Access to Contraceptive Services Among Adolescents in Uganda During the COVID-19 Pandemic

Data and Methods Appendix

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Data Sources

The data used in the analyses in *Access to Contraceptive Services Among Adolescents in Uganda During the COVID-19 Pandemic* come from two specific private providers of sexual and reproductive health services, from national-level health management information system (HMIS) data and from national-level survey data.

The information from the private providers encompassed service statistics data accounting for all family planning service delivery visits from each organization. The private providers included in this analysis are the two largest private providers of sexual and reproductive health services in Uganda. Further, 47% of contraceptive users in Uganda younger than 25 obtain contraceptive services from the private sector.[1] However, it should be noted that data from the included private providers do not represent all private family planning services in Uganda. As such, these data are not nationally representative for all private service providers, nor are they representative of the regions in which the specific facilities are located. While these data must be interpreted with this context in mind, it should also be noted that the private provider data included in this analysis represent the majority of services provided to the population of interest.

Uganda's HMIS, which is managed by the Ugandan Ministry of Health, offers nationally representative routine service data.[2] In Uganda, all public and private health facilities are expected to report monthly data about certain health indicators to the HMIS; thus, these data are at the national level, although reporting from private facilities tends to be less complete than that from public facilities.[3] HMIS data provide estimates of family planning visits made (including those by adolescents) and commodities dispensed for all service delivery points that report into the national system. One limitation of the HMIS data is that they only reflect individuals who access modern contraceptive methods through service delivery points that report into the HMIS. As such, some public family planning service visits may not be represented in these analyses.

The Performance Monitoring for Action Uganda project conducts annual nationally representative, population-based surveys of households and of women aged 15–49; these surveys provide estimates of contraceptive use specific to adolescents (as well as other age-groups) at a particular point in time. Further details about the methodology are available elsewhere.[4,5] These surveys are collected from the end users, irrespective of the source of contraceptive method.

Data Analysis

Private Provider #1

Private Provider #1 routinely develops projections of client visits by taking into account various components, including adjustment for seasonal differences, programmatic and budget changes, and other key considerations. For each month between March and November 2020, we received projected numbers of visits for modern contraceptives by female clients aged 15–19, as well as observed numbers of visits for 2020.

We could not disaggregate these data by contraceptive method type, since age-disaggregated data specific to female clients aged 15–19 were unavailable at the individual method level. Based on additional guidance from Private Provider #1, we excluded all visits that were expected to overlap with data reported to HMIS, to minimize duplication across data sources in this report.

Private Provider #2
We obtained counts of visits for modern contraceptives by clients aged 15–19 who were served by Private Provider #2. For both 2019 and 2020, these counts were obtained for each month between March and December. Based on similarities in visit patterns over time, we grouped visits for contraceptive services among clients aged 15–19 into three method categories: (1) visits for long-acting reversable contraceptives (IUDs or implants); (2) visits for short-acting reversable contraceptives (pills or injectables); and (3) visits for internal and external condoms (i.e., female and male condoms). For each method group, we calculated and graphed the percentage change in the number of visits in each month of 2019 versus that same month in 2020. Due to small numbers, it was not possible to calculate changes in visits for female or male sterilization visits or for modern methods other than the ones already listed. We also obtained counts of 15–19-year-old clients attending for postabortion care during these same time frames. Notably, Private Provider #2 is the only source in this report able to provide data on postabortion care services.

Data from Private Provider #2 for 2018 were unavailable; therefore, we were unable to adjust for seasonality in our analyses. Adolescents served by Private Provider #2 lived mostly in rural areas and were served largely via outreach services or community-based distributors affiliated with this provider.

HMIS
We obtained monthly HMIS data specific to each family planning method aggregated at reporting level (district) and linked into the Uganda Bureau of Statistics statistical region level for three consecutive years (2018–2020). Our primary outcome was the number of family planning service visits made by adolescents aged 10–19. We were unable to obtain data restricted to those aged 15–19; 10–14-year-olds made up only 3.1% of the total sample.

