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Improving access to services and interactions with clients in Guatemala: the value of distance learning

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Abstract

Objective To develop and test a distance-learning programme to improve the quality and efficiency of family planning services in Guatemala.

Methods The setting was rural family planning services in Guatemala. The study design was quasi-experimental with one intervention and one control group and with pre- and post-intervention measures. Two staff members from each of 20 randomly selected health districts were trained as leaders of the training programme. In turn, the 40 trainers trained a total of 240 service providers, under the supervision of four health area facilitators. The results were compared with 20 randomly selected control health districts. The intervention was a distance-learning programme including 40 in-class hours followed by 120 in-service practice hours spread over a 4-month period. Distinctively, the programme used a cascade approach to training, intensive supervision, and close monitoring and evaluation. Patient flow analysis was used to determine number of contacts, waiting times, and the interaction time between service providers and clients. Consultation observations were used to assess the quality and completeness of reproductive health information and services received by clients.

Results The intervention showed a positive impact on reducing the number of contacts before the consultation and client waiting times. More complete services and better quality services were provided at intervention clinics. Some, but not all, of the study objectives were attained. The long-term impact of the intervention is as yet unknown.

Conclusion Distance-learning programmes are an effective methodology for training health professionals in rural areas.

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Key message points

- In Guatemala, distance education proved useful in training doctors, nurses and health auxiliaries to improve the effectiveness and efficiency of reproductive health services.
- Distance education is particularly well suited to training providers based in difficult to reach rural areas.
- The effectiveness of the tested training programme may be attributed to its comprehensiveness, including not only carefully designed materials and practical exercises, but also monitoring, supervision and evaluation procedures.

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Introduction

Distance education is an educational methodology that minimises or omits direct interaction between instructors or teachers and course participants. Students and instructors are not required to be at the same location.

Distance learning has several advantages over other educational methodologies.¹ It increases access to training, standardises lessons and information provided, is adaptable to changing workplace and learning settings, enables participants to learn and practise at their own pace, and facilitates greater student motivation and self-esteem. Traditionally, distance education relies on self-paced learning and discretionary assistance from instructors. An alternative, possibly more suitable for field staff, is to train local trainers to teach their peers. This paper reports the evaluation of a distance-learning programme designed to improve family planning services in Guatemala.

Context

Guatemala has a population of 13.9 million (2003 estimate), and its fertility (35.05 births per 1000) and mortality rates (6.78 deaths per 1000) are amongst the highest in Latin America.² It has recently established a National Reproductive Health Programme.³ Guatemala's Ministry of Health provides services through 24 health areas that correspond roughly to each one of Guatemala's 22 departments or states, each encompassing an average population of 580 000 individuals.

After 30 years of civil war and strife, recent political and policy changes in Guatemala open an unprecedented window of opportunity to make reproductive health services accessible to rural and indigenous populations that have traditionally been excluded from social services, particularly education, medical and public health services.

Methods

Study design and participants

The study was a quasi-experimental design with health districts randomly assigned to control and intervention groups. Pre- and post-intervention assessments were each conducted with control and experimental groups, respectively.

The intervention was implemented in 20 health districts selected through systematic simple random sampling among four of the country's 24 health areas (average of five intervention health districts per area), and the results were compared with 20 randomly selected control districts within the same health areas.

One health district director and one chief nurse from each of the 20 health districts were trained to replicate the distance-learning programme at the local level. In turn, the 40 trainers trained a total of 240 doctors, nurses and nurse auxiliaries (average of six trainees per health district) at health districts. Project and health area staff supervised training provided at health districts.

