Nigeria Reproductive Health, Child Health, and Education Household, School, and Health Facility Baseline Surveys, 2007

Executive Summary

Joseph Keating
MEASURE Evaluation

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Nigeria Reproductive Health, Child Health, and Education Household, School, and Health Facility Midline Surveys, 2007

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Cover photograph showing a child being weighed at a Nigerian clinic for mothers is by photographer Liz Gilbert,

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Introduction

This executive summary reports on the findings from the 2007 Nigeria reproductive health, child health, and education household, school, and health facility midline surveys (three surveys in total). Additional results from the surveys are contained in a separate report: *Nigeria Reproductive Health, Child Health and Education Midline Household Survey, 2007*; *Nigeria Midline Health Facility Survey, 2007*; and *Nigeria Midline Primary School Headmaster and Teacher Survey, 2007*. The surveys provide midline evaluation data for the Community Participation for Action in the Social Sectors (COMPASS) Project and for the U.S. Agency for International Development mission in Nigeria (USAID/Nigeria). The surveys were implemented in 51 local government areas (LGAs) in the states of Bauchi, Federal Capital Territory (FCT), Kano, Lagos, and Nasarawa where the COMPASS Project is being implemented. The purpose of the COMPASS Project is to enhance health services, and promote child survival and improved literacy. The core idea behind COMPASS is to integrate the health, child survival, and education sectors through the promotion of community coalitions. The COMPASS Project will be evaluated using three waves of data collection. The following surveys were implemented at baseline in 2005, and again at mid-term in 2007: a household survey on reproductive health, child health and education; a health facility survey; and a primary school headmaster and teacher survey. A final round of surveys will be conducted at the end of the project in 2009.

The COMPASS Project and MEASURE Evaluation's Role

In 2004, USAID/Nigeria awarded Pathfinder International and its partners a five-year contract to assist USAID/Nigeria in developing a strategic framework for integrating and developing child health, reproductive health, and education programs in Nigeria. Collaborating partners under COMPASS include the Center for Communication Programs at Johns Hopkins University, Creative Associates International, Constella Futures (formerly The Futures Group International), Adolescent Health and Information Project, Federation of Muslim Women's Associations of Nigeria, Nigeria Medical Association, Management Sciences for Health, and the Civil Society Action Coalition on Education For All.

COMPASS aims to improve access to health within five Nigerian states and improve access to education in three Nigerian states, affecting roughly 18 million people. The five states in which the COMPASS Project operates differ from each other not only in terms of languages spoken, ethnic groups, and religion, but also in terms of existing access to and availability of health and education services. The current timeline for project implementation is from May 2004 through May 2009.

The COMPASS Project aims to contribute to USAID/Nigeria's strategic objective for improved social sector services (SO13). Specifically, the project aims to contribute to each of USAID/Nigeria's SO13 indicators:

- increased DPT3 coverage
- increased contraceptive prevalence rate (CPR)
- increased birth spacing
- increased student retention

To that effect, the project objectives include:

- improving the quality of health and education services (IR13.1)
- improving local communities' ability to

participate effectively in policy dialogue on health and education (IR13.2)

- increasing demand for quality health and education services (IR13.3)
- increasing access to both health and education facilities (IR13.4)

MEASURE Evaluation is the external evaluator for the COMPASS Project. MEASURE Evaluation, in consultation with Tulane University, COMPASS, and USAID/Nigeria, implemented a household survey, a school survey, and a facility survey in 2005 and again in 2007. MEASURE Evaluation at Tulane University contracted the Center for Research, Evaluation, and Resource Development (CRERD), a local research organization based in Ile-Ife and affiliated with Obafemi Awolowo University (OAU), Nigeria, to implement the household, health facility and school surveys in the 51 LGAs where the COMPASS Project operates.

Survey Methods

CRERD, in consultation with MEASURE Evaluation/Tulane University, designed the sampling strategy, recruited and trained the field survey teams, and collected, cleaned and entered the data. MEASURE Evaluation/ Tulane University was responsible for all aspects of the midline survey work, including the modification of the questionnaires, conducting data analysis, and producing the midline survey report.

