginal fistula Uterovaginal fistula Complex combined fistulas Urethral damage, including complete urethral destruction Bladder stones Stress incontinence Marked loss of bladder tissue from extensive pressure necrosis Secondary hydroureteronephrosis Chronic pyelonephritis Renal failure
Gynaecological Injury	Loss of uterus Amenorrhoea Vaginal stenosis Cervical injury, including complete cervical destruction Secondary pelvic inflammatory disease Secondary infertility
Gastrointestinal injury	Rectovaginal fistula formation Rectal stenosis or complete rectal atresia Anal sphincter incompetence
Musculoskeletal injury	Osteitis pubis
Neurological injury	Foot-drop from lumbosacral or common peroneal nerve injury Complex neuropathic bladder dysfunction
Dermatological injury	Chronic excoriation of the skin from maceration by urine or faeces
Foetal injury	Foetal case-fatality rate of about 95%
Social injury	Social isolation Divorce Worsening poverty Malnutrition Depression (sometimes with suicide) Premature death

Wall LL. Obstetric vesicovaginal fistula as an international public-health problem. Lancet. 2006 Sep 30;368(9542):1201-9.

Prevention of obstetric fistula

Prevention of obstructed labour remains the ultimate strategy in reducing the number of women developing obstetric fistulae, apart from reducing maternal deaths. The following are strategies aimed at prevention:

1. **Primary prevention (social measures)** – Reducing the risk of becoming pregnant
2. **Secondary prevention (basic obstetric care)** – Reducing the risk of complications during pregnancy
3. **Tertiary prevention (more advanced obstetric care)** – Improving outcomes for women who develop complications

Tebeu PM, Fomulu JN, Khaddaj S, de Bernis L, Delvaux T, Rochat CH. Risk factors for obstetric fistula: a clinical review. Int Urogynecol J. 2012 Apr;23(4):387-94.
United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.

Primary prevention strategies – social measures

- Health promotion (programmes, policies)
- Planned pregnancies
- Birth spacing
- Contraception
- Community awareness and health education for all members of the society especially those who have most of the decisions- making power in the household and/or the community, including men and older people
- Raising the status of women and girls and advancing gender equality:
  - Accessing free, equitable and quality primary and secondary education
  - Allowing girls to reach their personal and professional potential.

Comprehensive health should emphasize:

- ✓ Prevention, identification and treatment of obstetric fistula
- ✓ Comprehensive sex, reproductive and general health education, including options in the case of an unplanned pregnancy
- ✓ The risks of unattended home deliveries (e.g. obstetric fistula, postpartum haemorrhage, maternal and neonatal mortality, etc) the importance of giving birth in an appropriate healthcare facility, or at least having a skilled healthcare professional in attendance with the possibility of a timely transfer to a hospital
- ✓ Prevention of teenage pregnancy
- ✓ Options for family planning, including delaying pregnancy and birth spacing
- ✓ Making plans for safe childbirth in an adequate health facility

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Tebeu PM, Fomulu JN, Khaddaj S, de Bernis L, Delvaux T, Rochat CH. Risk factors for obstetric fistula: a clinical review. Int Urogynecol J. 2012 Apr;23(4):387-94.
United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.

Secondary prevention – basic obstetric care (1)

Aim at reducing the risk of complications during pregnancy:

- Antenatal care
- Skilled health personnel at birth
- Use of partograph
- Identification of signs and symptoms of obstructed labour
- Immediate referral
- Bladder care and/or catheterization during labour, if needed to keep the bladder empty so it does not take up more space as the foetus descends (UNFPA 2020)

Predicting women at risk for developing obstetric fistula:

Many 'at-risk' women will deliver normally and many 'low-risk' women will suffer complications.

Though a vast majority of complications cannot be predicted, antenatal screening should aim to minimize later complications, for example detecting a malpresentation (incomplete breech presentation), malposition (brow or face position), possible macrosomia, and foetal abnormalities such as hydrocephalus.

A number of technology-independent ways of screening women have been proposed. For example, a height < 155 cm led to a 4.9 times increased chance of caesarean section in Burkina Faso, and also if the mother was <19 years of age and shorter than 150 cm.