Description of the intervention

The intervention was implemented between May and August 2001. As a first step, health area directors and chief nurses learned how to use job aids to improve service quality and how to train their respective health teams on the use of such tools. As a second step, trainees replicated

Table 1 Service problem, unit contents, instruments and learning objectives per training programme unit

Problem	Unit contents	Instrument or material	Learning objective
Lack of knowledge of reproductive health concepts among service providers and clients	Core reproductive health concepts and messages	PC booklet: <i>Basic Reproductive Health Messages</i> ⁶	Complete and update reproductive health knowledge among service providers
Long waits in clinics and unnecessary pre- and post-consultation contacts for users	Re-organisation of patient flow and contact requirements	PC manual: <i>Reingeniería de los servicios de salud reproductiva</i> [Re-engineering of health services] ⁷	Reduce client waiting times, improve efficiency of patient flow, increase quantity of clients served with quality client-focused service
Non-integrated, non-client-focused, single-service consultations	Integrated service delivery	PC job instrument: <i>Algorithm to provide integrated services</i> ^{8,9}	Reduce number of missed opportunities for service provision and information exchange, and promote other reproductive health services in addition to family planning
Medical barriers to family planning service delivery	Clients' unmet needs	PC job instrument: <i>Oferta de servicios anticonceptivos sin barreras</i> [Barrier-free delivery of contraceptives] ^{10,11}	Reduce medical barriers to provide family planning methods upon women's request and satisfy clients' needs for contraceptive information

PC, Population Council.

training sessions with other doctors, nurses and nurse auxiliaries at their workplaces and put into practice lessons learnt.

The training programme required 40 in-class hours and approximately 120 in-service practice hours spread over a period of 4 months. Approximately one-tenth of the practice hours were supervised by project monitors.

The training programme consisted of four main units as shown in Table 1. Each programme included four steps to be completed within a month (situation assessment, required readings, practical, assessment) and a monthly supervision meeting with a facilitator.

The research team built in important motivational and attitudinal change elements to the training programme curriculum and materials to address inherent conflicts between clients who tend to be rural, indigenous, poor women and children, and ill-trained health service providers. This project did not measure changes in motivation attributable to the training programme.

The direct involvement of San Carlos University, the largest public higher education institution in Guatemala and alma mater of the majority of public service doctors in Guatemala, provided essential institutional support for this project.

Main outcome variables

Service efficiency. This was measured by:

- Number of pre-consultation contacts.
- Number of minutes of waiting time prior to the consultation.
- Number of minutes of direct interaction with service provider.
- Total number of minutes spent in service facilities.

A patient flow analysis following clients selected with a systematic interval was used to assess service efficiency. Clients provided verbal informed consent to be followed during their visit to the health facility and then be interviewed at the end of their visit. The baseline measurement included 1310 observations and the endline 1001 cases, equally distributed among control and intervention sites.

Observers recorded the times at which each client started and completed each service stage, including interaction with service and non-service personnel. Such information was used to calculate the number of minutes spent per client in direct interaction with service providers, waiting times, and total time spent at the health facility.

Scale of completeness of reproductive health services received. Trained field personnel conducted observations of consultations and recorded the information and services provided to each client using a pre-tested data collection guide. Based on national and international medical standards^{4,5} this study identified what information was relevant and what services each of several client profiles should receive. Drawing from such an optimum number of required items, the study developed a scale of completeness of reproductive health services received. The scale was expressed as a percentage of items informed on or provided out of the specified maximum of possible items relevant for each client profile.

Client profiles were defined with regard to the woman's reproductive intentions, pregnancy status, parity, postpartum status, and whether she raised other medical problems. Results are presented relating only to non-pregnant women who reportedly do not want to get pregnant during the following year (after the interview) and who are not using contraceptives.

Access to family planning services. This was measured as follows:

- Proportion of women receiving contraceptive information, regardless of the main reason for their visit to the health unit.
- Scale of completeness of family planning information and services received.
- Proportion of eligible women receiving contraceptives (supplies, referral or appointment to receive the method).

Statistical methods

Several one-way analyses of variance were conducted to assess the results of the intervention. The cells in these models contain the means of each dependent variable. The four groups included in the model are the pre- and post-measures of the intervention and control groups, respectively. Scheffé contrasts were estimated to assess the statistical significance of the before and after measures for the intervention and control groups in turn. A one-way ANOVA is appropriate in this case because Kolmogorov-Smirnov tests show that response distributions are normally distributed, suggesting that the intervention and control groups can be treated as independent samples.

Statistical analyses were conducted using SPSS v.11.5 (SPSS Inc., Chicago, IL, USA).