We grouped visits for family planning into three method categories:
  (1) Short-acting methods: lactational amenorrhea method, the Standard Days Method, emergency contraception, oral contraceptives, and internal and external condoms (i.e., female condoms and male condoms)
  (2) Injectables
  (3) Long-acting reversible contraceptives (implants and IUDs) and permanent methods (male and female sterilization).

Our analysis used a variable with four distinct phases of the COVID-19 pandemic: (1) pre-COVID (January 2018–December 2019); (2) pre-COVID and during introduction of new HMIS tools to health facilities (January–March 2020); (3) the first complete month during which COVID-19 restrictions began (April 2020); and (4) during the COVID-19 pandemic (May–December 2020). To determine the effects of COVID-19 restrictions on the primary outcome, we conducted negative binomial modeling. Our models adjusted for seasonality (defined as the 12 months of the calendar year) and for trends in family planning service visits over the 36 months of the analysis, January 2018–December 2020. We present risk ratios and corresponding 95% confidence intervals of these estimates in this model. The risk ratios are interpreted as the change in the number of family planning service visits in a given COVID-19 period, relative to the reference period (pre-COVID).

Additional Analyses

Private Provider #2
Visits for internal and external condoms were substantially lower in every month of 2020 when compared with that same month in 2019 (Appendix Figure 1, page 6). For example, in April 2020, condom distribution was down 72% from the level seen in 2019. In March 2020, Private Provider #2 closed its "youth corners," and this appears to have greatly affected the availability of youth-friendly services, including peer distribution of condoms to young people in communities and learning institutions.

Adolescents made fewer visits for pills and for injectables in March 2020 than in March 2019 (down by 24% and 10%, respectively); however, these visits then rose to levels higher than in 2019 between April and June (Appendix Figure 2, page 6), particularly among pill users. Between July and October 2020, visits for pills and injectables declined precipitously compared with 2019 and then returned to levels roughly similar to 2019 for the rest of the year.

HMIS data
Visits for all types of contraceptive methods rose between 2018 and 2020 (Appendix Figure 3, page 7). Visits for short-acting methods were consistently more numerous than those for long-acting contraceptives. Visits for short-acting methods appear to have varied seasonally. Across the three method categories considered (short-acting methods, injectables and long-acting methods), April 2020 (the first complete month of the COVID-19 restrictions) showed the deepest drop. In the last four months of both 2020 and 2019, the numbers of visits for short-acting methods and injectables were similar, which may reflect changes either in commodity supplies or in behaviors among adolescents that affected the method mix. Sizable increases in family planning service visits across all categories of methods were observed in the months following April 2020; this may be attributable to strategies devised by the Ministry of Health and its implementing partners to ensure continued health service delivery.

A detailed analysis of the HMIS data suggests that adolescents aged 10–19 made 38% fewer family planning service visits in April 2020 than in January 2018–December 2019. Additionally, family planning service visits increased by about 2% over the entire 36-month period (Appendix Table 1, page 7).

Performance Monitoring for Action data
To determine the effect of COVID-19 restrictions on family planning use by 15–19-year-olds, we used data from two points in time when surveys were conducted in Uganda (April 2019 and September 2020). Our primary outcome of interest was the modern contraceptive prevalence rate, which was compared at both times. We obtained rates (with 95% confidence intervals) and further disaggregated them by individual adolescent characteristics: age, marital status, highest education level, sexual activity status, residence, household wealth quintile and exposure to family planning messages (through radio, television, phone, social media, print media, community health workers or health facilities). We incorporated survey weights in all analyses to obtain results representative of adolescents aged 15–19 in Uganda. We calculated risk ratios to compare the modern contraceptive prevalence rate at the two times. We considered risk ratios to be statistically significant if their corresponding p value was less than 5% (Appendix Table 2, page 8).

References

1. Uganda Bureau of Statistics (UBOS) and ICF, *Uganda Demographic and Health Survey 2016,* Kampala, Uganda: UBOS; and Rockville, MD, USA: ICF, 2018, http://dhsprogram.com/pubs/pdf/FR333/FR333.pdf.