Two separate studies on pelvic measurements, one from Congo (looking at the transverse diagonal diameter) and a second in Tanzania (determining the 'reachability' of the sacral promontory), were both mildly predictive for obstructed labour. (Browning 2014)

Browning A, Lewis A, Whiteside S. Predicting women at risk for developing obstetric fistula: a fistula index? An observational study comparison of two cohorts. BJOG. 2014 Apr;121(5):604-9.
United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.

Secondary prevention – basic obstetric care (2)

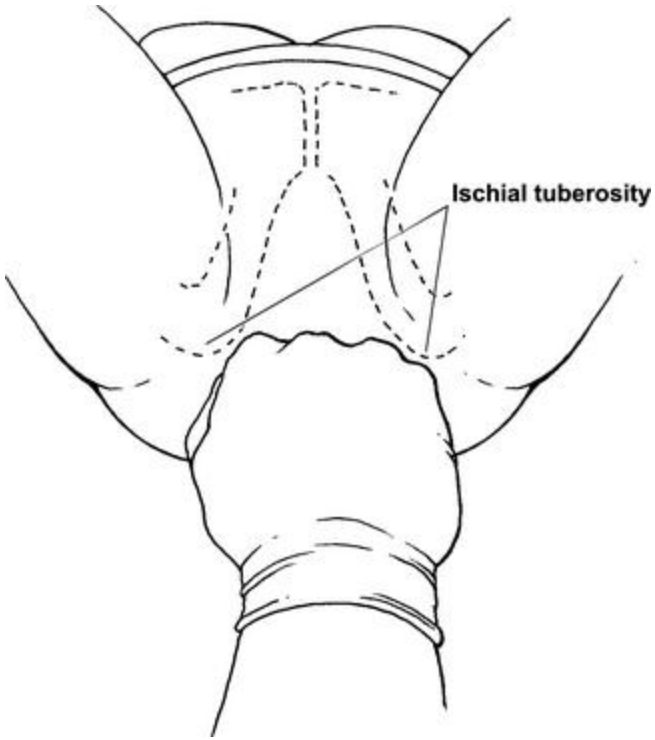
Predicting women at risk for developing obstetric fistula cont'd.:

In a small cohort study involving participants from Tanzania and Sierra Leone testing the use of knuckles, height, and the product of the two known as the "fistula index" to predict obstetric fistula, height alone was a weak predictor.

The knuckle test was 92.3% sensitive (95% CI 79.7–97.3%) and 91.4% specific (95% CI 81.4–96.3%) for a measurement of up to three knuckles while the fistula index had sensitivity of 94.9% (95% CI 83.1–98.6%) and specificity of 91.4% (95% CI 81.4–96.3%) for a fistula index ≤ 507.5.

Differences in knuckle sizes of examiners warrants standardization in centimetres if this testing was to be recommended and a larger prospective study with obstructed labour as the end-point would be required.

Figure 1.7: Measuring the intertuberous space using knuckles.



Browning A, Lewis A, Whiteside S. Predicting women at risk for developing obstetric fistula: a fistula index? An observational study comparison of two cohorts. BJOG. 2014 Apr;121(5):604-9.

