

Fistula Care Plus: Summary of Repair Case Profiles and Outcomes

WHAT IS FISTULA?

A genital fistula is an abnormal opening in the upper or lower female genital tract that causes uncontrollable, constant leakage of urine and/or feces. Obstetric fistula is usually caused by several days of obstructed labor without timely medical intervention. Iatrogenic fistula is caused by surgical error, most often during cesarean section. Traumatic fistula is caused by injury—for instance, through sexual violence, female genital mutilation, or accidents. www.fistulacare.org

Background

Fistula Care Plus (FC+) is a global project funded by the United States Agency for International Development (USAID) and implemented by EngenderHealth between December 2013 and March 2021. FC+ built on and enhanced the work undertaken by USAID's previous Fistula Care project (2007–2013), also led by EngenderHealth. FC+ collaborated with local partners to support fistula treatment and prevention activities in 1,171 facilities (54 fistula treatment and prevention facilities and 1,117 prevention-only facilities) in Bangladesh, Democratic Republic of Congo (DRC), Mozambique, Niger, Nigeria, Togo, and Uganda. The COVID-19 pandemic in 2020–2021 significantly affected the ability of project partners to implement activities during the final year. Table 1 summarizes the period of operation in each country. The data presented in this brief covers these time periods.

Table 1: FC+ Country Program Dates

Country	Start date	End date
Bangladesh	December 2013	March 2020
DRC	May 2014	March 2021
Mozambique	December 2017	January 2021
Niger	December 2013	February 2021
Nigeria	May 2014	September 2018
Uganda	May 2014	May 2019
Togo	FC+ supported training activity in Togo but did not provide direct support for repairs.	

Fistula is a sentinel indicator of national health systems' failures to provide equitable resources and care for women's sexual and reproductive health. The World Health Organization estimates that up to one million women currently need fistula repair services and thousands of new cases occur each year.¹ Fistula is a devastating morbidity, with profound social consequences for those affected. With awareness, appropriate resources, and strong health systems for prevention, treatment, and reintegration, fistula can be eliminated for future generations.

FC+ collected routine client data on surgical and nonsurgical fistula repairs at all project-supported fistula treatment sites through two different approaches. The first source was aggregate facility data, reported on a quarterly basis by treatment sites and entered into a project-developed DHIS2 platform for data storage and analysis. The second source was individual client data collected at a subset of 27 project-supported facilities in four countries (Bangladesh, DRC, Nigeria, and Uganda) using the client tracker component of the Surgical Safety Toolkit (SST),² which was developed by the project in response to identified gaps in clinical records, challenges in understanding clinical data trends, and clinical staff requests at project-supported facilities.

¹ Adler, A.J., C. Ronsmans, C. Calvert, and V. Filippi. 2013. "Estimating the prevalence of obstetric fistula: a systematic review and meta-analysis." *BMC Pregnancy Childbirth* 30 no.13 (December). doi: 10.1186/1471-2393-13-246. <https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-13-246>.

² Fistula Care Plus (FC+). n.d. *Surgical Safety Toolkit*. New York: EngenderHealth. <https://fistulacare.org/surgical-safety-toolkit/><https://fistulacare.org/surgical-safety-toolkit/>

Through these mechanisms, FC+ and project-supported facilities were able to routinely monitor and act upon identified clinical trends at the facility, country, and global levels. This brief summarizes routine, aggregated, and anonymous global and country project data on demand for and provision of fistula repair services and illustrates client profiles including the causes of clients' fistula, fistula types, surgical outcomes, and family planning (FP) preferences and uptake.

Demand for and Provision of Fistula Surgical Repair

Between January 2014 and February 2021, FC+ partners provided 15,230 surgical and 1,127 nonsurgical fistula repairs at 55 health facilities in six countries: Bangladesh, DRC, Mozambique, Niger, Nigeria, and Uganda.

During that period, a total of 26,247 women with severe incontinence symptoms sought fistula care services at FC+ supported sites. Of these women, 19,347 (74%) were diagnosed with fistula. Of those diagnosed, 18,029 (93%) were deemed medically eligible³ for surgical repair. FC+ supported the provision of 15,230 (85%) surgical fistula repairs of those deemed eligible. Figure 1 presents the number of clients seeking care, diagnosed with fistula, and

eligible for surgical repair, and the number of surgical repairs supported, by country.

In addition to those deemed eligible for and receiving surgical fistula repairs, 1,176 were identified as appropriate candidates⁴ for nonsurgical fistula treatment with catheterization at the time of screening. Of these, 1,127 (96%) received catheterization treatment. Additionally, 1,328 clients were diagnosed with third- or fourth-degree perineal tears—a condition with symptoms virtually identical to recto-vaginal fistula. Treatment for these repairs was recorded separately from fistula surgeries.

The percentage of women seeking services who were ultimately diagnosed with a fistula varied widely between countries: 62% in Bangladesh, 80% in DRC, 78% in Mozambique, 80% in Niger, 82% in Nigeria, and 44% in Uganda. This may be a reflection of the specificity of outreach messaging or related to the way the project mobilized clients for repair efforts. For example, in Mozambique, Nigeria, and Uganda, repairs were often provided through concentrated repair efforts (i.e., non-routine services) that relied on a period of extensive community outreach prior to the repair effort to encourage those with fistula symptoms to present for screening and care.

³ Women medically eligible for fistula repair surgery are those who have been diagnosed with a fistula who meet the defined medical criteria for receiving surgery (i.e. are physically healthy enough for surgery and do not have any contraindications for surgery).

⁴ FMOH. 2016. *Guidelines on Urethral catheterization for Prevention and Management of Obstetric Fistula in Nigeria*. Abuja: FMOH. <https://fistulacare.org/wp-content/uploads/2017/02/Nigeria-FMOH-Guideline-CATHETER-TREATMENT.pdf>.

