

# A clinical training unit for diarrhoea and acute respiratory infections: an intervention for primary health care physicians in Mexico

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In Tlaxcala State, Mexico, we determined that 80% of children who died from diarrhoea or acute respiratory infections (ARI) received medical care before death; in more than 70% of the cases this care was provided by a private physician. Several strategies have been developed to improve physicians' primary health care practices but private practitioners have only rarely been included. The objective of the present study was to evaluate the impact of in-service training on the case management of diarrhoea and ARI among under-5-year-olds provided by private and public primary physicians. The training consisted of a five-day course of in-service practice during which physicians diagnosed and treated sick children attending a centre and conducted clinical discussions of cases under guidance. Each training course was limited to six physicians. Clinical performance was evaluated by observation before and after the courses. The evaluation of diarrhoea case management covered assessment of dehydration, hydration therapy, prescription of antimicrobial and other drugs, advice on diet, and counselling for mothers; that of ARI case management covered diagnosis, decisions on antimicrobial therapy, use of symptomatic drugs, and counselling for mothers. In general the performance of public physicians both before and after the intervention was better than that of private doctors. Most aspects of the case management of children with diarrhoea improved among both groups of physicians after the course; the proportion of private physicians who had five or six correct elements out of six increased from 14% to 37%; for public physicians the corresponding increase was from 53% to 73%. In ARI case management, decisions taken on antimicrobial therapy and symptomatic drug use improved in both groups; the proportion of private physicians with at least three correct elements out of four increased from 13% to 42%, while among public doctors the corresponding increase was from 43% to 78%. Hands-on training courses thus seemed to be effective in improving the practice of physicians in both the private and public sectors.

**Keywords:** child, preschool; diarrhoea; acute respiratory infections; infant; medical education, continuing; physician's practice patterns.

*Voir page 943 le résumé en français. En la página 944 figura un resumen en español.*

## Introduction

Several studies in developing countries have reported underuse of oral rehydration salts as well as overuse of antibiotics, symptomatic drugs and laboratory examinations by primary health care physicians when treating children with diarrhoea and acute respiratory infections (ARI) (1–5). These incorrect practices represent a risk for children's recovery and wellbeing, and raise the cost of medical attention for both

families and health institutions. In Mexico, as in other countries, many deaths from diarrhoea and ARI could be prevented if appropriate medical care were provided. We found that more than 60% of children who died from diarrhoea or ARI did so at home, and that over 80% of them had received medical care by primary health care physicians, mostly during the 24 hours before death (6, 7).

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Several strategies have been developed to improve physicians' primary care practices (8–11). Our group has developed an educational strategy based on the active participation of physicians in workshops. Following discussions on good health practice, peer review committees were formed to build consensus and a commitment to adopting better diagnosis and treatment practices (12, 13). About half the physicians attending the workshops changed their clinical practices (14).

The above activities focused exclusively on physicians working for public institutions. However, private physicians are equally important providers of primary care. An analysis of verbal autopsies in areas of high diarrhoea mortality in 1990–93 showed that 70% of children who died had received medical care and that 54% of these children had been seen by a private physician (15). Private physicians are clearly an important target group for intervention.

In most medical care systems in developed countries, physicians receive the bulk of their training in teaching hospitals, i.e. there is a heavy bias towards secondary or tertiary care. Good training facilities are only seldom available to teach physicians how to deal with patients at the primary care level. WHO has recommended the development of such facilities for the provision of in-service training (16). On this basis we established a training unit for diarrhoea and ARI in the State of Tlaxcala, which has the highest infant mortality rate from diarrhoea and ARI in Mexico (17). Both public and private primary care physicians were invited to accept in-service training in the case management of children aged under 5 years who had diarrhoea or ARI. The present study evaluates the impact of the training on the physicians.

## Methods

### Study area

The study was carried out in the State of Tlaxcala between January 1993 and April 1994. Tlaxcala, about 150 km east of Mexico City, is the smallest state in Mexico. At the time of the study the population was 759 000, of whom 14% were children aged under 5 years. The infant mortality rates from diarrhoea and ARI were 5 and 9 per 1000 live births, respectively, the highest in the country. For children aged 1–4 years, the ARI and diarrhoea mortality rates were 46 and 52 per 100 000, respectively; ARI and diarrhoea were the two commonest causes of death in this age group (17). Tlaxcala has 42 municipalities grouped into 17 local health authorities. The present study included five of these authorities, all under the direction of the Tlaxcala Ministry of Health General Hospital in the capital city. This hospital, a second-level facility, is the referral centre for primary care units in the area.