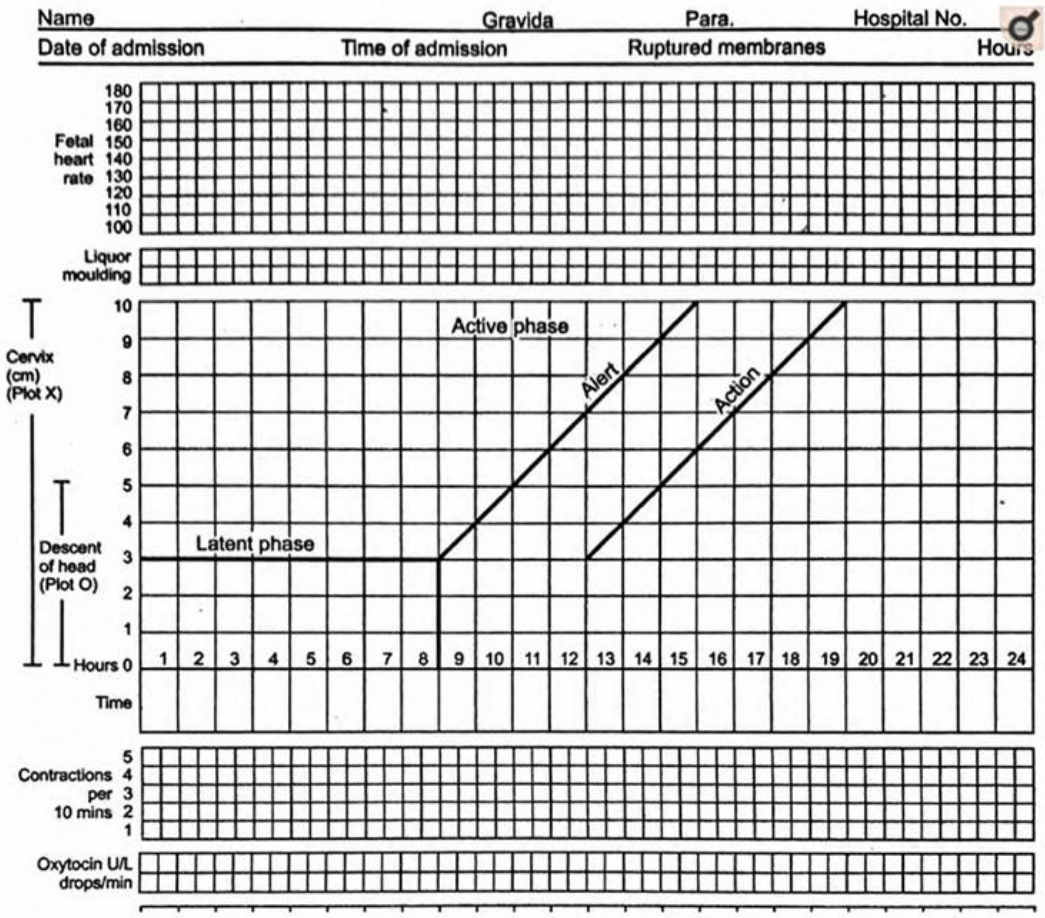
Secondary prevention – basic obstetric care (3)

Recognizing and diagnosing obstructed labour:

- Using the partograph (Fig. 1.8).
- Vaginal examination to evaluate the cervix and assess the progress of labour.
- Assessment of clinical signs of obstruction like maternal exhaustion, dehydration, tachycardia, low blood pressure, high respiratory rate and in advance case: meconium-stained amniotic fluid, hot dry vagina with swelling, malpresentation and malposition of foetus.
- Bandl's ring: a dip between upper and lower halves of the uterus seen or felt on abdominal examination (Fig. 1.9)
- Look for risk factors of obstructed labour like small pelvis, malnourished women, height less than 4'10", young pregnant girl
- Practice of inserting a catheter into the bladder whenever a woman presents with obstructed labour - the urine may be concentrated and may contain meconium or blood.

United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.

Figure 1.8: The partograph



The partograph is a useful diagnostic tool for identifying prolonged labour. The stages of labour are plotted on the partograph, while regularly assessing foetal and maternal condition to track the progress of labour.

The partograph record gives an early warning if labour may be prolonged to the point where an obstruction seems likely and referral is essential.

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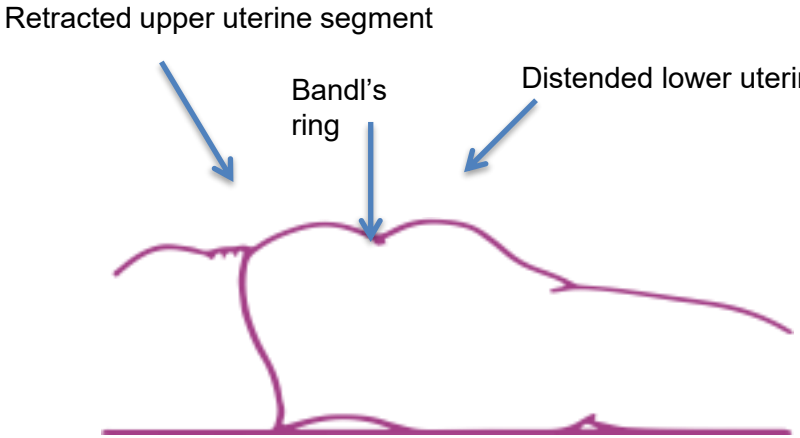
Figure 1.9: Bandl's ring