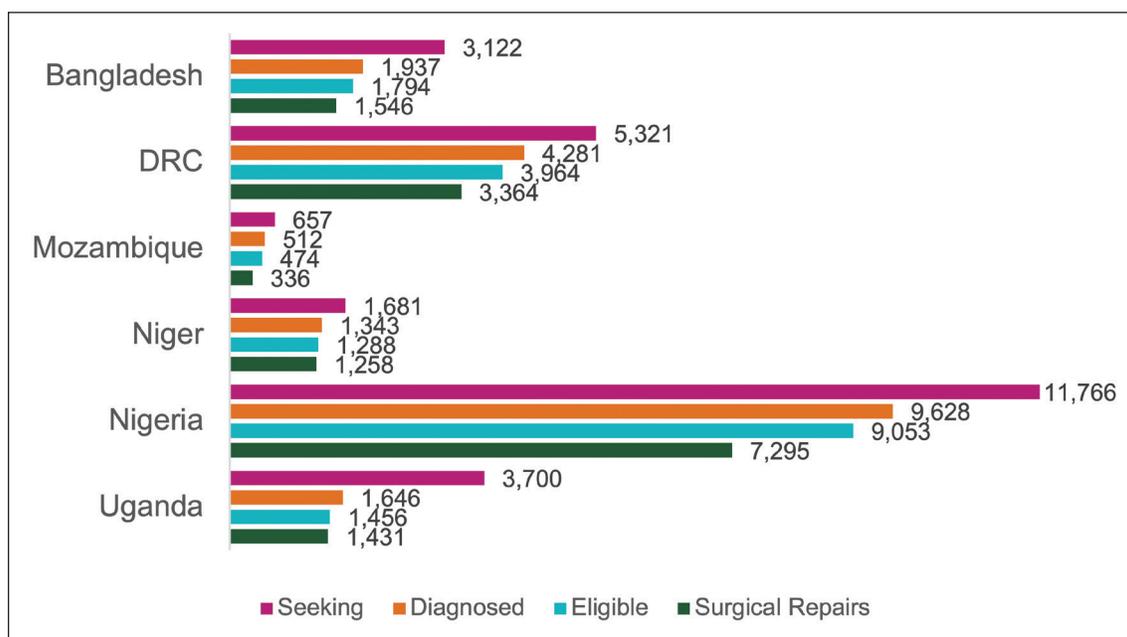


Figure 1: Demand for and Provision of Surgical Fistula Repair

This outreach may have ultimately encouraged women with other health issues to also seek medical care. Women with symptoms of pelvic organ prolapse or urinary incontinence often presented in the hopes of finding a cure for their condition.⁵ These women were appropriately referred for care.

Similarly, the percentage of women diagnosed and deemed medically eligible for a surgical repair who ultimately received one also varied: 86% in Bangladesh, 85% in DRC, 71% in Mozambique, 98% in Niger, 81% in Nigeria, and 98% in Uganda. The disparity is likely the result of the variation in complexity of cases presenting, the number and surgical skill proficiencies of the surgeons available to perform repairs, and the format through which repairs were provided (via routine service provision or concentrated repair efforts). For instance, in Mozambique, the high proportion of complex fistula cases reduced the ability to perform repairs in higher volumes, due to the limited number of surgeons in country with the proficiency to perform complex repairs and complex surgical procedures take significantly longer to complete. A small number of clients may have fistula deemed incurable; these clients received palliative care.⁶

Fistula Etiology

As noted above, inadequately managed prolonged/obstructed labor is the most common cause of fistula in the countries where FC+ works. Such obstetric fistula is usually caused by several days of obstructed labor without timely medical intervention, such as cesarean section. During this time, the soft tissues of the pelvis are compressed between the fetus's head and the laboring woman's pelvic bones. The lack of blood flow causes tissue to die, creating a hole between the vagina and bladder, between the vagina and rectum,

or both—ultimately resulting in uncontrollable leakage of urine, feces, or both. However, genital fistula can also be caused unintentionally by a healthcare provider, categorized as iatrogenic fistula. For instance, during a cesarean section, it is possible that the bladder is accidentally cut, resulting in a hole or abnormal opening through which urine leaks. Iatrogenic fistula can also occur by accident during surgeries unrelated to childbirth, such as hysterectomy. A smaller proportion of fistula may be categorized as traumatic fistula, resulting from sexual violence or other injury, or as fistula resulting from a congenital condition or from disease. Some women may also present with third- or fourth-degree perineal tears—a condition that develops during vaginal delivery, with symptoms virtually identical to recto-vaginal fistula.

Of the 19,347 fistula diagnosed at FC+ supported facilities, 11,688 (60%) included etiology notes in the clinical record. Globally, 75.4% of diagnosed cases with available etiology reportedly resulted from prolonged/obstructed labor (i.e., obstetric fistula); whereas 20% were identified as iatrogenic, 2.4% as traumatic, and the remaining 2.2% due to congenital conditions or cancer. Variation in diagnosed fistula etiology was great between countries. Table 2 presents the diagnosed fistula etiologies by country. Bangladesh and DRC had significantly higher proportions of iatrogenic fistula (45% and 26%, respectively), in comparison with Mozambique, Niger, and Uganda where 90% or more of the fistula were classified as obstetric. DRC had the highest proportion of cases diagnosed with a traumatic fistula. While still relatively rare, these fistulas are most often the consequence of sexual violence encountered in conflict or post-conflict areas.⁷

The considerably high proportions of iatrogenic fistula identified in project-supported facilities echo findings from

⁵ Tripathi, V., S. Elneil, and L. Romanzi. 2018. "Demand and Capacity to Integrate Pelvic Organ Prolapse and Genital Fistula Services in Low-Resource Settings." *International Urogynecology Journal* 29 (February): 1509–1515. <https://doi.org/10.1007/s00192-018-3561-2>.

⁶ Examples of palliative care options for women with fistula deemed incurable include hygiene products and physiotherapy.

⁷ Sjøveian, S., R. Lahiriri, and D. Mukwege. 2008. "Sexual Violence-Related Fistulas in the Democratic Republic of Congo." *International Journal of Gynaecology and Obstetrics* 103, no. 3 (December): 265–9. doi: 10.1016/j.ijgo.2008.07.018.