### Private physicians

All private physicians practising in the study area who were providing care for children under 5 years of age and who did not work in public institutions were

eligible for the study. To identify private physicians, we carried out a census in collaboration with the state's Ministry of Health. Physicians identified received an invitation to attend the course, signed by the state's Minister of Health. Invitations were delivered personally by two of us. Physicians accepting the invitation were asked to give their consent and answered a structured questionnaire on personal and general practice characteristics.

### Public physicians

All physicians serving in public primary care facilities in the study area were eligible. In Mexico, most public primary health care is provided by medical students who have passed their final exams and are undertaking a mandatory year of social service before obtaining their licence. Consultations for children aged under 5 years who have diarrhoea or ARI are provided free of charge in public institutions.

### Study design

The performance of all participating physicians was evaluated before and after the in-service training course.

### Intervention

The training course was conducted in a clinical setting located in Tlaxcala's General Hospital. The unit was run by a well-trained paediatrician, a general practitioner and a nurse. A maximum of six physicians attended each five-day course. The training was based on in-service practice, the physicians diagnosing and treating sick children attending the centre. Each case was discussed with reference to clinical assessment and diagnosis, proper treatment or criteria for referral, and advice for the mother on the identification of alarm signs indicating the need to return to the hospital or to go to another health care facility. Physicians were encouraged to present their own views and to subject them to group analysis. The paediatrician and general practitioner in charge supported their opinions by distributing literature among the attending physicians. Other materials included the official training manuals for the control of diarrhoea and ARI, training videos and wall charts. The physicians were encouraged to discuss these materials critically and to try to reach consensus. At the end of the course they received a complete set of the materials that had been reviewed.

### Baseline evaluation

The methodology was based on the WHO/PAHO Health Facility Survey Manual for Diarrhoea Case Management (18), which has been adapted by the corresponding national programmes in Mexico (19, 20). The recollection instruments were reviewed by experts, and consistency and internal agreement were evaluated as described elsewhere (21).

The baseline evaluation was performed by trained nurses two weeks before the course. They visited the physicians and observed and recorded

their practice during consultations involving children with ARI or diarrhoea. For each physician a consultation relating to diarrhoea and another relating to ARI were evaluated if this proved possible. The nurses spent up to four days in each doctor's office waiting for children with diarrhoea or ARI to attend. They used a checklist to record specific details of clinical history, diagnosis, prescription and counselling for mothers, and asked the physicians to say what they were looking for during the physical examinations. After each consultation the nurse made an independent assessment of the child and collected data on a structured schedule form.

The following elements of case management were evaluated:

- assessment and classification of hydration status, respiratory rate and chest indrawing;
- prescribed treatment;
- advice given to mothers about identification of alarm signs.

The following aspects of treatment were evaluated:

- hydration in cases of diarrhoea, considered correct if the physician selected the appropriate treatment plan (A,B,C), in accordance with the clinical symptoms identified by the interviewer and if the physician did not prescribe fluids that were not recommended by the National Diarrhoeal Diseases Control Programme;
- diet management during the diarrhoeal episode, evaluated as correct if food and/or milk were not stopped;
- decision on antimicrobial therapy, taking into account justification and choice; prescription of antimicrobial agents was considered justified only in cases of bloody diarrhoea, pneumonia, otitis and pharyngitis; the choice was regarded as correct if it accorded with the antimicrobial treatment recommended by WHO;
- decision on symptomatic therapy, evaluated as correct if prescribed for fever and/or when no other symptomatic drug was prescribed.

Counselling for mothers included the aspects shown below.

- Instruction on alarm signs indicating that mothers should seek medical care. In diarrhoea cases the signs included many stools, thirst, fever, failure to drink normally, more than three episodes of vomiting a day, blood in stools, and failure to improve. In ARI cases the signs were difficult breathing, fast breathing, difficulty with eating/drinking, and failure to improve.
- Verification that mothers understood instructions. Counselling was considered appropriate if the doctor mentioned at least three signs concerning diarrhoea cases and two concerning ARI cases, and if he or she verified that the mother understood the advice given.