The COMPASS Project will be assessed using three waves of cross-sectional surveys in the project target areas. Three different types of surveys were conducted at baseline in 2005 and again at midline in 2007: a final round will be conducted in 2009. The following surveys were conducted:

- a large-scale household survey among a representative sample of women aged 15-49 and men aged 15-64;
- a census of primary health care facilities (comprehensive health care centers, public and primary health care centers, health clinics, private health center/maternity, private clinics, uniformed services clinics, health posts, and dispensaries) and patent medicine vendors (PMV) in communities selected as part of the household survey; and
- a survey of primary schools (public and private), including both teachers and headmasters from each selected school, in communities selected as part of the household survey.

The baseline data for each of the three survey types were collected in 2005 and the midline 2007 surveys were completed in March 2007. The objective of both the 2005 baseline surveys and the 2007 midline surveys was to collect quantitative data on reproductive health, child survival, and primary school education indicators among a representative sample of respondents, health facilities, and schools in the 51 target LGAs. Education and demographic information about all children residing in the selected houses was also obtained from respondents. Information about child health was collected about children who were either the last birth or second to last birth, and who were 59 months old or younger at the time of the survey. Because the project is likely to have spillover effects in non-intervention LGAs (which, in fact, would be a desirable outcome), it is not possible to include control groups in the study design.

Sample Design and Size

Sample size calculations were conducted and compared using regional estimates of five indicators: contraceptive prevalence, modern contraceptive prevalence, DPT1, DPT2, and DPT3 rates. The final sample size was based on contraceptive prevalence rates in the area.

The results indicated a sample size of 80 respondents per LGA would allow detection of changes of 25 percentage points at the LGA level with 90% power and 95% confidence (and much more accurate estimates at the state level). Given that there are 51 project LGAs, the target sample size was 4,080. Allowing for 10% non-response, the sample size was increased to 4,550. The sample size for children was a function of the number of children living in the selected house, and meeting specific age criteria (Table 1). Since the facility and primary school surveys are linked surveys, they did not have a predetermined sample size. The sample size for the school and health facility surveys depended on the number of facilities and schools used by the respondents in the household survey.

A multi-stage stratified sampling strategy was used for the household survey. Assuming 25 interviews per enumeration area (EA), 182 EAs were needed to achieve the target sample size for the household survey. The number of intervention LGAs varied by state in the ratio 1:1:2:2:1 for Bauchi, FCT, Kano, Lagos and Nasarawa, respectively. As such, allocating the EAs proportional to population size would not have been appropriate, as this would have resulted in very small sample sizes for some of the states. Hence, 52 EAs were selected in Kano and Lagos, while 26 were selected in each of the other states. Within each state, EAs were selected proportional to the population size of the respective LGAs. Within each LGA, the required number of enumeration areas was selected using a table of random numbers. Within each selected EA, 25 households were selected using systematic random sampling. Because the EAs were not selected proportional to the population size of the respective COMPASS Project LGAs in each state, standardized state-level weights were applied to all between-state estimates. Weights were based on the proportion of the population in the COMPASS LGAs in each state (relative to the total population across all COMPASS LGAs in all five states) and the proportion of houses sampled in COMPASS LGAs in each state (relative to the total number of sampled houses across all COMASS LGAs in all states). The total estimates across all states and sub-groups in the household survey reflect weighted totals.

The health facility and primary school surveys are linked to the household survey. The facility survey includes all public and private primary health care facilities serving the population interviewed in the household survey. The school survey sample includes all primary schools (public and private) that serve the families of those interviewed in the household survey. Hence, the facility and school surveys may include some facilities or schools that are located outside the enumeration areas selected for the household survey. By linking the facility and primary school surveys to the household survey, it will be possible to assess the effect of improvements in health services and education on individual health outcomes. Table 1 reports on the respective sample sizes used in the three midline surveys.