Table 2: Fistula Etiology, by Country (where available)

Country	# of diagnosed fistula	# of fistula with etiology (%)	% obstetric	% iatrogenic	% traumatic	% congenital or cancer
Bangladesh	1,937	1,404 (72.5%)	48.6	45.0	2.1	4.2
DRC	4,281	3,717 (86.8%)	65.8	26.3	5.5	2.4
Mozambique	512	494 (96.5%)	91.1	6.3	1.0	1.6
Niger	1,343	944 (70.3%)	94.0	4.0	1.3	0.7
Nigeria	9,628	3,812 (39.6%)	83.1	14.0	0.6	2.3
Uganda	1,646	1,317 (80%)	89.9	9.5	0.2	0.4

other studies.^{8,9,10,11} Recognizing these trends,¹² FC+ co-organized a technical consultation¹³ on issues affecting the safety and quality of cesarean section services in low-resource settings, resulting in the development of a consensus action agenda to improve the safety and quality of cesarean deliveries.¹⁴ If iatrogenic fistula continues to occur at current rates, a substantial fistula caseload will remain for years to come, even if classic obstetric fistula from prolonged/obstructed labor is eliminated. As access to emergency obstetric and newborn care and essential surgery expands in low- and middle-income countries, it is essential that adequate safety standards be established and maintained, and that attention be focused on strengthening the broader safe surgery ecosystem.

Fistula Case Profiles

Data were collected across facilities on the clinical type of fistula repaired, the number of previous fistula repairs a client had undergone, and the complexity of the fistula repair. Globally, of the 15,230 surgical fistula repairs supported by the project, the vast majority were for urinary-only fistulas (n=12,918, 84.8%). Fecal-only fistulas represented 11.5% of all cases (n=1,758), and combined urinary and fecal fistulas represented 2.8% (n=420, data unavailable for the remaining 134 cases).

Most fistula clients (67.7%, n=10,318) were receiving their first surgical repair. A total of 17.5% (n=2,661) were receiving their second attempt and 13.9% (n=2,117) were receiving their third or greater surgical attempt (n=2,117). As the first surgery is the client's best hope of repair, it is critical that all staff trained to undertake simple fistula repair "recognize and work within the limits of their own skills and refer women with more complex

fistula to more experienced expert surgeons in this field when in doubt, or if the surgery looks beyond their own competence."¹⁵

Data on the complexity of repaired cases was available for only 51% of all supported repairs (n=7,813). Of the data available, 44% (n=3,418, 22% of all repairs) were categorized by the surgical team as a simple repair while 56% (n=4,395, 29% of all repairs) were categorized as not simple. Figure 2 provides fistula case profile information for each country.

In Bangladesh, most fistula were urinary-only (89%) and most clients were undergoing their first fistula repair surgery (72%). Further, 36% of cases were classified as not simple, 27% as simple, and more than one-third of cases did not have complexity recorded.

In DRC, most fistula were urinary-only (85%), and most women were undergoing their first fistula repair surgery (76%). Nearly half of all repairs were classified as simple (49%), with 38% classified as not simple. Complexity was not recorded for 13% of cases.

In Mozambique, nearly all fistulas were urinary-only (94%), and over one-third of women were undergoing their second or greater repair attempt (27% second, 10% third or greater). Most cases were classified as not simple (55%), with slightly under half classified as simple (45%).

In Niger, most fistula were urinary-only (83%), and over a third of cases were women receiving their third or greater repair attempt (34%). Nearly half of all cases in Niger were repeat attempts at repair (49%, with 15% receiving their second repair), which is higher than in other countries. Where data on complexity was available, cases were nearly evenly split between simple and not-simple classifications (37% and 35%, respectively).

In Nigeria, nearly all fistulas were urinary-only (91%), and almost two-thirds of women were undergoing their first repair (65%). Data on complexity was not available for most cases, but not-simple cases were recorded nearly three times as frequently as simple cases (29% and 10%, respectively).

In Uganda, the type of fistula seen at supported treatment facilities differed markedly from other countries, with a nearly even split between urinary-only (50%) and fecal-only (50%) fistula. Most women were receiving their first repair attempt (86%). Data on complexity was not available for most cases, but for those reported, most were classified as simple (20%, vs. 7% not simple).

⁸ Raassen, T. J., C.J. Ngongo, and M.M. Mahendeka. 2014. "Iatrogenic Genitourinary Fistula: An 18-Year Retrospective Review of 805 Injuries." *International Urogynecology Journal* 25 no. 12 (July): 1699–1706. doi: 10.1007/s00192-014-2445-3.

⁹ Benfield, N., N. Young-Lin, C. Kimona, L.M. Kalisya, and R.M. Kisindja. 2015. "Fistula after Attended Delivery and the Challenge of Obstetric Care Capacity in the Eastern Democratic Republic of Congo." *International Journal of Gynecology and Obstetrics* 130 no. 2 (August): 157–160. doi: 10.1016/j.ijgo.2015.02.032.

¹⁰ Onsrud, M., S. Sjoveian, and D. Mukwege. 2011. "Cesarean Delivery-Rated Fistulae in the Democratic Republic of Congo." *International Journal of Gynecology and Obstetrics* 114 no. 1 (May): 10–14. doi: 10.1016/j.ijgo.2011.01.018.

¹¹ Wright, J., F. Ayenachew, and K.D. Ballard. 2016. "The Changing Face of Obstetric Fistula Surgery in Ethiopia." *International Journal of Women's Health* 8 (July): 243–248. doi: 10.2147/IJWH.S106645.

¹² FC+. 2016. *Iatrogenic Fistula: An Urgent Quality of Care Challenge*. New York: EngenderHealth. https://fistulacare.org/wp-content/uploads/2016/04/Iatrogenic-fistula-technical-brief_2016.pdf.

¹³ FC+ and Maternal Health Task Force. 2017. *Cesarean Section Safety and Quality in Low-Resource Settings: Report of a Technical Consultation*, July 27–28, 2017. New York: EngenderHealth. <https://fistulacare.org/resources/program-reports/cesarean-section-technical-consultation/>.

¹⁴ Ibid.

