

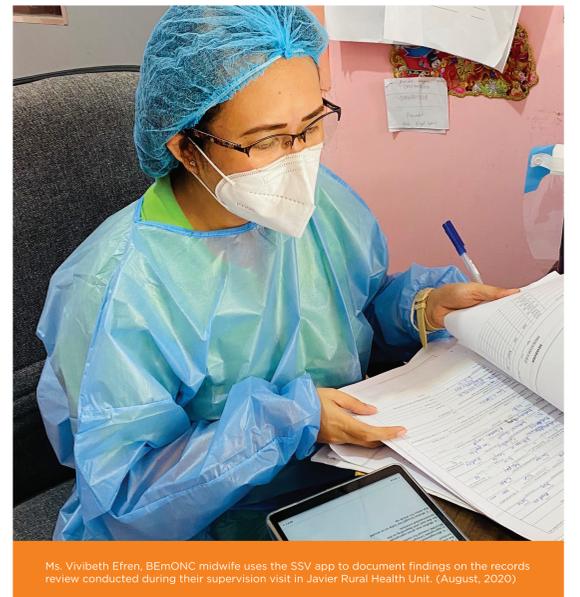
# Digital supervision app in the Philippines helped health workers and supervisors to access and use data



SSV supervisor in Goodwill ILHZ providing information to the supervisee (Public Health Nurse) on how to complete the action plan using the SSV app on their tablets. (March, 2020)



Health workers at the RHU Albuera gather with the supervision team from the Kammaso Integrated Health Zone in advance of a supervision visit. (November 2020)



Ms. Vivibeth Efron, BEmONC midwife uses the SSV app to document findings on the records review conducted during their supervision visit in Javier Rural Health Unit. (August, 2020)



## Benefits and Challenges of Digital Enhancements for Healthcare Worker Supervision in the Philippines: A Mixed-Methods, Group-Randomized Trial

Authors: Rachel Deussom/Chemonics, Eckhard Kleinau/URC, Edgardo Daya/Leyte Provincial Health Office, Agnes Jacinto Pacho/APMARGIN

**CONTEXT**  
Although digital technology plays an increasingly integral role in healthcare delivery, limited evidence explores the feasibility, acceptability, and effectiveness of transitioning from paper-based to digital supportive supervision in resource-limited settings. Building on the USAID HRH2030 Program systematic review of performance-enhancing healthcare supervision approaches in LMICs, this study examined how digital supervision support and facility self-assessment might lead to improvements in: data use among providers and supervisors; supervisor performance, interaction and satisfaction; provider competence and satisfaction; and health service readiness, provision and client satisfaction.

**METHODS**  
Ten integrated local health zones (ILHZ) in Leyte were randomly assigned to the treatment (digital app) or control (paper-based) group. The trial (January 2020-June 2021) included three rounds of data collection covering all 75 provincial health facilities through interviews and secondary data sources. The treatment effect was estimated using the difference-in-differences method, with the development and follow-up of supervisory actions as key outcomes.

TABLE 1. RESEARCH QUESTIONS AND MEASUREMENTS

1. Does digital supervision support and facility self-assessment lead to improved data use?	Data use by supervisors and providers was measured as the link between data from the supervision checklist, performance issues identified, actions planned, and actions taken.
2. Does digital supervision support and facility self-assessment lead to improved supervisor performance, interaction and satisfaction?	Competency levels of supervisors was measured as the completeness and accuracy of supervision checklists. Supervisor satisfaction was measured on a Likert scale using between three to five categories in response to statements about the supervision process and perceptions of performance, effectiveness and self-efficacy at baseline, midline, and endline, complemented by focus group discussions after the midline assessment.
3. Does digital supervision support and facility self-assessment lead to improved provider competence and satisfaction?	Competency levels of providers was measured as adherence to quality-of-care standards and guidelines for the provision of services related to BEmONC and FP, as reported in supervision checklists completed between January 2019-May 2021. Provider satisfaction was measured on Likert scales using between three to five categories in response to statements about the supervision process and perceptions of performance, effectiveness, and self-efficacy at baseline, midline, and endline, complemented by focus group discussions after the midline assessment.
4. Does digital supervision support and facility self-assessment lead to improved health service readiness, provision and client satisfaction?	Changes in health service readiness by facility were measured through relevant checklists and included availability of trained staff, essential supplies and basic equipment. Changes in the provision of BEmONC and FP services were measured using monthly FHSIS data from all facilities (January 2019-May 2021). Client satisfaction was measured on a 5-point Likert scale with statements about perceptions of facility quality at baseline, midline, and endline. Provider compliance with standards of care for antenatal care (ANC), labor and postpartum care and FP services was assessed through binary outcomes.