2. Kiberu VM et al., Strengthening district-based health reporting through the district health management information software system: the Ugandan experience, *BMC Medical Informatics and Decision Making,* 2014, 14:40, https://doi.org/10.1186/1472-6947-14-40.

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4. Performance Monitoring for Action (PMA) Uganda 2021, www.pmadata.org/countries/uganda.

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Appendix Figure 1. Percentage change by month in visits for condoms among 15–19-year-old clients, 2020 vs. 2019

% difference between 2020 and 2019 at Private Provider #2 facilities
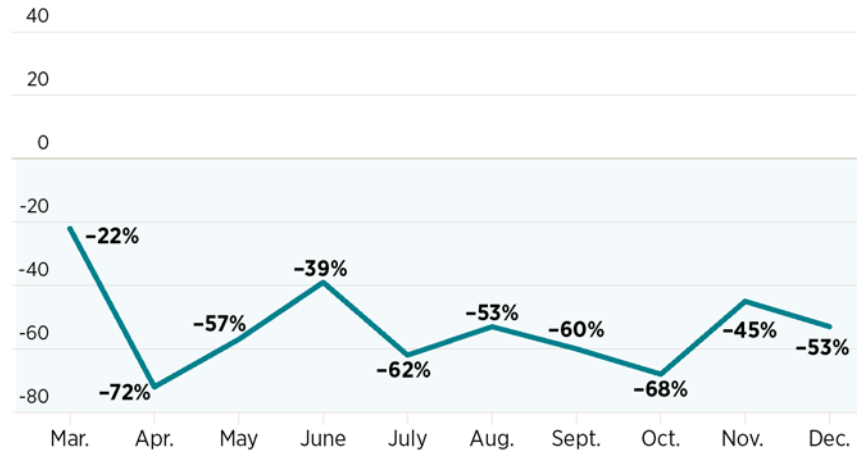
Appendix Figure 2. Percentage change by month in visits for pills and injectables among 15–19-year-old clients, 2020 vs. 2019

% difference between 2020 and 2019 at Private Provider #2 facilities
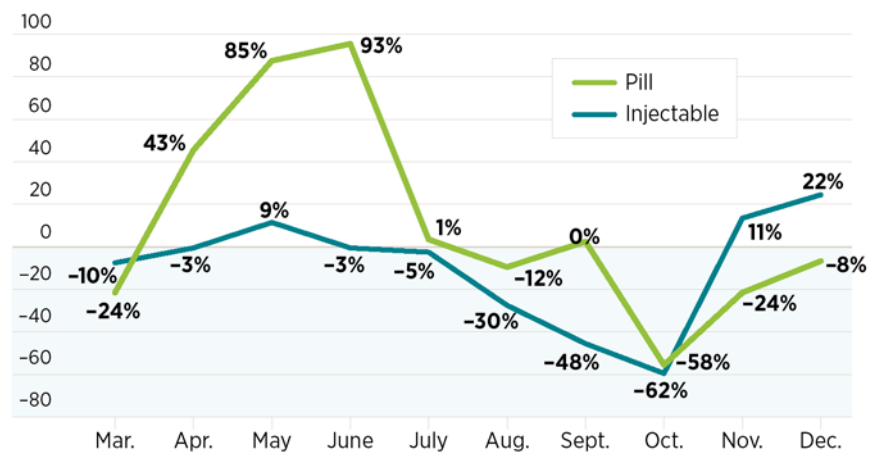
Appendix Figure 3. Total number of monthly contraceptive visits among 10–19-year-olds, by type of contraceptive method, Jan. 2018–Dec. 2020