¹⁵ Lewis, G. and L. de Bernis, editors. 2006. *Obstetric Fistula: Guiding Principles for Clinical Management and Programme Development*. Geneva: WHO. p.38

LEGEND

- Fistula Type:** ■ Urinary ■ Fecal ■ Urinary/fecal ■ N/A
Repair History: ■ First ■ Second ■ Third or more ■ N/A
Complexity: ■ Simple ■ Not simple ■ N/A

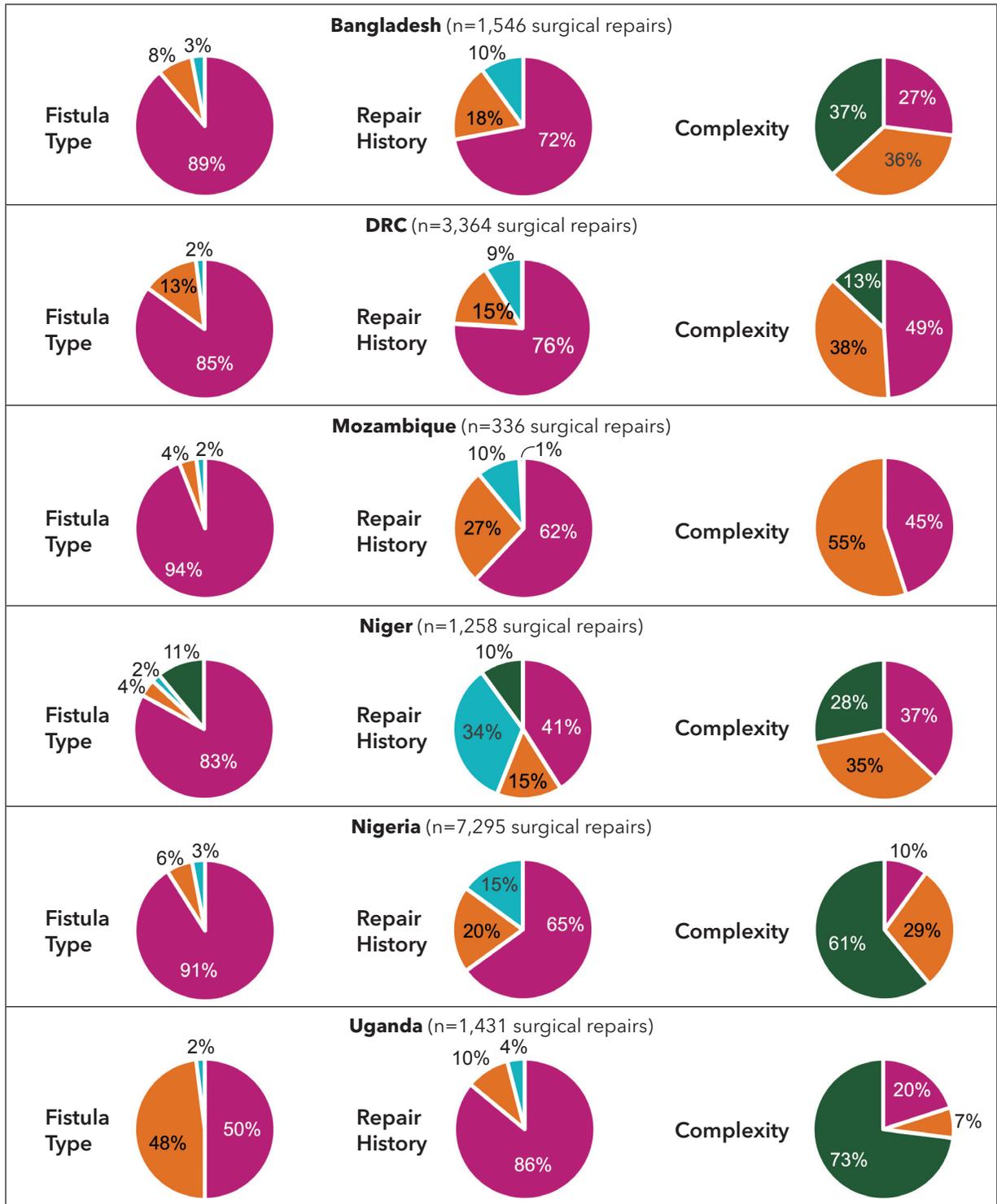


Figure 2: Fistula Case Profiles, by Country

Mode of Service Delivery for Fistula Repair

The mode of service delivery employed for surgical fistula repair varied across the project, both by country and by site within each country. Introducing routine fistula care enables health systems to plan and deliver fistula treatment locally to clients in a timely manner, rather than relying on sporadic visits from external clinicians. However, routine service provision requires consistent availability of trained surgical teams, anesthesia, operating theaters and recovery wards, and other infrastructure and commodities. In some countries, multiple facilities have dedicated staff and space for fistula services; however, in others, there are only a small number of facilities equipped to provide routine care, particularly for complex repairs.

As a result, complementary, non-routine models for delivery of surgical repair services are often required. Such models assist in reaching clients in more remote areas and those who are financially, culturally, or physically unable to travel to the few facilities providing routine repairs. These models can also help ensure that more complex surgical cases are only operated upon by surgeons with the commensurate skills and experience. These models are commonly described as concentrated campaigns, concentrated repair efforts, or pooled efforts.

FC+ supported service delivery via routine fistula repair and concentrated repair efforts, the latter of which included mobilizing groups of potential clients in advance through community outreach and facility referrals to arrive at a designated facility for care. However, the project's primary aim was to support fistula repair services through routine

service provision. Repairs supported through the project were split almost evenly between these two models: 54% through routine service provision and 46% through concentrated repair efforts. Figure 3 shows the percentage of repairs provided through routine service provision in each country, over the life of the project.

In Bangladesh, DRC, Niger, and Nigeria, FC+ supported repairs through a mixture of both routine and concentrated repair efforts. Concentrated repair efforts primarily focused on (1) reaching women living in areas far from facilities offering routine services and (2) scheduling complex cases for repair when a highly skilled surgeon would be available to provide care.

In Mozambique, FC+ supported a local organization, Focus Fistula, working with the Ministry of Health to provide fistula repairs through concentrated repair efforts throughout the country. This strategy enabled a highly skilled senior surgeon to provide more complex repairs at a variety of facilities, while training and mentoring surgeons and surgical technicians to reach competency in completing more simple repairs. The restrictions resulting from the COVID-19 pandemic resulted in repairs also being provided through routine service provision at a private clinic in the last year of the project.

