Informal health providers and the transmission of hepatitis C virus: pilot study in two Egyptian villages

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مقدمو الخدمات الصحية غير الرسميِّين وعلاقتهم بسراية فيروس التهاب الكبد "سي": دراسة ارتيادية في قريتَيْن مصريَّتَيْن

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الخلاصة: أُجريت دراسة في قريتين من قرى مصر لتقييم أدوار وممارسات مقدِّمي الرعاية الصحية غير الرسميِّين، مع التركيز على الممارسات التي قد تكون لها علاقة بالإصابة بفيروس التهاب الكبد من النمط "سي" عن طريق نقل الدم. وكان العديد من الناس في المناطق التي شملتها الدراسة، يلجؤون إلى الرجال من مقدِّمي هذه الرعاية للحصول على خدمات صحية مثل الحقن ومعالجة الأسنان، وتضميد الجروح، وختان الذكور. ولوحظ أن الدايات يشرفن على 50٪ من إجمالي حالات الولادة، كما أن مُعْطي الحقن، والحلاقين، والعاملين بالصيدليات، يؤدون خدمات قد تكون لها علاقة بسراية فيروس التهاب الكبد "سي". وهؤلاء لا تتوافر لديهم سوى معلومات قليلة عن التهاب الكبد "سي"، إلا أن لديهم الرغبة في التعلُّم والمعرفة. وحيث إن القرويِّين يثقون بهم ويلجؤون إليهم على الرغم من سهولة الوصول إلى مرافق الرعاية الصحية، فينبغي بذل الجهود للارتقاء بمستوى ممارساتهم، بُغْيَة خفض فُرَص سراية فيروس التهاب الكبد "سي".

ABSTRACT The roles and practices of informal health care providers were studied in 2 Egyptian villages, focusing on practices which might be associated with the bloodborne transmission of hepatitis C virus (HCV). In the study areas, many people resorted to male providers for injections, dentistry, wound treatment and male circumcision. Traditional birth attendants oversaw > 50% of all births. “Injectionists”, barbers and staff at pharmacies performed services that may be associated with HCV transmission. These providers knew little about HCV, but were willing to learn. As villagers trust these providers and visit them even if primary health care facilities are accessible, efforts should be made to upgrade their practices in order to reduce the transmission of HCV.

Les prestataires de santé informels et la transmission du virus de l’hépatite C : étude pilote dans deux villages égyptiens

RÉSUMÉ Les rôles et pratiques des prestataires de soins de santé informels ont fait l’objet d’une étude dans deux villages égyptiens, portant plus particulièrement sur les pratiques qui pourraient être associées à la transmission par le sang du virus de l’hépatite C (VHC). Dans les zones étudiées, un grand nombre de personnes avaient recours à des prestataires de sexe masculin pour les injections, les soins dentaires, le traitement des plaies et la circoncision masculine. Les accoucheuses traditionnelles supervisaient plus de 50 % de tous les accouchements. Les personnes qui administrent des injections, les barbiers et le personnel des pharmacies dispensaient des services pouvant être associés à la transmission du VHC. Ces prestataires avaient peu de connaissances sur le VHC mais étaient disposés à apprendre. Étant donné que les villageois ont confiance en ces prestataires et les consultent même si les services de soins de santé primaires sont accessibles, des efforts devraient être déployés pour améliorer leurs pratiques afin de réduire la transmission du VHC.

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Introduction

The prevention of HCV transmission

A high level of infection with the hepatitis C virus (HCV) has long been recognized in rural Egypt [*1–3*]. A substantial number of infected people in the population are not aware of their infective status and are not clinically ill, but are a source of infection for others. As yet, there is no vaccine against the virus, and current multi-drug treatment to eliminate the virus is inefficient, costly and has serious side-effects. Thus, the most effective control strategy is primary prevention so that people will not become infected in the first place [*4,5*].

A bloodborne infection, HCV is often associated with health care practices such as surgical procedures and injections. Patterns of HCV transmission in Egypt appear to follow those found in poor countries, where unsafe injections play a large role. Unsafe practices originate in both formal and informal health care settings, and expose a wide range of people to infection on a daily basis [*6*].

Informal health care providers are untrained and/or operate outside the formal framework of government or private care. The role of informal providers, especially in giving injections, has been documented in many countries [*7,8*]. The setting for transmission in these countries is different from that in countries such as the United States of America and the United Kingdom, where the risk is concentrated in a specific group, drug users who self-inject and share injection equipment [*4,5*]. It has, however, been suggested that, even in the United States, researchers should be more aware of risk factors for HCV such as barbering [*9*].