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Table 2 Waiting times and patient flow analysis

Parameter	Intervention		Control		Intervention Difference	Lower	Upper	<i>p</i>	Control			<i>p</i>	1W-ANOVA	
	Pre	Post	Pre	Post					Difference	Lower	Upper		<i>F</i>	<i>p</i>
Mean number of pre-consultation contacts	3.1	2.7	2.9	2.9	-0.42	-0.67	0.17	0.001	0.024	-0.25	0.99	0.338	7.38	0.001
Mean waiting time (min)	113.3	97.0	101.8	114.7	-16.25	-30.08	2.42	0.013	-12.88	-27.78	2.02	0.120	5.58	0.001
Mean interaction time (min)	24.4	20.9	20.9	17.7	-3.44	-6.99	0.11	0.062	-3.20	-7.012	0.61	0.137	8.99	0.001
Mean total time in service (min)	125.7	111.3	111.8	125.5	-14.40	-28.33	0.48	0.039	-13.70	-28.65	1.19	0.085	5.08	0.002

Source: Patient flow analysis.¹²**Table 3** Percentage completeness of information and services received before and after intervention, among experimental and control districts: non-pregnant women who do not want to get pregnant and are not using contraceptives

Parameter	Intervention	Control
Pre	6.68	5.23
Post	12.08	5.56
Difference	5.39	0.32
Lower	1.85	-4.04
Upper	8.93	3.40
<i>P</i>	0.001	0.996

1W-ANOVA, $F = 11.26$, $p \geq 0.001$. Source: Consultation observations.¹²**Results***Sample description*

Statistical analysis of the baseline and endline data shows that both sample groups were comparable in terms of age, marital status, parity and ethnic composition. Of the total, 78% of all participants were between 19 and 35 years of age and 22.0% fell into the categories of under 19 or over 35 years of age. A total of 383/2311 (16.6%) of the baseline and endline observations conducted were with women 19 years of age or younger; 27.1% were 20–24 years of age; 23.9% were 25–34 years of age and the remaining 17.9% were over 34 years of age.

Service efficiency

Table 2 shows that the intervention was successful in reducing the mean number of pre-consultation contacts from 3.1 before the intervention to 2.7 after the intervention (a reduction of 0.42 points, 95% CI 0.17–0.67, statistically significant with $p < 0.001$) as compared to the control group that remained unchanged at 2.9 contacts per client. The difference between the intervention and control groups was statistically significant. There was a non-significant reduction in the mean waiting time and no effect

on the client–provider interaction time and the total time spent by clients at health facilities. One-way ANOVA statistics given in the last final columns of Table 2 indicate significant changes between groups in all the variables analysed.

Service completeness

The results presented in Table 3 show an increase among intervention sites from 6.68 to 12.08 percentage points (a 5.39 difference, 95% CI 1.85–8.93, statistically significant with $p < 0.001$) as compared to a non-significant change observed among control sites. Intervention versus control group comparisons were also statistically significant.

It should be noted that analyses of other client profiles gave inconsistent results, including significant changes in the control sites. Such contradictory results may be attributable to ambiguous profile definitions.

While the statistical differences among intervention sites were significant, the actual levels of completeness of services remained low or very low.

It is not possible to compare the above figures with previous studies because we used an *ad hoc* scale including recently established medical norms in Guatemala.

Access

The results presented in Table 4 show that, all women considered, the proportion of women that were screened for family planning (either asking if the woman used a contraceptive, her reproductive intentions or any other prompt) increased from 7.48% to 19.27% among intervention sites (this is an 11.80 point difference, 95% CI 6.79–16.8 and statistically significant with $p < 0.001$). Such a fraction remained unchanged among control sites. This was an important project accomplishment.