No. of family planning service visits, HMIS data
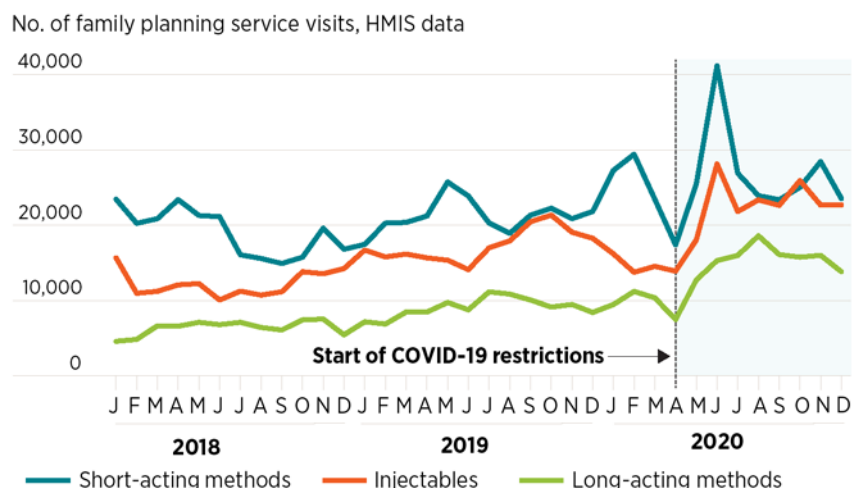
Appendix Table 1. Effect of COVID-19 on family planning visits according to monthly HMIS reports among 10–19-year-olds, Uganda, January 2018–December 2020

Period	Adjusted incidence rate ratio	95% confidence interval	p-value
Jan. 2018–Dec. 2019 (reference group)	1.00	na	na
Jan.–Mar. 2020	0.88	0.77–1.01	.076
Apr. 2020	0.62	0.54–0.72	<.001
May–Dec. 2020	1.09	0.97–1.22	.155
Trend term	1.02	1.01–1.03	<.001

Note: Results were adjusted for seasonality (month) and trend in family planning service visits over the 36-month period Jan. 2018–Dec. 2020. na=not applicable.

Appendix Table 2. Modern contraceptive prevalence rate among adolescents aged 15–19 in Performance Monitoring for Action surveys conducted in Uganda in April 2019 and September 2020

Characteristic	Rate (95% confidence interval)		Risk ratio
	April 2019	**September 2020**	
Overall	9.7 (7.4–12.5)	13.3 (10.7–16.5)	1.37*
Age			
15–17	5.3 (3.4–8.4)	6.5 (4.2–9.9)	1.23
18–19	14.9 (11.3–19.4)	23.6 (19.2–28.7)	1.58*
Marital status			
Not married/not in union	7.5 (5.3–10.5)	9.8 (7.2–13.3)	1.31
Married/in union	17.7 (11.5–26.4)	29.8 (23.4–37.1)	1.68*
Highest education attained			
None	3.9 (0.4–27.7)	3.1 (0.4–19.8)	0.79
Primary	9.5 (6.5–13.5)	15.6 (12.0–20.0)	1.64*
≥secondary	10.3 (7.2–14.5)	11.4 (8.1–15.9)	1.11
Sexually active			
No	3.9 (2.6–6.0)	4.7 (3.2–6.8)	1.21
Yes	22.4 (17.0–29.0)	40.6 (33.7–47.8)	1.81*
Residence			
Urban	9.6 (5.5–16.2)	11.6 (8.3–16.0)	1.21
Rural	9.7 (7.4–12.8)	13.9 (10.9–17.6)	1.43*
Household wealth quintile			
1 (poorest)	8.3 (4.2–15.7)	11.6 (6.4–19.9)	1.40
2	5.8 (2.6–12.4)	15.0 (9.8–22.3)	2.59*
3	9.0 (5.3–15.1)	13.8 (9.2–20.1)	1.53
4	9.7 (4.9–18.2)	17.0 (11.8–23.8)	1.75
5 (wealthiest)	14.4 (9.3–21.8)	9.6 (5.8–15.5)	0.67
Exposed to family planning messages			
No	5.7 (1.5–18.6)	9.7 (4.5–19.9)	1.70
Yes	11.4 (8.9–14.6)	15.2 (12.0–19.0)	1.33*

*Statistically significant at p<.05.