In Egypt, up to one third of all therapeutic injections are provided by untrained health providers operating in the informal sector [*10*]. Epidemiological studies in 2 villages, carried out under the aegis of the Hepatitis C Prevention Project, have suggested the possible significance of informal health care providers in the transmission of HCV. In a delta village (HCV prevalence 8.7%) risk factors for HCV infection included injections by informal health care providers and, of marginal significance, circumcisions for boys by informal health care providers [*11*]. In an Upper Egyptian village (HCV prevalence 8.7%) risk factors for HCV infection included injections and circumcisions provided by informal health care providers and frequent injections [*12*]. A 2004 study in a village in Sharqia governorate in the delta identified the use of community barbers as a predictor of infection [*13*].

To plan for any HCV prevention activities, it is essential to go beyond a consideration of these risk factors and study risk behaviours. There have been relatively few anthropological studies of such behaviours [*14*]. We have already identified the knowledge and practices of formal sector providers in 2 Egyptian villages, and designed a community level health education strategy for these providers [*15*]. Our objective in this study was to obtain an in-depth understanding of the activities and roles of informal health care providers, and the reasons why villagers go to these providers rather than government or private, trained providers. Until all providers follow safe procedures, a public education programme will have limited impact. The official sector (Ministry of Health and Population) is primarily concerned with improving the skills of formal sector health workers in the network of health centres that covers most villages, under the assumption that the role of the informal sector will eventually disappear. At present, only a few non-governmental organizations are retraining and educating some traditional midwives (*daya*) to help with family planning and the

eradication of female genital mutilation, but they are not training them on the prevention of bloodborne infections.

Health providers in rural Egypt

There are approximately 2400 rural health units in Egypt, within easy access of people in the densely settled delta and Nile valley [*16*]. These facilities provide maternity, child and school health services; emergency treatment; and screening and treatment for schistosomiasis. Some have dental clinics. Facilities are open from 09:00 to 13:00 6 days a week. Services for children and mothers are free; others are charged a very low registration fee. Larger villages also have private doctors, and dispensaries (often associated with mosques).

These services are complemented by providers operating in the informal sector. There is a long tradition of medical pluralism in Egypt, with consumers making choices about which providers are most appropriate in a given situation. In 1995, the demographic and health survey found that, over the previous 5 years, traditional midwives attended 48.5% of all deliveries, with the figure increasing to 69.0% in rural Upper Egypt [*17*]. There have been few in-depth studies of the informal health sector in rural Egypt; there was 1 study of informal providers in a delta village in 1980 [*18*] and a more recent one on urban women [*19*].

Methods

The research site

This study was carried out between 1996 and 2001 in 2 villages: village A in Menoufia governorate in the Nile delta (Lower Egypt) with a population of just under 20 000, and village B in Assiut governorate in southern Egypt (Upper Egypt) with a population of approximately 11 000. To select villages in these 2 areas was seen as appropriate as the prevalence of HCV has been found to be lower in Upper Egypt than in Lower Egypt [*3,11,13*]. Each study village has a rural health unit and private facilities such as individual private practices, private clinics and pharmacies. In village A, there is a dispensary supported by the local mosque. Overall, there are more private facilities in village A and people reported a greater use of private facilities than in village B. There are 2 private dentists in village A, and 4 private doctors specializing in obstetrics and gynaecology.

Data collection

This study was an exploratory, pilot study to identify villagers' reasons for using informal providers, and the various roles and activities of those providers. It focuses on meaning and process using qualitative methodologies. Research methods included focus group discussions with villagers, key informant interviews, interviews with providers, and observation of practices.

We conducted a number of focus group discussions to learn about villagers' reasons for, and use of informal providers, as shown in Table 1. Fewer focus groups were

Table 1 **Interviews and focus group discussions**

Research method	Village A[a]	Village B[a]
Focus group discussions		
Women	1	2
Men	1	2
Youth	–	1
In-depth interviews		
Dayas	4	4
"Health barbers"	4	2
Barbers (with shops)	3	–
Trained "injectionists"	–	2
Pharmacy assistants	1	–
Trained nurses	10	–

[a]***Village A was in the delta; village B was in Upper Egypt.***

conducted in village A, as only 2 *dayas* were practising in the informal sector; other providers offering services to the community also worked at the health centre in the mornings. Thus, we could observe their behaviour in the health centres, and conduct informal interviews with patients about practices outside the health centre.