Correct elements were summed in order to obtain a case management score for each physician. For diarrhoea, the score was based on the following:

- assessment of dehydration;
- hydration therapy;
- prescription of antimicrobials;
- prescription of other drugs;
- advice on diet;
- counselling for the mother.

For ARI the score was calculated from the following:

- diagnosis;
- decision on antimicrobial therapy;
- use of symptomatic drugs;
- counselling for the mother.

Thus a physician could achieve a maximum score of 6 for diarrhoea and 4 for ARI.

### Post-intervention evaluation

Two weeks after the course a post-intervention evaluation was conducted in each physician's office in the same way as for the baseline evaluation.

### Statistical analysis

A comparison was made between case management before and after intervention by means of a two-tailed  $\chi^2$  test for proportions, Fisher's exact test for proportions with a small number of subjects in at least one cell, or Wilcoxon's rank test. Since there was only one case per doctor (where possible) before and after the training course, and since standard cases were not involved, paired tests were not generally appropriate. None the less, paired tests, conducted on a reduced number of doctors (because of a lack of sick children), gave virtually identical results. All analyses were performed using the SPSS statistical package.

### Ethical considerations

If a nurse suspected that a child had a severe illness that was not detected by the physician she was asked to inform her/him so that the treatment and/or advice could be modified accordingly. Although no participating physician refused to comply, project nurses were advised that they should give proper counselling to mothers and encourage them to attend a clinic free of charge.

### Results

Of 93 eligible private physicians identified in the study area, six (7%) refused to participate; 15 (16%) others failed to attend the course; the remaining 72 (77%) attended. Baseline evaluation of the management of diarrhoea and ARI was performed for 41 and 59 private physicians, respectively, and corresponding post-intervention evaluations were conducted for 50 and 48 of these physicians. The remaining private physicians could not be evaluated because no children

with diarrhoea or ARI attended during the four days when the interviewers were present.

Of 49 eligible public physicians, 44 (90%) attended the course; the others did not do so because of administrative problems. A baseline evaluation was performed on 40 of these physicians in respect of both diarrhoea and ARI. After the intervention, 41 of the physicians were evaluated. Among the others, two had changed their address and two were not consulted for cases of diarrhoea or ARI while the interviewer was present.

The general characteristics of the physicians who were evaluated are shown in Table 1. The physicians who did not attend the course did not differ in these characteristics from those who participated (data not shown). There were fewer female physicians working in the private sector than in the public sector; on average the private physicians had been practising for 12 years after finishing their medical training, whereas the public physicians were in their final year of medical training; the private physicians had smaller practices than the public physicians.

The characteristics of children with diarrhoea and ARI who were evaluated before and after the intervention by private and public physicians are shown in Table 2. There were no statistically significant differences between children evaluated before and those evaluated after the training course.

Aspects of clinical evaluation and diagnosis before and after the intervention are shown in Table 3. Both private and public physicians showed better diagnostic skills for children with diarrhoea than for those with ARI. In general, public physicians had better diagnostic practices than private doctors. The change in the assessment and diagnosis of children with diarrhoea was small and not statistically significant. Much greater improvements were obtained in respect of ARI. The proportion of private physicians who correctly evaluated respiratory rate and chest indrawing increased by 21% ( $P<0.05$ ). The proportion of public physicians who correctly diagnosed ARI increased by 28% ( $P<0.05$ ).

Private practitioners showed significant improvements in their prescribing practices for children with diarrhoea (Table 4). Prescribing practices did not improve among public physicians but their baseline levels were high. The number of alarm signs indicating a need to return for medical care that were explained to mothers increased after the intervention, although the change was not significant for private physicians. Proper counselling of mothers improved significantly among both private and public physicians. The overall management of diarrhoea by both groups of physicians showed important improvements after the course. The proportion of physicians with five or six correct elements increased from 14% to 37% among private doctors and from 53% to 73% among public doctors.