In Uganda, where fistula repair surgeries were historically provided solely through concentrated repair efforts, FC+ supported training and mentoring to improve the skills and competencies of surgical teams and facilitated the availability

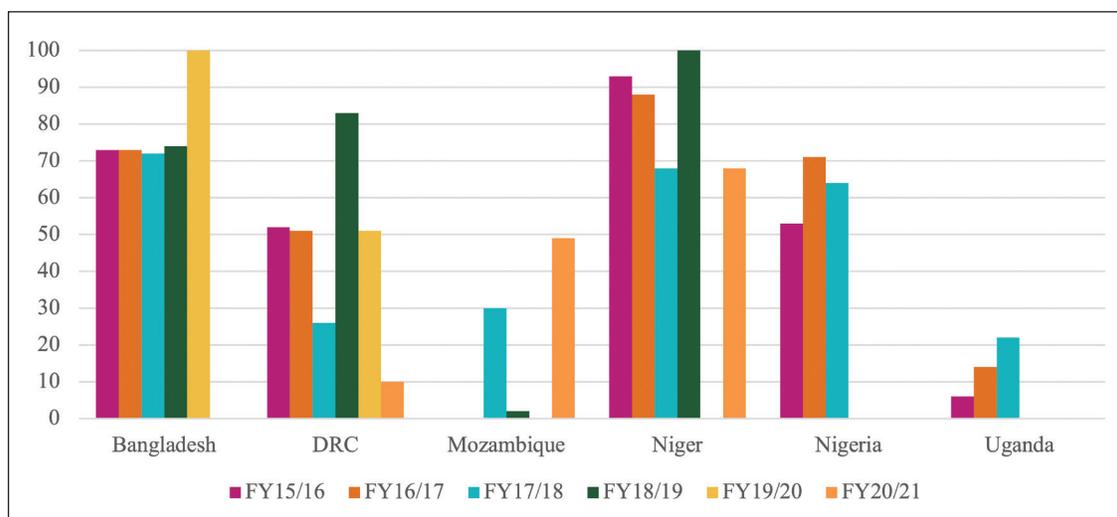


Figure 3: Percent of Surgical Repairs Provided via Routine Service Provision, by Fiscal Year (FY)

of necessary instruments and supplies to increase routine service provision. The project also worked with facilities to schedule designated fistula clinic and theatre days and with the Ministry of Health to allocate adequate human resources. As of 2019, five project-supported hospitals reported successful provision of routine surgical repairs, and the percentage of supported repairs provided through routine services rose from 5% to 22%.

Surgical Outcomes

Closed and continent rates for fistula repair are challenging for assessing quality of care, in that patients can have suboptimal outcomes even when the quality of care is at or above an acceptable standard. This is exacerbated by variations in case mix—for instance, in cases of facilities seeing higher numbers of patients with complex fistulas and complicating co-morbidities. However, repair success is an essential measure from the perspective of the fistula client; and, in tandem with other clinical indicators (e.g., complication and infection rates), this indicator can be useful in identifying where further investigations of the case mix, quality of care, and other issues may be warranted. Hence, FC+ used standardized indicators at discharge: fistula closed and continent, fistula closed with remaining incontinence, and fistula not closed.

Facilities recorded repair outcomes at the time of discharge. Globally, 87% of cases were closed at the time of discharge (77% closed and continent and 10% closed and incontinent), while 13% of cases were not closed. These rates varied considerably over time among countries and among facilities within each country, see Figure 4. Much of the variation in closure rates may be attributable to the diversity of caseloads at different facilities (refer Figure 2). Even if a fistula is successfully closed, women may experience persistent incontinence due to other causes.¹⁶ Additionally, despite multiple surgery attempts, some women have fistula deemed incurable and are unable to achieve a closed fistula and gain continence through surgical repair.

In Niger, 84% of cases were reported closed at time of discharge (64% closed and continent, 20% closed and incontinent) compared to 16% not closed; there was a significantly higher proportion of clients who had undergone previous repair attempts compared with other countries.

¹⁶ Wall, L. and S.D. Arrowsmith. 2007. The “continence gap”: a critical concept in obstetric fistula repair. *International Urogynecology Journal* 18, 843–844. <https://doi.org/10.1007/s00192-007-0367-z>

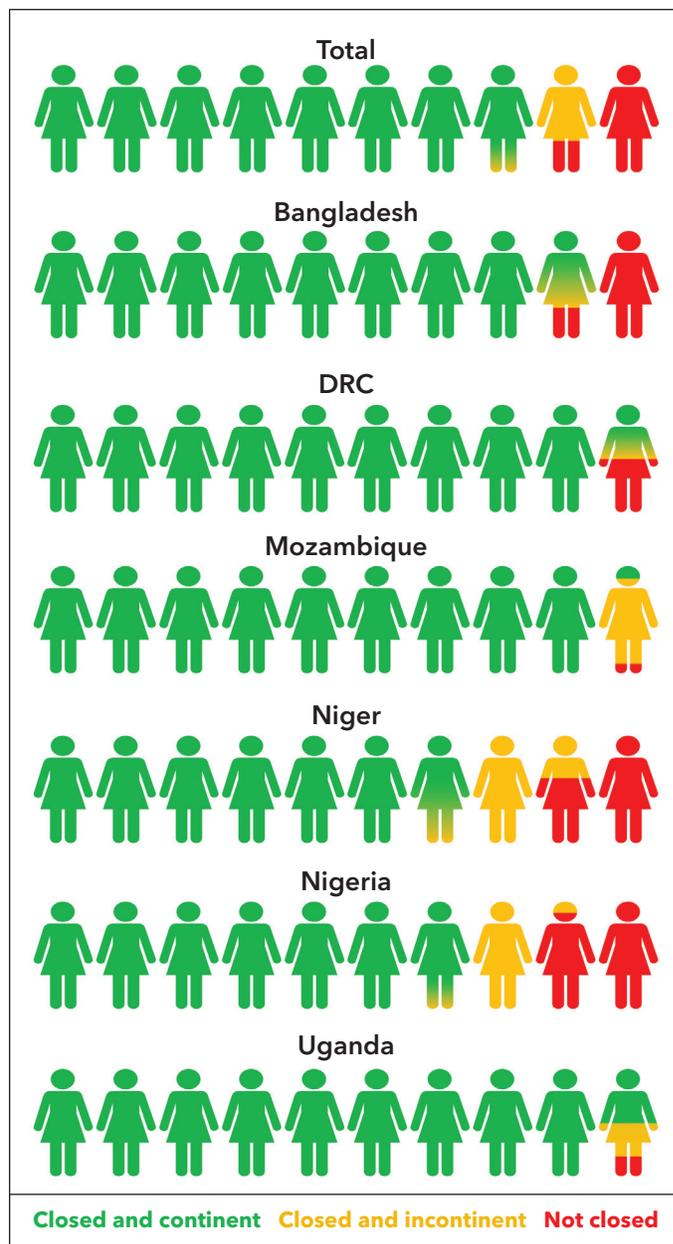


Figure 4: Surgical Repair Outcomes

Similarly, in Nigeria, more than a third of cases reportedly underwent repeat repair attempts, and a high proportion of repairs were classified as not simple. Nigeria also presented similar rates of closure: 81% of surgical repairs reported the fistula as closed at discharge (67% closed and continent and 14% closed and incontinent). In both Niger and Nigeria, project-supported facilities included hospitals staffed by expert surgical teams solely dedicated to surgical fistula repair and serving as referral destinations for some of the most difficult cases across each country.