Table 4 also shows that the mean completeness of information index increased from 12.49 to 35.95 points among intervention sites (a 23.45 point difference, 95% CI

Table 4 Percentage clients screened for family planning, percentage completeness of family planning information received and percentage clients receiving methods before and after intervention, among experimental and control districts

Parameter	Intervention		Control		Intervention Difference	Lower	Upper	<i>p</i>	Control			<i>p</i>	1W-ANOVA	
	Pre	Post	Pre	Post					Difference	Lower	Upper		<i>F</i>	<i>p</i>
Percent screened for family planning	7.48	19.27	9.52	9.85	11.80	6.79	16.80	0.001	0.33	-5.05	5.71	0.999	15.986	0.001
Percent completeness of family planning information	12.49	35.95	11.33	17.26	23.45	15.39	31.52	0.001	5.92	-2.76	14.61	0.30	28.46	0.001
Percent received method	6.28	18.55	7.65	8.55	12.27	2.81	21.72	0.004	0.9	-8.95	10.75	0.876	4.99	0.001

Source: Consultation observations.¹²

15.39–31.52 and statistically significant with $p < 0.001$). The changes observed among control sites were non-significant in a statistical sense.

Finally, the proportion of women receiving contraceptives (including referrals or appointments) increased from 6.28% to 18.55% (a 12.27 point difference, 95% CI 2.81–21.72 and statistically significant with $p < 0.004$) as compared to the non-significant changes observed among control sites.

Discussion

The 4-month intervention proved successful in promoting positive attitudes and in preparing health district directors to guide their respective health team units in continued improvement efforts in addition to making key changes in particular service areas. Specifically, the intervention had a positive impact on:

- Reducing the number of pre-consultation contacts.
- Reducing client waiting times at health facilities.
- Screening more frequently clients' family planning needs.
- Providing more complete information concerning the range of contraceptive options available to women.
- Delivering more frequently the methods upon request.

The intervention failed to improve the actual client-provider interaction time, the total number of minutes that clients spend at health facilities, and the quality of services provided to all client profiles analysed.

Weaknesses of this study include the lack of comparability of service quality scales, making results difficult to compare with previous studies, and failure to adequately consider the motivational aspects of the training process.

Conclusions

This study has presented evidence that distance education may provide an effective learning technique for the knowledge, skills and attitudes appropriate for the jobs of health care providers. This required adequate programme materials, well-designed practical activities to be implemented by motivated participants, and close supervision. The educational methodology is particularly well suited to training providers in difficult to reach rural areas.

Distance learning may not be equally effective for addressing all service problems. We found, for example, that it is very difficult to make actual changes in service organisation and patient flows. Such problems frequently require *ad hoc* solutions based on local expertise, and probably even closer monitoring and supervision.

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Statements on funding and competing interests

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Competing interests. None identified.

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The David Bromham Annual Memorial Award

David Bromham was the first Chairman of The Faculty of Family Planning and Reproductive Health Care. Sadly, halfway through his second term of office he became ill, and in 1996 he died. His loss was tragic, not only for the Faculty, but for the family planning movement in Britain and worldwide. Throughout his life, David was an energetic and inspirational man. Whilst in Leeds, he set up an assisted conception programme, which was and is one of the most successful in the world. In 1991 he set up a fertility control unit designed to provide a more accessible service for the termination of pregnancy. He also carried out an extensive programme of research and was closely involved with the *British Journal of Family Planning* (now the *Journal of Family Planning and Reproductive Health Care*).

Award Criteria

The David Bromham Memorial Award is in remembrance of a man who was happiest when deeply immersed in all that was happening within his fields of interest and who never wasted any time. The Award is not intended to be a prize for long and distinguished service, rather for a piece of work which through inspiration, innovation or energy has furthered the practice of family planning and reproductive health care in any way and any setting. It is not a research grant. Younger health professionals sometimes undervalue their achievements but they are exactly the people that David Bromham would have wished to see encouraged as this award now acknowledges.

Nominations

The award will be made either to an individual (who must be a current Diplomate or Member of the Faculty) or to a team, which could be multidisciplinary. In the latter case, the lead doctor should be a current member of the Faculty. You may nominate yourself or your team or be nominated by someone else.

Award

The award itself, which will be presented at each year's AGM, will comprise a monetary sum and inscribed memento.

Nomination Process

Nomination is by completion of a form that can be downloaded from the Faculty website at www.ffprhc.org.uk. Completed submissions must be received at the Faculty office by 10 April annually.