The evaluation of ARI case management is shown in Table 5. Decisions on antimicrobial therapy and symptomatic drug use improved for both groups

Table 1. Characteristics of private and public physicians and their clinical practice before and after the educational intervention<sup>a</sup>

Characteristics of practitioners	Private		Public	
	Before (n = 52)	After (n = 46)	Before (n = 40)	After (n = 41)
% female	23.0	21.7	50.0	51.1
Median age (years)	38 (26–62) <sup>b</sup>	38 (27–65)	25 (22–38)	26 (22–38)
Median years after finishing medical school	12 (7–19)	13 (1–28)	NA	NA
Median reported no. of consultations per month	25 (1–190)	23 (1–150)	204 (1–450)	240(40–450)
Median reported no. of consultations per month for children with diarrhoea	5 (0–50)	5 (1–30)	10 (0–120)	9 (0–120)
Median reported no. of consultations per month for children with ARI	5 (1–20)	5 (5–40)	20 (0–150)	15 (1–150)
Median cost of the consultation (US\$) <sup>c</sup>	10 (1–33)	10 (1–33)	NA <sup>d</sup>	NA

<sup>a</sup> Including those evaluated for diarrhoea and/or ARI.

<sup>b</sup> Figures in parentheses are the range.

<sup>c</sup> Exchange rate at time of study: US\$ 1.00 = 3.10 pesos.

<sup>d</sup> NA = not applicable.

but only reached statistical significance for public physicians. The number of alarm signs taught to mothers increased after the course in both groups, and the counselling of mothers also improved. The overall management of ARI improved substantially. Before the intervention, only 13% of private physicians and 45% of public physicians had three or four correct elements of case management, whereas after the intervention the corresponding proportions were 40% and 78% ( $P<0.05$ ).

## Discussion

The management of children with ARI or diarrhoea improved after an in-service training course. Public physicians appeared to perform better than private doctors; even after the course, the performance of private physicians was inferior to the baseline performance of public doctors.

The evaluation of physicians' practices covered diagnosis, treatment, and counselling for mothers. In order to assess the consultation process and to observe what the physicians were doing, we obtained their cooperation in describing their findings to an

Table 2. Characteristics of the children attended by private and public physicians, before and after the educational intervention

Characteristic <sup>a</sup>	Diarrhoea				ARI			
	Private		Public		Private		Public	
	% before (n = 41)	% after (n = 50)	% before (n = 40)	% after (n = 41)	% before (n = 59)	% after (n = 48)	% before (n = 40)	% after (n = 41)
Female	36.5	36.0	42.5	53.7	42.4	47.9	57.5	51.2
Age (months)								
< 12	36.6	44.0	47.5	39.2	30.5	43.8	42.5	36.6
12–23	19.5	32.0	35.0	41.5	15.3	16.7	17.5	34.1
24–35	19.5	12.0	15.0	12.2	23.7	14.6	17.5	14.6
36–47	14.6	2.0	0.0	2.4	10.2	12.5	7.5	9.8
>47	9.8	10.0	2.5	4.9	20.3	12.5	15.0	4.9
Presence of blood in stools								
Yes	14.6	12.0	12.5	17.1	–	–	–	–
NE <sup>b</sup>	7.3	6.0	0.0	0.0	–	–	–	–
Hydration status								
Hydrated	78.0	84.0	87.5	95.1	–	–	–	–
Dehydrated	12.2	8.0	12.5	4.9	–	–	–	–
Hypovolaemic shock	0.0	2.0	0.0	0.0	–	–	–	–
NE	9.7	6.0	0.0	0.0	–	–	–	–
Diagnosis (ARI)								
Rhinopharyngitis	–	–	–	–	59.3	77.1	62.5	78.0
Pharyngitis	–	–	–	–	16.9	16.7	15.0	12.2
Otitis	–	–	–	–	8.4	0.0	12.5	0.0
Pneumonia	–	–	–	–	8.4	6.3	7.5	9.7
Bronchitis	–	–	–	–	0.0	0.0	2.5	0.0
Other	–	–	–	–	6.8	0.0	0.0	0.0

<sup>a</sup>  $P > 0.05$  between before and after for all children's characteristics.

<sup>b</sup> NE = Not evaluated by observer.

observer/interviewer. This intrusive type of observation possibly gave different information from that obtained from self-reporting (22). However, we do not think that the bias would have affected the results, since the same observation method was used with all physicians and in both the pretraining and post-training evaluations. The statistical power of the study was limited because of the relatively small number of participating physicians. However, we invited all eligible physicians in the study area, and it was impossible to increase the sample size. Moreover, the changes between pre-intervention and post-intervention evaluations were large and often statistically significant.