Normal shape of pregnant abdomen during labour, in a woman lying on her back



Bandl's ring in the abdomen of a woman with obstructed labour

The Bandl's ring should not be seen or felt on abdominal examination during a normal labour. But when it becomes visible and/or palpable, the Bandl's ring is a late sign of obstructed labour.
The bladder should be drained prior to assessing for a Bandl's ring, as there may be very similar appearances with a full bladder.
The lower abdomen can also be further distended by gas in the intestines.

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Tertiary prevention – more advanced obstetric care (1)

- Access to emergency obstetric and neonatal care (EmONC) by providing a timely, safe, quality Caesarean section by a trained/competent surgeon.

- Management of obstructed labour
  - Treatment of shock with IV infusion with Ringer's Lactate
  - Emptying bladder and indwelling catheterization if possible
  - Timely referral to a facility where a woman with obstructed labour can receive quality and comprehensive EmONC, including a Caesarean section and blood products, should be the highest priority. Before transfer women should be sufficiently stabilized.

- Use of an indwelling catheter (i.e., a Foley catheter) to close small fresh fistulae: If a woman presents after prolonged obstructed labour, conservative management with bladder catheterisation may lead to spontaneous healing of a potential or fresh small vesicovaginal fistula. The chances of healing are higher if the fistula measures less than 3 mm in diameter. The catheter should be checked to ensure it is in the bladder and not in the fistula. This procedure can be implemented by primary health care workers including community health extension workers if properly trained.

- If conservative management is not successful, a trained, skilled fistula surgeon should repair the fistula as early as possible, thereby providing timely and quality treatment as well as minimising unnecessary suffering.

Fistula Care. Urinary Catheterization for Primary and Secondary Prevention of Obstetric Fistula: Report of a Consultative Meeting to Review and Standardize Current Guidelines and Practices, March 13-15 at the Sheraton Hotel, Abuja, Nigeria. New York: EngenderHealth/Fistula Care; 2013.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.

Tertiary prevention – more advanced obstetric care (2)

- If a fistula surgeon is not available, then the patient should be referred appropriately. It is imperative that only trained, skilled fistula surgeons provide fistula repairs, as the first attempt has the best chance of success. Substandard repairs seriously reduce the likelihood of subsequent surgery having good outcomes.

- The provision of and access to (free) family planning and birth spacing services is important, to both prevent obstetric fistula and reduce the likelihood of a recurrence in women who have had a previous repair.

- Women who have had an obstetric fistula, with or without repair, should have an elective caesarean section in all subsequent pregnancies.

- Women who have had an iatrogenic fistula or perineal tear may be advised that in subsequent pregnancies they can attempt a vaginal delivery, which should only ever take place in a facility equipped to provide comprehensive emergency obstetric care.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Prevention of iatrogenic fistula

- Advocate for and ensure safer surgery practices at health facilities/ institutions
- Advocate for/ ensure safer surgery at the national level
- Advocate for/ ensure safer surgery at the international level
- Reduce non- indicated Caesarean section rates
- Proper training of fistula surgeons – in terms of the sensible use of surgical expertise, programmes need to be oriented around the appropriate number of surgeons, emphasizing “quality over quantity” so that women can have access to truly expert care.

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Programmes and strategies to prevent and respond to fistula

- Ending fistula by 2030 is one of the agenda of the Sustainable Development Goals (SDGs).
- Fistula programmes should be holistic, addressing prevention while ensuring a continuum of care for fistula clients, including follow-up.
- Fistula programmes must take into account changing trends in incidence and prevalence, epidemiology and other factors (such as social determinants) related to both obstetric and iatrogenic fistula.
- Fistula programmes should use a human rights-based approach which helps to uncover underlying inequalities and discrimination that drive fistula, through multiple intersecting factors.
- A national fistula programme should be evidence-based with an aim to ensure that quality, affordable and accessible sexual and reproductive health information and services are available to prevent and treat fistula. It should take into consideration the following:
  - the country context,
  - fistula prevalence and incidence estimates,
  - the strength of the existing health system,
  - political/government leadership, and
  - the sociocultural-economic environment and power of communities.

