Supplementary Appendix 5 – Endline Data Collection

Brazil

Quantitative data

IHME did not engage in primary data collection for quantitative data in Brazil. Instead, de-identified individual-level data for enrolled individuals provided to IHME by HealthRise grantees was used for both monitoring and the endline evaluation.

No sample size was calculated given that we received data for all available patients. For the endline analysis, data were limited to individuals with two or more biomarker readings (blood pressure or glycated hemoglobin [A1c]) available in order to observe changes over time. The first available biomarker reading at or after enrollment was used as the first observation, while the most recent reading was used as the last observation, provided the measurements were taken on a different date.

Qualitative data

Key informant interviews and focus group discussions were conducted in intervention and comparison areas. Comparison locations were selected based on similar sociodemographic characteristics and the absence of any HealthRise programs.

Qualitative data collection activities were conducted in a sample of facilities, which were selected based on the number of diabetes and hypertension patients enrolled. The selection of facilities in the intervention areas also took into consideration the rate of follow-up (number of HealthRise enrollees who attended two or more consultations). Both facilities with high and low follow-up rates were selected. In Vitoria da Conquista, in addition to the three selected primary health units, data were also collected at “Serviço Social da Indústria (SESI)”. Moreover, since interventions in this site were restricted to urban settings, only urban health units were visited for data collection in Pocoes (comparison region).

Key informant interviews were conducted with a sample of administrators and providers from each of the facilities, as well as with policymakers whose work was relevant to the intervention areas, such as members of the health secretary or local primary health care coordinators. Health providers were randomly selected after being identified from an initial list provided by each of the facility managers. Facility administrators and policymakers were identified through the implementation teams. Interviews were scheduled at the interviewee’s convenience.

Patients were recruited to participate in focus group discussions by health facility staff on behalf of the field enumerators, with advance notice. All interviews and focus group discussions were conducted in Portuguese and were audio recorded, transcribed, and, finally, translated to English.

Complete versions of interview and focus group discussion guides are available at http://www.healthdata.org/healthrise-evaluation/data-collection-tools.

Shimla, India

Quantitative data

Endline data collection in Shimla included quantitative and qualitative components. Quantitative data was collected via health facility surveys and patient surveys, while qualitative data was collected through key-informant interviews and focus group discussions.

Intervention facilities were facilities located in the Mashobra and Theog blocks in Shimla, where MAMTA conducted HealthRise program activities. Comparison facilities were facilities located in the Tikker and Jubbal Kotkhai blocks in Shimla where no HealthRise program activities were conducted; Comparison blocks were selected based on sociodemographic similarities to intervention blocks. The surveys conducted at intervention facilities and comparison facilities were nearly identical, with the exception of a small number of questions specifically related to HealthRise programs which were asked in intervention facilities but were not included in the comparison facility surveys. Full versions of the health facility survey can be found at http://www.healthdata.org/healthrise-evaluation/data-collection-tools.

Patient surveys were conducted at the same facilities in which health facility surveys were conducted. Patient interviews included biomarker measurements. Specifically, the patients' blood pressure and HbA1c were measured using point-of-care diagnostic kits. A quota was defined for the number of participants needed for the patient survey based on location in an intervention or comparison block, the number of facilities in the sample, and the total sample size needed to detect a difference ≥ 1 in *HbA1c* and ≥ 5 in systolic blood pressure between intervention and comparison areas with a power greater than 80% (with an alpha error of 0.05). Power calculation assumptions were based on baseline household survey data. In Shimla, the quota was six patients with diabetes and 10 patients with hypertension per facility in intervention blocks and nine patients with diabetes and 15 patients with hypertension in comparison blocks. In cases when there was an insufficient number of patients arriving at a selected facility over two days of surveying, additional patients above the quota number were surveyed at other facilities to reach the total needed sample size. All patients 30 years and older who had ever been told by a medical professional that they had hypertension and/or diabetes were considered eligible for the survey. Patients with both conditions could count toward the quota for either condition and were included in the analysis for both conditions. All eligible patients identified at health facilities were invited to participate in the patient survey.