The teaching strategy was designed to be similar to that usually adopted for physicians; it was based on in-service training in a clinical facility. This strategy allows the trainee to confront her/his knowledge with the real conditions of patients and to learn by receiving feedback from more senior physicians. Both private and public physicians had the opportunity to practise the correct management

of children with diarrhoea or ARI and to assess their progress when they returned for the control visits. This strategy is more efficient than the more passive strategies used in previous studies (9).

The inclusion of private physicians as a target group is important. In Mexico (23–25) and other countries (26–28) they are a major source of medical care for children aged under 5 years. Nevertheless, few educational strategies have included such physicians (29), notwithstanding the tendency to expand their activity in the health sector (30–32) and despite emerging evidence that the quality of care they offer is frequently problematic (4, 33, 34).

The participation of private physicians in the study allowed us, for the first time, to compare participation rates in an educational intervention programme and the effects of such a programme among private and public practitioners. In our study the response rate of private physicians to the invitation to accept training was satisfactory (77%); those who agreed to attend the course did so on all five days, even if they had to leave their private offices

Table 3. Assessment and diagnosis of acute diarrhoea and ARI by private and public physicians, before and after educational intervention

Assessment or diagnosis	Private			Public		
	% before	% after	% change	% before	% after	% change
<b>Diarrhoea</b>	( <i>n</i> = 41) <sup>a</sup>	( <i>n</i> = 50)		( <i>n</i> = 40)	( <i>n</i> = 41)	
Asked about presence of blood in stools	82.9	84.0	+ 1.1	95.0	95.1	+ 0.1
Correct diagnosis of hydration status <sup>b</sup>	89.2	94.0	+ 4.8	85.0	97.5	+12.5
<b>ARI</b>	( <i>n</i> = 59)	( <i>n</i> = 48)	( <i>n</i> = 40)	( <i>n</i> = 41)		
Evaluation of respiratory rate	45.8	66.7	+ 20.9 <sup>c</sup>	70.0	85.4	+15.4
Evaluation of chest indrawing	28.8	50.0	+ 21.2 <sup>c</sup>	42.5	56.1	+13.6
Correct diagnosis <sup>b</sup>	52.7	59.6	+ 6.9	52.5	80.5	+28.0 <sup>a</sup>

<sup>a</sup> *n* = No. of physicians.

<sup>b</sup> For diarrhoea: evaluated for 37 and 47 private physicians before and after the educational intervention, respectively.  
For ARI: evaluated for 55 and 47 private physicians before and after the educational intervention, respectively.

<sup>c</sup> *P* < 0.05.

Table 4. Evaluation of treatment of diarrhoea and counselling for mothers given by private and public physicians, before and after educational intervention

Treatment or counselling	Private			Public		
	% before ( <i>n</i> = 41)	% after ( <i>n</i> = 50)	% change	% before ( <i>n</i> = 40)	% after ( <i>n</i> = 41)	% change
Prescription of oral rehydration salts	51.2	76.0	+ 24.8 <sup>a</sup>	100.0	90.5	- 9.5
Correct hydration therapy <sup>b</sup>	51.4	72.3	+ 20.9 <sup>a</sup>	95.0	87.8	- 7.2
Correct dietary advice	36.6	70.0	+ 33.4 <sup>a</sup>	87.5	92.7	+ 5.2
Correct decision on antimicrobial therapy <sup>b</sup>	24.4	47.9	+ 23.5 <sup>a</sup>	65.0	80.5	+15.5
Correct decision on symptomatic drug use	51.2	72.9	+ 21.7 <sup>a</sup>	97.5	95.1	- 2.4
Number of signs indicated to mother on when to take child for medical care						
0	17.1	10.0	- 7.1	15.0	9.8	- 5.2
1-3	46.3	38.0	- 8.3	42.5	26.8	- 15.7
4-7	36.6	52.0	+ 15.4	42.5	63.4	+ 20.9 <sup>a</sup>
Proper counselling for mother	14.6	34.0	+ 19.4 <sup>a</sup>	20.0	53.7	+ 33.7 <sup>a</sup>
Overall management score <sup>b,c</sup>						
0	8.1	0.0	0.0	0.0		
1	13.5	4.3	2.5	0.0		
2	27.0	15.2	0.0	2.5		
3	27.0	19.6	17.5	10.0		
4	10.8	23.9	27.5	15.0		
5	8.1	21.7	42.5	37.5		
6	5.4	15.2 <sup>d</sup>	10.0	35.0 <sup>d</sup>		

<sup>a</sup> *P* < 0.05.