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Key elements of a national programme to end fistula

- A national fistula strategy can be developed as a standalone or as part of a national reproductive, maternal and newborn health strategy.
- The development and implementation of the strategy's should be government-led and evidence-based and should maximize coordination among stakeholders and partners.
- A national fistula strategy should be costed and time-bound. It should address interventions for the prevention and treatment of fistula in communities at risk, social reintegration of survivors, as well as advocacy and resource mobilization (as per the country context).
- There should be a national fistula task force for leadership and accountability.
- National fistula response programmes should target strengthening of health systems to expand timely access to quality prevention and treatment of fistula.
- A national fistula programme should aim to ensure that all women and girls with fistula have access to quality treatment services, including treatment of complex cases.
- Social reintegration and rehabilitation programme tailored to benefit each fistula survivor as per their individual needs.
- Evidence-based advocacy and resource mobilization should be a priority in country programmes to support implementation of programmes at national and subnational levels.
- Successful programmes to end fistula require community involvement and active participation in dialogue, planning, programme design and decision-making.
- Monitoring and evaluation along with provision of clinical audit.
- Selection of performance indicators.

United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.

Proposed indicators for monitoring and evaluating fistula prevention and treatment (1)

Epidemiologic

- Prevalence: The estimated number of females age 10 and older who are living with fistula in a defined area per 1,000 females age 10 and older)
- Incidence: The number of new cases of obstetric fistula per year
- Estimated rate of obstetric fistula per 1,000 deliveries
- Obstetric fistula data collected in the Health Management Information System database at national and/or subnational level (on prevention, diagnosis, treatment (i.e. surgical, medical, and psychosocial care), and reintegration services), e.g., No. of women treated for obstetric fistula per year
- Met need for surgical treatment among women diagnosed with female genital fistula seeking surgical repair services (i.e. the percentage of all women seeking surgical repair services for and diagnosed with obstetric fistula who receive surgical treatment for the condition, within a given timeframe (generally annually) and by facility)
- Number of fistula cases referred to a referral-level facility for treatment of fistula

Universal access to safe, affordable surgical and anaesthesia care when needed

- Access to timely and essential surgery (proportion of the population that can access, within two hours, a facility that can perform Caesarean delivery, laparotomy and treatment of open fracture [the Bellwether procedures])

United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.
USAID Data for Impact. Obstetric fistula. United States Agency for International Development (USAID), no date [cited 2024 Oct 07].
World Health Organization. Obstetric fistula: Guiding principles for clinical management and programme development. WHO, 2006.

Proposed indicators for monitoring and evaluating fistula prevention and treatment (2)

Service delivery

- Number of midwives, nurses and doctors with midwifery skills (i.e., skilled health personnel providing care during childbirth, as per the WHO 2018 definition) per 1,000 births
- Number of skilled, certified/credentialed providers (e.g., doctors, surgeons) able to perform Caesarean sections per 1,000 births
- Proportion of births managed with a partograph
- Number of facilities with functioning obstetric fistula surgical treatment capacity (simple and specialist fistula treatment services)
- Percentage of obstetric fistula treatment facilities that provide social reintegration services
- No. of surgeons able to undertake simple repairs
- No. of surgeons able to undertake complex repairs

Training

- No. of training facilities (pre-service and in-service) including obstetric fistula prevention and treatment as part of the core syllabus
- Number of doctors trained in obstetric fistula repairs
- Number of doctors demonstrating surgical competence upon completion of obstetric fistula training

Follow up and tracking of fistula

- A social reintegration programme is available and monitored

United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.
USAID Data for Impact. Obstetric fistula. United States Agency for International Development (USAID), no date [cited 2024 Oct 07].
World Health Organization. Obstetric fistula: Guiding principles for clinical management and programme development. WHO, 2006.