TABLE 2. ILHZ (DISTRICT) SUPERVISION TEAM LOCATIONS

Treatment ILHZs	Team Location	Control ILHZs	Team Location
GOLDEN HARVEST*	Leyte Provincial Hospital	CALESAN	Northwestern Leyte District Hospital
LEYTE GULF*	Leyte Provincial Hospital	LEYTE PLAINS	Burauen District Hospital
GOODWILL	Carigara District Hospital	MABAHINHIL	Hilongos District Hospital
KAMMAO	Ormoc District Hospital	MAINBAY	Western Leyte Provincial Hospital
MAHARLIKA	Abuyog District Hospital	WEST COAST	Manuel B. Veloso Memorial Hospital

\* Health facilities in Golden Harvest and Leyte Gulf ILHZs are supervised by one team

TABLE 3. SUPPORTIVE SUPERVISION TOOLS USED IN LEYTE PROVINCE

Tool	Purpose
Checklist 1: Resources	Assess the readiness of a health facility to provide BEmONC services
Checklist 2: Records Review	Review 3 BEmONC clinical records (randomly selected) to assess the quality of services
Checklist 3: Knowledge Application	Assess the level of knowledge and its application by BEmONC teams and midwives
Checklist 4: Clients Interview	Interview up to 2 clients who delivered at the facility
Checklist 5: Referral	Functionality of referral system
Checklist 6: CHT Activities	Assess the community health team (CHT) activities
Checklist 6A-C: Family Planning	Assess the quality of family planning services
Feedback tool	Summary of findings
Action plan tool	Action plan based on the summary above

## RESULTS

FIGURE 1. STUDY OUTCOMES AND TREATMENT EFFECTS (DIFFERENCE-IN-DIFFERENCE ESTIMATORS)

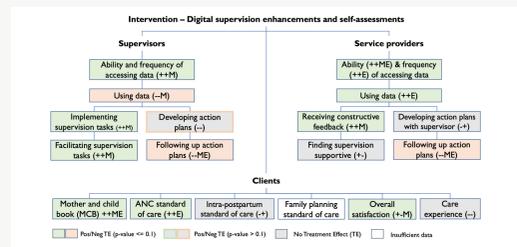
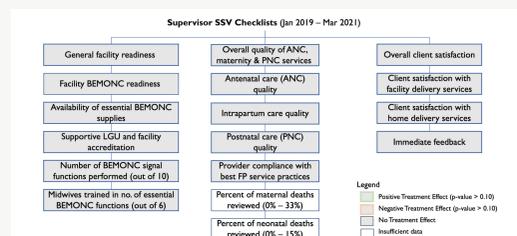


FIGURE 2. SSV CHECKLIST OUTCOMES AND TREATMENT EFFECTS (DIFFERENCE-IN-DIFFERENCE ESTIMATORS)



- Health provision and client satisfaction Client exit interviews (overall satisfaction, agreement on 7 positive service experience statements): Levels of satisfaction were very high; significant positive treatment effect of 0.17 points at midline (p-value 0.06), no increase at endline.
- Midline and endline, significant treatment effect of 24% (p-value 0.03) extent to which providers reported service delivery had been disrupted by COVID-19. Public providers had a 21% higher agreement that there were disruptions (p-value <0.01) than those in private.
- Supervisor ratings: App usefulness and ease of use decreased from midline (4.92 out of 5) to endline (4.5). Usefulness of self-assessments decreased from 4.22 at midline and 3.94 at endline; still highly effective in identifying actions to address service issues and in facilitating follow-up (4.66 at midline and 4.33 at endline). All these changes had significant t-tests, p-values less than 0.01.
- Provider ratings of the app and self-assessments: Provider access to the app was limited, dropping from 62% (midline) to 53% (endline). Private facilities had 24% greater access at endline than public. Frequency of access was directly correlated to the number of days per month that providers could connect their tablets to the Internet. Private providers had twice the connectivity than public at endline (a significant drop for public providers at a p-value <0.01). When asked about the ease of use and helpfulness of the app, dashboard and tablet, private providers rated these slightly higher than public.
- Based on SSV checklist data, private providers increased the number of self-assessments from 0.8 per quarter (midline) to 11 (endline), compared to 0.7 for public providers at both times. Uptake of self-assessments increased from midline to endline, from 32% to 76% of public facilities, and from 29% to 77% of private facilities. The development of action plans as a result of self-assessments occurred for 89% of private providers (midline), increasing to 92% (endline); for public providers, it decreased from 85% to 82%. Follow-up of action plans was similar in both groups, with a significant drop for private providers (p-value of 0.04).
- When providers were asked to evaluate the effectiveness, burden and usefulness of self-assessments compared to in-person visits, both public and private rated them at 4 (out of 5), with little change over time. Similarly, when asked about the effectiveness, influence and ease of use of remote technology for distance supervision, both types of providers rated this as 4.30-4.49 (scale 1 to 5); no significant change midline to endline.
- Summary:** The intervention produced a significant positive treatment effect (0.6 points; scale 1-5) for data access for supervisors and providers. Data use saw a significant positive effect (0.2 points; scale 1-3) for providers, and a significant negative effect (-0.8 points; scale 1-5) for supervisors. The development and follow-up of supervisory actions improved in both groups for supervisors (a significant negative treatment effect of -0.8 points). In contrast to supervisors, providers reported decreases in developing action plans by 6% (treatment group) and 13% (control group); their follow-up showed a -0.6-point significant negative treatment effect. Significant positive effects were observed for implementing and facilitating supervision tasks (supervisors) and receiving constructive feedback (providers). The intervention showed a significant positive effect for service quality and client satisfaction and streamlined supervision tasks, with providers utilizing immediate access to digital data. Additional training can address challenges related to supervisory data use and follow-up, particularly for supervisors.

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