<sup>b</sup> Evaluated for 37 and 46 private physicians before and after educational intervention, respectively.

<sup>c</sup> See text for elements included in the score.

<sup>d</sup> *P* < 0.05 using Wilcoxon's matched-pairs signed-rank tests.

Table 5. Evaluation of case management of acute respiratory infection by private and public physicians, before and after educational intervention

Management	Private			Public		
	% before (n = 59)	% after (n = 48)	% change	% before (n = 40)	% after (n = 41)	% change
Correct decision on antimicrobial therapy	34.5	53.2	+ 18.6	57.5	87.8	+ 30.3 <sup>a</sup>
Correct decision on symptomatic drug use	47.5	52.1	+ 4.2	67.5	85.1	+ 17.6 <sup>a</sup>
No. of signs indicated to mother about when to take child for medical care						
0	35.6	18.7	- 16.9	20.0	4.9	- 15.1
1-2	50.8	29.2	- 21.6	35.0	19.5	- 15.5
3-4	13.6	52.1	+ 38.5 <sup>a</sup>	45.0	75.6	+ 30.6 <sup>a</sup>
Proper counselling for mother	10.2	37.5	+ 27.3 <sup>a</sup>	27.5	56.1	+ 28.6 <sup>a</sup>
Overall management score <sup>b,c</sup>						
0	18.2	20.8	7.5	2.4		
1	40.0	12.5	22.5	2.4		
2	29.1	27.1	25.0	17.1		
3	9.1	25.0	35.0	29.3		
4	3.6	14.6 <sup>d</sup>	10.0	48.8 <sup>d</sup>		

<sup>a</sup>  $P < 0.05$ .

<sup>b</sup> Evaluated for 37 and 47 private physicians before and after the educational intervention, respectively.

<sup>c</sup> See text for elements included in score.

<sup>d</sup>  $P < 0.05$  using Wilcoxon's rank sum  $W$  tests.

during this period. This strongly suggests that it is feasible to include private physicians in training programmes.

Our results suggest that the quality of primary care provided by private doctors is far from perfect. Before the intervention, only 14% and 13%, respectively, of such physicians were able to correctly manage diarrhoea and ARI. Public physicians were substantially better in these respects, the corresponding figures for them being 53% and 43%. After the intervention both groups showed a significant improvement in their overall management of both these conditions, but the proportion of private physicians with adequate case management was still lower than that of public physicians before the intervention.

The differences between private and public physicians may have arisen because the private physicians:

- had finished their medical training 12 years previously on average, whereas the public physicians were new graduates;
- had not received recent training in care management of sick children;
- were unlikely to have participated in continuing medical education;
- were not influenced by government regulations on drug prescription.

The two categories of doctor had similar abilities in diagnosing dehydration, probably because of the intensive educational campaign of the National Programme for the Control of Diarrhoeal Diseases, especially in recent years (35). Both groups performed poorly in communicating messages to mothers; this probably reflected the lack of importance given to this matter in public health campaigns. After the intervention there was a significant improvement in counselling for mothers, although the proportions involved were still relatively low.

The educational strategy was effective in improving practices of doctors in both sectors. The question arises as to whether it would be applicable on a larger scale. The implementation of the clinical training units as the basis for training primary health care physicians cannot be expected to be easy. To set up such training units takes time and requires well-trained personnel who understand the clinical problems and have the communication skills required of trainers. The units have to be well equipped and need enough patients to provide a sufficient range of clinical problems. The number of trainees attending a single course is limited (in our case, six was the maximum), and this makes this process relatively slow. The time required to complete the

course (five days in our intervention) may be a deterrent for physicians, particularly for those depending on private practice for their income.