Questionnaire Development

MEASURE Evaluation/Tulane University, in consultation with COMPASS and USAID/Nigeriea, developed the questionnaire at baseline, and modified the questionnaire at midline. The individual household questionnaire was adapted from the standard Demographic and Health Survey (DHS) instrument, and included sections on reproduction, contraception, pregnancy, antenatal care, media exposure, marriage and sexual activity, fertility preferences, partner's background, childhood illness and immunization coverage, and primary school attendance. The health facility questionnaire was also adapted from the standard DHS instrument, and included sections on types of services offered at the facility, vaccine logistic systems, child health services, family planning

services, antenatal care (ANC) and postpartum care (PPC) services, delivery and newborn care services, and select medications. The primary school headmaster and teacher questionnaires included sections on each school's general background, record keeping, school health activities and health curriculum, materials and resources, parent teacher associations, teacher and headmaster's experience, and family education. COMPASS, MEASURE Evaluation/Tulane University, and CRERD participated in the drafting and modification of the questionnaires. The questionnaire was translated into the three major local languages of the five COMPASS states (Hausa, Igbo, and Yoruba), then back-translated into English to check for accuracy. The questionnaire was interviewer-administered. Geographic coordinates were collected at the enumeration area level using Garmin eTrex® hand-held navigational unit and downloaded using GPS Utility.

Training of Field Survey Teams

Training of field staff was conducted in two stages. First, supervisors received a four-day centralized training at OAU. Subsequent three-day regional trainings of the field teams were held in each of the five states. Field survey teams were recruited from each state. CRERD led all trainings. MEASURE Evaluation/ Tulane University met with CRERD in Abuja to coordinate trainings and survey timing. Training consisted of a question-by-question review of the questionnaire, review of the sampling methodology, instruction in the use of the hand-held navigational units, role plays, and pretests of the questionnaire. A total of 227 interviewers and 69 supervisors received training. Of these, 145 interviewers and 53 supervisors, balanced evenly between men and women, were retained for the surveys. All trainings were conducted in February and March, 2007.

Data Collection

Data collection began immediately at the completion of each regional training workshop. Fieldwork started in February 2007 and was completed by the end of March 2007. All analyses were done using STATA 9.0 (STATA Corporation, College Station, TX). Descriptive statistics were used to summarize household, health facility, and primary school survey data by select demographic characteristics. Chi-square test statistics (χ^2) were used to assess differences between indicator values at baseline versus midline for the total estimates only. The probability of committing a type-1 error (alpha) was set at 0.05; differences between estimated baseline and midline indicator values were statistically significant if $P<0.05$.

Limitations

As with all cross-sectional surveys, these surveys are subject to response and recall biases. Self-reported data may reflect a perceived desirability of responses rather than actual knowledge or practices. Reponses to questions related to events in the distant past are also subject to bias. A second limitation stems from the lack of a comparison group; because this project will most likely have spill-over effects into neighboring areas, identifying a comparable control group was not possible. Because the survey sample is restricted to those 51 LGAs targeted by the COMPASS Project, the results from this survey may not be representative of the entire populations of Bauchi, FCT, Lagos, Kano, Nasarawa, nor of other Nigerian States. As well, COMPASS does not work in all areas of the respective LGAs. Lastly, because this evaluation exercise is intended to measure changes in indicator estimates at the population level, and capturing change at the population level is not always possible over short periods of time, the estimates produced may not be consistent with observed changes in outcomes at the program level.

Results

Key results of the respective surveys are presented below under the corresponding subject heading. Although the results presented here are in no way comprehensive, they are organized to present an overview of the key findings and indicators to be used as midline values for the monitoring of the COMPASS Project. Table 1 summarizes the sample sizes used in the tabulation of indicators. Table 2 summarizes the estimated values of the USAID and COMPASS indicators, as well as the definition, calculation, and data source for each, as defined and determined by USAID and COMPASS.

Midline Household Survey Results

A total of 2,207 women and 2,332 men were sampled from within selected households (Table 1).

Median Birth Intervals

- The median birth interval was 24 months for the last birth and second to last birth across all states, at both baseline and midline.
- The median birth interval was 20.5 months for Kano, Lagos, and Nasarawa LGAs, and 17 months across all births and states.
- Approximately 3-quarters of all births were separated by at least 24 months.

Use of Family Planning Methods

- One in four females reported use of modern contraception at midline, an increase of almost three-fold since baseline ($P < 0.01$).
- Contraceptive prevalence for women reporting no partners in the last 12 months increased from less than one in 10 at baseline (7%) to almost six in 10 (58%) at midline ($P < 0.01$).
- Contraceptive prevalence increased from one in 10 women (10%) at baseline to three in 10 women (28%) at midline for the LGAs in the states of Kano, Lagos, and Nasarawa ($P < 0.01$).