In Mozambique and Uganda, closure rates at the time of discharge were particularly high. In Mozambique, careful case selection combined with the availability of a highly skilled global expert surgeon contributed to an overall closure rate of 99% (91% closed and continent, 8% closed and incontinent), despite relatively high proportions of not-simple and repeat repairs. In Uganda, the availability of a pool of skilled surgeons, careful case selection, and a high proportion of initial and simple repairs contributed to a closure rate at discharge of 99% (95% closed and continent, 3% closed and incontinent).

Morbidities and Mortalities

FC+ collected data on the total number of fistula clients who experienced complications during or immediately following surgical repair. Over the life of the project, 304 clients reportedly experienced complications. Reported complications were identified by three categories: major surgical complication (n=115); anesthesia-related complication (n=98); and postoperative complication related to perceived failure or success of surgery (n=114). Reported complication rates for surgically repaired fistula cases at supported sites were generally low (2% project-wide), with countries reporting rates ranging from <1% in Niger to 3% in Mozambique.

Despite multiple surgery attempts, some women have fistula deemed incurable and are unable to achieve a closed fistula and gain continence through a surgical repair. This can occur when the injury is too complex, when the woman lacks access to medical care, when local providers lack the necessary surgical skills and options for referral or deferral are limited, and when surgical attempts to repair the injury have failed, sometimes repeatedly.¹⁷ In Uganda, incurable fistula is defined in the Ugandan National Obstetric Fistula Strategy 2015/2016 as “cases of fistula in which restoration of functional anatomy to achieve urinary or fecal continence is not possible through surgery by the most skilled surgical team working in an enabling environment.”¹⁸ FC+ did not gather data on those deemed incurable, but did collaborate with Terrewode, a Ugandan nongovernmental organization, to explore the social reintegration needs and options for these clients.

¹⁷ Fistula Care and Harvard Humanitarian Initiative. 2012. *Meeting the Needs of Women with Fistula Deemed Incurable: Creating a Culture of Possibility—Report of a Consultative Meeting, Boston, September 19-20, 2011*. New York: EngenderHealth. <https://fistulacare.org/wp-content/uploads/pdf/program-reports/EngenderHealth-WDI-Boston-meeting-report-6-April-12.pdf>.

¹⁸ Uganda Ministry of Health (MOH). 2011. *National Obstetric Fistula Surgery (2011/2-12 – 2015-2016)*. Kampala: MOH.

Deaths attributable to fistula surgery are rare. FC+ conducted an analysis of the mortality risk associated with surgical treatment of female genital fistula and found that the case fatality rate for fistula repair surgery in resource-poor countries was in the same range as that for comparable gynecologic operations in high-resource settings. Clinical and systemic improvements that may reduce the case fatality rate include improving perioperative care and follow-up, assuring prudent referral or deferral of difficult cases, and maintaining good records.¹⁹

Nine deaths occurred among clients who underwent fistula surgeries at FC+ partner facilities (four in DRC, one in Mozambique, three in Nigeria, and one in Togo). FC+ provided supported fistula repair sites with tools for reporting sentinel events and conducting confidential inquiries after mortalities. Where reviews identified preventable factors contributing to deaths, FC+ provided targeted support to improve processes and care quality. For instance, when two deaths occurred in a long-standing, high-level fistula treatment center, mortality reviews indicated inadequate preoperative assessments of underlying morbidities, poor intra-team communication, and a lack of equipment and skills for emergency resuscitation. In this case, the project worked intensively with the facility to improve the identified issues and provided FC+ tools for improved surgical safety monitoring; no subsequent deaths or other critical events have been reported from this facility since. FC+ also worked with partners throughout the project to emphasize the importance of timely reporting and to provide refresher orientations on protocols.

Nonsurgical Repair and Treatment

FC+ has supported the adoption, expansion, and improvement of nonsurgical fistula treatment through catheterization, which has the potential to dramatically expand access to fistula repair for clinically eligible women. Nonsurgical treatment also gives clients the option to forego the lengthy hospital stay required for a surgical repair, a common barrier to care-seeking, and to receive a less invasive intervention, if deemed medically eligible.

FC+ partners provided nonsurgical treatment of fistula using catheterization for 1,127 clients at 33 facilities in six countries

¹⁹ Ruminjo, J., E. Landry, K. Beattie, A. Isah, A.J. Faisel, and S. Milimono. 2014. “Mortality Risk Associated with Surgical Treatment of Female Genital Fistula.” *International Journal of Gynecology and Obstetrics* 126 no. 2 (August): 140–145. <http://dx.doi.org/10.1016/j.ijgo.2014.02.015>.



(Bangladesh, DRC, Mozambique, Niger, Nigeria, and Uganda). Overall, 76% of the fistula treated with catheterization were closed, including 64% (n=719) closed and continent and 12% (n=136) closed and incontinent. It is important to note that prevention and early treatment of fistula using catheterization commonly occurs outside of fistula treatment centers—in maternity care sites that are not part of the FC+ project and that do not report through our routine monitoring systems. Women who experience unsuccessful nonsurgical treatments are routinely referred for surgical care, when medically appropriate.