Focus group discussions were appropriate to identify norms, accepted ideas and practices that could be openly discussed. Groups ranged in size from 7 to 10, and were held in appropriate venues—in private homes and rooms in the health centre for women, and in a room in the mosque for men.

We conducted in-depth interviews of health providers, as they could more freely express themselves and explain what they did and why in a private setting. In both villages we obtained the names of informal providers from staff at the rural health units. We identified those whose practices appeared most likely to lead to the transmission of bloodborne pathogens. These included the traditional midwives (*daya*), male "health barbers" (who provided simple first aid and wound care) and trained "injectionists" who worked on their own in village B; barbers with their own shops; and a pharmacy assistant in village A. In village A we also interviewed trained nurses, who we found were knowledgeable about informal practitioners, especially the many "injectionists". They also provided services such as injections to neighbours on an informal basis. All these categories of informal providers are widely known throughout rural and urban Egypt.

Researchers observed practitioners giving injections wherever this was feasible without causing embarrassment to the provider. The type of injection and sterilization equipment could often be noted during visits to providers. Observations provided information on what the informal providers actually do, rather than what they say they do. This information was checked against findings from focus group discussions and in-depth interviews. This practice of triangulation, cross-checking information for reliability, was used throughout the project. In addition to indicating possible inconsistencies, it suggested issues that needed to be pursued in greater depth in other interviews. We obtained informed consent from all participants.

Results

Why villagers use informal providers

Villagers reported that they continued to visit informal providers mainly because they are accessible, day and night. The most widely respected providers had been practising in the villages for 30 years or more, and were valued for their experience. Informal sector providers, some of whom had facilities in their own homes for treating patients, charged far less than private doctors, and would often accept whatever a patient could afford to pay. The following comments indicate people's trust in informal providers, and the way they compare them to formal sector providers.

> *The doctor cannot compete with him, and does not have his experience.*

> *Even if I lived next door to a doctor, and he was a professor, I would still go to Hatim for treatment.*

> *Muhammad is very clever at circumcising boys; all those who work in the health unit have their children circumcised by him.*

Villagers considered that the older men and women who served as informal health

providers were more knowledgeable and performed better in some areas than doctors in private or government health centres. They stated that doctors assigned to rural health units were often young and recently qualified. Villagers still had a great respect for age and experience.

Activities of informal providers

Daya attend births in the mothers' homes. They attend only for the birth, rarely, if ever, providing any pre- or postnatal care. They refer mothers to doctors or the health centre when there are complications and also encourage them to take their babies for vaccinations and to register the birth. Even educated mothers use a midwife. According to one man in village B, "I and my wife both work at the health unit but all of our children were delivered by the midwife."

Female genital mutilation is performed predominantly by *daya*, but also by male practitioners. Male providers and doctors perform circumcision on boys, which is universally practised.

According to the villagers in village B, the most respected male provider prescribes medicine for fever, stomachache, rheumatic pains and children's diarrhoea. He also treats wounds and abscesses and changes bandages after operations. Villagers say they prefer to go to him when their sons are circumcised as there are no complications and little blood. People prefer him as he lives in the village and is available at any time; he comes to their homes if they need him. He had a small office where he carried out routine procedures, except for circumcision, which was carried out in the child's house. He inspires confidence; villagers say he is clean and "his hand is light and we do not feel pain." Villagers also go to him for tooth trouble and pulling out teeth "he is even better than the dentist in Assiut."

There was no dental clinic at the rural health unit in village B and male providers in this village carried out more dental treatment than those in village A. Only 1 of the 4 busiest male providers in village A pulled teeth and treated gums. Although there was a dental clinic twice a week at the health centre, villagers preferred to go to private providers.

In addition to male providers and *daya*, in both villages there were many "injectionists" who would go to villagers' homes to give injections. They usually did not charge for the service but expected small services in return. In village B there were about 15 men and a few women doing this service; in village A there were far more, 1 or 2 on nearly every street. All practitioners used disposable syringes. However, often they do not have any regular way of disposing of used syringes. These "injectionists" are usually educated to secondary-school level, and were taught how to give injections during training for their regular work in health centres or as first-aid assistants. Some had trained family members to give regular injections to people in their family who had diabetes. Injections given included antibiotics, vitamins and painkillers.