Table 1. Population, Number of Enumeration Areas, and Proposed and Actual Midline Sample Sizes by COMPASS Project LGAs in Each State

	Bauchi	FCT	Kano	Lagos	Nasarawa	Total
State population	1,355,181	371,674	2,476,911	4,388,647	498,682	9,091,095
Number of EAs sampled	26	26	52	52	26	182
Proposed HH sample size	650	650	1,300	1,300	650	4,550
Actual HH sample size	650	651	1,296	1,292	650	4,539
Male respondent	316	297	655	548	391	2,207
Female respondent	334	354	641	744	259	2,332
Mothers (has any child)	242	234	496	491	210	1,673
Children 6-14 years	916	574	1,905	852	932	5,179
Children 6-11 years	673	419	1,386	565	677	3,720
Children 0-59 months	227	183	393	341	184	1,333
Children 6-59 months	196	174	360	312	182	1,224
Children 12-59 months	174	157	327	276	156	1,090
Children 0-23 months	97	77	172	151	65	562
Children 12-23 months	44	50	95	86	32	307
Children 0-5 months	31	10	44	29	7	121
Health facilities sampled	38	36	71	70	27	242
Schools sampled	164	53	308	206	45	776
Teachers sampled	651	260	1,648	1,086	278	3,923

Antenatal Care and Breastfeeding

- The percentage of women obtaining ANC at least four times at a hospital or clinic for the last pregnancy increased from 31% at baseline to 37% of women at midline ($P < 0.05$).
- ANC increased by almost 10% from baseline to midline for women in Lagos and Nasarawa ($P < 0.05$).
- Less than one in four infants 0-5 months of age were exclusively breastfed 24 hours prior to the survey, at both baseline and midline ($P = 0.87$).
- The percent of women who were satisfied with services at time of last visit to health center increased across all states, with the total increasing from 65% at baseline to nearly 80% at midline ($P < 0.01$).

Childhood Illness and Vaccinations

- One in three children 0-23 months old with diarrhea was given the recommended oral re-hydration therapy (ORT) at baseline; over half were given ORT at midline ($P = 0.21$).
- The percent of children 0-59 months old who slept under an insecticide treated net the night before the survey remained low: less than 3% at baseline and less than 4% at midline ($P = 0.31$).
- The percent of children who received three doses of DPT before their first birthday declined across all states ($P < 0.05$), and although the percent of children receiving three doses of DPT in Nasarawa increased four-fold (4% to 16%), this increase was not statistically significant ($P > 0.05$).

School Attendance, Retention, and Promotion

- Attendance rates for male and female students remained constant from baseline to midline, with four out of 10 children ages 6-14 years old reporting attendance at school.
- Parental satisfaction with the schools their children are attending increased from 39% at baseline to 63% at midline ($P < 0.01$).
- Repeater rates went down and drop out rates were slightly up from baseline to midline for the schools in Kano, Lagos, and Nasarawa.
- The gender parity fell from 0.96:1 female/male student ratio, to 0.90:1 female/male student ratio.

Midline Health Facility Survey Results

A total of 242 health facilities were included in the sample (Table 1). These health facilities represent all public and private health facilities in the communities of selected respondents participating in the household survey. Dispensaries and PMVs are included unless otherwise specified.

Family Planning Services

- The percent of health facilities offering at least three modern methods of contraception increased slightly, from 13% to 19% ($P = 0.09$), although a 10% increase was observed in public health facilities ($P < 0.05$).
- About the same percentage of health facilities offered family planning services at baseline and midline ($P > 0.05$).
- The percentage of health facilities offering family planning that have visual aids about family planning and ANC increased from four out of 10 facilities to almost seven out of 10 facilities ($P < 0.01$), with the biggest increases observed in private health facilities.
- About one in four health facilities made condoms available to youth at both baseline and midline ($P > 0.05$).

Antenatal Care and Postpartum Care Services

The percentage of health facilities that offered ANC services on the day of the survey stayed roughly the same from baseline to midline.