Qualitative data

Qualitative data collection was conducted at a randomly selected subset of facilities in which quantitative data collection occurred. Interviews with Master Trainers were selected at random from a list provided by MAMTA. Interviews were conducted in Hindi and audio recorded. Complete versions of interview and focus group discussion guides are available at http://www.healthdata.org/healthrise-evaluation/data-collection-tools.

Eighteen of 33 facilities were selected within intervention blocks for inclusion in the study. All facilities in intervention areas with eClinic, NCD Day or SALT villages within their catchment area were selected with certainty, and remaining facilities were selected at random. Twelve of 33 facilities within comparison areas were selected at random.

South Africa

Quantitative data

Endline data collection in the South Africa district included quantitative and qualitative components. Quantitative data was collected via health facility surveys and patient surveys, while qualitative data was collected through key-informant interviews and focus group discussions.

Intervention facilities were facilities at which Project HOPE or Expectra implemented HealthRise program activities, while facilities in the same district in which no HealthRise programs were implemented were considered comparison facilities. The surveys conducted at intervention facilities and comparison facilities were nearly identical, with the exception of a small number of questions specifically related to HealthRise programs which were asked in intervention facilities but were not included in the comparison facility surveys. Full versions of the health facility survey can be found at http://www.healthdata.org/healthrise-evaluation/data-collection-tools

Patient surveys were conducted at the same facilities in which health facility surveys were conducted. Patient interviews included biomarker measurements. Specifically, the patients' blood pressure and HbA1c were measured using point-of-care diagnostic kits. A quota was defined for the number of participants needed for the patient survey based on location in an intervention or comparison block, the number of facilities in the sample, and the total sample size needed to detect a difference ≥ 1 in *HbA1c* and ≥ 5 in systolic blood pressure between intervention and comparison areas with a power greater than 80% (with an alpha error of 0.05). Power calculation assumptions were based on survey data provided by HealthFinders. In both Pixley ka Seme and uMgungundlovu, the quota was 21 individuals with diabetes and 19 individuals with hypertension at intervention facilities and 12 individuals with diabetes and 10 individuals with hypertension at comparison facilities. In cases when there was an insufficient number of patients arriving at a selected facility over two days of surveying, additional patients above the quota number could be surveyed at other facilities to reach the total needed sample size. All patients 30 years and older who had ever been told by a medical professional that they had hypertension and/or diabetes were considered eligible for the survey. Patients with both conditions could count toward the quota for either condition and were included in the analysis for both conditions. All eligible patients identified at health facilities were invited to participate in the patient survey.

Qualitative data

Qualitative data collection was conducted at a randomly selected subset of facilities in which quantitative data collection occurred. Interviews and focus group discussions were conducted primarily in English and were audio recorded Complete versions of interview and focus group discussion guides are available at http://www.healthdata.org/healthrise-evaluation/data-collection-tools.

All seven intervention facilities in Pixley ka Seme were surveyed, while 12 of the 22 comparison facilities surveyed at the baseline were selected at random to be included in the sample for endline data collection. All facilities surveyed at the endline were Provincial Health Clinics.

All seven intervention facilities in uMgungundlovu were surveyed, while 14 of the 16 comparison facilities surveyed at the baseline were selected at random to be included in the sample for endline data collection. Endline data collection in uMgungundlovu included Provincial Health Clinics and Community Health Centers.

United States

Quantitative data

IHME did not engage in primary data collection for quantitative data in the US. Instead, HealthRise grantees provided individual-level data to IHME for both monitoring and the endline evaluation. Below is a summary of specific considerations for endline analyses.

Intervention patient data

Monitoring data from each HealthRise grantee were used for the endline analysis. To best capture the potential impact of HealthRise on patients' outcomes, endline analyses were limited to HealthRise patients who (1) remained enrolled in the HealthRise program at endline (i.e., never withdrew from the program); and (2) had at least two separate biometric data points for either blood pressure (i.e., ideally both systolic and diastolic blood pressure, but at minimum, systolic) or A1c. Subsequently, quantitative endline evaluation results were meant to reflect potential effects from HealthRise program participation, and not "intention to treat," which would have included patients who enrolled but at some point withdrew from HealthRise programs.