Seminars, written information or formal workshops cannot replace clinical experience gained by working with patients. We think it necessary to combine different training strategies, including practical training. Our study showed that the problems were not insurmountable, and the course was well received by the private physicians. To maximize the cost benefit, training could preferentially target selected groups, such as future trainers, physicians identified as high-volume prescribers (36), or those certifying an important number of children's deaths. Highly qualified teaching and training units

can be maintained for training future generations of physicians, thus extending their actions to the integrated management of sick children, as recently recommended by WHO/PAHO (37). Such work can also serve as strategic research providing information and feedback for public health policies. ■

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## Résumé

### Unité de formation clinique à la prise en charge des cas de diarrhée et d'infections respiratoires aiguës

Plusieurs études menées dans des pays en développement ont révélé de graves insuffisances dans la prise en charge des enfants souffrant de diarrhée ou d'infections respiratoires aiguës (IRA), et ce dans les centres de santé du secteur public comme du secteur privé. Cela est vrai aussi au Mexique. Dans l'Etat de Tlaxcala, nous avons constaté que 80% des enfants décédés des suites de diarrhée ou d'IRA avaient reçu des soins médicaux; dans plus de 70% des cas, ces soins avaient été dispensés par un médecin du secteur privé. Plusieurs stratégies ont été mises au point pour améliorer la prestation de soins de santé primaires par les médecins, mais les médecins libéraux n'ont été que rarement visés. L'objectif de la présente étude était d'évaluer l'impact d'une formation en cours d'emploi des médecins du secteur privé et du secteur public dispensant des soins primaires à la prise en charge des cas de diarrhée et d'IRA chez les enfants de moins de 5 ans.

La formation consistait en un cours de cinq jours de travaux pratiques, pendant lesquels les médecins devaient établir le diagnostic et le traitement pour des enfants malades venus consulter dans un centre, puis effectuer un bilan clinique des cas sous supervision. La population étudiée était composée de l'ensemble des médecins libéraux qui exerçaient dans la zone d'étude, dispensaient des soins à des enfants de moins de 5 ans et ne travaillaient pas pour une institution publique, ainsi que de tous les médecins des centres de santé primaires publics de la même zone. Au Mexique, dans le secteur public, l'essentiel des soins primaires sont dispensés par de jeunes médecins diplômés depuis moins d'un an.

Les médecins ont été personnellement invités à suivre le cours, chaque cours étant limité à six participants. Les compétences cliniques ont été évaluées par observation avant et après le cours. On s'est efforcé, dans la mesure du possible, d'observer à chaque fois un enfant atteint d'IRA et un enfant atteint de diarrhée. L'évaluation de la prise en charge des cas de diarrhée a porté sur les points suivants : appréciation du degré de déshydratation, thérapie de réhydratation, prescription

d'antibiotiques et d'autres médicaments, conseils relatifs à l'alimentation et conseils aux mères; la prise en charge des cas d'IRA a porté sur les points suivants : diagnostic, décision quant au traitement antibiotique, recours à des médicaments symptomatiques et conseils aux mères.

Un total de 93 médecins libéraux ont satisfait aux critères de sélection et 72 (77%) ont suivi ce cours; 42 (90%) sur 49 médecins du secteur public ont participé à l'étude. Une évaluation avant et après formation de la prise en charge des cas de diarrhée a pu être effectuée pour 44% et 54%, respectivement, des médecins libéraux; les chiffres correspondants pour les IRA ont été de 63% et 52%. Une évaluation avant et après intervention a été effectuée pour 82% et 84%, respectivement, des médecins du secteur public pour les deux affections. Les autres médecins n'ont pu être évalués, car aucun enfant souffrant de diarrhée ou d'IRA ne s'est présenté à leur cabinet au moment où un observateur était présent.

En général, les compétences des médecins du secteur public avant et après l'intervention étaient meilleures que celles de leurs confrères du secteur privé. Les uns comme les autres ont généralement fait preuve d'une meilleure acuité de diagnostic pour ce qui est de la diarrhée que pour les IRA. La plupart des aspects de la prise en charge des enfants souffrant de diarrhée ont été améliorés dans les deux groupes de médecins à la suite du cours; la proportion de médecins libéraux comptant cinq ou six éléments corrects sur six est passée de 14% à 37%; chez les médecins du public, ce chiffre est passé de 53% à 73%. Pour la prise en charge des cas d'IRA, les décisions concernant le recours aux antibiotiques et aux médicaments symptomatiques ont été améliorées dans les deux groupes; la proportion de médecins libéraux comptant au moins trois éléments corrects sur quatre est passée de 13% à 42%, tandis que, pour les médecins du secteur public, ces chiffres sont passés de 43% à 78%. Ces résultats montrent qu'il est possible d'obtenir un taux de réponse élevé parmi les médecins du secteur privé. Les cours de formation pratique peuvent être efficaces pour améliorer les compétences cliniques des

médicos aussi bien dans le secteur public que dans le secteur privé. Toutefois, même après formation, la qualité de la prise en charge par les médecins du secteur

privé était encore moins bonne que celle de leurs confrères du secteur public avant formation.