Child Health Services

- The percentage of health facilities offering vaccine services decreased from nearly 100% at baseline to about six in 10 at midline ($P < 0.01$).
- Likewise, the percent of health facilities with all six antigens was down from baseline, although not statistically different ($P = 0.16$).
- The percentage of health facilities that offer vaccination outreach programs, among health facilities offering any vaccine services, nearly tripled, from less than 14% at baseline to over 37% at midline ($P < 0.01$).
- The percent of health facilities offering separate waiting areas for youth doubled from less than 8% at baseline in over 16% at midline ($P < 0.05$).

STI and HIV/AIDS Services

- More than half of all health facilities offer some STI or voluntary counseling and testing (VCT) services.
- Less than 12% of STI/HIV/VCT service providers report that their facility offers STI procedures or products for treating STI.
- More than three-quarters of facilities offering VCT have a confidentiality protocol in place; 66% of VCT facilities have an informed consent protocol.

Midline School Headmaster and Teacher Survey Results

A total of 776 primary schools were sampled from within the communities selected for household sampling. A total of 135 COMPASS supported schools from Kano, Lagos, and Nasarawa states were included in the sample. A total of 3,923 teachers were sampled from within classrooms of the primary schools sampled (Table 1).

School Materials, Resources, and Amenities

- The percent of COMPASS schools that practice interactive radio instruction (IRI) was almost twice that of non-COMPASS schools.
- The percent of public schools that practice IRI increased from less than 17% in 2005 to over 40% in 2007 ($P < 0.01$); the percent of public schools was over twice that of private or military schools in 2007 ($P < 0.01$).
- The percent of schools with a parent teacher association increased by 20% in Nasarawa ($P < 0.01$).
- The percentage of primary schools with clean water, latrines, health in the curriculum, records of teachers' referrals of children to health facilities, and child health cards or records showing immunization, supplementation of micronutrients, or de-worming given at school was less than one in 10 schools at baseline and midline ($P > 0.05$).
- The percent of primary schools that have clean water (tap, covered well, or borehole) and allow free access to students increased from baseline to midline ($P < 0.05$).

Classroom Infrastructure, Materials, and Resources

The percentage of teachers who have basic infrastructure and furniture in the classroom, including floor, roof, window, blackboard, seat and writing surface for each pupil, teacher's table and teacher's chair decreased from 43% at baseline to 40% at midline ($P < 0.01$).

National Standards, Record Keeping, and Supervision

The percent of primary schools that meet four national service standards (teacher and pupil attendance records kept, pupil/toilet ratio of 40:1, separate female toilet with door, and a teacher trained in first aid) decreased from 5% at baseline to less than 1% at midline ($P < 0.01$).

Gender Equity

The percent of schools that have private latrine for girls and more than 40% female teachers on staff, as reported by the headmaster, increased sharply in Kano and Lagos ($P < 0.01$), but decreased in Nasarawa from baseline to midline ($P < 0.05$).

Table 2. Summary of USAID Indicators Included in Midline Report (2007)

	Indicator	Definition and Calculation	Data Source	Baseline Value (2005)	Midline Value (2007)
1	DPT3 immunization coverage	Percent of children ages 12-23 months who received 3 doses of DPT before their 1st birthday, according to health card	Household (HH) survey	12%	6%*
2	Contraceptive prevalence rate (CPR)	Percent of all women 15-49 years who report current use of a modern method of contraception at the time of the survey	HH survey	9%	25%**
3		Percentage of in-union women of reproductive age using or whose partner is using a modern method of contraception	HH survey	9%	32%**
4	Birth interval	Median number of months separating successive births among women with two or more births	HH survey	24	24
5		Proportion of births that are separated by 24 months and above among women with 2 or more births	HH survey	64%	69%
6	Pupil retention	The survival rate of primary school pupils by cohort (grade by grade, the proportion of pupils who move from one grade of primary schooling to the next)	School survey	P1 98.8% P2 98.5% P3 98.3% P4 97.1% P5 96.5%	P1 99.4 P2 97.5 P3 95.1 P4 93.7 P5 93.0
7	Schools meeting national service standards for priority interventions	Percent of schools that meet the following four standards: keep teacher and pupil attendance records, pupils/toilet (40:1), separate girls' toilet with door, trained first aid teacher	School survey	5%	1%**
8	Public and private health facilities meeting national service standards for priority interventions	Percent of public and private facilities providing three or more modern contraceptive methods with at least one trained provider to administer each and maintaining accurate registers	Health facility survey	13%	19%
9	Customers (client and community) that are satisfied with health services	Percent of women who were somewhat satisfied with or very satisfied with health facility services at time of last visit	HH survey	65%	79%**
10	Schools implementing girl-friendly education services	Percent of schools with private latrine for girls and 40%-60% female teachers	School survey	66%	82%**
11	Facilities that offer family planning and reproductive health services	Percent of health facilities with at least two modern contraceptive methods available at the time of the survey, a trained provider such as a physician, nurse-midwife, pharmacist, medical officer or community health extension worker (CHEW) who has undergone at least basic family planning training, and completed family planning and ANC records	Health facility survey	15%	21%
12	Facilities that offer routine immunization	Percent of facilities offering all the six essential antigens for child immunization: DPT1-3, measles, OPV, and BCG; and possess completed immunization records	Health facility survey	11%	7%