For baseline measures, we used biometric data collected at HealthRise program enrollment, or if such data were not available at enrollment, biometric data collected at the date closest to program enrollment. For endline measures, we used the most recent biometric measurements taken for participants. Patients who only had biometric data available prior to HealthRise program enrollment were excluded.

Comparison patient data

Each HealthRise grantee provided comparison patient data drawn from patient populations similar to those who ultimately enrolled in the HealthRise program offered in Hennepin, Ramsey, and Rice counties.

Grantees selected comparison patient populations between October 2018 and January 2019, which has important implications for interpreting results contrasting HealthRise and comparison patient outcomes. First, no comparison patient enrolled in HealthRise programs, which means there is minimal chance of program exposure beyond enrolled patients. However, there is a chance that comparison patients differ significantly from patients who were ultimately recruited, enrolled, and maintained enrollment in HealthRise programs. Second, while the attempt was made to reconstruct a sample of comparison patients that was similar demographically and in terms of baseline health conditions to HealthRise patients (i.e., excluding comparison patients younger than 30 years and 90 years or older; excluding comparison patients who did not have a diagnosis of hypertension or diabetes *and* had baseline biometric data that fell within disease control categories), no formal matching or statistical processes were used to force the same distributions across all of these characteristics.

Hennepin. Data for patients who formed a comparison group were extracted from clinics associated with North Memorial but that had not enrolled in the HealthRise program. Selection criteria included having at least two biometric data measures for A1c or blood pressure – one in 2016 and one in 2018 – to approximate baseline and endline measurements for HealthRise patients; and being between the ages of 30 and 89 years old at "baseline." Because comparison patients were selected from a very similar base population to individuals who ultimately enrolled in HealthRise (i.e., North Memorial clinics), their demographic profile was also considered very similar to that of HealthRise patients.

Ramsey. Data for patients who formed a comparison group were extracted through Minnesota Community Care (formally named West Side Community Health Services); eligible individuals were patients who had not enrolled in HealthRise and had similar levels of A1c or systolic blood pressure as HealthRise patients at baseline. Beyond similar exclusions applied for HealthRise patients for endline analyses (i.e., patients who lacked more than one measurement of A1c and systolic blood pressure and therefore could not contribute to baseline *versus* endline comparisons), we limited comparison patients to those who had similar follow-up time to the distribution of program duration of HealthRise patients since 2016. This allowed for more direct comparisons of the potential for changing levels of A1c or systolic blood pressure, and/or improving disease control status, given HealthRise program implementation.

Rice. Data for patients who formed a comparison group were extracted from a partner clinic where HealthRise interventions were not implemented. Upon receiving the comparison patient dataset from HealthFinders, similar inclusion criteria as used for HealthRise patients were applied: between the ages of 30 and 89 years old; considered a prevalent case of diabetes or hypertension at "baseline" (i.e., either having received a diagnosis of diabetes or hypertension, or having biometric data within levels considered for diagnosis of diabetes or hypertension); and having at least two measures of A1c or blood pressure since 2016. If patients had biomarker data prior to January 1, 2016, panel data were truncated to start at 2016; this meant the time of observation for comparison patients could be more directly aligned with HealthRise patients' duration in the program. Unlike other comparison patient datasets, International Classification of Disease (ICD) codes for diabetes and hypertension were not available for patient diagnosis; instead, the diagnosis variable for HealthFinders comparison patients listed active diagnoses. Consequently, a text-matching algorithm was applied to assign diabetes and/or hypertension diagnosis based on the text data in this variable.

Qualitative data

Qualitative data collection in the United States was conducted by IHME and took the form of key informant interviews. Primary interviewees were identified from the country advisory committee, key partner organizations, and grantee organization leadership. Snowball sampling was used to identify clinical providers, Community Paramedics and Community Health Workers. Complete versions of interview and focus group discussion guides are available at http://www.healthdata.org/healthrise-evaluation/data-collection-tools.