Proposed indicators for monitoring and evaluating fistula prevention and treatment (3)

Quality of care

- Percentage of women presenting with obstetric fistula who have a successful first repair (resulting in fistula closure and urinary continence)*, by facility.
- Percentage of facilities that conduct case reviews/audits of maternal death/near miss.
- Percentage of obstetric fistula treatment facilities that provide or refer fistula survivors to social reintegration services
- Percentage of women who have been treated for fistula and have benefitted from an (evaluated) social reintegration programme
- Percentage of women who have been treated for obstetric fistula who receive family planning or birth spacing counselling

Country ownership and sustainability

- Existence of a national fistula policy or strategy (either as a stand-alone document or integrated into national health or reproductive health policies or strategies)

*The outcomes of vesico-vaginal fistula repair surgeries may be classified as:

- **closed and dry**: fistula closure with no leaking of urine (urinary continence), the most favourable
- **closed and wet**: fistula closure (dye test negative at the end of repair – watertight repair achieved) but with urinary incontinence (after removal of catheter)
- **open**: non-closure of fistula (or breakdown of closure before assessment)

The indicator is best evaluated when preparing for hospital discharge, but evaluation can also be done at 3 months, 6 months, and 1 year after discharge. The indicator should be reported at the time at which the outcome of surgery was evaluated for the purpose of comparison.

United Nations Population Fund. Obstetric fistula and other forms of female genital fistula: Guiding principles for clinical management and programme development. UNFPA, 2020 Sep.
USAID Data for Impact. Obstetric fistula. United States Agency for International Development (USAID), no date [cited 2024 Oct 07].

Conclusion

Obstetric fistula has several causes. In developing countries, obstructed or prolonged labour is the most common cause. As a result, it forms part of the obstructed labour complex and it is the most devastating comorbidity of obstructed labour. Vesico-vaginal fistulas are the most common while recto-vaginal and combined forms also exist.

In developed countries, causes are mostly iatrogenic. While obstetric fistula has been eradicated in developed countries, its burden is still bigger in developing countries where maternal mortality is still high. Subsequently, it is effectively an indicator of weak health systems in the developing world. It equally shares many characteristics of neglected conditions of poverty. Despite this, the condition can be prevented through both primary, secondary and tertiary strategies.

Module 1 knowledge tests

Answer 'True' or 'False'

1. Obstetric fistula always results from obstructed labour.
2. Obstetric fistula and maternal mortality are both rare events.
3. Obstetric fistula differs from other neglected conditions of poverty because it exclusively affects women.
4. A vesico-[utero]/-cervico-vaginal fistula (VCVF) can occur after a Caesarean Section or subtotal hysterectomy.
5. During conflict situations, sexual assault can significantly contribute towards fistula.
6. All obstetric fistula cases are accompanied by ostracization.
7. Types I and II female genital cutting lead to fistula formation, as they can cause obstructed labour.
8. Many women who are considered to be at-risk of developing complications such as obstructed labour during delivery end up developing complications.
9. Height less than 150 cm alone is sufficient in predicting that a woman most likely will have obstructed labour.
10. The number of surgeons able to perform complex fistula repairs in a country is an epidemiological indicator for monitoring obstetric fistula care.
11. The proportion of women able to resume their work or engage into income-generating activities after fistula repair is a useful indicator in monitoring the quality of care.
12. Imaging pelvimetry is important in identifying women who are more likely at risk of obstructed labour due to cephalopelvic disproportion.
13. The Caesarean Section to prevent obstructed labour complex must be provided timely and skilfully.

Answers to Module 1 knowledge tests

Question 1

Obstetric fistula always results from obstructed labour.

Answer: False

90.4%–92.2% of female genital fistulas are related to childbirth, with prolonged obstructed labour as the leading cause (FIGO 2022). However, other obstetric causes beyond obstructed labour include perineal tears for example due to rapid uncontrolled vaginal delivery, instrumental or assisted vaginal delivery, and foetal macrosomia (potential shoulder dystocia during vaginal delivery.

Question 2

Obstetric fistula and maternal mortality are both rare events.