Nearly three-quarters of all supported catheterization treatments were performed in Nigeria (n=827, 73%). FC+ collaborated with the Nigerian Federal Ministry of Health and a group of Nigerian and international surgeons to develop a national policy and guidance on the use of catheterization to prevent and conservatively treat small, fresh fistula. The Nigerian government adopted the *Guidelines on Urethral Catheterization for Prevention and Management of Obstetric Fistula in Nigeria*²⁰ in 2016. These guidelines have since been adapted and adopted in Bangladesh, DRC, Niger, and Uganda and are pending approval in Mozambique. Niger and Nigeria had nonsurgical fistula repairs representing the largest proportion of total repairs, 11% and 10% respectively.

Ancillary Procedures

In addition to surgical and nonsurgical fistula treatment, FC+ partners provided a number of ancillary procedures for fistula clients to improve their outcomes and address their clinical needs. These included: repair of third- and

fourth-degree perineal tears, anal sphincter repair for rectal incontinence, colostomy and reverse colostomy, examination under anesthesia (as a separate discrete procedure), removal of bladder stones or foreign bodies in viscera, wound re-suture, operation for stress incontinence (e.g., urethropexy and sling procedure), and ureteric re-implantation. Table 3 summarizes the number of these procedures supported over the life of the project, by country.

Surgical Safety Toolkit (SST)

FC+ developed and introduced the SST, an integrated package of clinical trackers and quality assurance checklists, in 27 facilities across four FC+ countries (Bangladesh, DRC, Nigeria, and Uganda). It includes: (1) a client tracker for recording clinical outcomes of surgical and nonsurgical care for fistula, pelvic organ prolapse, and incontinence; (2) a surgical skills tracker to document the results of clinician training for fistula, prolapse, and incontinence; and (3) a sentinel event tracker to identify trends of near-miss morbidity events in order to help target quality improvement support for facilities.

The anesthesia portion of the intra-op checklist and post-op daily rounds checklist emerged as particularly important in sentinel event analyses and associated systems strengthening efforts. SST data also provided important insights into trends and potential challenges in provision of FP counseling and referrals of fistula clients. A qualitative process evaluation of SST introduction and uptake²¹ highlighted the importance of upfront and continuous investments (for instance, investments

²⁰ Nigeria Federal Ministry of Health (FMOH). 2016. *Guidelines on Urethral Catheterization for Prevention and Management of Obstetric Fistula in Nigeria*. Abuja: FMOH. <https://fistulacare.org/wp-content/uploads/2017/02/Nigeria-FMOH-Guideline-CATHETER-TREATMENT.pdf>.

²¹ Romanzi, L., V. Tripathi, E. Arnoff, F. Akhter, A. Abiodun, S. Zakariya, D.F. Banze, P. Kaduyu, and R. Fiorentino. 2018. *Defining the Utility of a Surgical Safety Toolkit Designed for Resource-Constrained Settings*. Poster presentation at the 2018 Institute for Healthcare Improvement First Africa Forum on Quality and Safety in Healthcare in Durban, South Africa.

Table 3: Type of Ancillary Procedures for Fistula Clients, by Country

	# 3rd/4th degree perineal tear	# anal sphincter repair	# colostomy/reversal	# exam under anesthesia	# removal of bladder stones	# wound re-suture	# stress incontinence	# ureteric re-implantation	# Other	Total
Bangladesh	544	2	15	39	14	7	31	68	50	770
DRC	275	82	23	364	66	61	164	166	201	1,402
Mozambique	5	9	5	75	9	2	34	8	14	161
Niger	33	13	2	14	2	5	42	7	48	166
Nigeria	53	26	0	81	53	2	103	24	109	451
Uganda	418	8	5	62	10	9	109	50	154	825
Total	1,328	140	50	635	154	86	483	323	576	3,775

in information system assessments, staffing, training, supportive supervision) in successfully introducing and sustaining the quality improvement culture within a facility.

Fistula Client Family Planning (FP) Preferences and Uptake

Through the implementation of the SST client tracker, FC+ gathered information from a subset of fistula clients in Bangladesh and DRC on whether and when FP counseling occurred during the fistula repair service encounter, what FP methods clients indicated preference for, and whether and what method clients were able to obtain. FC+ also collected this information from fistula clients receiving repairs in Guinea supported by the USAID-funded Health Services Delivery project, in which EngenderHealth implemented fistula prevention and care activities.

FC+ analyzed 829 fistula client records from Bangladesh (n=159), DRC (n=223), and Guinea (n=447). Providers screened clients as eligible for FP services if they had an intact uterus, were not currently pregnant, were under the age of 50, and were not menopausal or prepubescent. Average client age at the time of assessment was 30 years (Bangladesh: 30.7, DRC: 31.2, and Guinea: 29.3).

At the time of admission, 70% of clients were assessed and indicated a need for FP, while 13% were assessed with no need for FP, 3% were not assessed, and 1% were assessed but deemed ineligible (13% data not available). Findings varied greatly by country: 86% of clients in Bangladesh and 93% in

Guinea were assessed and indicated a need for FP, compared with 12% in DRC (where 40% indicated no need for FP and 47% of data was not available).

Overall, 9% of clients reported use of a contraceptive method at the time of admission (30% in Bangladesh, 4% in DRC, and 4% in Guinea), with oral pills (32%), implants (19%), and abstinence (18%) as the most frequently reported, of those reporting use of a method.

The majority, 85%, of eligible fistula clients (n=702) received at least one FP counseling session during the four possible counseling opportunities as they progressed through admission, pretreatment, posttreatment, and discharge. In Bangladesh and Guinea, nearly all clients received at least one FP counseling session (100% and 95%, respectively), while in DRC only 53% received at least one FP counseling session (according to the client tracker).

In Bangladesh, although 24 clients indicated a desire for tubal ligation to be performed during their surgical procedure, only two (8%) were completed, which may reflect a lack of site readiness or capacity to provide sterilization services. This gap between client desire and method received suggests significant opportunities for expanding the availability of voluntary surgical contraceptive services for fistula clients.

At the time of discharge, 67% (n=556) of the 829 fistula clients who met the initial FP screening criteria received counseled and were deemed eligible for an FP method. The remaining 33% of



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clients either did not have data entered in the tracker (29%); were deemed ineligible (3%) for criteria that are unclear from the aggregated tracker data but may be related to the client's current relationship status, a consideration in contraceptive eligibility screening in some countries; or were eligible but did not receive a counseling interaction at discharge (<1%).