Nurses at the clinics also gave therapeutic injections to villagers in their own homes on an informal basis. We had previously interviewed nurses in the 2 villages who worked at the local health centres and found that few of them were aware that needles and syringes could transmit disease [*15*]. In that project we had given priority to improving the knowledge and practices of health providers in the health units. We noticed that the clinic staff had become more aware and knowledgeable about the danger of unsafe practices and the transmission of bloodborne diseases. However, owing to time restrictions, we were not able

to observe if this resulted in any change in behaviour outside the confines of the health units. In that setting, nurses, even if trained, were operating in the informal sector in the sense that they were no longer constrained by ministry regulations and had to take account of the expectations of their neighbours, and their limited finances. One nurse said, "I cannot force women to buy a new syringe each time, since they are costly." Another said, "I have to attend to the patients in my neighbourhood at the lowest cost to them; all I can do is wash the instruments before use." Most villagers seeking injections from the nurses or other providers purchase new disposable needles from the pharmacy or keep needles for their own use at home. We were also informed that in the many pharmacies in village A, all medications to be given by injection were sold together with the required number of disposable syringes.

If they were feeling unwell, villagers were likely to visit a pharmacy before they saw a doctor. Thus, the pharmacy assistants who interact directly with the public provide advice as well as selling a wide range of drugs. Although they have received no formal training, they also provide treatment, especially injections and, to a lesser extent, wound care. In both villages pharmacy assistants had been taught on an informal basis how to give both intravenous and intramuscular injections. They could also set up a drip in a patient's home, if it had been requested by a doctor.

The 3 barbers in village A, all operating in shops, trimmed their patrons' hair but did not generally shave them. In contrast, most men in village B had their beards shaved by barbers. Rather than being based in shops, the barbers went to clients' houses or shaved them on the street. They shaved an average of 10 men a day. Some used an old-fashioned razor with a fixed blade, which they washed after each use in soap and water or a disinfectant solution. Some barbers in this village, and all the barbers in village A, used a modern razor with a detachable blade. The usual practice was to break a razor in half and use half for each client. The holders may have been cleaned between clients. None of the barbers had established a safe way to dispose of used razors. They were not aware that blood could be a source of transmission of disease.

How skills had been learnt

In the past, nearly all informal providers learned their skills through an apprentice system, from a parent or close relative, and drew on a body of knowledge and practice which was almost entirely separate from the formal sector [*18,19*]. Today, the relationship between the 2 sectors is changing. In the 2 study villages, some providers worked at the local health centre or a private doctor's office and learned by watching procedures or helping the doctors or nurses. For example, in the health centres, custodians could give injections and provide wound care, especially if the doctor was absent or busy.

In village A, 2 of the 4 male providers learned their skills from their fathers. Of the 2 others, who had both completed secondary school, 1 learned his skills by helping the doctor at the health centre. The other had been taught by his father, a male nurse at the hospital, and he helped his brother, a pharmacist in the village, and gave injections at the pharmacy. He had taught 2 young women who worked at the pharmacy to give injections. These 4 male providers had all been practising in the village for more than 15 years. In village B, 2 of the 3 male providers learned their skills by practising what they observed while working at their main jobs, as assistants to a doctor in a private clinic.

All the *daya* interviewed learned their skills from their mothers, except for one who was a nurse in village B and had learned from working in the health unit. In village A, the most popular *daya*, who had been practising for 35 years, claimed that she had not passed her skills on to a daughter or anyone else.

Practices of informal providers related to infection control

The most respected midwife in village A, who had been practising over 35 years, said that she never wore gloves as they bothered her. She washed her hands with antiseptic after examining a woman and after delivery. She used scissors cleaned with alcohol for cutting the cord, and tied it with unsterilized thread; sometimes, however, she used a razor. Most of the deliveries took place on the floor, on a plastic sheet covered by a clean cotton sheet. Although she had no formal contacts with the local health unit, she referred difficult cases to the doctor in the village or to the health unit.

The other midwife in the village, who had been practising for only 6 years, was less busy. She did not wear gloves but usually washed her hands with soap and water before and after delivery. Both midwives kept their instruments in a plastic bag, and cleaned them with alcohol before and after delivery. Neither had had any formal training.