Answer: True

Obstetric fistula closely follows maternal mortality, an event whose estimation is equally problematic especially at population level.

Question 3

Obstetric fistula differs from other neglected conditions of poverty because it exclusively affects women.

Answer: True

Obstetric fistula differs from other neglected conditions of poverty because it is not infectious in aetiology and it exclusively affects women. Moreover, its prevention and treatment are both surgical. However, beyond anatomic effects, the psychosocial effects also affect men.

Answers to Module 1 knowledge tests

Question 4

A vesico-[utero]/-cervico-vaginal fistula (VCVF) can occur after a Caesarean Section or subtotal hysterectomy.

Answer: True

A vesico-[utero]/-cervico-vaginal fistula (VCVF) is an iatrogenic fistula located between the lower segment of the uterus/cervix and the bladder following the delivery by CS or gynaecologic procedure.

Question 5

During conflict situations, sexual assault can significantly contribute towards fistula.

Answer: True

Conflict and humanitarian situations disrupt access to health services in general, including maternal health services. Travel may also be dangerous, contributing to the first and second delays in the Maine's pathway.

Question 6

All obstetric fistula cases are accompanied by ostracization.

Answer: False

Question 7

Types I and II female genital cutting lead to fistula formation, as they can cause obstructed labour.

Answer: True

Traditional practices that contribute to obstetric fistula include female genital mutilation/cutting (FGM/C), insertion of foreign bodies, traditional intravaginal practices like gishiri cutting, and hot iron metal insertion.

Answers to Module 1 knowledge tests

Question 8

Many women who are considered to be at-risk of developing complications such as obstructed labour during delivery end up developing complications.

Answer: False

The aim of antenatal screening should be geared towards minimizing later complications bearing in mind that a vast majority of complications cannot be predicted. Many women considered 'at-risk' will deliver normally and many of those categorized as 'low-risk' end up suffering complications.

Question 9

Height less than 150 cm alone is sufficient in predicting that a woman most likely will have obstructed labour.

Answer: False

Height less than 150 cm is a risk factor but should not be interpreted in isolation.

Question 10

The number of facilities with functioning obstetric fistula surgical treatment capacity in a country is an epidemiological indicator for monitoring obstetric fistula care.

Answer: False

This is a service delivery indicator, including say number of skilled, certified/credentialed providers (e.g., doctors, surgeons) able to perform Caesarean sections per 1,000 births. Epidemiological indicators include: Prevalence (the estimated number of women living with obstetric fistulas (estimated number of females age 10 and older who are living with fistula in defined area per 1,000 females age 10 and older);
Incidence: The estimated number of new cases of obstetric fistulas per year; estimated rate of obstetric fistulas per 1,000 deliveries; Met need for surgical treatment among women diagnosed with female genital fistula seeking surgical repair services .

Answers to Module 1 knowledge tests

Question 11

The proportion of women able to resume their work or engage into income-generating activities after fistula repair is a useful indicator in monitoring the quality of care.

Answer: True

Beyond successful obstetric fistula repair, re-integration back into society especially meaningful economic engagement speaks to quality.

Question 12

Imaging pelvimetry is important in identifying women who are more likely at risk of obstructed labour due to cephalopelvic disproportion.

Answer: False

Question 13

The Caesarean section to prevent obstructed labour complex must be provided timely and skilfully.

Answer: True

Caesarean section itself can be an iatrogenic cause of fistula especially complex fistulas and therefore beyond timeliness in providing Caesarean section in addressing obstructed labour, it must be provided by skilled surgeons.

You have completed this module; you should now be able to:

- Define an obstetric fistula.
- Understand the sufferings and tragedy of women caused by fistula.
- Describe the burden of obstetric fistula globally and regionally and understand the difficulties in generating the epidemiological estimates.
- Understand the processes that lead to obstetric fistula.
- Describe the causes and the risk factors for obstetric fistula.
- Describe the rising trend of iatrogenic fistula.
- Describe the physical and social consequences of obstetric fistula.
- Understand the primary, secondary and tertiary strategies of preventing obstetric fistula.
- Describe the key elements of national programme to end fistula.

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