Table 2 (continued). Summary of USAID Indicators Included in Midline Report (2007)

	Indicator	Definition and Calculation	Data Source	Baseline Value (2005)	Midline Value (2007)
13	Gender parity in target schools	Gender parity index = (girls gross enrollment/girls of primary school age) ÷ (boys gross enrollment/boys of primary school age)	School survey	0.96	.90
14	Classrooms equipped with basic instructional materials	Percent classrooms with basic instructional materials: wall charts, posters, IRI teacher guides, IRI pupil worksheets, text books, games, supplemental readers, and other teacher guides. Classrooms qualify as equipped if all of these 8 items are observed to be in the classroom	School survey	1%	4%**
15	Appropriate treatment of children with malaria	Percent of children 0-23 months with febrile episode during last two weeks who received the anti-malarial therapy recommended	HH survey	23%	12%
16	Appropriate treatment of children with diarrhea	Percent of children 0-23 months with diarrhea episode during last two weeks who received the recommended oral re-hydration therapy (ORT)	HH survey	36%	52%
17	Appropriate treatment of children with ARI	Percent of children 0-23 months with ARI episode during last two weeks who received the recommended anti-biotic therapy	HH survey	18%	19%
18	Skilled assisted delivery	Percent of last deliveries attended by a trained provider: midwife, nurse, CHEW, CHO, or doctor	HH survey	33%	35%
19	Pregnant women attending antenatal clinic	Percent of mothers who obtained ANC services at least four times during their last pregnancy from a trained provider at a hospital or clinic	HH survey	31%	37%*
20	Children who are fully immunized	Percent of children 12-59 months old who received BCG, DPT1-3, OPV 1-3, and measles by first birthday, according to card	HH survey	4%	2%*
21	Rate of Vitamin A supplementation coverage	Percent of children 6-59 months old who received Vitamin A supplement in the past six months, card or recall	HH survey	23%	20%
22	Children under 5 who sleep consistently under ITNs	Percent of children under 5 years old who slept under an ITN last night	HH survey	3%	4%
23	Children who are exclusively breastfed	Percent of children 0-5 months who were exclusively breastfed in past 24 hours	HH survey	22%	23%
24	ANC clients immunized with TT	Percent of women who were given two doses of TT during ANC at last pregnancy, if needed	HH survey	49%	48%
25	Women who receive IPT during pregnancy	Percent of women receiving IPT with Fansidar at least once during ANC visit	HH survey	9%	9%
26	Schools that provide health care for pupils	Percent of schools with clean water, latrines, health in curriculum, records of teachers' referrals of children to health facilities, and child health cards or records showing immunizations, supplementation of micronutrients or de-worming given at school	School survey	6%	8%
27		Percent of schools with clean drinking water available on site, children have free access, source (well or borehole), clean covered storage/reservoir	School survey	40%	45%*
28	Classrooms with basic infrastructure and furniture	Percent of classrooms with floor, roof, window, blackboard, chair for each pupil, writing surface for each pupil, teacher's table, teacher's chair	School survey	43%	40%**
29	Parents that are satisfied with services: education (KLN total)	Percent of parents who are satisfied or somewhat satisfied with their child's school experience in the last week	HH survey	40%	64%**

Note: Statistically significant difference between 2005 baseline and 2007 midline survey indicator estimates (χ^2 – Chi-square test statistic): $^{*}P < 0.05$; $^{**}P < 0.01$.

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