The busiest male provider in village A said he followed the same procedures as the doctors in the health unit where he worked. He said that he boiled his instruments. Observations did not support this statement. None of the 4 male providers wore gloves, although they could be purchased from the local pharmacy. Neither did they use any sterilization procedures, or take special care when they disposed of needles and syringes. When queried, they said that they were not aware of the danger of coming into contact with the blood of their patients, or that they themselves might be a source of HCV.

Changing practices

In village A, where the level of general education was higher, the number of villagers going to the pharmacist to obtain their injections had increased in the previous few years. Here, they could receive advice and purchase disposable needles and the drugs they needed. Indeed, male providers in this village claimed that pharmacists (and medical students) were poaching their patients. Overall, in proportion to the size of the village, there were far fewer informal health care workers in village A than in village B.

As a result of the interventions of the research team, which raised awareness about HCV in the 2 villages, rural health unit staff became concerned to improve their practices. There was some evidence for improvement in practices by informal providers who also worked in the formal sector, most markedly on the part of a male practitioner who had learned through the project that he was HCV positive. Rather than providing syringes for their patients, some providers were asking patients to buy their own from pharmacies. However, there was also evidence that formal sector practitioners did not carry over what they had learned in the formal health care setting: it sometimes seemed as if they kept the 2 kinds of practices completely separate.

Discussion

The complementary roles of formal and informal providers

The reports from the questionnaires in the 2 communities where the Hepatitis C Prevention Project carried out its epidemiological study noted that villagers reported that they

frequently visit informal providers for a wide range of procedures [*9,20*]. Our own in-depth study suggested that these surveys underestimated the use of such providers.

In the 2 study villages, it was clear that villagers continued to use informal health care providers, who play an important complementary role to the formal sector providers. Formal sector providers did not see those in the informal sector as in competition with them; as we have seen, some providers operated in both sectors. Staff at the rural health units were the people in the village setting who were best able to introduce informal providers to members of the research team. All providers could be seen as part of the overall system of health provision in the community.

It was sometimes difficult to distinguish between the 2 sectors, for example, when nurses trained "injectionists" and acted as sources of information for informal practitioners. The role of pharmacists and medical students seemed to be somewhere in the middle of the formal/informal continuum. Many informal providers in the 2 villages were employed in the formal health care system. In addition to using the knowledge they had acquired there in informal sector activities, they were able to provide a conduit between villagers and formal sector care. For example, providers sometimes referred patients to doctors or government health centres, and provided injections and dressed wounds for complaints seen in the health centres.

In choosing a provider, villagers considered a wide range of factors, including the type of illness, quality of care, convenience, accessibility and cost. They made a conscious choice about who to turn to for medical consultation, drawing on their own experience and that of female relatives and friends. Informal providers were consulted especially for circumcision, dressing of wounds, extraction of teeth, ear piercing and, in the case of *daya*, for delivery. They were also consulted for their opinion about which doctor to see or what medication they needed for a major illness. Villagers compared the informal providers favourably to private doctors in terms of fees charged and more flexible arrangements for payment. In their turn, the informal providers were well aware of their limitations, and they are consulted for a limited range of procedures in which they were confident of their expertise.

Training for informal sector health providers

While our study could not assess the relative importance of various unsafe practices in the transmission of HCV, we identified some practices that could be improved, mainly the unsafe use of needles and other instruments such as those used in dentistry and barbering. There is also likely to be a risk when informal providers perform circumcision and female genital mutilation. The move to eradicate the latter practice may drive parents to informal providers. The custom is long established in Egypt, and it will take time to persuade parents to cease requiring this procedure for their daughters [*20,21*].

The demand for training material for government health providers will increase as awareness of HCV as a health problem grows in Egypt, and as the Ministry of Health and Population infection programme begins to have an impact. As many of these providers also operate in the informal sector, such training and educational materials will have benefits that extend beyond the bounds of the formal system. Some staff working in both sectors, however, may not apply what they have learned in the formal sector to their informal sector work. Therefore, it will also be necessary to do some provider

training in the village setting, outside the health facilities.

Other programmes are also required specifically for providers, such as *daya*, in the informal sector who are mainly outside the range of the formal system.

The linkages between the formal and informal sector that have developed over the past few years provide an opportunity for training, outreach, collaboration and supervision for informal sector providers. These linkages could enable informal sector providers to become part of an integrated health promotion programme to prevent HCV transmission. Most informal providers in the 2 study villages expressed a willingness to improve their practices and attend training. As the informal providers are widely used and trusted by the local people, they should be mobilized in the effort to prevent the transmission of HCV in Egypt.

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