Across all three countries, 60% of clients chose a method at time of discharge (n=499). This varied significantly between the three countries. In Bangladesh, 60% (n=86) chose a method—and most chose either oral contraceptives (43%) or abstinence (39%), with the remainder selecting injectables (8%), implants (5%), male condoms (2%), or sterilization (1% tubal ligation and 1% vasectomy). In DRC, 9% (n=19) chose a method, and nearly all of those clients chose implants (84%, n=16), although other choices included oral contraceptives (11%) and the calendar method (5%). In Guinea, 88% (n=394) chose a method—most commonly abstinence (43%), followed by implants (26%), oral contraceptives (17%), and injectables (15%).

The large proportion of clients choosing abstinence at discharge may reflect counseling on abstaining from sexual activity during the postoperative healing period rather than adoption of abstinence for FP long-term. However, this requires further exploration.

Implications for Program Improvement

Assessment of routine clinical data provides an opportunity to gain insights into client profiles and care outcomes, which can be utilized for planning and improving service provision

and quality of care. Identifying a high proportion of not-simple and/or repeat fistula repairs in a given country or facility suggests the need for a fistula repair strategy that will ensure access to the few surgeons with the skills required, including through standardizing referral systems to specialized facilities and organizing concentrated repair efforts where multiple clients may undergo repairs with expert surgical teams. Where a high proportion of clients present with fresh simple fistula, establishing nonsurgical treatment with catheterization and routine surgical repairs is more appropriate, and is feasible with trained surgical teams and necessary infrastructure and commodities. Such a case mix may also indicate the need to expand nonsurgical fistula repair services directly at maternity sites, through training and equipping of providers managing prolonged/obstructed labor.

The percentage of clients seeking services who are ultimately diagnosed with fistula can indicate whether outreach messaging is effective and whether it is sufficiently targeted to women with fistula symptoms. Gathering additional information on clients who seek services but are not ultimately diagnosed with a fistula would also provide valuable information to ensure comprehensive care for women with incontinence and those with pelvic floor disorders. Such studies should consider what diagnoses these clients receive and what services they subsequently require.

For some, fistula repair may not be possible; for instance, if the injury is too complex, if accessible surgeons lack necessary skills, if there are limited options for referrals, and/



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or past repair attempts have failed.^{22,23} Both clinical care and reintegration efforts must respond to different challenges for those with incurable fistula, as the factors that caused these clients to become socially excluded persist and are likely to be lifelong.²⁴ For some, interventions such as urinary diversion may be appropriate.²⁵ For others, support may need to focus on socioemotional support services and/or physiotherapy; vocational or entrepreneurial skills training and business start-up capital; health, nutrition, hygiene, sanitation, or fistula education; legal education, information, and aid; financial and material support (for such necessities as sanitary products); and/or support to begin or resume education.²⁶

Findings from the review of SST client tracker data suggest opportunities for improvement related to FP counseling and method provision. Ensuring clients receive at least one FP counseling session during their service encounter is essential to assessing client preferences and enabling access to a method, if desired. In many cases, women with fistula have also experienced the loss of a child. While counseling may suggest that use of FP can provide a period of healing before attempting another pregnancy, cultural or individual preferences may outweigh this advice. The choice of abstinence at discharge may reflect counseling on abstaining from sexual activity during the

postoperative healing period rather than adoption of abstinence for FP, but it also may reflect the desire for a pregnancy as soon as possible without full comprehension of the rationale for the advice to delay. FP choices following fistula repair require further exploration and it may be useful to refine the counseling process and messages to ensure clients' choices and concerns are adequately addressed and coupled with any necessary follow-up or referrals for desired FP services.

Collecting and analyzing documentation of fistula etiology across causes (obstetric, iatrogenic, traumatic, infection, cancer, congenital defect, other) at fistula treatment centers provides important insight into what is taking place in the broader surgical ecosystem within a given country. As identified through FC+ routine data and studies, the increasing rates of iatrogenic fistula are cause for concern and action. If iatrogenic fistula continues to occur at current rates, a substantial caseload of fistula cases will remain for years to come, even if fistula from prolonged/obstructed labor is eliminated. To prevent this, countries may need to implement routine monitoring of iatrogenic fistula, potentially terming it a reportable sentinel event, and develop standardized collection tools to document relevant information, such as the causative procedure and provider cadre.

It is crucial to work towards facilitating high-quality surgical care, particularly safe cesarean section, and improved decision-making regarding surgical obstetric and gynecological treatment options. As access to emergency obstetric and newborn care and essential surgery expands in low- and middle-income countries, it is essential that appropriate safety standards are concurrently established and maintained. In many low- and middle-income settings, women have heeded the call to deliver at a health facility to prevent fistula and other adverse outcomes. If fistula is to be eliminated by 2030, as called for by the United Nations, it is imperative that health systems, in turn, deliver quality care.

²² Association for Rehabilitation and Re-Orientation of Women for Development (TERREWODE). 2015. *Position Paper for Capacity Building in Fistula Individualized Social Reintegration*.

²³ Fistula Care and Harvard Humanitarian Initiative. 2012. *Meeting the Needs of Women with Fistula Deemed Incurable: Creating a Culture of Possibility*. New York: EngenderHealth.

²⁴ FC+. 2019. *Improving Quality of Life for Women with Incurable Fistula: A Fistula Care Plus and TERREWODE Research Partnership in Uganda*. New York: EngenderHealth.

²⁵ Arrowsmith, S.D. 2007. "Urinary Diversion in the Vesico-Vaginal Fistula Patient: General Considerations Regarding Feasibility, Safety, and Follow-Up." *International Journal of Gynaecology and Obstetrics* 99 suppl. 1 (November): S65–S68.

²⁶ FC+. 2019. *Improving Quality of Life for Women with Incurable Fistula: A Fistula Care Plus and TERREWODE Research Partnership in Uganda*. New York: EngenderHealth.

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The USAID-funded, EngenderHealth-led FC+ project works to prevent fistula from occurring, treats and cares for women with fistula, and assists in the rehabilitation and reintegration of women with fistula. *Fistula Care Plus* partners with ministries of health, faith and community-based organizations, nongovernmental organizations, UN agencies and other stakeholders, including facilities providing surgical and nonsurgical fistula repair in South Asia and Sub-Saharan Africa. For more information about fistula and the FC+ project, visit www.fistulacare.org.

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