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## Resumen

### Unidad de formación clínica contra la diarrea y las infecciones respiratorias agudas

Varios estudios llevados a cabo en países en desarrollo han puesto de manifiesto, en centros de salud tanto públicos como privados, graves deficiencias en el tratamiento de los niños con diarrea e infecciones respiratorias agudas (IRA). Así ocurre también en México. En el Estado de Tlaxcala hallamos que el 80% de los niños que fallecían de diarrea o IRA habían recibido atención médica antes de la muerte; en más de un 70% de los casos esa asistencia había sido proporcionada por un médico privado. Se han desarrollado varias estrategias para mejorar las prácticas de atención primaria de los médicos, pero rara vez se ha tenido en cuenta a los médicos privados. El objetivo del presente estudio consistió en evaluar el efecto de la formación en el servicio en el manejo de los casos de diarrea o IRA en menores de cinco años por parte de médicos de atención primaria privados y públicos.

La formación consistió en un cursillo de cinco días de práctica en el servicio, durante el cual los médicos diagnosticaron y trataron a los niños enfermos que acudían al centro y organizaron discusiones clínicas, bajo orientación, sobre los casos. Integraban la población estudiada todos los médicos que ejercían en la zona de estudio, prestaban asistencia a menores de cinco años y no trabajaban en instituciones públicas, así como todos los médicos de los centros públicos de atención primaria de esa zona. En México, la mayor parte de la atención primaria pública es proporcionada por médicos jóvenes en su primer año de ejercicio después de acabar los estudios.

Los médicos recibieron invitaciones personales para asistir al cursillo, y se limitó a seis el número de médicos por curso. Se evaluó el desempeño clínico mediante observación antes y después de los cursillos. En cada periodo se observaba a ser posible a un niño con IRA y a otro con diarrea. La evaluación del manejo de los casos de diarrea abarcó la deshidratación, el tratamiento de rehidratación, la prescripción de antimicrobianos y de otros medicamentos, los consejos en materia de alimentación y el asesoramiento a las madres; en cuanto al manejo de los casos de IRA, se abarcó el diagnóstico,

las decisiones sobre el tratamiento antimicrobiano, el uso de medicamentos sintomáticos y el asesoramiento a las madres.

Un total de 93 médicos privados cumplían los criterios de inclusión, y 72 (77%) de ellos asistieron al cursillo; de los 49 médicos públicos, 42 (90%) participaron en el estudio. En lo tocante a la diarrea, fue posible realizar una evaluación basal y posformación del 44% y el 54%, respectivamente, de los médicos privados, mientras que las proporciones correspondientes para las IRA fueron del 63% y el 52%. Se sometió a evaluación basal y postintervención al 82% y el 84% de los médicos del sector público, respectivamente, para las dos afecciones consideradas. Los otros médicos no pudieron ser evaluados porque no hubo ningún niño con diarrea o IRA que acudiera a su consulta en presencia del observador.

En general, el desempeño de los médicos públicos antes y después de la intervención fue mejor que el de sus homólogos privados. Unos y otros mostraron más habilidad diagnóstica con la diarrea que con la IRA. La mayoría de los aspectos del manejo de los niños con diarrea mejoró en los dos grupos tras el cursillo; la proporción de médicos privados con cinco o seis elementos correctos sobre seis aumentó del 14% al 37%; entre los médicos públicos se observó un aumento del 53% al 73%. En lo relativo al manejo de los casos de IRA, las decisiones sobre el tratamiento antimicrobiano y el uso de medicación sintomática mejoraron en los dos grupos; la proporción de médicos privados con al menos tres elementos correctos sobre cuatro aumentó del 13% al 42%, mientras que entre los médicos públicos se pasó del 43% al 78%.

Estos resultados demuestran que es posible lograr una alta tasa de respuesta entre los médicos privados. Los cursillos de formación práctica pueden mejorar eficazmente el ejercicio profesional de los médicos, tanto del sector privado como del sector público. Así y todo, incluso después de la formación, la calidad del manejo de casos entre los médicos privados fue inferior a la del manejo basal observado entre los médicos públicos.

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